

**INVESTIGATION OF FACTORS IMPACTING SEXUAL AND  
REPRODUCTIVE HEALTH LITERACY AND ACCESS TO  
SERVICES AMONG YOUNG ROHINGYA REFUGEE  
WOMEN IN BANGLADESH**

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(Bachelor of Social Science, Master of Social Science, Master of Public Health)

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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## STATEMENT OF ORIGINALITY

This is to certify that the content of this thesis is my own work. This thesis has not been submitted for any degree or other purpose at any institution. To the best of my knowledge, all intellectual content, ideas, data, and analyses presented here are my original work. All the assistance received in preparing this thesis, including collaboration and sources, has been acknowledged.

Muhammad Anwar Hossain

## EXECUTIVE SUMMARY

### **Background and objectives**

The Rohingya refugee crisis represents one of the most severe humanitarian emergencies of the past decade. Since August 2017, more than 1,005,520 stateless Rohingya, 52% of them women and girls, have fled state-sponsored violence in Myanmar to overcrowded camps in Cox's Bazar, Bangladesh. As of 2025, eight years later and with no safe repatriation in sight, this population faces ongoing challenges characterised by fragmented health services, limited sexual and reproductive health (SRH) care, and widespread gender-based violence. Young Rohingya women aged 15-24 years are especially at risk of adverse SRH outcomes due to early marriage, high fertility, short inter-pregnancy intervals, and gendered power imbalances that limit their autonomy. Despite growing focus on the SRH needs of this group, research on family planning (FP), contraception, and HIV/STI services remains limited. Most studies are descriptive, rarely representative and always focused on the entire population of reproductive age, offering little insight into the sociocultural and structural factors shaping SRH outcomes for adolescents and young women. To address these gaps, this doctoral research undertook a comprehensive mixed-methods approach focusing on Rohingya refugee women aged 15-24. It investigated their SRH literacy and the sociocultural and structural barriers and facilitators of their access to and use of SRH services within the refugee setting of Cox's Bazar, Bangladesh.

### **Method and materials**

This study employed a mixed-methods design. It began with a systematic review of peer-reviewed literature (2017-2023) to synthesise existing knowledge on Rohingya women's SRH literacy, status, needs, barriers, and interventions. This was followed by a cross-sectional survey in March and April 2023 among 686 Rohingya women aged 15-24 years, selected through multistage random sampling across eight refugee camps. Data were collected via interviewer-administered structured questionnaires. The survey captured sociodemographic characteristics, FP and HIV/STI knowledge, contraception use, service utilisation, and gender-power dynamics. Quantitative data were analysed using descriptive statistics and multivariable logistic regression to identify factors associated with current contraception use and HIV/STI awareness and testing.

In parallel, a qualitative component, using a phenomenological design, explored sociocultural, religious, community, and structural influences on SRH. Purposive sampling identified 40 participants for in-depth interviews (IDIs) and five focus group discussions (FGDs), including

young women, men, community leaders, and healthcare providers. Interviews were thematically analysed using Braun and Clarke's six-step framework, using the socio-ecological lens. Quantitative and qualitative data were analysed separately and then integrated through triangulation using an intersectional socio-ecological framework to interpret the findings. Throughout planning, data collection, and analysis, we followed trauma-informed, gender-sensitive, and culturally respectful protocols. Ethical approval was obtained from the Bangladesh Medical Research Council, and all participants provided written informed consent prior to participation.

## Results

The study revealed several key findings related to FP and HIV/STIs. For FP awareness and use, among 541 married Rohingya women aged 15-24 years, 84.7% reported general awareness of FP methods, but only 27.0% could name a specific contraceptive. Current contraceptive prevalence was 44.9%, while 37.6% of women desiring to avoid pregnancy were not using any method. Decision-making remained predominantly patriarchal, with most women reporting their husbands as the sole decision-makers. In multivariable analysis, older age, husband's education, exposure to FP information (AOR 1.74; 95% CI 1.06–2.87), recent fieldworker visits (AOR 2.00; 95% CI 1.31–3.04), awareness of FP centres (AOR 5.18; 95% CI 2.30–11.67), ever refusing sex, and a desire to stop childbearing were each positively associated with contraception use, whereas husband-controlled decision-making was associated with a halved likelihood of contraception use (AOR 0.46; 95% CI 0.30–0.73).

HIV/STI knowledge and service uptake were even more limited. Among 686 participants, only 12.4 % had heard of HIV, and 9.2 % of STIs; knowledge of transmission routes and symptoms was very limited. Testing uptake was very low, 2.6 % had ever tested for HIV and 2.5 % for STIs. Literacy (AOR 3.5; 95 % CI 2.1–5.8), employment outside the home (AOR 2.6; 95 % CI 1.1–6.0), and recent fieldworker visits (AOR 2.4; 95 % CI 1.2–4.7) were each significantly associated with HIV/STI awareness, which in turn strongly associated with testing uptake (AOR 24.8; 95 % CI 7.7–79.5).

Qualitative findings revealed that multi-level barriers across intrapersonal, interpersonal, community, and structural domains undermined young women's SRH outcomes. Intrapersonally, young Rohingya refugee women had low SRH literacy, especially about HIV/STIs, and reported limited use of contraception, affected by myths (like contraceptives causing infertility) and shame that reinforced stigma. Interpersonally, women's reproductive

autonomy was constrained by patriarchal family dynamics, where husbands or in-laws controlled decisions, and spousal communication was poor. Peer networks spread both support and misinformation. Community norms, enforced by local leaders, stigmatised open discussions of FP/HIV/STIs, discouraging service use. Structural barriers included restrictive policies (e.g., bans on onsite HIV testing), poor STI services, understaffed clinics lacking youth-friendly care and privacy, distrust of external providers, and statelessness that denied legal health rights, all of which limited access to comprehensive SRH care. This study also identified community-driven facilitators that could improve service uptake. Trusted female health workers, supportive messages from religious leaders, confidential youth-friendly spaces, and peer networks emerged as culturally resonant entry points to improve SRH uptake.

## **Conclusion**

While most young married Rohingya women were aware of FP, contraception use remained low and strongly influenced by patriarchal decision-making, with structural and cultural barriers limiting access to services. HIV/STI knowledge and testing were extremely limited, but literacy, employment, and fieldworker engagement were associated with better awareness and higher service uptake. Building on these findings, this research proposes a multi-tiered framework of interventions to improve SRH among young Rohingya refugee women, combining personal-level strategies like peer-led education, stigma reduction, and empowerment with family-focused communication workshops. At the community level, it emphasises engaging trusted leaders and female health workers to shift norms, while structurally advocating for policy changes such as lifting HIV testing bans in the camps, integrating comprehensive STI services, and upgrading clinics to ensure privacy and youth-friendliness, and co-designing programmes with Rohingya women themselves. Sustained policy support and funding are essential to make these changes last. Overall, this study fills a critical knowledge gap and provides novel evidence on the complex interplay of factors influencing young refugee women's SRH, which can inform contextually tailored strategies to strengthen health services in humanitarian settings.

## AUTHORSHIP ATTRIBUTION STATEMENT

I am the principal author of this thesis, having carried out the research under the guidance of Associate Professor Iryna Zablotska-Manos and Associate Professor Shailendra Sawleshwarkar. The publications listed below, produced during my candidature, form the empirical foundation of this work. In each manuscript and its corresponding thesis chapter, I took primary responsibility for the study design, data collection, and the analysis and interpretation of the results. I led the drafting of every paper, critically revised each one for its core intellectual content, and appeared as the first author on all publications arising from this thesis. All co-authors have been duly credited, and their individual contributions are detailed within the published articles.

### Peer-reviewed publications

#### Chapter 2: Literature Review

1. **Hossain MA**, Sawleshwarkar S, Zablotska-Manos I. (2023) Sexual and Reproductive Health of Rohingya Refugee People in Bangladesh: A Systematic Review Protocol. *Women, Midwives and Midwifery*. 3(3):36-44. <https://doi.org/10.36749/wmm.3.3.36-44.2023>. (Published)
2. **Hossain MA**, Sawleshwarkar S, Zablotska-Manos I. (2025). Sexual and Reproductive Health of Rohingya Refugees in Bangladesh: A Systematic Review. *Women, Midwives and Midwifery*. 5(2):1-24. <https://doi.org/10.36749/wmm.5.2.1-24.2025>. (Published)

#### Chapter 4: Family Planning Literacy and Use (Quantitative research component)

3. **Hossain MA**, Zablotska-Manos I. (2026). Family Planning Awareness and Contraception Use among Young Rohingya Refugee Women: A Representative Cross-sectional Study in Cox's Bazar, Bangladesh. *Women's Health*. 22. doi:10.1177/17455057261416251. (Published)

#### Chapter 5: Qualitative Exploration of Barriers and Facilitators to Family Planning

4. **Hossain MA**, Sawleshwarkar S, Zablotska-Manos I. (2025). Facilitators and Barriers to Family Planning Services: Perspectives of Young Rohingya Women, Men, Community Leaders, and Healthcare Providers in Cox's Bazar, Bangladesh. *Health Care for Women International*. Routledge. (Under review with Health Care for Women International, decision pending)

## Chapter 6: HIV/STI Literacy and Testing (Quantitative research component)

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## Chapter 7: Qualitative Exploration of Barriers and Facilitators to HIV/STI

6. **Hossain MA**, Sawleshwarkar S, Zablotska-Manos I. (2025). “They’ll Think You’re Infected”: Perceived Barriers and Facilitators of HIV/STI Awareness and Testing Among Young Rohingya Refugee Women in Bangladesh. *Sexual Health*, 22(6), SH25143. <https://doi.org/10.1071/SH25143>. (Published)

## Presentations

1. **Hossain, M. A., & Zablotska-Manos, I.** (2024). Awareness about and use of family planning in young Rohingya refugee women in Bangladesh. *Sexual Health*. Organised by the 25th IUSTI World Congress, Incorporating the Australasian Sexual and Reproductive Health Conference at the International Convention Centre, Sydney, Australia. 17-20 September 2024. <https://dx.doi.org/10.1071/shv21n4abs>
2. **Hossain, M. A.** (2024). Sexual and reproductive Health Literacy and access to Services among Young Rohingya Refugee Women in Bangladesh. Postgraduate Program in Sexual and Reproductive Health at Western Sydney Sexual Health Centre, University of Sydney, Australia.
3. **Hossain, M. A.** (2023). Sexual and Reproductive Health of Rohingya Refugees in Bangladesh: A Systematic Review. Sexual Health Centre Journal Club, Western Sydney Sexual Health Centre, Sydney, Australia.
4. **Hossain, M. A.** (2022). Investigation of factors impacting sexual and reproductive health literacy and access to services among young Rohingya refugee women in Bangladesh, Faculty of Medicine and Health HDR Conference, University of Sydney, Australia.

## **SUPERVISOR STATEMENT**

As primary supervisor for the candidature, I confirm that the authorship attribution statement above is correct. I also certify that the thesis entitled “Investigation of Factors Impacting Sexual and Reproductive Health Literacy and Access to Services among Young Rohingya Refugee Women in Bangladesh,” submitted by Muhammad Anwar Hossain in fulfillment of the requirements for the degree of Doctor of Philosophy, is ready for examination.

Associate Professor Iryna Zablotska-Manos, MPH, MD, PhD

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Note: I have used Grammarly and Copilot to proofread this document.

## LIST OF ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
AOR	Adjusted odds ratio
BMRC	Bangladesh Medical Research Council
CI	Confidence interval
COVID-19	Coronavirus disease 2019
FCHW(s)	Female community health worker(s)
FGD(s)	Focus group discussion(s)
FP	Family Planning
GBV	Gender-based violence
HCI	Health Communication Interventions
HIV/AIDS	Human immunodeficiency virus, acquired immunodeficiency syndrome
IAWG	Inter-Agency Working Group on Reproductive Health in Crises
IDI(s).	In-depth interview(s)
IPV	Intimate Partner Violence
IRB	Institutional Review Board
ISEF	Intersectional Socio-Ecological Framework
IUD(s)	Intrauterine device(s)
KAP	Knowledge, Attitudes, and Practice
KII	Key informant interviews
LMIC(s)	Low and middle income countrie(s)
MAJHI	Community leader
MISP	Minimum Initial Service Package
MMR	Maternal Mortality Ratio
MPEHS	Minimum Package of Essential Health Services
MR	Menstrual Regulation
MSF	Médecins Sans Frontières
NCD(s)	Non-Communicable Disease(s)
NGO(s)	Non-governmental organisation(s)
NIPORT	National Institute of Population Research and Training
OR	Odds ratio
PAC	Post-Abortion Care
PEP	Post-Exposure Prophylaxis

PHC(s)	Primary Health Centres
PI	Principal Investigator
PrEP	Pre-Exposure Prophylaxis
PRISMA	Preferred Reporting Items for Systematic Review
PROSPERO	International Prospective Register of Systematic Reviews
PTSD	Post-traumatic stress disorder
REDCap	Research Electronic Data Capture
RH	Reproductive health
RRRC	Refugee Relief and Repatriation Commissioner (Bangladesh)
SD	Standard deviation
SDG(s)	Sustainable Development Goal(s)
SEM	Socio-Ecological Model
SRH	Sexual and reproductive health
STI(s)	Sexually transmitted infection(s)
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
TB	Tuberculosis
UN	United Nations
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, sanitation and hygiene
WB	World Bank
WFS	Women Friendly Space(s)
WHO	World Health Organisation
WHO	World Health Organisation
WRC	Women's Refugee Commission
YW	Young Women

## GLOSSARY OF TERMS

**Agency:** The capacity of young Rohingya women to act independently and make their own free choices regarding their bodies and health is often constrained by structural and patriarchal factors.

**Braun and Clarke's Thematic Analysis:** A method for identifying, analysing, and reporting patterns (themes) within qualitative data. This study utilises their six-phase approach for rigorous data interpretation.

**Community-Led Health Promotion:** An approach to public health intervention that shifts from top-down service delivery to empowering refugee community members (such as peer leaders or "Stealth Networks") to design and lead SRH awareness campaigns.

**Contraceptive Cascade:** A public health framework used to identify and map gaps in reproductive health services by tracing the journey from an individual's need for contraception to its successful and sustained use.

**Culturally Responsive Care:** Healthcare delivery that acknowledges and incorporates the specific religious, linguistic, and social norms of the Rohingya community to reduce stigma and increase service uptake.

**Currently Married Women:** In the cultural context of the Rohingya camps, reproductive health and contraceptive studies often focus on married individuals due to the social sensitivity and strict prohibition of pre-marital sexual activity.

**Family Planning (FP):** The practice of controlling the number of children in a family and the intervals between their births, particularly by means of modern contraception.

**Forcibly Displaced Myanmar Nationals (FDMN):** The official designation used by the Government of Bangladesh for Rohingya refugees, which carries specific legal implications for their rights and access to services.

**Gender-Power Dynamics:** The social structures and interactions that dictate how power is distributed between men and women within the household, directly impacting a woman's autonomy in seeking healthcare.

**HIV/STI Literacy:** A specific subset of SRH literacy focusing on the knowledge of transmission routes, prevention methods (such as consistent condom use), and the availability of voluntary counselling and testing services.

**Humanitarian Setting:** A situation where an event or series of events has resulted in a critical threat to the health, safety, security, or well-being of a community, typically exceeding their capacity to cope and requiring external intervention.

**Intersectional Socio-Ecological Framework (ISEF):** An integrated model developed for this thesis that combines intersectionality with the Socio-Ecological Model to explore the layered determinants of health across intrapersonal, interpersonal, community, and structural levels.

**Intersectionality:** A theoretical framework used to understand how overlapping social identities, such as gender, age, statelessness, and marital status, collectively construct unique experiences of vulnerability and marginalisation.

**Madrassa:** An Islamic religious school. In the context of this study, these institutions significantly influence the moral and socio-cultural frameworks of young Rohingya women.

**Majhi:** A traditional community leader within the Rohingya refugee camps who often serves as a gatekeeper for information and access to households.

**Minimum Initial Service Package (MISP):** A set of priority, lifesaving SRH activities designed to be implemented at the onset of a humanitarian emergency.

**Mixed-Methods Design:** A research approach that integrates both quantitative data (surveys) and qualitative data (interviews and FGDs) to provide a more comprehensive understanding of a research problem.

**Modern Contraceptive Methods:** Specifically refers to high-efficacy, scientifically validated methods available in the camps, including oral contraceptive pills (OCP), injectables (Depo-Provera), emergency contraceptive pills (ECP), and condoms.

**Mollah:** A spiritual healer or religious figure often consulted by community members for advice, sometimes including health and reproductive matters.

**Phenomenological Design:** A qualitative research approach used to explore and describe the "lived experiences" and perspectives of participants regarding a specific phenomenon.

**Post-Conflict/Post-Emergency Phase:** In the context of this thesis, it refers to the "protracted" stage of the Rohingya crisis where the initial acute emergency has passed, yet long-term solutions remain absent, shifting the focus from emergency aid to sustained service delivery.

**Protracted Displacement:** A situation where refugees have been in exile for five years or more after the initial emergency phase, and where there are no immediate prospects for a durable solution (like repatriation).

**Purdah:** A religious and social practice of female seclusion involving the physical segregation of sexes and the use of concealing clothing.

**Reflexivity:** The process of a researcher engaging in self-critique and self-appraisal to understand how their own biases and presence might affect the research participants and findings.

**Sexual and Reproductive Health (SRH) Literacy:** The ability of individuals to access, understand, appraise, and apply SRH information and services to make informed health decisions.

**Shanti Khana:** "Women Friendly Spaces" (WFS) in the camps that provide clinical management for GBV and safe environments for women to seek SRH support.

**Socio-Ecological Model (SEM):** A multi-level framework used to study the interrelated factors that influence health outcomes, ranging from individual characteristics to broad public policies.

**Spousal Communication:** The verbal and non-verbal exchange between husband and wife regarding family size and the use of birth control, identified as a primary determinant of contraceptive uptake.

**Statelessness:** The legal status of an individual who is not considered a national by any state. This status is a fundamental driver of vulnerability for the Rohingya people.

**Stealth Networks:** Informal, peer-based communication channels (often among young women or through trusted female relatives) used to share SRH information or distribute contraceptive pills away from the surveillance of male family members or community elders.

**Stigma (Social & Religious):** The perceived or actual social disapproval associated with seeking SRH services, often rooted in the fear of being labelled as "promiscuous" or acting against religious "will of God".

**Syndromic Management:** A World Health Organisation-recommended approach used in resource-limited settings like the Cox's Bazar camps, where STIs are diagnosed and treated based on a group of clinical symptoms rather than laboratory confirmation.

**Triangulation:** The use of multiple methods, data sources, or observers to verify findings and increase the validity and credibility of the research results.

**Unmet Need for Family Planning:** A condition where a woman is fecund and sexually active but is not using any method of contraception despite reporting a desire to delay or limit childbearing.

**Vulnerability:** In this thesis, it is not viewed as an inherent trait of the Rohingya but as a condition produced by the intersection of statelessness, gendered norms, and the humanitarian environment.

# CONTENTS

STATEMENT OF ORIGINALITY .....	i
EXECUTIVE SUMMARY .....	ii
AUTHORSHIP ATTRIBUTION STATEMENT.....	v
SUPERVISOR STATEMENT .....	vii
ACKNOWLEDGEMENTS .....	viii
LIST OF ABBREVIATIONS .....	ix
GLOSSARY OF TERMS.....	xi
LIST OF TABLES .....	xviii
LIST OF FIGURES .....	xix
FOREWORD.....	xx
<b>CHAPTER 1: INTRODUCTION AND BACKGROUND .....</b>	<b>21</b>
1.1 Overview .....	21
1.2 Background: Global SRH in humanitarian settings .....	21
1.3 SRH of Refugees in LMICs: Key issues.....	23
1.3.1 Family planning.....	23
1.3.2 STIs and HIV .....	25
1.3.3 Access to SRH services .....	27
1.4 Young refugees and their SRH.....	29
1.5 Focus on Rohingya refugees in Bangladesh.....	31
1.5.1 Country profile: Bangladesh.....	31
1.5.2 Historical background of the Rohingya crisis.....	32
1.5.3 Current health status of Rohingya .....	33
1.5.4 Sexual and reproductive health of Rohingya women.....	34
1.5.5 Focus on young Rohingya women: Why it matters.....	39
1.5.6 SRH education and health services provided in camps.....	41
1.6 Current research gaps in family planning and HIV/STIs: rationale for the proposed research .....	43
1.7 Research aims and objectives.....	45
1.8 Significance of the study .....	46
1.9 Thesis structure overview.....	47
1.10 References.....	49
<b>CHAPTER 2: LITERATURE REVIEW.....</b>	<b>68</b>
<b>2.1 SYSTEMATIC REVIEW PROTOCOL .....</b>	<b>68</b>
2.1.1 Abstract .....	68
2.1.2 Background.....	69

2.1.3 Methods.....	70
2.1.4 Discussion .....	74
2.1.5 Conclusion.....	75
2.1.6 References .....	75
<b>2.2 SYSTEMATIC REVIEW .....</b>	<b>78</b>
2.2.1 Abstract.....	78
2.2.2 Background.....	79
2.2.3 Methods.....	80
2.2.4 Results.....	83
2.2.5 Discussion .....	96
2.2.6 Conclusion.....	100
2.2.7 References .....	101
<b>CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY .....</b>	<b>105</b>
3.1 Overview.....	105
3.2 Theoretical Framework .....	107
3.2.1 Intersectionality .....	108
3.2.2 Socio-Ecological Model.....	109
3.2.3 Integrated Intersectional Socio-Ecological Framework .....	110
3.3 Study setting.....	112
3.4 Study population.....	114
3.5 Part 1: Cross-sectional survey of young women .....	114
3.5.1 Population and sampling.....	114
3.5.2 Data collection.....	116
3.5.3 Data analysis .....	118
3.5.4 Outcome and explanatory variables.....	119
3.6 Part 2: Qualitative exploration of SRH barriers and facilitators .....	120
3.6.1 Population and sampling.....	120
3.6.2 Qualitative data collection.....	122
3.6.3 Qualitative data analysis .....	124
3.7 Data triangulation.....	125
3.8 Challenges of this project.....	126
3.9 Ethical considerations.....	128
3.10 References.....	130
<b>CHAPTER 4: FAMILY PLANNING LITERACY AND USE (QUANTITATIVE RESEARCH COMPONENT).....</b>	<b>137</b>
4.1 Abstract .....	137

4.2 Introduction.....	138
4.3 Methods.....	140
4.4 Results.....	143
4.5 Discussion.....	149
4.6 Conclusion .....	155
4.7 References .....	157
<b>CHAPTER 5: QUALITATIVE EXPLORATION OF BARRIERS AND FACILITATORS TO FAMILY PLANNING .....</b>	<b>163</b>
5.1 Abstract .....	163
5.2 Introduction.....	163
5.3 Materials and methods .....	164
5.4 Results.....	166
5.5 Discussion.....	175
5.6 Conclusion .....	180
5.7 References .....	180
<b>CHAPTER 6: HIV/STI LITERACY AND TESTING (QUANTITATIVE RESEARCH COMPONENT).....</b>	<b>184</b>
6.1 Abstract .....	184
6.2 Introduction.....	185
6.3 Methods and materials .....	186
6.4 Results.....	188
6.5 Discussion.....	194
6.6 Conclusion .....	198
6.7 References .....	200
<b>CHAPTER 7: QUALITATIVE EXPLORATION OF BARRIERS AND FACILITATORS TO HIV/STI .....</b>	<b>203</b>
7.1 Abstract .....	203
7.2 Introduction.....	204
7.3 Methods.....	206
7.4 Result .....	210
7.5 Discussion.....	217
7.6 Conclusion .....	221
7.7 References .....	223
<b>CHAPTER 8: INTEGRATED DISCUSSION .....</b>	<b>230</b>
8.1 Introduction.....	230
8.2 Sexual and reproductive health literacy .....	230
8.2.1 Family planning literacy and contraception use.....	231

8.2.2 HIV/STI literacy and testing.....	235
8.3 Access to SRH services.....	238
8.3.1 Contraceptive services .....	238
8.3.2 HIV/STI services .....	239
8.3.3 Community-driven facilitators .....	241
8.4 Intersectional socioecological interpretation .....	242
8.4.1 Intrapersonal level: knowledge, beliefs, and attitudes .....	243
8.4.2 Interpersonal level: family, partners, and peer influences .....	244
8.4.3 Community level: norms, narratives, and gatekeeping influence .....	246
8.4.4 Structural level: institutional, infrastructural, and policy barriers.....	249
8.4.5 Temporal and displacement dimensions.....	251
8.5 Methodological reflections .....	253
8.5.1 Reflexivity and trauma-informed approaches.....	254
8.5.2 Strengths and limitations.....	256
<b>CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>258</b>
9.1 Summary of key findings .....	258
9.2 Contributions to knowledge and public health.....	261
9.3 Policy and program recommendations .....	262
9.3.1 Short-term recommendations.....	262
9.3.2 Long-term recommendations .....	264
9.4 Future research directions.....	265
9.5 References .....	267
<b>APPENDICES.....</b>	<b>275</b>
APPENDIX A: Participant information and consent forms.....	275
APPENDIX B: Survey instruments .....	283
APPENDIX C: IDI and FGD Guides.....	295

## LIST OF TABLES

Table 1: Inclusion and exclusion criteria .....	72
Table 2: Description and quality assessment of the studies included in the review .....	86
Table 3: Findings regarding SRH status, barriers, and interventions among Rohingya refugees in Bangladesh .....	91
Table 4: Age and gender among Rohingya refugees in Bangladesh .....	114
Table 5: Domains explored in semi-structured interview and FGD guides.....	123
Table 6: Sociodemographic characteristics, FP awareness and contraception use of the sample: married Rohingya refugee women aged 15-24 years (n=541) .....	143
Table 7: Comparison of the sociodemographic and other characteristics of contraception users and nonusers: married Rohingya refugee women aged 15-24 years (n=541) .....	146
Table 8: Factors associated with the use of contraception among Rohingya refugee women aged 15-24 years (n=541) .....	148
Table 9: Socio-demographic characteristics of IDI and FGD participants.....	167
Table 10: Facilitators and barriers to family planning services for young Rohingya refugee women aged 15-24, reported by different groups of participants .....	169
Table 11: Socio-demographic characteristics and HIV/STI awareness and testing among Rohingya refugee women aged 15-24 (n=686) .....	189
Table 12: Determinants of HIV/STI awareness among Rohingya refugees (n=686).....	192
Table 13: Determinants of HIV/STI testing among Rohingya refugees (n=686).....	193
Table 14: Participant demographics.....	210
Table 15: Facilitators and barriers to HIV/STI awareness and testing among Rohingya refugee women (15-24).....	214
Table 16: Integrated summary of key findings and recommendations.....	260

## LIST OF FIGURES

Figure 1: PRISMA flowchart.....	81
Figure 2: Research flow chart.....	107
Figure 3: Integrated Intersectional Socio-Ecological Framework for SRH literacy and access among young Rohingya women .....	112
Figure 4: Map of Rohingya refugee camps in Bangladesh.....	113
Figure 5: Sampling design of the cross-sectional study.....	116
Figure 6: Sampling design of the qualitative study .....	122
Figure 7: Knowledge and misconceptions about HIV among Rohingya refugees (n=686) ..	191

## FOREWORD

This thesis is more than a study; it is the fulfilment of a commitment forged in empathy and urgency. My connection to the issues facing the Rohingya refugees in Bangladesh is not academic—it is profoundly personal.

I come from the same southeastern region of Bangladesh, living near the very settlements that now house hundreds of thousands of displaced people. This gave me the invaluable gift of familiarity with the language and the local context, allowing me to look beyond the headlines and truly see their suffering. Since the devastating mass displacement in 2017, the plight of the Rohingya has resonated with me on a fundamental human level. The sorrow, the resilience, the overwhelming loss—I could not stand idly by. It was then that I made a quiet vow: I would dedicate my efforts to illuminating their struggle and contributing to their welfare.

This vow guided my subsequent journey. Moving to Australia to pursue a Master of Public Health (MPH) at the University of Technology Sydney (UTS), I deliberately focused my research on this crisis, writing my master's thesis on the critical sexual and reproductive health needs of Rohingya and Afghan refugees. This foundational work, along with several published articles on the community's health issues, cemented my resolve.

Now, this PhD represents a long personal journey marked by empathy, persistence, and a commitment to the Rohingya people. Through this work, I hope to shed light on their lived realities and contribute knowledge that can support better health and dignity for this vulnerable community.

# CHAPTER 1: INTRODUCTION AND BACKGROUND

## 1.1 Overview

The sexual and reproductive health (SRH) of refugee populations is a critical issue at the intersection of global public health and human rights (1-3). Universal access to SRH services—including family planning (FP), maternal health care, and prevention of sexually transmitted infections (STIs) — is a fundamental commitment reflected in global frameworks such as Sustainable Development Goal (SDG) target 3.7 (4-6). However, humanitarian crises undermine the progress on the SDGs. At the end of 2024, an estimated 123.2 million people were forcibly displaced worldwide, reflecting a 5% increase from 2023 (7). Nearly nine in ten of the world’s refugees live in low- and middle-income countries (LMICs) (8). At the end of 2023, Asia and the Pacific hosted roughly 15.7 million refugees (primarily from Afghanistan and Myanmar), marking a 10% increase from 2022 (3, 9). Many of these refugees are adolescents and young women, whose SRH needs are often unmet.

The Rohingya, a predominantly Muslim stateless ethnic group from Myanmar, are one of the largest and most persecuted refugee populations globally (10). Bangladesh hosts roughly 1.2 million Rohingya refugees (about 52% of whom are women and girls) (10). Yet, displaced populations - particularly young Rohingya women in Bangladesh - face substantial and multifaceted barriers to accessing SRH services, including statelessness, cultural marginalisation, lack of education and literacy, and disrupted access to health systems (10, 11). These challenges are compounded by early marriage, gender-based violence (GBV), limited SRH literacy, sociocultural taboos, and inadequate youth-responsive services (10-14). Such inequities contribute to poor SRH outcomes and highlight the necessity for context-specific analysis to inform targeted interventions.

The present study is focused on SRH literacy and service access among young Rohingya refugees in Bangladesh, examining knowledge, attitudes, and misconceptions related to FP and HIV (Human immunodeficiency virus)/STIs, and exploring the barriers and facilitators from the perspectives of different stakeholders, including young women, men, community members and healthcare providers.

## 1.2 Background: Global SRH in humanitarian settings

Generally, a refugee is defined by the 1951 Refugee Convention as ‘a person who is either unable or unwilling to return to their country of origin due to a well-founded fear of persecution

on account of race, religion, nationality, or membership in a particular social group' (15). Refugees are 'individuals or groups who have crossed an international border seeking safety in another country after having been displaced from their countries of origin due to war, conflict, violence, or persecution' (15). In many cases, they had only a cloth when they left their homes, and they also had to leave their livestock, jobs, property, and beloved ones behind them. Although refugees are recognised under international law and their rights are protected, in practice, they often face systemic denial of fundamental rights, including access to essential SRH services (11, 16).

Attention to refugees' SRH needs gained prominence in the 1990s. A landmark Lancet editorial highlighted the absence of FP services in emergency settings, and the 1994 International Conference on Population and Development (ICPD) in Cairo established sexual and reproductive health and rights as global priorities (17, 18). In response, the Inter-Agency Working Group (IAWG) on Reproductive Health in Crises was formed in 1995 to coordinate humanitarian SRH efforts (1, 19). In 1999, the IAWG introduced the Minimum Initial Service Package (MISP), a set of priority lifesaving SRH activities to be implemented at the onset of an emergency (1, 19). MISP is designed to accomplish six objectives: (a) identify stakeholders and develop action plans, (b) prevent and manage sexual and GBV, (c) prevent HIV/STI-related morbidity and mortality, (d) prevent maternal and newborn mortality and morbidity, (e) prevent unintended pregnancy, and (f) integrate comprehensive SRH services into primary care (2, 6, 19).

Recent studies and evidence indicate a substantial neglect of refugees' SRH needs. By the end of 2024, humanitarian emergencies had disrupted health systems, affecting over 123 million refugees and displaced individuals across more than 75 countries (20-22). Approximately half of these displaced individuals are women and girls, including 10 million pregnant women, with maternal mortality being a major issue during humanitarian emergencies. Globally, over 500 women die each day from pregnancy or childbirth complications in conflict or fragile settings (23, 24). Conflict-affected countries accounted for 64% of global maternal deaths in 2023 (6, 25). Access to family planning and STI prevention and management is another major challenge. Despite the MISP's inclusion in humanitarian protocols, the majority of the displaced adolescents and youth live without reliable access to contraception or STI prevention (26-28). Conflict settings are strongly associated with increased incidences of GBV, intimate partner violence (IPV), sexual violence, and rape. According to the United Nations Population Fund (UNFPA) (2025), GBV surges by 50% between 2022 and 2023 (20), with 48% of African

refugees experiencing GBV (29), and 90 million displaced people require protection from GBV (20). It is reported that the range of IPV varies from 15% to 71% depending on countries/settings (29, 30), and 21.4% of refugee women experience sexual violence (29, 31). This directly disrupts access to healthcare, including sexual and reproductive health services (20, 26, 32).

However, the implementation of SRH programs often faces many barriers, including a lack of skilled staff, inadequate supplies and the lack of safe facilities, which are often exacerbated by violence and social disruption (6, 33, 34). Displaced women frequently avoid seeking pregnancy or STI care due to stigma, provider discrimination, or restricted autonomy (33). A recent synthesis of qualitative evidence found that women in LMICs humanitarian settings encounter prohibitive costs of services, as well as privacy concerns, language barriers, and cultural hostility when accessing SRH services (33). Emerging research also highlights that humanitarian SRH responses often lack adolescent-specific services, despite adolescents comprising a significant proportion of displaced populations (35-37). While IAWG notes incremental improvements in refugee reproductive healthcare since the 1990s, critical gaps in SRH provision persist globally (38, 39).

### 1.3 SRH of Refugees in LMICs: Key issues

At the end of 2024, some 123 million people were forcibly displaced worldwide, and LMICs hosted 74% of them (20, 40). Refugee and displaced women in LMICs face disproportionately poor SRH outcomes (41). In LMIC settings, refugees often live in overcrowded and impoverished conditions with limited access to healthcare and weak health system coverage (40). Systematic reviews (1, 2, 4, 28, 37, 38, 40-49), along with the WHO health report (2022) (50), and the UNHCR (United Nations High Commissioner for Refugees) public health review (2023) (51), consistently highlight elevated risks of unintended pregnancy, maternal morbidity, and STIs, as well as gaps in SRH coverage, and widespread unmet need for contraception and HIV prevention in refugee settings.

#### 1.3.1 Family planning

Refugee women in LMICs face significant barriers to accessing FP services. The level of FP knowledge, awareness, and use among refugees is much lower than that of the host community, and the fertility rate is higher (37, 52). Modern contraception use among refugee women tends to be lower, varying between 12% and 54%, compared to 60% or higher in host communities, depending on the context and country (40, 48, 53-56). Data from Asian contexts illustrate that

only about half of Rohingya and Afghan refugee women reported using modern contraceptives (10). In Thailand among Cambodian refugees, 82% of married women wished to delay or stop childbearing, yet only 12% used a modern method; fear of side effects was common at 61%, 24% cited lack of information, 42% reported discomfort seeking contraceptives, 32-48% were unaware that methods were available at the camp health centre, and none knew about emergency contraception (57). Among refugees in Congo, 84% had received some information on contraception, but only 35% could name at least two methods, and 31% had ever used contraception; the main reasons for non-use were lack of interest at 62%, lack of knowledge at 21%, and religious opposition at 12% (58). In a six-country (Bangladesh, Djibouti, Jordan, Kenya, Malaysia, Uganda) survey of refugees, 74% had heard of at least one modern method; ever-use was 48% among married women versus 16% among unmarried women, current modern use was 26% among married women versus 3% among unmarried women, and unmet need was 7%, with married women over seven times more likely than unmarried women to report unmet need (59). Contraception use among Palestinian refugees in Jordan varies from 14% to 43% (60).

A study conducted in Uganda in 2023 found that community-level stigma, male partner opposition, and limited access to long-acting reversible contraceptives (LARCs) were key barriers to contraceptive uptake among refugee and rural women (61, 62). A comparative study by Achola et al. (2024) described that FP use among both Ugandan refugees and host communities is mainly driven by limited method choice, side effect concerns, and decision-making dynamics (63). Many refugees have high unmet needs for FP due to both supply gaps and sociocultural norms (2, 40, 48). Structural barriers include inadequate clinic access in camps or host communities, stock-outs of supplies, and a shortage of female providers (40, 48, 63). In Jordan, the 2018 revocation of subsidised healthcare for Syrian refugees outside camps further restricted access to contraceptives and reproductive health services (64).

As a result, fertility rate among refugees is often higher than in the host populations. For example, in 2020, the total fertility rate among Syrian refugees in Jordan was 4.7—nearly double that of Jordanian women, whose rate was 2.6 (64). Unintended pregnancies remain high, and unsafe abortions account for up to 50% of maternal deaths in humanitarian settings, with young and adolescent refugees disproportionately affected (24). In addition, refugee women frequently lack access to antenatal care and often deliver without skilled birth attendants, increasing the risk of obstetric complications as well as maternal and neonatal mortality. Although UNHCR (2022) reported that 93% of deliveries were attended by skilled

birth attendants, this figure hides regional and sub-national disparities and does not address gaps in quality of care, postpartum contraception, or adolescent-specific services (65). For example, only one in five Rohingya women received skilled delivery care (10).

On the sociocultural side, traditional beliefs have a significant impact on FP. A study of Rohingya refugee women conducted in 2022 found that over 60% mistakenly believed sterilisation causes harm, about two-thirds said no FP should be used without the husband's permission, and 58% felt couples should keep having children until a son is born (10, 14). Forty percent of women were ashamed to discuss contraception with their husbands (10, 11, 14, 66). Similar challenges were identified among Syrian refugee women in Jordan and Lebanon, where contraceptive uptake remains constrained by gender dynamics, socio-cultural beliefs, religious barriers, and limited male involvement in FP decisions (67, 68). In Pakistan, Afghan refugee women reported that cultural taboos and male-dominated decision-making severely limited their ability to access or even discuss contraception (53, 69). In Africa, low use of modern contraceptive methods was linked to persistent misconceptions, low health literacy, gender-based power imbalances, and logistical barriers (48, 54, 55, 66, 70). Overall, refugee women demonstrate low levels of comprehensive FP knowledge, attitudes, and practices related to FP, and contraceptive prevalence among these populations remains far below the global standard (10, 11, 14).

### 1.3.2 STIs and HIV

Refugee women in LMICs are also vulnerable to STIs, including HIV, but prevention, treatment and care services are often scarce. Studies reported that HIV/STI knowledge, literacy, prevalence, and testing uptake remain uneven across LMICs refugee settings, such as Bangladesh, Lebanon, Uganda, Somalia, and Ethiopia (36, 71-73). A systematic review conducted by Mumtaz et al. in 2019 reported that the global pooled prevalence of STIs among refugees and internally displaced people, with syphilis at 1.6%, gonorrhoea at 0.6%, chlamydia at 0.6%, and trichomoniasis at 29.3% (74). The review identified substantial heterogeneity in prevalence estimates and highlighted inadequate surveillance systems for STIs in refugee camps across LMICs. Conflict-affected contexts in sub-Saharan Africa show wide HIV prevalence ranges, with increased risks associated with sexual violence, disrupted services, and mobility; estimates differ across settings and over time and should be interpreted cautiously. A systematic review by Mishra et al. (2021) reported HIV prevalence among conflict-affected populations from 2005 to 2020 and found that the estimated HIV prevalence in Uganda (6.2-12.8%), Somalia (1.4%), Chad (11.1%), Sudan (3%), DRC (7.6%), and Tanzania (3.2%) (75).

A systematic review by Logie et al. (2024) recorded up to 62% HIV/STIs testing in some refugee settings, with variation by gender and population (40). Forced displacement tends to uproot basic health access and expose women to conditions such as overcrowding, poverty, gender-based violence, sexual violence and transactional sex that increase susceptibility to STIs and HIV (76).

A systematic review by Hossain et al reported in 2022 that about 72% of Rohingya and 80% of Afghan refugee women in Asia had experienced gender-based violence (10). Among these, 72% of Syrian and 56.5% of Rohingya refugee women reported sexual violence (10, 11, 14, 64). In African refugee settings, notably Uganda, refugees from South Sudan and the Democratic Republic of Congo exhibited heightened vulnerability to HIV/STIs due to sexual violence and limited-service provision within settlement areas (36, 48). Systematic review by Mishra et al. (2021) noted that armed conflicts can be accompanied by widespread rape, social disruption and transmission of STIs and HIV (75). At the same time, poverty and stigma constrain condom use and HIV testing. Among urban refugee youth in Kampala, 43.5% of unmet testing needs are due to motivation, access, and usage barriers in HIV prevention (36). As the review by Logie et al. (2024) observed, poor SRH service provision in crises is linked to elevated risks for acquisition and transmission of HIV and other STIs (40).

Many refugees from the LMICs are experiencing poor living conditions and economic insecurities. As Amiri et al. (2020), Roupetz et al. (2020), and Fahme et al. (2024) reported that Syrian refugees in Lebanon faced intersecting vulnerabilities of extreme poverty (90%) and limited clinic access (64, 77, 78). In 2022, it was reported that 24% of Syrian refugees did not seek care for acute illness. The main reasons were that they could not afford clinic fees (56%), long distance (15%), and transport costs (13%). Among those who did not seek care, 39% went to pharmacies, reflecting obstacles to accessing formal health services (79).

Research on refugee populations in Bangladesh, Jordan, Lebanon, and Uganda indicates insufficient knowledge regarding the transmission and prevention of HIV and other STIs. This knowledge gap is attributed to limited sexual health education and widespread stigma in both their countries of origin and host countries (36, 67, 68). Khan and colleagues recently reported that nearly 70% of Rohingya women participating in a survey answered basic questions about HIV transmission incorrectly (71). In Lebanon, adolescents and young Syrian refugees have limited SRH knowledge, with schooling being the main factor linked to HIV awareness; only 20% learned about menstruation in school (72). Al-Maharma et al. (2019) found that Syrian refugee mothers were less aware of certain STIs, including gonorrhoea (33.8%), hepatitis B

(30%), hepatitis C (25.8%), Human Papillomavirus or HPV (20.8%), syphilis (19.6%), herpes (12.1%), and chlamydia (10%) (80). Syrian refugees in Lebanon have poor knowledge of STI transmission and symptoms, and only 38% recognise abnormal vaginal discharge as a symptom of STIs disease (64, 68, 77, 81). Misconceptions and myths are also common among the refugee population from LMICs settings, such as the misunderstanding that HIV/STI is communicated by casual contact (77). Misconceptions among refugees are partly responsible for poor rates of HIV testing and treatment uptake.

Both sexual health services and STI surveillance remain weak across camps in LMICs. For example, in African settings, the lack of surveillance for curable infections like chlamydia and syphilis is responsible for high prevalence and inadequate care for these infections (77). Syrian refugee camps in Jordan experience critical gaps in HIV services, with only 40% of facilities offering testing, and significant challenges in providing continuity of ART and comprehensive care (64). HIV-positive status, displacement, and gender related barriers deter Syrian women from seeking care even when experiencing severe symptoms (77). Among undocumented refugees, fear of deportation further compounds already poor health-seeking behaviour related to HIV and STIs (40).

### 1.3.3 Access to SRH services

Although there have been notable improvements in health service delivery for refugees, UNHCR (2022) reported a 19% increase in healthcare consultations in 2022 compared to 2021 across 172 refugee camps and settlements in 21 countries (65). Despite this progress, access to SRH services for refugee populations in LMIC settings remains limited. Contraception use is low, for example, in Jordan, only 14-43% of Palestinian refugees reported any contraception use, and 5-13% used a modern method (60). However, subsidies, where provided, appear to improve access to contraception. In Afghan refugee settlements in Pakistan, women receiving healthcare subsidies demonstrated significantly higher FP awareness (90% versus 45% among those without subsidies), and their contraception use more than doubled (10, 53). Access to antenatal care varies across refugee settings - in 14 urban refugee camps in Beirut, Lebanon, 82.9% of pregnant refugee women received some antenatal care across (82), while in Iran, only 3.37 out of 8 refugee women received antenatal care (83).

The barriers to accessing SRH operate at multiple levels, including logistical constraints, insufficient health infrastructure, socio-cultural barriers, stigma, and restrictive policies governing displaced populations' movements. A systematic review by Ngwibete et al. (2024)

on African refugee settings found that SRH service delivery faces significant challenges, including inadequate funding, authorisation and policy issues, training gaps, and shortages of essential supplies (84).

At the structural level, conflict and displacement often strip refugees of financial resources and legal status (40, 85). They are often excluded from national health systems, meaning they face high out-of-pocket costs or have to rely on international aid programs (40, 76, 85). UNHCR (2022) surveyed 49 countries and found that 77% incorporated refugees into their national health plans. While 94% provided refugees with equal access to primary health care, 17% reported no or unequal access to hospitals. Among countries with national health insurance, only 41% included refugees (65). Where inclusion is stronger, access improves. For example, among Afghan refugee women living in Pakistan, antenatal coverage exceeded 85% and 60% of deliveries were attended by trained personnel (10, 53). By contrast, facility data point to elevated maternal risks for Syrian refugee women in Lebanon compared with Lebanese women (86). Stock-outs affect the majority of Ugandan refugee clinics, particularly long-acting contraceptives and STI testing kits (63, 84). Health facilities themselves are often under-resourced, and clinics in refugee areas may have few trained staff, no female providers, and frequent stock-outs of medicines or contraceptives (63, 87). Refugee women frequently encounter discrimination from healthcare providers, language barriers, and difficulty navigating unfamiliar health systems, all of which reduce their likelihood of seeking preventive SRH care (37). For example, in Turkey, among married Syrian refugee women aged 15-49, modern contraception use was only 24%, about 35% of women had unmet need for contraception, only around 20% reported regular gynaecological visits, and women often reported access and acceptability barriers despite service availability (44).

At the community level, stigma looms large. Cultural taboos and social norms further hinder SRH education, as many women feel shame to discuss sexual health and, in some cases, are prohibited from speaking with outsiders without the presence of male relatives (40, 71). Clinics are often crowded and lack privacy and confidentiality. Providers may hold prejudices against migrants, and refugee women report discrimination and fear of gossip if they seek SRH care (33, 40). At the interpersonal level, gender power imbalances can limit women's autonomy over how they make their own health decisions. A systematic review by Tadesse and colleagues in 2024 reported that 48.2% of GBV cases were among African refugees, which affects access to SRH services (29). Social customs and norms in refugee communities and families also limit mobility. Women need permission from husbands or elders to leave home and must balance

clinic visits against income needs or childcare (88). Among Afghan refugees in Pakistan, these constraints contribute to misinformation and low SRH literacy (53).

At the individual level, trauma and internalised stigma contribute to distrust of health systems and reduce care-seeking (33, 40). Low SRH literacy, on the one hand, and stigma related to age, gender, and displacement, on the other, also create barriers to SRH service (40). Davidson et al. conducted a systematic review in 2022 and identified that there are low awareness, language barriers, and cultural taboos that limit refugee women's ability to access SRH services (37). Darebo et al. (2024) synthesised the qualitative evidence and pointed to the fact that many displaced and refugees are not aware of existing SRH programmes or services (33). Ivanova et al. (2019) described a relationship between SRH literacy and service use in Ugandan settlements among South Sudanese and Congolese refugees (89). These SRH literacy gaps are linked to higher fertility, unintended pregnancy, untreated infections, and poor maternal outcomes across refugee settings (40).

#### 1.4 Young refugees and their SRH

The United Nations and other international organisations define young people as individuals aged 15 to 24 (90, 91). Globally, there are over 1.2 billion people between the ages of 15 and 24, which represents 16% of the global population (92). SDGs underscore the importance of youth, recognising that healthy and active young people contribute significantly to the achievement of global development goals (93). However, they are facing compounded SRH risks at the intersection of developmental stage, displacement, systemic exclusion, risk of HIV acquisition, and gender inequity (68, 92, 94-96).

At the end of 2024, more than 123 million people were forcibly displaced worldwide, including 42.7 million refugees (20, 40). Children, adolescents, and youth make up more than half of displaced populations (97, 98). UNHCR (2025) pointed out that, despite being a significant population, young refugees are often excluded from decision-making processes that directly impact their lives, especially when it concerns their sexual and reproductive health. These groups still face ongoing barriers to high-quality healthcare, psychosocial support, and accurate SRH information and counselling, which continue to pose significant challenges (97, 98).

Young women and adolescent girls in humanitarian settings face increased vulnerability to poor SRH outcomes, including early and unintended pregnancies, unsafe abortions, and GBV (1, 99-101). In many LMICs, humanitarian crises intensify pre-existing inequalities, increasing the risk of sexual exploitation, early marriage, and reproductive coercion for young women (1,

101). Globally, unsafe sex is the fastest-growing risk factor for ill health and the leading cause of morbidity and mortality among young women and girls in refugee settings (24, 102). Each year, an estimated 12 million adolescents and young women give birth in such settings, 10 million experience an unintended pregnancy, and 3.2 million young women experience unsafe abortions, with a disproportionate impact on their SRH outcomes (1, 94). Adolescent pregnancy is linked to a range of adverse outcomes for both young mothers and their children, including social, economic, and health-related challenges (99, 103).

Young refugees in LMICs experience distinct SRH needs, with consistently high unmet need for contraception and uneven access to services. A cross-sectional survey by Ivanova et al. (2019) among adolescent (aged 13-19) refugee girls in Uganda found that 68.8% had never accessed SRH services, 13.8% could not name any pregnancy-prevention method, and sexual violence was common among those who were sexually active (89). Similarly, a survey by Bukuluki et al. (2023) among refugees aged 15-24 in northern Uganda reported low uptake of SRH services: only 19.3% reported using any SRH service, 19.6% used modern contraceptives, 23.1% had been tested for HIV, and 31.4% demonstrated comprehensive SRH knowledge (104). This highlights both demand- and supply-side gaps for adolescents and youth. Fahme et al. (2023) reported that school enrolment was strongly associated with HIV knowledge among Syrian refugee girls aged 11-17, making age-appropriate school-based programmes a practical lever to improve adolescent SRH literacy (72).

Young refugees also face elevated risks of HIV and other STIs, especially in conflict and post-conflict settings (18). Worldwide, more than one million STIs are acquired daily, and in 2020, 374 million new STI cases were diagnosed (105). In 2022, eight million adults, including 1.1 million pregnant women, were infected with syphilis alone (106, 107). In 2024, an estimated 1.3 million people worldwide were newly diagnosed with HIV, including an estimated 210,000 adolescent girls and young women aged 15-24 years (106, 107).

HIV and STI literacy, prevention, and care remain uneven for young refugees across LMIC settings. A study on urban refugee youths in Uganda found that HIV or STI testing uptake generally ranges from 29% to 62%, hindered by transport costs, low literacy, and stigma (36). About 44% have unmet HIV testing needs, primarily due to barriers related to motivation, access, and use constraints (36). Testing uptake varies significantly across countries and refugee contexts. Young people face higher risks from sexual violence, transactional sex, and limited HIV/STI prevention access (36, 71, 108). Despite these risks, SRH knowledge among refugee youth remains alarmingly low. Many are unaware of HIV transmission routes,

prevention strategies such as condoms, or the availability of contraceptive methods (35). Young and unmarried adolescents often face restrictions in accessing HIV/STI services due to stigma and restrictive social norms. In many conservative refugee communities, discussion of menstruation, HIV/STIs, contraception, and sexual relationships is considered shameful or inappropriate for adolescents and youths (43, 47, 109). They learn very little or nothing about these topics from their family and have to depend on informal sources, which are prone to misinformation (18).

Despite growing recognition of these challenges, adolescent- and youth-friendly SRH services remain scarce in humanitarian settings (2, 28, 33, 36). In the past few decades, politics and religion have increasingly interfered with public health, and conservative political, religious, and cultural forces are gaining more influence around the world, which undermines the progress in SRH achieved since 1994 (18). The sexual and reproductive health of adolescents and young people is a critical issue in humanitarian settings. Young people and their sexual and reproductive health are poorly understood in humanitarian settings (38, 110-113).

## 1.5 Focus on Rohingya refugees in Bangladesh

### 1.5.1 Country profile: Bangladesh

Bangladesh has a population of over 165 million living in an area of 147,570 square kilometres, making it one of the world's most densely populated countries (114). It has 83.4 million women, 81.7 million men, and 26.2% of its population is young (114). Located on the Bay of Bengal, the country is mostly low-lying riverine land. It is a parliamentary democracy with a majority Muslim population and Bengali as the official language. Dhaka is the capital and largest city of Bangladesh.

Over the past two decades, Bangladesh has undergone rapid economic growth, shifting from a low-income to a lower-middle-income country (115). Agriculture remains the largest source of employment, engaging 47% of the workforce, followed by services at 40% and industry at 13% (115). Despite rapid economic growth, many people in Bangladesh continue to live on low incomes. For example, the size of the population with income below the national poverty rate at the international line (US\$2.15/day) fell to about 5% by 2022, although around 30% of the population remains below the moderate poverty line, with income below US\$3.65/day (115). Bangladesh has also made notable progress in health and education indicators. In 2022, the literacy rate among Bangladeshi adults was 76.4%, net primary school enrolment was 98%, and Bangladesh has achieved gender parity in secondary education (115).

Bangladesh has made significant progress in expanding access to health and FP services over the past three decades, particularly through community-based outreach and government-NGO partnerships. The total fertility rate is 1.9 births per woman. Among married women, modern contraceptive prevalence is about 72% (116). The most commonly used methods are oral pills (27%), injectables (11%), and external (male) condoms (8%) (117). Only 8% of women rely on long-acting, reversible, or permanent methods such as IUDs, implants, or sterilisation (117). However, there are still significant gaps that need to be addressed. Every year, 5,200 women die from pregnancy-related causes (114). Bangladesh is also a major host of refugees. It shelters nearly 1.2 million Rohingya refugees, mainly in camps in Cox's Bazar (118, 119).

### 1.5.2 Historical background of the Rohingya crisis

The Rohingya are an Indo-Aryan ethnic group living in western Myanmar for centuries. They are the second-largest ethnic group in Rakhine (Arakan) State. Historical scholarship indicates their ancestry derives from Arab, Moorish, Persian, Turkic, Pathan, Mughal, and Bengali migrants who settled in the region as early as the 8th century in the Common Era (CE) (120, 121). The Rohingyas were targeted by both the communalists (Buddhists) of Rakhine and the Burma Independence Army during World War II, as well as by Buddhist fundamentalists after Burma gained independence in 1948 (121). During 1962-74, Burma's parliamentary federal system was replaced with a military dictatorship, which forced Rohingya to flee their homes (120). Since then, the military regime in Myanmar has systematically denied the Rohingya citizenship, restricted their movement, and subjected them to widespread human rights violations, prompting repeated waves of forced displacement.

Bangladesh has provided shelter to several waves of Rohingya refugees since the 1970s. Some arrived in 1982, following the citizenship law enacted by the Burmese military junta. Between 1991 and 1992, after the Burmese military junta began political persecution, close to 250,000 Rohingya refugees fled to Bangladesh (121). In 2017, a communal riot provoked by Rakhine Buddhists resulted in as many as 655,500 Rohingyas moving to Bangladesh (122). UN (United Nations) investigators have classified the persecution of the Rohingya as genocide carried out with "genocidal intent" and described it as a "textbook example of ethnic cleansing" (123). Now, they are among the world's largest stateless refugee groups, living in highly populated camps with limited access to food, water, healthcare, and sanitation (124-127).

As of 2024, more than 1,005,520 stateless Rohingya were residing in Cox's Bazar, and 52% were women and girls, and 30,000 were relocated to Bhasan Char as part of a controversial

resettlement (11, 118, 119, 128). Other large host countries for Rohingya refugees include Malaysia (102,000), Pakistan (55,000), India (40,276), and Nepal (19,574) (129, 130). While Myanmar's government denies any sort of human rights violation, the UNHCR report clearly says they are unwilling to allow the Rohingya to live in their historical homeland (123, 131). The Government of Bangladesh does not formally recognise the Rohingya as refugees, instead classifying them as 'Forcibly Displaced Myanmar Nationals (FDMNs),' a designation that restricts their legal rights and access to durable solutions (10, 11, 132). The current policy of the Bangladesh government for managing Rohingya refugees includes compiling a list of unregistered refugees through biometric registration, providing temporary humanitarian aid, and strengthening border security (128).

### 1.5.3 Current health status of Rohingya

The Rohingya refugee population faces a complex and multifactorial health crisis. Living in overcrowded camps with inadequate water, sanitation, and nutrition, Rohingya refugees are highly vulnerable to both communicable and non-communicable diseases (133, 134). For example, the Early Warning Alert and Response System recorded hundreds of thousands of cases of unexplained fever (228,000), acute respiratory infection (224,000) and diarrhoea (193,000) in late 2017 (133). Inter-Sector Need Assessment (2025) reported that nearly half of children under five are chronically undernourished (stunted), and about 15.1% suffer from global acute malnutrition (135). Micronutrient deficiencies are widespread, with approximately 50% of children and over half of women suffering from anaemia (133).

Communicable diseases remain a significant public health challenge. Since 2017, the Rohingya population has faced frequent outbreaks of acute watery diarrhoea, diphtheria, measles, and hepatitis E, largely intensified by inadequate water, sanitation, and hygiene (WASH) systems (136). Cholera remains endemic due to WASH deficiencies (136). Only 50% of refugees have consistent access to safe water, and 45% lack adequate sanitation (135-137). In January 2025, a cholera vaccination (Euvichol) campaign visited 194,907 households to administer the single-dose vaccine, although coverage gaps remain in remote camp blocks (135, 137). Respiratory illness among Rohingya is usually high due to overcrowding and poorly ventilated shelters; for example, the Early Warning Alert and Response System recorded 224,000 cases of acute respiratory infection (ARI) in 2017 (133). Pneumonia is identified as a leading cause of morbidity among children. Hepatitis C has emerged as a critical issue; nearly 1 in 5 adults (86,000 people) carried chronic Hepatitis C in 2023 (135, 138).

Non-communicable diseases are increasingly recognised as a significant health concern among the Rohingya, particularly hypertension, diabetes, and chronic respiratory conditions. A health review in 2020 found that 51.5% of adults had hypertension, and 14.2% had diabetes (133). A need assessment conducted by the intersectoral coordination group in April 2025 reported that chronic diseases affect about one-third of households and remain a priority for ongoing care, medication supplies, and referral services (135). In the same assessment, 18% of adults screened had elevated blood pressure, and 9% showed signs of uncontrolled diabetes. Many Rohingya refugees have heart disease, kidney disease, or other chronic illnesses acquired over years of deprivation (133). Injuries and disabilities are also notable. The Early Warning Alert and Response System recorded 36,930 injury cases in late 2017 (133). If common risk factors such as smoking and indoor cooking smoke are not addressed, the prevalence of non-communicable diseases may increase as displacement becomes more protracted.

Psychological trauma is pervasive. Studies report very high rates of post-traumatic stress and depression. A survey by Riley et al. in 2017 reported that approximately 36% of refugees meet the criteria for post-traumatic stress disorder (PTSD), and nearly 90% report symptoms of depression (139). However, the prevalence of depression was significantly lower in a survey conducted by Ritsema et al. in 2023, which found that about 30% screened positive for depression (140). Current intersectoral findings (2025) indicate that psychological distress affects 27% of youths; two in five young people know someone with mental health problems; 8% self-identify as having mental health issues, and 6% act as caregivers (135). Women and girls face added burdens from gender-based power imbalances, GBV and limited access to reproductive health care (133). Security issues and lack of privacy when bathing, changing clothes, and sleeping in tents add another level of complexity for women and girls (133).

#### 1.5.4 Sexual and reproductive health of Rohingya women

Many SRH issues of Rohingya refugee women have been historically under-researched and inadequately addressed (141). Although some studies have explored aspects of their sexual and reproductive health — including use of family planning services, contraception and condoms (12-14, 141-149), maternal, newborn, and child health (10, 14, 123, 150, 151), GBV (12, 32, 152-156), and knowledge of HIV and STI transmission (13, 71, 141, 144, 157) — the overall volume of published evidence remains limited, particularly with respect to comprehensive, high-quality research. According to UNHCR (2025) estimates, 353,961 women aged 12-59 made up 31.1% of the total population, including 316,000 Rohingya refugee women and girls aged 15 to 49 living in Bangladesh, with 63,700 of them pregnant (119, 158, 159). It is common

for them to marry early and enter a forced marriage, have children early, and experience GBV. Unintended pregnancies and unsafe abortions are widespread, exacerbated by the shortage of skilled birth attendants and restricted access to comprehensive SRH services (10).

### **Maternal, newborn, and child health**

Maternal health among the Rohingyas is still poor, and early pregnancy is common. In 2024, Guglielmi et al. reported that the average age of first pregnancy among Rohingya adolescent and young girls was 16.8 years. Additionally, approximately 68% of these girls became pregnant shortly after marriage, highlighting the high prevalence of early and short interval pregnancies among them (123). Many pregnancies are unplanned and unsupported, with mothers often having shorter birth spacing. The maternal mortality rate is estimated at 400 deaths per 100,000 live births, which is twice the rate in Myanmar, more than double that of Bangladesh, and nearly three times the global Sustainable Development Goal target of 70/100,000 by 2030 (14, 150, 160). Access to maternal healthcare remains limited. According to Khan et al. (2024), over two-thirds of Rohingya women never had preconception care, approximately half received no antenatal care, and one-third of pregnancies were unintended (151). According to UNFPA (2023), among children under three years of age, just 43% were born in health facilities (135). Guglielmi et al. (2024) found that 40% of young mothers delivered their first child at a clinic or hospital (123). In 2024, more than half of all births took place at home (161). In turn, the WHO has also begun training traditional birth attendants and introduced transportation support to increase access to health facilities (162). Perinatal death audits conducted in 2024 identified birth hypoxia, prematurity, and respiratory or cardiovascular conditions as the principal causes, recording 491 perinatal deaths that year (161).

Child and newborn health remain important concerns. In a prospective survey of the camps, the estimated neonatal mortality rate for 2017-2018 was 27 per 1,000 live births, higher than the national average for Bangladesh and the global mean, indicating ongoing risks for newborns (163). In 2024, the SRH working Group reported an expansion of newborn-care interventions, including greater promotion of maternal and child health cards, systematic perinatal death surveillance and audit, and broader uptake of facility-based kangaroo mother care (161).

## **Gender-Based Violence (GBV)**

Gender-based violence is widespread and embedded in experiences both before and after displacement. In 2024, WHO reported that nearly 1 out of 4 of the Rohingya refugee women and girls in the camps experienced physical or sexual violence (164). Many of them had arrived in Bangladesh as survivors of sexual violence in Myanmar. Current conditions in the camps, characterised by overcrowding, lack of privacy, and limited legal protections, increase the vulnerability of them (152). UNFPA (2024) reports indicate that sexual violence accounts for 11% of reported GBV (165), and one in five refugees in the camps has experienced some form of exploitation, abuse, or humiliation (153, 154, 165).

Over the past few years, 56.5% of Rohingya women have reported experiencing unwanted sexual relations with their husbands (12, 123). Guglielmi et al. (2024) found that 45% of married Rohingya girls reported ever experiencing IPV (Intimate Partner Violence), and 40% reported IPV in the past 12 months (123). IPV is often accepted as a fate within the Rohingya (156), and seeking help is discouraged. Nearly half of Rohingya households (46%) perceive increasing safety concerns for women and girls, and streets/pathways (47%) and public toilets/latrines (40%) are cited as the most unsafe locations, particularly at night due to inadequate lighting and the presence of organised crime groups (135).

Women face significant barriers to accessing information, participating in household and community decision-making, and maintaining personal safety. Restricted mobility, rigid cultural norms, widespread illiteracy, and weak legal protections compound these barriers and increase their vulnerability to gender-based violence and its sexual and reproductive health consequences (155). As a coping mechanism, some women build support networks (155) which can be used to promote information on IPV-prevention interventions (32, 156).

## **Family planning and contraception**

Although several studies have examined family planning and contraception use among Rohingya people in Bangladesh (12-14, 141, 142, 144-149), the overall body of published evidence remains limited in scope and depth. Contraception use varies among Rohingya married women of reproductive age, as Chowdhury et al. in 2018 reported that 35.8% (146), while Khan et al. in 2021 found this figure to be 51.9% (12). This figure is relatively low compared to Bangladesh, where, according to Kundu et al. (2022), the prevalence of modern contraception use among married women was 72% (116). Khan et al. in 2021 reported that Rohingya women mainly used injectables (67.3%) and pills (29.8%). Long-acting reversible

contraceptives (LARCs) are available at camp facilities, and their uptake has increased from 6.7% of first-time acceptors in 2023 to 8.6% in 2024 (161). Permanent methods generally require referral pathways in line with the guidance of the Bangladesh government.

Azad et al (2022) also demonstrated poor SRH literacy and high levels of misconceptions among Rohingya women in the refugee camps: the majority of them (60%) were unaware that using permanent birth control would not harm their health (14), and 50% have a misconception that it is OK for girls under 18 to get married. Nearly two-thirds believed that contraception methods could only be used with the consent of their husbands (14), more than 40% were hesitant to discuss family planning with their husbands out of fear and embarrassment, and around 58% were in favour of continuing to conceive until the birth of a male child (14).

There are a number of reasons why Rohingya women do not use contraceptives, such as their husbands' disapproval, the expectation to conceive until bearing a male child, and a desire for large families (12, 14, 166). They experience challenges because they lack family planning knowledge and basic education (14). Additionally, their attitudes toward contraception are still influenced by their traditional values, culture, customs, religion, and beliefs (12, 147, 166-168). The conservative culture and religious beliefs of Rohingya refugees have limited the success of previously introduced FP initiatives (12, 14, 166). Unsurprisingly, the use of contraceptives was low among women who had unplanned pregnancies (12, 14). On the other hand, contraception use was higher among women employed outside their households, those residing in a camp with a healthcare centre, and women having access to free or low-cost contraceptives (12). Several interrelated economic, social, and behavioural factors contribute to low access to family planning and contraception, including organisational barriers, shortages of health care professionals, difficulty reaching family planning services, misconceptions about the use of contraception, and GBV (12, 14, 156).

### **HIV/AIDS and STIs**

The literature on HIV/AIDS and STIs among the Rohingya refugee population in Bangladesh remains limited, fragmented, and underdeveloped, despite the urgent need for evidence and the serious public health implications of HIV and STIs (108). Although Rohingya have been displaced in large numbers over the course of decades (see section 1.5.2 above), there is no comprehensive surveillance system documenting HIV/STI prevalence in either their country of origin or host settings (169, 170). Prior to displacement, northern Rakhine State, the Rohingya's region of origin, had virtually no HIV prevention or treatment services despite Myanmar's national prevalence (0.7%) being nearly seven times higher than Bangladesh's

(<0.1%) (71, 108, 171-173). Based on Myanmar's HIV prevalence, it is estimated that around 5000 Rohingya living with HIV have arrived in Bangladesh after 2017 (169, 172). The number of HIV diagnoses has increased as testing and services have expanded. Reports recorded 273 cases by August 2018 and 319 by March 2019. By 2023, the Civil Surgeon's Office reported 1,135 people living with HIV in Cox's Bazar district, of whom 927 (82%) were Rohingya (157, 172, 174-176).

The burden of sexually transmitted infections remains poorly quantified because screening capacity is limited, and many infections are asymptomatic (26, 71, 108, 177). Recent work on STIs in Rohingya has shown a high burden of symptomatic STIs in women. According to Mou et al. (2024), the prevalence of STI symptoms was approximately 20% for genital ulcers, 33.3% for abnormal vaginal discharge, and 26.7% for painful urination (177). Fewer than half of symptomatic women sought treatment and care, hindered by service gaps, stigma, and gendered mobility constraints (177).

Despite concerns about potentially high rates of HIV and STIs, awareness and prevention efforts remain insufficient. A study by Khan et al. (2021) examined the knowledge about HIV transmission and the associated factors among Rohingya refugee women and reported that levels of HIV awareness were poor (at around 30%) and significantly lower than among women in Bangladesh (71). There has been limited research on HIV/STIs among the Rohingya, resulting in a lack of evidence on transmission dynamics and behavioural risk factors (175). Zakaria et al (2024) indicated that communication strategies, not socioeconomic factors, hold primary potential for behavioural change (157).

Risk is further exacerbated by injecting drug use, which accounts for over a third of new HIV cases in Myanmar (178). Hossain et al. (2025) suggest the presence of injecting drug use and illicit drug trafficking within Rohingya camps in Cox's Bazar (11). The Myanmar-Bangladesh border is a longstanding trafficking corridor, and Rohingya are often involved with drug trafficking. However, harm reduction services, such as needle exchange programs or opioid substitution therapy, are largely unavailable in this setting (26, 108).

Health system weaknesses in Cox's Bazar undermine prevention, diagnosis, and care for HIV and other sexually transmitted infections. In 2025, UNHCR identified several barriers to the health system. Around 22% of Rohingya households reported service-related problems, 93% rely on non-governmental organisations for care, about 41% lack adequate sanitation, and

roughly 33% do not meet basic waste management standards (135). These issues hinder the prevention, testing, and follow-up processes.

The policy of the Bangladesh government and contextual factors of the refugee camps further limit access to HIV/STIs. National regulations prohibit HIV testing and treatment inside Rohingya refugee camps, requiring patients to seek services at distant government hospitals (128, 179). This structural barrier is compounded by limited mobility, financial constraints, and cultural or religious taboos, all of which reduce uptake of testing and continuity of care (10, 12, 13, 128, 132, 179, 180). Although syndromic STI management is offered as part of the Minimum Package of Essential Health Services (MPEHS) by Médecins Sans Frontières (MSF), UN agencies, and NGOs, these services are constrained by workforce shortages, stigma, and underdiagnosis of asymptomatic infections (181, 182). Only 17% of camp health facilities operate 24/7, impeding timely access to care (108, 183, 184). Although post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) are part of MPEHS, published uptake data for routine PrEP provision among Rohingya refugees are not yet available (182).

#### 1.5.5 Focus on young Rohingya women: Why it matters

Young Rohingya women aged 15-24 represent a large and particularly vulnerable segment of the refugee population in Cox's Bazar, highlighting the need for targeted, age-specific interventions. Overall, one in three Rohingya are adolescents or young people aged 10-24, with those aged 15-24 accounting for approximately 20% of the population (119, 159, 185, 186). They represent a whole generation of refugees growing up in the camps, for whom camp services are the sole source of reliable education and essential support. Young Rohingya refugee women in this age group face critical reproductive health decisions and vulnerabilities that have enduring effects on their health and development throughout their lives. Their sexual and reproductive health needs are shaped by early marriage, limited decision-making power, low levels of education, and restricted access to both schooling and health services (14, 123). Barriers to education remain particularly severe. UNFPA reports that nearly 90% of Rohingya adolescents miss out on formal education in the camps, a situation aggravated in 2025 by large-scale learning-centre closures affecting about 300,000 children (187-189). Ensuring that adolescents and young women access accurate, non-judgmental SRH information, ideally before they have sex, remains a priority in this context.

Displacement has amplified the challenges for young Rohingya women. They increased the risks of early and forced marriage, early pregnancy, and GBV. For example, a study by

Zimmerman et al (2025) reported that 28.3% of young people aged 20-24 were married before the age of 18, a rate far higher than in their population of origin, reflecting how crisis and insecurity drive early marriage (148, 188, 190). The mean marriage age is 15.7 years (148). A survey conducted among young people in 2023 found that the average age at first pregnancy is 16.8 years, with over 85% of respondents being pregnant (123), and Khan et al (2021) found that around 72% of the study participants experienced unplanned pregnancies (12). Early childbearing carries higher risks of eclampsia, infection, preterm birth and low birthweight, and is associated with worse neonatal outcomes compared with adult mothers (35, 191). Local observers report that teenage pregnancy often leads to complications such as obstructed labour, caesarean delivery, and neonatal malnutrition (192). Consequently, understanding the SRH needs of this group is critical for the overall health of Rohingya families and the achievement of public health goals.

Furthermore, young Rohingya women also face unique barriers to accessing SRH care. They often lack access to age-appropriate SRH information and services. Cultural taboos, low awareness about modern contraceptive methods, and restrictive gender and social norms limit Rohingya women's and girls' access to healthcare and their capacity to make informed reproductive health decisions. For example, Guglielmi et al. (2024) discovered that only half of Rohingya adolescents could identify a contraceptive method, with unmarried girls showing lower awareness than married women (123). A systematic review by Hossain et al. (2025) further illustrates the scale of these gaps: almost half of Rohingya women reported no awareness of the sexual and reproductive health services available in the camps, and approximately 70% lacked even basic knowledge of HIV and other sexually transmitted infections (11). Decision-making power around family planning is especially constrained. Only 28% of married young women reported having the ability to make their own contraceptive decisions, while 93% indicated that their husbands determined the desired family size (123). Prevailing cultural norms and social expectations push young women into early motherhood before they are physically or emotionally prepared (188). These constraints are compounded by disruptions to education services in 2025, which UNICEF (United Nations Children's Fund) and other agencies warn may increase early marriages and reduce SRH service engagement among girls (187-189, 193).

Given these complex dynamics, focusing research on 15-24 years is essential to inform effective interventions (35). Current health-sector guidelines in Cox's Bazar recognise young women and adolescents as a priority population within the MPEHS and the SRH Working

Group's FP Strategy (2022-2025), calling for adolescent-friendly service delivery and improved community outreach (161). Evidence from Rohingya and similar crises highlights that age-specific strategies are needed; outreach through adolescent-friendly spaces, door-to-door education, and youth-responsive clinics can dramatically improve uptake of contraception and HIV/STI prevention (123, 161).

#### 1.5.6 SRH education and health services provided in camps

SRH education and service provision are inadequate in Rohingya refugee camps in Bangladesh despite the efforts of humanitarian organisations. The response is coordinated through a sectoral coordination arrangement headed by the Bangladesh Government and including UN agencies and NGOs. WHO-coordinated Health Sector and UNFPA-led SRH Working Group deliver services across 33 camps in Cox's Bazar and Bhasan Char (181, 182). Partner NGOs, including MSF, BRAC (Bangladesh Rural Advancement Committee), Save the Children, HOPE Foundation, Friendship, IOM (International Organisation for Migration), and others working with the Ministry of Health and Family Welfare, implement programmes providing the MISP for emergencies alongside comprehensive SRH care (194). Their key services include family planning (such as distribution of condoms, oral contraceptive pills, injectables, and implants), antenatal and postnatal care, safe delivery (including skilled birth attendants and birthing centres), immunisations, and HIV/STI prevention (135). Maternal health services (antenatal check-ups, iron/folate supplementation, skilled delivery, and postnatal follow-up) are offered under the MISP (161). UNFPA and its partners have expanded outreach through home visits by community health workers (27).

Services are provided through a mixed network of static facilities (Health Posts and Primary Health Centres), mobile/outreach clinics, and referral to camp-level Field Hospitals (secondary care). As of June 2025, the Health Sector reports 48 Health Posts, 46 Primary Health Centres (PHCs), and two facilities providing comprehensive emergency obstetric and newborn care for the camps (161, 195). PHCs are intended to operate 24 hours a day, 7 days a week, and provide the essential primary care package, and Health Posts operate daytime hours and refer to PHCs (135). When higher-level care is needed, patients are referred to sub-district and district hospitals (e.g., Ukhiya Upazila Health Complex and Cox's Bazar District Sadar Hospital) via the Health Sector referral pathway and Emergency Referral Transport Service (182, 195, 196).

UNFPA and partners launched FP and HIV education campaigns targeting adolescents and young mothers. In 2024-2025, they scaled core interventions: (i) facility-based FP at all PHCs

and Health Posts; (ii) a community-based contraceptive refill pilot in 10 of 33 camps, extended after positive uptake; and (iii) improved midwifery mentorship and emergency SRH service readiness during shocks (161). In 2024, there were 132,101 first-time FP acceptors; method mix was pills 43%, injectables 24%, and long-acting reversible contraceptives 8.6%, up from 6.7% in 2023, indicating a gradual expansion of choice (161). PHCs and field hospitals offer syndromic STI care and condom promotion. They also include HIV prevention, post-exposure prophylaxis, and PrEP (182). ART (antiretroviral therapy) and advanced HIV care are accessed through government ART centres outside of the camps via formal referrals (182).

Access to SRH services in the camps is constrained by multiple structural and sociocultural barriers. Given the history of persecution and the vulnerable conditions in the camps, Rohingya refugees often prioritise basic survival needs over SRH concerns. Rohingya refugees find it difficult to access health and social services due to factors such as overcrowded conditions in the health facilities and remote locations (152, 197). Only 49% can reach the health facilities within fifteen minutes, while 22% still face difficulties accessing services due to transport costs, insecurity, perceived poor quality, and limited hours (152, 182). The UNFPA (2024) also noted that staffing shortages, safety and security, operational flexibility, a shortage of RH commodities, and partial and periodic service interruptions are among its operational constraints to SRH availability and referral systems (161). Health systems for the Rohingya refugee population are poorly developed, and the quality of care is inadequate.

MISP for reproductive health has been only partially implemented, with injectables, pills and condoms provided as part of the immediate humanitarian response to the Rohingya crisis. Condom distribution is limited to a small number of facilities, and religious opposition and community perspectives significantly hinder uptake and use, with male condom use reported as low as 6% (14, 147). Clinical management of GBV is delivered through 19 WFS (*Shanti Khana*) (198), but, following funding suspensions in 2024, these facilities cover fewer than 30% of the estimated GBV survivors (46). SRH initiatives for adolescents remain particularly underdeveloped, limited in reach, and often informal (123). Only 23% of facilities have an adolescent-friendly corner (195), and 67% of Rohingya girls do not have access to proper menstrual healthcare (199). In 2022, only 38% of women of reproductive age had access to a full range of SRH services, and less than half were aware of where to seek care (14). Comprehensive reproductive health services, including long-acting reversible contraceptives, remain limited (46).

SRH education is minimal and often informal. Cultural taboos surrounding sexuality, menstruation, puberty, and contraception inhibit open discussion and limit the effectiveness of health promotion campaigns (27, 200). Talk about and use of SRH services is considered shameful, and women cannot visit a doctor or go out alone without a male (e.g., partner, father, brother, or son) (201). Many women continue to rely on traditional birth attendants, spiritual healers (*Mollahs*), or older female relatives for SRH advice - sources that often perpetuate misinformation and unsafe practices (27, 200).

### 1.6 Current research gaps in family planning and HIV/STIs: rationale for the proposed research

Research on family planning, contraception (12-14, 141-149, 168) and HIV and STIs (71, 157) among Rohingya refugees in Bangladesh remains limited. Most studies are cross-sectional, descriptive, and adult-focused, offering limited insight into the structural and sociocultural mechanisms that shape SRH outcomes for Rohingya refugee women of reproductive age in Bangladesh. Existing research on Rohingya refugees reveals three key limitations in addressing young women's (15-24 years) SRH needs.

First, studies like Azad et al. (2022), Khan et al. (2021) and Zakaria et al. (2022) documented general FP awareness and underscored high levels of unmet FP needs among Rohingya women in Cox's Bazar camps (12-14). For instance, only about 56% of women demonstrated good knowledge of FP (14), and roughly half reported using any contraceptive method (12). Yet these studies primarily relied on cross-sectional surveys of married women aged 18-49 years and consistently presented aggregated data, making it difficult to discern the specific SRH issues faced by adolescents aged 15-18. These studies overlooked the distinct vulnerabilities and service barriers faced by younger, often unmarried, women. As mentioned above (see section 1.5.5), child marriage is common; the average first marriage occurs around age 15-16, and over 80% become mothers in their teen years (123, 148, 188, 190). Among this group, obstetric complication rates are three times higher than those of older women, and contraceptive literacy is 40% lower. Yet their specific SRH needs remain largely unquantified (12, 148). Moreover, there is a critical lack of data on how young women interpret and act upon SRH information within the intersecting contexts of displacement, early marriage, and GBV, a gap highlighted in a recent systematic review by Hossain et al (2025) (11).

Second, research on HIV/STIs in the Rohingya refugee context is scant. HIV/STI research relies exclusively on facility-based surveillance, which likely underestimates community

prevalence (108). The only survey by Khan et al. (2021) found very low HIV knowledge among married women, but explicitly excluded unmarried women, those potentially at the highest risk of sexual violence and exploitation, thereby overlooking a critical segment of the population (71). Khan et al. (2021) did not examine how the early sexual debut of Rohingya women (mean age of marriage 15.7 years) heightens transmission risks among youth. That study also failed to examine actual risk behaviours or cover STI screening, leaving critical gaps in understanding HIV/STI vulnerability among young Rohingya women.

Hsan et al. (2019) and Hossain et al. (2018) have documented increasing HIV cases among the Rohingya population, yet no organised epidemiological survey or community-based prevalence studies exist (172, 175). Similarly, while Islam et al. (2022) identified barriers to male condom use in the camps (such as cultural taboos), no studies have examined how young women perceive HIV risk or STIs, nor how such perceptions influence their SRH behaviours (147).

Crucially, there is no research on HIV testing access or uptake among youth, despite WHO and UNFPA identifying adolescents in refugee contexts as a key underserved group [REF]. There is a critical lack of understanding regarding behavioural risk factors, testing and treatment access, and how HIV/STI services are, or are not, integrated into broader youth-focused SRH programming. The intersection of HIV vulnerability with GBV, early marriage, and lack of autonomy is particularly underexplored. Furthermore, there is a complete absence of studies addressing access to or knowledge of the modern HIV prevention and care strategies, such as HIV PrEP, post-exposure prophylaxis, or viral load monitoring, despite their increasing relevance in humanitarian contexts.

Finally, most of the research on Rohingya SRH, as is typical of early research, lacks methodological rigour and depth. Available evidence is based on opportunistic, convenience samples, with limited, if any, representativeness (12-14, 149). Consequently, these studies offer limited insights into the nuanced and evolving experiences of refugee youth and factors associated with those experiences. For instance, Islam and colleagues conducted a qualitative study in 2022 and examined barriers to condom use, but they overlooked the perspectives and experiences of young women regarding condoms as contraception, missing important insights into their reproductive autonomy under restrictive social norms (147). Notably, no study has yet considered intersectional and gender-transformative frameworks of how age, gender, marital status, and displacement status interact to shape young women's access to sexual and reproductive health services. Qualitative research in this area remains limited, and where it

does exist, it is often exclusionary, by focusing narrowly on married women or on adults more broadly, thereby excluding younger cohorts whose needs may differ substantially. The use of mixed methods design, which could contextualise and enrich survey findings with insights into lived experiences, is also scarce. There is an urgent need for mixed-methods studies that could triangulate quantitative data on SRH knowledge and service access with qualitative insights into lived experiences, social norms, and interactions with health system.

Therefore, this study addresses these gaps through a mixed-methods design investigating SRH literacy, family planning, and access to HIV/STI services among Rohingya women aged 15 to 24 years in Bangladesh. By focusing more narrowly on this demographic, the research provides age-disaggregated evidence and explores the intersectional challenges — such as gender, marital status, and displacement — that influence SRH for this group. The quantitative component will assess levels of SRH awareness and knowledge (including FP, contraception use, and HIV/STI), and access to and use of services for FP as well as HIV/STI testing. The qualitative component will expand understanding of sociocultural norms, gender dynamics, and health system barriers, which all play their role in shaping population awareness, knowledge and use of SRH services. Evidence from this research will inform the design of youth-responsive, culturally appropriate SRH interventions tailored to humanitarian settings.

## 1.7 Research aims and objectives

### *Aim*

To investigate the factors impacting sexual and reproductive health literacy, access to family planning and HIV/STI services of young Rohingya refugee women (aged 15-24), and to examine the sociocultural and structural facilitators or barriers to their access and use of these services in the humanitarian setting of Cox's Bazar, Bangladesh.

### *Objectives*

This study focuses on the young (15-24) Rohingya women residing in the refugee camps in Cox's Bazar, Bangladesh:

1. To assess levels of SRH literacy, including knowledge, attitudes, and misconceptions, related to family planning and service access, and the associated factors.
2. To examine HIV/STI literacy, including knowledge of prevention, testing, and treatment, and to explore attitudes, misconceptions, access barriers and the associated factors.

3. To explore the facilitators and barriers to SRH services related to family planning and HIV/STIs from the perspective of young Rohingya women, men, Rohingya community leaders, and health care providers.

### 1.8 Significance of the study

Young Rohingya refugee women aged 15-24 represent a highly marginalised and underserved population within humanitarian SRH programming. This young group face higher rates of early marriage, unplanned pregnancy, and risk of HIV or other STIs, yet they are often ignored in research and practice because of cultural norms, policy gaps, and practical challenges. This research is one of the few that explicitly focuses on knowledge, attitudes, and access barriers to FP and HIV/STI services among young Rohingya women and, as such, contributes to addressing an important and persistent gap in the literature on global public health and refugee health.

Firstly, the study provides the first comprehensive mixed-methods analysis of SRH literacy and access to family planning and HIV/STI services among young Rohingya women aged 15-24 in Bangladesh. It will fill a critical evidence gap by documenting not only levels of knowledge and service utilisation but also the sociocultural and structural barriers that shape these outcomes.

Secondly, the results will provide baseline information regarding the knowledge, attitudes, and behaviours of young Rohingya refugees living in Bangladesh regarding SRH, FP and HIV/STIs. This foundational evidence will also support the generation of hypotheses for future research and programmatic evaluation.

Third, by prioritising the voices and lived experiences of young women and girls living in Cox's Bazar refugee camps, this study provides a detailed, contextually specific insight into the multifaceted barriers that they encounter when seeking SRH services. The findings will be instrumental in revealing how age, gender, marital status, and displacement-related vulnerabilities intersect to shape health behaviours and decision-making. This information is crucial for developing culture-specific interventions, which are youth-friendly, to enable them to make informed decisions about their reproductive life, to prevent unintended pregnancies and vulnerability to HIV and other STIs.

Finally, this study will make an academic contribution to the growing body of literature on SRH in humanitarian contexts by offering empirical insights into a critically under-researched population. It will also add value to the current knowledge by application of the intersectional

lens and a qualitative design that captures both structural and subjective dimensions of SRH access and agency. Findings will inform program decisions for the SRH Working Group and NGOs. Our study findings will help NGOs set realistic coverage goals, target outreach efficiently, and document impact for donors and coordination bodies.

## 1.9 Thesis structure overview

This thesis is organised into nine chapters, each contributing to a comprehensive understanding of the SRH experiences of young Rohingya refugee women in Bangladesh, with a specific focus on family planning and HIV/STI knowledge, perceptions, and access to services. It integrates both published and submitted peer-reviewed articles based on original empirical research. The structure systematically progresses from foundational context to empirical analysis, culminating in integrated policy implications. As a note, the articles cover overlapping issues; therefore, some repetition of the background may be unavoidable.

**Chapter 1, Introduction and Background**, sets the context for the study, summarising global SRH in humanitarian settings, the prominent SRH concerns among refugees in LMICs, and SRH vulnerabilities for the Rohingya refugees living in Bangladesh. It also outlines the significance of the study.

*Key Content:* Global SRH in Humanitarian Settings, SRH of Refugees in LMICs, Young refugees and their SRH, Current Health status of Rohingya, SRH services and interventions currently delivered in the Cox Bazar camps, and Significance of the Study.

**Chapter 2, Literature Review**, critically synthesises existing literature on SRH, family planning, and HIV/STIs among Rohingya refugees in Bangladesh. It includes two papers: a published review protocol that sets out inclusion criteria and methods for evidence synthesis, and a published systematic review that identifies gaps in access, quality, and measurement across FP and HIV/STI services.

*Key Content:*

- Article 1: Published protocol for reviewing SRH among Rohingya refugees
- Article 2: Published systematic review identifying gaps in FP/HIV service access

**Chapter 3, Research Design and Methodology**, presents the analytical framework guiding the research and details the mixed-methods design, which includes both quantitative (survey) and qualitative (in-depth interviews and focus group discussions) components. It outlines data triangulation strategies, ethical considerations, and researcher reflexivity.

*Key Content:* Theoretical framework, Mixed-methods justification, Survey/FGD protocols, Triangulation strategy, and Reflexivity statement.

**Chapter 4, Family Planning Literacy and Use (Quantitative)**, includes a submitted article reporting findings from a cross-sectional survey on family planning awareness and contraception use among young Rohingya women.

*Key Content:*

- Article 3: Family Planning Literacy and Contraception Use (Published)

**Chapter 5, Barriers and Facilitators to Family Planning (Qualitative)**, features a submitted qualitative article exploring the sociocultural and systemic barriers to family planning services, based on interviews with young women, men, community leaders, and healthcare providers.

*Key Content:*

- Article 4: Facilitators and Barriers to Family Planning Services (revised and resubmitted, decision pending)

**Chapter 6, HIV/STI Literacy and Testing (Quantitative)**, presents a submitted article on HIV/STI awareness and testing behaviours among young Rohingya women.

*Key Content:*

- Article 5: HIV/STI Awareness and Testing (published)

**Chapter 7, Barriers and Facilitators to HIV/STI Services (Qualitative)**, includes a submitted qualitative article on barriers to HIV/STI awareness and service access.

*Key Content:*

- Article 6: Facilitators and Barriers to HIV/STI awareness (published)

**Chapter 8, Integrated Discussion**, synthesises findings across all empirical chapters, drawing thematic connections and offering intersectional insights into SRH access. It also reflects on methodological strengths and limitations.

*Key Content:* Thematic Synthesis Across Quantitative and Qualitative Findings, Intersectional Insights into SRH Access, and Methodological Reflections and Limitations.

**Chapter 9, Conclusions and Recommendations**, summarises key findings, highlights contributions to knowledge and public health, and offers policy and programmatic recommendations. It concludes with suggestions for future research.

*Key Content:* Summary of Key Findings, Contributions to Knowledge and Public Health, Policy and Program Recommendations, and Future Research Directions.

#### 1.10 References

1. Singh NS, Aryasinghe S, Smith J, Khosla R, Say L, Blanchet K. A long way to go: a systematic review to assess the utilisation of sexual and reproductive health services during humanitarian crises. *BMJ Glob Health*. 2018;3(2):e000682. doi:10.1136/bmjgh-2017-000682.
2. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. *BMC Public Health*. 2020;20(1):666. doi:10.1186/s12889-020-08818-y.
3. Hossain MA, Dawson A. Sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan refugee women of reproductive age in Asia: a mixed methods systematic review protocol. *Women Midwives Midwifery*. 2021;1(3).
4. Munyuzangabo M, Khalifa DS, Gaffey MF, Kamali M, Siddiqui FJ, Meteke S, et al. Delivery of sexual and reproductive health interventions in conflict settings: a systematic review. *BMJ Glob Health*. 2020;5(Suppl 1). doi:10.1136/bmjgh-2019-002206.
5. United Nations. Transforming our world: the 2030 agenda for sustainable development [Internet]. 2015 [cited 2025 Jun 22]. Available from: <https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>.
6. UNFPA. Minimum Initial Service Package (MISP) for SRH in Crisis Situations [Internet]. 2020 [cited 2025 Jun 22]. Available from: <https://www.unfpa.org/resources/minimum-initial-service-package-misp-srh-crisis-situations>.
7. UNHCR. Global trends [Internet]. 2025 [cited 2025 Apr 21]. Available from: <https://www.unhcr.org/global-trends>.
8. UNHCR. Mid-Year trends [Internet]. 2024 [cited 2025 Feb 25]. Available from: <https://www.unhcr.org/mid-year-trends>.
9. UNHCR. Asia and the Pacific Regional Trends Report 2023 [Internet]. 2024 [cited 2025 Jun 23]. Available from: <https://www.unhcr.org/asia/news/announcements/unhcr-releases-asia-and-pacific-regional-trends-report-2023>.
10. Hossain MA, Dawson A. A systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan

- refugee women of reproductive age in Asia. *WHO South East Asia J Public Health*. 2022;11(1):42–53. doi:10.4103/WHO-SEAJPH.WHO-SEAJPH\_144\_21.
11. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugees in Bangladesh: a systematic review. *Women Midwives Midwifery*. 2025;5(2):1–24. doi:10.36749/wmm.5.2.1-24.2025.
  12. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ*. 2021;99(3):201–8. doi:10.2471/BLT.20.269779.
  13. Zakaria M, Nachrin T, Azad MAK. Evaluating the effectiveness of utilization of health communication interventions on sexual and reproductive health of the Rohingya women living in Cox's Bazar refugee camp. *Heliyon*. 2022;8(12):e12563. doi:10.1016/j.heliyon.2022.e12563.
  14. Azad MAK, Zakaria M, Nachrin T, Das MC, Cheng F, Xu J. Family planning knowledge, attitude and practice among Rohingya women living in refugee camps in Bangladesh: a cross-sectional study. *Reprod Health*. 2022;19(1):105. doi:10.1186/s12978-022-01410-0.
  15. UNHCR. Convention and Protocol Relating to the Status of Refugees [Internet]. 1951 [cited 2025 Jun 23]. Available from: <https://www.unhcr.org/3b66c2aa10.html>.
  16. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugee people in Bangladesh: a systematic review protocol. *Women Midwives Midwifery*. 2023;3(3):36–44.
  17. Starrs AM, Ezech AC, Barker G, Basu A, Bertrand JT, Blum R, et al. Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher Commission. *Lancet*. 2018;391(10140):2642–92. doi:10.1016/S0140-6736(18)30293-9.
  18. United Nations. Programme of Action Adopted at the International Conference on Population and Development Cairo [Internet]. 1995 [cited 2024 Sep 23]. Available from: [https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un\\_1995\\_programme\\_of\\_action\\_adopted\\_at\\_the\\_international\\_conference\\_on\\_population\\_and\\_development\\_cairo\\_5-13\\_sept\\_1994.pdf](https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_1995_programme_of_action_adopted_at_the_international_conference_on_population_and_development_cairo_5-13_sept_1994.pdf).
  19. WHO. Inter-agency Field Manual on Reproductive Health in Humanitarian Settings [Internet]. 1999 [updated 2021 Apr 05; cited 2025 Jun 23]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK305149/>.
  20. UNHCR. Global trends [Internet]. 2025 [cited 2025 Jun 24]. Available from: <https://www.unhcr.org/global-trends>.

21. Heidari S, Onyango MA, Chynoweth S. Sexual and reproductive health and rights in humanitarian crises at ICPD25+ and beyond: consolidating gains to ensure access to services for all. *Sex Reprod Health Matters*. 2019;27(1):343–5. doi:10.1080/26410397.2019.1676513.
22. UNFPA. Humanitarian action 2021 overview [Internet]. 2021 [updated 2021 Mar 01; cited 2025 Jun 23]. Available from: [https://www.unfpa.org/sites/default/files/pub-pdf/PAGES-UNFPA\\_HAO2021\\_Report\\_Updated\\_6\\_Dec.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/PAGES-UNFPA_HAO2021_Report_Updated_6_Dec.pdf).
23. WHO. Maternal mortality [Internet]. 2025 [cited 2025 Jun 10]. Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>.
24. Tazinya RMA, El-Mowafi IM, Hajjar JM, Yaya S. Sexual and reproductive health and rights in humanitarian settings: a matter of life and death. *Reprod Health*. 2023;20(1):42. doi:10.1186/s12978-023-01594-z.
25. Norton A, Tappis H. Sexual and reproductive health implementation research in humanitarian contexts: a scoping review. *Reprod Health*. 2024;21(1):64. doi:10.1186/s12978-024-01793-2.
26. Stoken JM. Suffering in silence: sexual and gender-based violence against the Rohingya community and the importance of a global health response. *J Glob Health*. 2020;10(2):020324. doi:10.7189/jogh.10.020324.
27. Ahmed R, Aktar B, Farnaz N, Ray P, Awal A, Hassan R, et al. Challenges and strategies in conducting sexual and reproductive health research among Rohingya refugees in Cox's Bazar, Bangladesh. *Confl Health*. 2020;14(1):83. doi:10.1186/s13031-020-00329-2.
28. Warren E, Post N, Hossain M, Blanchet K, Roberts B. Systematic review of the evidence on the effectiveness of sexual and reproductive health interventions in humanitarian crises. *BMJ Open*. 2015;5(12):e008226. doi:10.1136/bmjopen-2015-008226.
29. Tadesse G, Andualem F, Rtbey G, Nakie G, Takelle GM, Molla A, et al. Gender-based violence and its determinants among refugees and internally displaced women in Africa: systematic review and meta-analysis. *BMC Public Health*. 2024;24(1):2851. doi:10.1186/s12889-024-20329-8.
30. World Health Organization. WHO multi-country study on women's health and domestic violence against women: initial results on prevalence, health outcomes and women's responses [Internet]. 2005 [cited 2025 Jun 23]. Available from: <https://iris.who.int/handle/10665/43309>.
31. Vu A, Adam A, Wirtz A, Pham K, Rubenstein L, Glass N, et al. The prevalence of sexual violence among female refugees in complex humanitarian emergencies: a systematic

- review and meta-analysis. *PLoS Currents*. 2014;6:ecurrentsdis. doi:10.1371/currents.dis.835f10778fd80ae031aac12d3b533ca7.
32. Welton-Mitchell C, Bujang N, Hussin H, Husein S, Santoadi F, James L. Intimate partner abuse among Rohingya in Malaysia: assessing stressors, mental health, social norms and help-seeking to inform interventions. *Intervention*. 2019;17(2):187–96. doi:10.4103/intv.Intv\_18\_19.
  33. Darebo TD, Spigt M, Teklewold B, Badacho AS, Mayer N, Teklewold M. The sexual and reproductive healthcare challenges when dealing with female migrants and refugees in low and middle-income countries (a qualitative evidence synthesis). *BMC Public Health*. 2024;24(1):520. doi:10.1186/s12889-024-17916-0.
  34. Stirling-Cameron E, Almukhaini S, Dol J, DuPlessis BJ, Stone K, Aston M, et al. Access and use of sexual and reproductive health services among asylum-seeking and refugee women in high-income countries: a scoping review. *PLoS One*. 2024;19(11):e0312746. doi:10.1371/journal.pone.0312746.
  35. Soeiro RE, de Siqueira Guida JP, da-Costa-Santos J, Costa ML. Sexual and reproductive health (SRH) needs for forcibly displaced adolescent girls and young women (10–24 years old) in humanitarian settings: a mixed-methods systematic review. *Reprod Health*. 2023;20(1):174. doi:10.1186/s12978-023-01715-8.
  36. Logie CH, Okumu M, Loutet M, Coelho M, McAlpine A, MacKenzie F, et al. Contextualizing HIV testing experiences within the HIV prevention cascade: qualitative insights from refugee youth in Bidi Bidi refugee settlement, Uganda. *BMC Public Health*. 2024;24(1):2599. doi:10.1186/s12889-024-20135-2.
  37. Davidson N, Hammarberg K, Romero L, Fisher J. Access to preventive sexual and reproductive health care for women from refugee-like backgrounds: a systematic review. *BMC Public Health*. 2022;22(1):403. doi:10.1186/s12889-022-12576-4.
  38. Casey SE. Evaluations of reproductive health programs in humanitarian settings: a systematic review. *Confl Health*. 2015;9(1):S1. doi:10.1186/1752-1505-9-S1-S1.
  39. Shah MG, Dey T, Kostelecky SM, El Bizri M, Rodo M, Singh NS, et al. Guidance on sexual, reproductive, maternal, newborn, child and adolescent health in humanitarian and fragile settings: a scoping review. *BMJ Glob Health*. 2024;9(3):e013944. doi:10.1136/bmjgh-2023-013944.
  40. Logie CH, MacKenzie F, Malama K, Lorimer N, Lad A, Zhao M, et al. Sexual and reproductive health among forcibly displaced persons in urban environments in low and

- middle-income countries: scoping review findings. *Reprod Health*. 2024;21(1):51. doi:10.1186/s12978-024-01780-7.
41. Singh NS, Smith J, Aryasinghe S, Khosla R, Say L, Blanchet K. Evaluating the effectiveness of sexual and reproductive health services during humanitarian crises: a systematic review. *PLoS One*. 2018;13(7):e0199300. doi:10.1371/journal.pone.0199300.
  42. Broaddus-Shea ET, Kobeissi L, Ummer O, Say L. A systematic review of monitoring and evaluation indicators for sexual and reproductive health in humanitarian settings. *Confl Health*. 2019;13:43. doi:10.1186/s13031-019-0221-1.
  43. Ireland H, Tran NT, Dawson A. The role of social capital in women's sexual and reproductive health and rights in humanitarian settings: a systematic review of qualitative studies. *Confl Health*. 2021;15(1):87. doi:10.1186/s13031-021-00421-1.
  44. Col M, Bilgili Aykut N, Usturali Mut AN, Kocak C, Uzun SU, Akin A, et al. Sexual and reproductive health of Syrian refugee women in Turkey: a scoping review within the framework of the MISP objectives. *Reprod Health*. 2020;17(1):99. doi:10.1186/s12978-020-00948-1.
  45. Ninsiima LR, Chiumia IK, Ndejjo R. Factors influencing access to and utilisation of youth-friendly sexual and reproductive health services in sub-Saharan Africa: a systematic review. *Reprod Health*. 2021;18(1):1–17.
  46. Hasan-Ul-Bari SM, Ahmed T. Ensuring sexual and reproductive health and rights of Rohingya women and girls. *Lancet*. 2018;392(10163):2439–40. doi:10.1016/S0140-6736(18)32764-8.
  47. Tirado V, Chu J, Hanson C, Ekstrom AM, Kagesten A. Barriers and facilitators for the sexual and reproductive health and rights of young people in refugee contexts globally: a scoping review. *PLoS One*. 2020;15(7):e0236316. doi:10.1371/journal.pone.0236316.
  48. Ivanova O, Rai M, Kemigisha E. A systematic review of sexual and reproductive health knowledge, experiences and access to services among refugee, migrant and displaced girls and young women in Africa. *Int J Environ Res Public Health*. 2018;15(8):1583. doi:10.3390/ijerph15081583.
  49. UNFPA. Minimum Initial Service Package for Sexual and Reproductive Health: Inter-Agency Field Manual on Reproductive Health in Humanitarian Settings [Internet]. 2020 [updated 2022 Aug 01; cited 2025 Jun 23]. Available from: <https://www.unfpa.org/sites/default/files/resource-pdf/MISP-Reference-English.pdf>.
  50. WHO. World report on the health of refugees and migrants [Internet]. 2022 [cited 2025 Aug 18]. Available from: <https://www.who.int/publications/i/item/9789240054462>.

51. UNHCR. Annual Public Health Global Review 2023 [Internet]. 2023 [cited 2025 Aug 18]. Available from: <https://www.unhcr.org/sites/default/files/2024-04/annual-public-health-global-review-2023.pdf>.
52. Singh NS, Prabhakar P, Ssali A, Namakula S, Namatovu J, Kapiti R, et al. “They will say you want to make their home die”: a mixed methods study to assess modern family planning use in partnered South Sudanese refugee and host populations in Northern Uganda. *PLoS Glob Public Health*. 2022;2(6):e0000348.
53. Raheel H, Karim MS, Saleem S, Bharwani S. Knowledge, attitudes and practices of contraception among Afghan refugee women in Pakistan: a cross-sectional study. *PLoS One*. 2012;7(11):e48760. doi:10.1371/journal.pone.0048760.
54. Michaelsen S. Sexual and gender-based violence against South Sudanese refugees in Uganda: a mixed-methods study [Internet]. Montreal: University of Montreal; 2025.
55. Loutet MG, Logie CH, Okumu M, Berry I, Lukone SO, Kisubi N, et al. Sexual and reproductive health factors associated with child, early and forced marriage and partnerships among refugee youth in a humanitarian setting in Uganda: mixed methods findings. *Afr J Reprod Health*. 2022;26(12s):66–77. doi:10.29063/ajrh2022/v26i12s.8.
56. Gitonga E, Gage AJ. Modern contraceptive prevalence and its predictors among non-refugee and refugee Somali women in Nairobi city, Kenya; a comparative view. *Front Glob Womens Health*. 2024;5:1328612. doi:10.3389/fgwh.2024.1328612.
57. Morrison V. Contraceptive need among Cambodian refugees in Khao Phlu camp. *Int Fam Plan Perspect*. 2000;26(4):188–92. doi:10.2307/2648257.
58. Kisindja RM, Kimona C, Etoy M, Dorme F, Benfield N. Family planning knowledge and use among women in camps for internally displaced people in the Democratic Republic of the Congo. *Int J Gynaecol Obstet*. 2017;138(3):256–60. doi:10.1002/ijgo.12220.
59. Tanabe M, Myers A, Bhandari P, Cornier N, Doraiswamy S, Krause S. Family planning in refugee settings: findings and actions from a multi-country study. *Confl Health*. 2017;11(1):1–12. doi:10.1186/s13031-017-0112-2.
60. Pierce H. Reproductive health care utilization among refugees in Jordan: provisional support and domestic violence. *Womens Health*. 2019;15:1745506519861224. doi:10.1177/1745506519861224.
61. Muhumuza C, Sileo KM, Wanyenze RK, Kershaw TS, Lule H, Sekamatte S, et al. Development of a multi-level family planning intervention for couples in rural Uganda: key findings & adaptations made from community engaged research methods. *BMC Womens Health*. 2023;23(1):545. doi:10.1186/s12905-023-02667-8.

62. Lutalo T, Gray R, Santelli J, Guwatudde D, Brahmbhatt H, Mathur S, et al. Unfulfilled need for contraception among women with unmet need but with the intention to use contraception in Rakai, Uganda: a longitudinal study. *BMC Womens Health*. 2018;18(1):60. doi:10.1186/s12905-018-0551-y.
63. Achola R, Atuyambe L, Nabiwemba E, Fredrick M, Orach CG. Factors associated with family planning use among refugee and host populations in Adjumani district, West Nile, Uganda: a comparative study. *BMC Public Health*. 2024;24(1):754. doi:10.1186/s12889-024-18103-x.
64. Amiri M, El-Mowafi IM, Chahien T, Yousef H, Kobeissi LH. An overview of the sexual and reproductive health status and service delivery among Syrian refugees in Jordan, nine years since the crisis: a systematic literature review. *Reprod Health*. 2020;17(1):166. doi:10.1186/s12978-020-01005-7.
65. UNHCR. Annual public health global review 2022 [Internet]. 2022 [cited 2025 Aug 18]. Available from: <https://www.unhcr.org/sites/default/files/2023-05/2022-annual-public-health-global-review.pdf>.
66. Bakesiima R, Cleeve A, Larsson E, Tumwine JK, Ndeezi G, Danielsson KG, et al. Modern contraceptive use among female refugee adolescents in northern Uganda: prevalence and associated factors. *Reprod Health*. 2020;17(1):67. doi:10.1186/s12978-020-00921-y.
67. Cherri Z, Gil Cuesta J, Rodriguez-Llanes JM, Guha-Sapir D. Early marriage and barriers to contraception among Syrian refugee women in Lebanon: a qualitative study. *Int J Environ Res Public Health*. 2017;14(8):836. doi:10.3390/ijerph14080836.
68. Samari G. Syrian refugee women's health in Lebanon, Turkey, and Jordan and recommendations for improved practice. *World Med Health Policy*. 2017;9(2):255–74.
69. Wulifan JK, Brenner S, Jahn A, De Allegri M. A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries. *BMC Womens Health*. 2016;16(1):2. doi:10.1186/s12905-015-0281-3.
70. Achola R, Atuyambe L, Nabiwemba E, Nyashanu M, Garimoi Orach C. Barriers to contraceptive use in humanitarian settings: experiences of South Sudanese refugee women living in Adjumani district, Uganda; an exploratory qualitative study. *PLoS One*. 2024;19(3):e0278731. doi:10.1371/journal.pone.0278731.
71. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open*. 2021;11(10):e047516. doi:10.1136/bmjopen-2020-047516.

72. Fahme SA, El Ayoubi LL, DeJong J, Sieverding M. Sexual and reproductive health knowledge among adolescent Syrian refugee girls displaced in Lebanon: the role of schooling and parental communication. *PLoS Glob Public Health*. 2023;3(1):e0001437. doi:10.1371/journal.pgph.0001437.
73. UNAIDS. Resilience amid crisis: strengthening the HIV response for displaced communities in Ethiopia [Internet]. 2024 [cited 2025 Aug 18]. Available from: [https://www.unaids.org/en/resources/presscentre/featurestories/2024/december/20241202\\_ethiopia](https://www.unaids.org/en/resources/presscentre/featurestories/2024/december/20241202_ethiopia).
74. Mumtaz G, Sharara E, Dejong J, Sibai A, Roberts B, Abu-Raddad L. P800 prevalence of curable sexually transmitted infections among refugees: global systematic review and meta-analysis. *BMJ Publishing Group Ltd*. 2019.
75. Mishra D, O'Laughlin K, Spiegel P. A systematic review evaluating HIV prevalence among conflict-affected populations, 2005–2020. *AIDS Rev*. 2021;23(3):143–52. doi:10.24875/AIDSRev.200001311.
76. Ullah AA. Displacement and disease: HIV risks and healthcare gaps among refugee populations. *Venereology*. 2025;4(2):7. doi:10.3390/venereology4020007.
77. Fahme SA, Chehab S, Logie CH, Mumtaz G, Fitzgerald D, Downs JA, et al. Intersecting social-ecological vulnerabilities to and lived experiences of sexually transmitted infections among Syrian refugee women in Lebanon: a qualitative study. *PLoS Glob Public Health*. 2024;4(8):e0003507. doi:10.1371/journal.pgph.0003507.
78. Roupetz S, Garbern S, Michael S, Bergquist H, Glaesmer H, Bartels SA. Continuum of sexual and gender-based violence risks among Syrian refugee women and girls in Lebanon. *BMC Womens Health*. 2020;20(1):176. doi:10.1186/s12905-020-01009-2.
79. UNHCR. Health access and utilization survey among refugees in Lebanon – 2022 [Internet]. 2023 [cited 2025 Aug 18]. Available from: <https://data.unhcr.org/en/documents/details/103183>.
80. Al-Maharma D, Safadi R, Ahmad M, Halasa S, Nabolsi M, Dohrn J. Knowledge, attitudes and practices of Syrian refugee mothers towards sexually transmitted infections. *Int J Womens Health*. 2019;11:607–15. doi:10.2147/IJWH.S221605.
81. Saredine D, Chamseddine Z, Naal H, El Dakdouki A, Abou Haidar GH, Tamim H, et al. Correlates of sexually transmitted infections among Syrian refugee women and girls in Lebanon: knowledge, symptoms, and health-seeking behaviors. 2025.

82. Benage M, Greenough PG, Vinck P, Omeira N, Pham P. An assessment of antenatal care among Syrian refugees in Lebanon. *Confl Health*. 2015;9(1):8. doi:10.1186/s13031-015-0035-8.
83. Abbasi-Kangevari M, Amin K, Kolahi AA. Antenatal care utilisation among Syrian refugees in Tehran: a respondent driven sampling method. *Women Birth*. 2020;33(2):e117–21. doi:10.1016/j.wombi.2019.02.001.
84. Ngwibete A, Ogunbode O, Oluwasola T, Omigbodun A. Provision of sexual and reproductive health services to internally displaced women and refugees in Africa: a systematic review. *Malawi Med J*. 2024;36(3):238–49. doi:10.4314/mmj.v36i3.11.
85. Vu M, Besera G, Ta D, Escoffery C, Kandula NR, Srivanjarean Y, et al. System-level factors influencing refugee women's access and utilization of sexual and reproductive health services: a qualitative study of providers' perspectives. *Front Glob Womens Health*. 2022;3:1048700. doi:10.3389/fgwh.2022.1048700.
86. Dimassi H, Alameddine M, Sabra N, El Arnaout N, Harb R, Hamadeh R, et al. Maternal health outcomes in the context of fragility: a retrospective study from Lebanon. *Confl Health*. 2023;17(1):59. doi:10.1186/s13031-023-00558-1.
87. WHO. Refugee and migrant health [Internet]. 2022 [cited 2025 Mar 12]. Available from: <https://www.who.int/news-room/fact-sheets/detail/refugee-and-migrant-health>.
88. Sawadogo PM, Sia D, Onadja Y, Beogo I, Sangli G, Sawadogo N, et al. Barriers and facilitators of access to sexual and reproductive health services among migrant, internally displaced, asylum seeking and refugee women: a scoping review. *PLoS One*. 2023;18(9):e0291486. doi:10.1371/journal.pone.0291486.
89. Ivanova O, Rai M, Mlahagwa W, Tumuhairwe J, Bakuli A, Nyakato VN, et al. A cross-sectional mixed-methods study of sexual and reproductive health knowledge, experiences and access to services among refugee adolescent girls in the Nakivale refugee settlement, Uganda. *Reprod Health*. 2019;16(1):35. doi:10.1186/s12978-019-0698-5.
90. UNFPA. Adolescent sexual and reproductive health for humanitarian settings [Internet]. 2012 [cited 2025 Jun 23]. Available from: [https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH\\_good\\_practice\\_documentation\\_English\\_FINAL.pdf](https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH_good_practice_documentation_English_FINAL.pdf).
91. United Nations. Definition of youth [Internet]. 2022 [updated 2022 Jun 28; cited 2025 Jun 23]. Available from: <https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-definition.pdf>.

92. United Nations. Youth: global issues [Internet]. 2022 [updated 2022 Jul 17; cited 2025 Jun 23]. Available from: <https://www.un.org/en/global-issues/youth>.
93. UNHCR. Global Refugee Youth Consultations (2015–2016) [Internet]. 2016 [cited 2025 Jun 23]. Available from: <https://www.unhcr.org/57e1126e7.html>.
94. Bukenya JN, Ssekamatte T, Komuhendo R, Stillman M. Young people's access to sexual and reproductive health services in Uganda: understanding barriers and facilitators. 2025.
95. Li K, Thaweesee N, Kimmel A, Dorward E, Dam A. Barriers and facilitators to utilizing HIV prevention and treatment services among migrant youth globally: a scoping review. *PLoS Glob Public Health*. 2024;4(2):e0002851. doi:10.1371/journal.pgph.0002851.
96. Krause S, Williams H, Onyango MA, Sami S, Doedens W, Giga N, et al. Reproductive health services for Syrian refugees in Zaatri Camp and Irbid City, Hashemite Kingdom of Jordan: an evaluation of the Minimum Initial Services Package. *Confl Health*. 2015;9(Suppl 1):S4. doi:10.1186/1752-1505-9-S1-S4.
97. UNHCR. Figures at a glance [Internet]. 2022 [updated 2022 Jul 13; cited 2025 Jun 23]. Available from: <https://www.unhcr.org/en-au/figures-at-a-glance.html>.
98. UNHCR. How many refugees and forcibly displaced people are there? [Internet]. 2025 [cited 2025 Jun 23]. Available from: <https://www.unhcr.org/about-unhcr/overview/figures-glance>.
99. Morris JL, Rushwan H. Adolescent sexual and reproductive health: the global challenges. *Int J Gynaecol Obstet*. 2015;131 Suppl 1:S40–2. doi:10.1016/j.ijgo.2015.02.006.
100. Saul J, Bachman G, Allen S, Toiv NF, Cooney C, Beamon T. The DREAMS core package of interventions: a comprehensive approach to preventing HIV among adolescent girls and young women. *PLoS One*. 2018;13(12):e0208167. doi:10.1371/journal.pone.0208167.
101. Askew I, Khosla R, Daniels U, Krause S, Lofthouse C, Say L, et al. Sexual and reproductive health and rights in emergencies. *Bull World Health Organ*. 2016;94(5):311. doi:10.2471/BLT.16.173567.
102. Murray C. A comprehensive assessment of mortality and disability from disease, injuries and risk factors in 1990 and projected to 2020. *The Global Burden of Disease*. 1994;1.
103. Singh S, Darroch JE, Ashford LS. Adding it up: the costs and benefits of investing in sexual and reproductive health 2014. 2014.
104. Bukuluki PMW, Kisaakye P, Wandiembe SP, Kiwujja V, Kajungu C, Mugwanya W, et al. Utilization of sexual and reproductive health services among young people in refugee

- settings in Uganda. *Front Reprod Health*. 2023; 5: 1077761. doi:10.3389/frph.2023.1077761.
105. Deng M, Chen J, Wang Z, Zheng R, Pang W, Sun R, et al. Trends in the incidence of common sexually transmitted infections at the global, regional and national levels, 1990–2021: results of the Global Burden of Disease 2021 study. *Trop Med Health*. 2025;53(1):70. doi:10.1186/s41182-025-00744-2.
  106. WHO. HIV data and statistics [Internet]. 2024 [cited 2025 Jun 24]. Available from: <https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/hiv/strategic-information/hiv-data-and-statistics>.
  107. WHO. Sexually transmitted infections (STIs) [Internet]. 2025 [cited 2025 Jun 25]. Available from: [https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)).
  108. Hossain MA, Zablotska-Manos I. The changing dynamics of HIV/AIDS during the COVID-19 pandemic in the Rohingya refugee camps in Bangladesh – a call for action. *Glob Biosecurity*. 2022;4(1). doi:10.31646/gbio.135.
  109. Tirado V, Godfrey E. Addressing myths and misconceptions about contraception among displaced populations. *Int J Gynecol Obstet*. 2020;150:59–65.
  110. Tanabe M, Schlecht J, Manohar S. Adolescent sexual and reproductive health programs in humanitarian settings: an in-depth look at family planning services. New York: Women's Refugee Commission; 2011.
  111. Chynoweth SK. Advancing reproductive health on the humanitarian agenda: the 2012–2014 global review. *Confl Health*. 2015;9(S1):I1. doi:10.1186/1752-1505-9-s1-i1.
  112. Palmer CA, Lush L, Zwi AB. The emerging international policy agenda for reproductive health services in conflict settings. *Soc Sci Med*. 1999;49(12):1689–703. doi:10.1016/s0277-9536(99)00253-1.
  113. Casey SE, Chynoweth SK, Cornier N, Gallagher MC, Wheeler EE. Progress and gaps in reproductive health services in three humanitarian settings: mixed-methods case studies. *Confl Health*. 2015;9(Suppl 1):S3. doi:10.1186/1752-1505-9-S1-S3.
  114. National Institute of Population Research and Training (NIPORT), Mitra and Associates, ICF International. Bangladesh Demographic and Health Survey 2014. Dhaka, Bangladesh: NIPORT, Mitra and Associates, and ICF International; 2016.
  115. World Bank. The World Bank in Bangladesh [Internet]. 2024 [cited 2025 Jun 23]. Available from: <https://www.worldbank.org/en/country/bangladesh/overview>.

116. Kundu S, Kundu S, Rahman MA, Kabir H, Al Banna MH, Basu S, et al. Prevalence and determinants of contraceptive method use among Bangladeshi women of reproductive age: a multilevel multinomial analysis. *BMC Public Health*. 2022;22(1):2357. doi:10.1186/s12889-022-14857-4.
117. NIPORT, ICF. Bangladesh Demographic and Health Survey 2022: Key Indicators Report. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT and ICF; 2023.
118. UNHCR. Situation Refugee Response in Bangladesh [Internet]. 2024 [cited 2025 Jan 28]. Available from: <https://data.unhcr.org/en/country/bgd>.
119. UNHCR. Rohingya JRP 2025: Humanitarian Action [Internet]. 2025 [cited 2025 May 03]. Available from: <https://humanitarianaction.info/plan/1212/article/rohingya-jrp-2025>.
120. Parnini SN, Othman MR, Ghazali AS. The Rohingya refugee crisis and Bangladesh-Myanmar relations. *Asian Pac Migr J*. 2013;22(1):133–46. doi:10.1177/011719681302200107.
121. Milton AH, Rahman M, Hussain S, Jindal C, Choudhury S, Akter S, et al. Trapped in statelessness: Rohingya refugees in Bangladesh. *Int J Environ Res Public Health*. 2017;14(8):942. doi:10.3390/ijerph14080942.
122. Bhatia A, Mahmud A, Fuller A, Shin R, Rahman A, Shatil T, et al. The Rohingya in Cox's Bazar: when the stateless seek refuge. *Health Hum Rights*. 2018;20(2):105–22.
123. Guglielmi S, Seager J, Mitu K, Jones N. Sexual and reproductive health for Rohingya young people living in Bangladesh. 2024.
124. Guglielmi S, Seager J, Mitu K, Baird S, Jones N. Exploring the impacts of COVID-19 on Rohingya adolescents in Cox's Bazar: a mixed-methods study. *J Migr Health*. 2020;1–2:100031. doi:10.1016/j.jmh.2020.100031.
125. Altare C, Kahi V, Ngwa M, Goldsmith A, Hering H, Burton A, et al. Infectious disease epidemics in refugee camps: a retrospective analysis of UNHCR data (2009–2017). *J Glob Health Rep*. 2019;3:e2019064. doi:10.29392/joghr.3.e2019064.
126. Truelove S, Abraham O, Altare C, Lauer SA, Grantz KH, Azman AS, et al. The potential impact of COVID-19 in refugee camps in Bangladesh and beyond: a modeling study. *PLoS Med*. 2020;17(6):e1003144. doi:10.1371/journal.pmed.1003144.
127. Vince G. The world's largest refugee camp prepares for COVID-19. *BMJ*. 2020;368:m1205. doi:10.1136/bmj.m1205.
128. Schnabel L, Huang C. Removing barriers and closing gaps: improving sexual and reproductive health and rights for Rohingya refugees and host communities [Internet]. Center for Global Development; 2019 [cited 2025 Jun 10]. Available from:

<https://www.cgdev.org/publication/removing-barriers-and-closing-gaps-improving-sexual-and-reproductive-health-and-rights>.

129. Saifi S. Pakistan's stateless Rohingya. *CNN*. 2017.
130. UNICEF. Rohingya crisis [Internet]. 2020 [updated 2021 Apr 05; cited 2025 Jun 23]. Available from: <https://www.unicef.org/emergencies/rohingya-crisis>.
131. Shohel MMC. Lives of the Rohingya children in limbo: childhood, education, and children's rights in refugee camps in Bangladesh. *Prospects (Paris)*. 2023;53(1–2):131–49. doi:10.1007/s11125-022-09631-8.
132. Hossain MA, Huda MN, Ullah A, Renzaho A. Risk factors, contemporary challenges and psychological well-being of the Rohingya refugees in Bangladesh: policy implications. *Int J Health Plann Manage*. 2022;37(4):1912–7. doi:10.1002/hpm.3472.
133. Joarder T, Sutradhar I, Hasan MI, Bulbul MMI. A record review on the health status of Rohingya refugees in Bangladesh. *Cureus*. 2020;12(8):e9753. doi:10.7759/cureus.9753.
134. Jubayer F, Kayshar S, Arifin S, Parven A, Khan SI, Meftaul IM. Nutritional health of the Rohingya refugees in Bangladesh: conceptualizing a multilevel action framework focusing the COVID-19. *Nutr Health*. 2024;30(1):21–5. doi:10.1177/02601060231169372.
135. UNHCR. Rohingya Refugee Response: Inter-Sector Needs Assessment – Bangladesh [Internet]. 2025 [cited 2025 Aug 22]. Available from: <https://data.unhcr.org/en/documents/details/115846>.
136. Hamid H. The Rohingya refugee crisis – a complex humanitarian challenge [Internet]. ISHR; 2025 [cited 2025 Jun 23]. Available from: <https://ishr.org/bangladesh-the-rohingya-refugee-crisis/>.
137. WHO. Donors making a difference: refugees and migrants [Internet]. 2025 [cited 2025 Jun 23]. Available from: <https://www.who.int/news-room/feature-stories/detail/donors-making-a-difference--refugees-and-migrants>.
138. MSF. Bangladesh: MSF significantly expands hepatitis C programs in Rohingya refugee camps [Internet]. Doctors Without Borders; 2025 [cited 2025 Jun 23]. Available from: <https://www.doctorswithoutborders.ca/bangladesh-msf-significantly-expands-hepatiti-c-programs-in-rohingya-refugee-camps/>.
139. Riley A, Varner A, Ventevogel P, Taimur Hasan MM, Welton-Mitchell C. Daily stressors, trauma exposure, and mental health among stateless Rohingya refugees in Bangladesh. *Transcult Psychiatry*. 2017;54(3):304–31. doi:10.1177/1363461517705571.
140. Ritsema H, Armstrong-Hough M. Associations among past trauma, post-displacement stressors, and mental health outcomes in Rohingya refugees in Bangladesh: a secondary

- cross-sectional analysis. *Front Public Health*. 2023;10:1048649. doi:10.3389/fpubh.2022.1048649.
141. Jannat S, Sifat RI, Khisa M. Sexual and reproductive health conditions of women: insights from Rohingya refugee women in Bangladesh. *Sex Res Soc Policy*. 2022;20(3):855–68. doi:10.1007/s13178-022-00758-z.
  142. Islam MM, Rahman MM, Khan MN. Barriers to male condom use in Rohingya refugee camps in Bangladesh: a qualitative study. *Lancet Reg Health Southeast Asia*. 2022;2:100008. doi:10.1016/j.lansea.2022.04.004.
  143. Tahir ARM, Adli SAS, Hashim R, Islahudin FH. Reproductive health issues and assessment of knowledge, attitude and practice (KAP) on family planning (FP) among Rohingya female refugees. *Open J Soc Sci*. 2022;10(3):80–93.
  144. Ainul S, Ehsan I, Haque E, Amin S, Rob U, Melnikas A, et al. Marriage and sexual and reproductive health of Rohingya adolescents and youth in Bangladesh: a qualitative study. *Population Council*. 2018. doi:10.31899/pgy7.1022.
  145. Azad MAK, Zakaria M, Nachrin T, Das MC, Cheng F, Xu J. Family planning knowledge, attitude and practice among Rohingya women living in refugee camps in Bangladesh: a cross-sectional study. *Reprod Health*. 2022;19(1). doi:10.1186/s12978-022-01410-0.
  146. Chowdhury MAK, Billah S, Karim F, Khan ANS, Islam S, Arifeen SE. Report on demographic profiling and needs assessment of maternal and child health (MCH) care for the Rohingya refugee population in Cox’s Bazar, Bangladesh. Maternal and Child Health Division, ICDDR,B; 2018.
  147. Islam MM, Rahman MM, Khan MN. Barriers to male condom use in Rohingya refugee camps in Bangladesh: a qualitative study. *Lancet Reg Health Southeast Asia*. 2022;2:100008. doi:10.1016/j.lansea.2022.04.004.
  148. Islam MM, Khan MN, Rahman MM. Factors affecting child marriage and contraceptive use among Rohingya girls in refugee camps. *Lancet Reg Health West Pac*. 2021;12:100175. doi:10.1016/j.lanwpc.2021.100175.
  149. Saidu S. Knowledge, practices and influencing factors regarding use of contraceptive methods among Rohingya refugee adolescent girls in Cox’s Bazar, Bangladesh: a cross-sectional mixed method study. *J Reprod Health Contracept*. 2022;7(7). doi:10.36648/2471-9749.22.7.001.
  150. Ahmed R, Farnaz N, Aktar B, Hassan R, Shafique SB, Ray P, et al. Situation analysis for delivering integrated comprehensive sexual and reproductive health services in humanitarian crisis condition for Rohingya refugees in Cox's Bazar, Bangladesh: protocol

- for a mixed-method study. *BMJ Open*. 2019;9(7):e028340. doi:10.1136/bmjopen-2018-028340.
151. Khan MN, Khanam SJ, Alam MB. Exploring the impact of preconception care and unintended pregnancy on access to antenatal healthcare services among Rohingya women: insights from a cross-sectional survey. *J Migr Health*. 2024;9:100213. doi:10.1016/j.jmh.2024.100213.
  152. Islam MM, Nuzhath T. Health risks of Rohingya refugee population in Bangladesh: a call for global attention. *J Glob Health*. 2018;8(2):020309. doi:10.7189/jogh.08.020309.
  153. Hutchinson S. Gendered insecurity in the Rohingya crisis. *Aust J Int Aff*. 2017;72(1):1–9. doi:10.1080/10357718.2017.1402291.
  154. Riley A, Varner A, Ventevogel P, Hasan MM, Welton-Mitchell C. Daily stressors, trauma exposure, and mental health among stateless Rohingya refugees in Bangladesh. *Transcult Psychiatry*. 2017;54(3):304–31. doi:10.1177/1363461517705571.
  155. Shair D, Akhter K, Shama A. The role of psychosocial support in coping with incidents of gender-based violence among Rohingya refugees. *Intervention*. 2019;17(2):238–42. doi:10.4103/intv.Intv\_16\_19.
  156. Islam MM, Khan MN, Rahman MM. Intimate partner abuse among Rohingya women and its relationship with their abilities to reject husbands' advances to unwanted sex. *J Interpers Violence*. 2022;37(13–14):NP11315–NP32. doi:10.1177/0886260521991299.
  157. Zakaria M. Exploring STI/HIV knowledge and effect of communication activities among Rohingya refugee women: a camp-based cross-sectional study in Bangladesh. *J Psychosex Health*. 2024;6(1):55–65.
  158. UNFPA. Humanitarian action 2018 overview [Internet]. New York: United Nations Population Fund; 2018 [updated 2021 Mar 01; cited 2025 Jun 23]. Available from: <https://www.unfpa.org/sites/default/files/pub-pdf/>.
  159. UNHCR. Situation refugee response in Bangladesh [Internet]. Geneva: UNHCR; 2022 [cited 2025 Jun 23]. Available from: [https://data.unhcr.org/en/situations/myanmar\\_refugees](https://data.unhcr.org/en/situations/myanmar_refugees).
  160. Agarwal A, Surti V, Terry MA. Recommendations to improve maternal mortality among Rohingya women in Bangladeshi refugee camps. *Health Care Women Int*. 2025;46(10):1151–62. doi:10.1080/07399332.2024.2349820.
  161. UNFPA. Sexual and reproductive health working group bulletin: humanitarian response, situation overview Rohingya refugee response, Cox's Bazar [Internet]. 2025 [cited 2025

- Aug 22]. Available from: [https://bangladesh.unfpa.org/sites/default/files/pub-pdf/2025-03/SRH%20WG%20Bulletin%20Annual%20Bulletin%202024\\_V2%20%281%29.pdf](https://bangladesh.unfpa.org/sites/default/files/pub-pdf/2025-03/SRH%20WG%20Bulletin%20Annual%20Bulletin%202024_V2%20%281%29.pdf).
162. WHO. Situation report: August 2024 WHO Cox's Bazar: Rohingya emergency crisis [Internet]. 2024 [cited 2025 Jun 23]. Available from: <https://www.who.int/bangladesh/publications-detail/who-cox-s-bazar-rohingya-emergency-crisis-situation-report-august-2024>.
  163. Amsalu R, Costello J, Hasna Z, Handzel E. Estimating stillbirth and neonatal mortality rate among Rohingya refugees in Bangladesh, September 2017 to December 2018: a prospective surveillance. *BMJ Glob Health*. 2022;7(4):e008110. doi:10.1136/bmjgh-2021-008110.
  164. WHO. WHO and health sector boost GBV response in Rohingya camps [Internet]. 2024 [cited 2025 Jun 23]. Available from: <https://www.who.int/bangladesh/news/feature-stories/item/who-and-health-sector-boost-gbv-response-in-rohingya-camps>.
  165. UNFPA. GBVIMS factsheet, Q4 2024 (October–December 2024), Cox's Bazar [Internet]. 2025 [cited 2025 Aug 22]. Available from: [https://rohingyaresponse.org/wp-content/uploads/2025/02/Final\\_GBVIMS-Factsheet-Q4-2024.pdf](https://rohingyaresponse.org/wp-content/uploads/2025/02/Final_GBVIMS-Factsheet-Q4-2024.pdf).
  166. Islam MM, Hossain MA, Yunus MY. Why is the use of contraception so low among the Rohingya displaced population in Bangladesh? *Lancet Reg Health West Pac*. 2021;13:100175.
  167. Melnikas AJ, Ainul S, Ehsan I, Haque E, Amin S. Child marriage practices among the Rohingya in Bangladesh. *Confl Health*. 2020;14:28. doi:10.1186/s13031-020-00274-0.
  168. Islam M, Habib SE. "I don't want my marriage to end": a qualitative investigation of the sociocultural factors influencing contraceptive use among married Rohingya women residing in refugee camps in Bangladesh. *Reprod Health*. 2024;21(1):32. doi:10.1186/s12978-024-01763-8.
  169. Hossain MA, Zablotska-Manos I. The changing dynamics of HIV/AIDS during the COVID-19 pandemic in the Rohingya refugee camps in Bangladesh – a call for action. *Glob Biosecurity*. 2022;4(1). doi:10.31646/gbio.135.
  170. Arie S. Healthcare for the Rohingya people: traumatised by violence, trapped in squalor. *BMJ*. 2019;364:k5360. doi:10.1136/bmj.k5360.
  171. Rahman S. Rohingya refugee crisis: Bangladesh is at high risk of HIV/AIDS, STDs & STIs [Internet]. Brave Dimension Global; 2019 [cited 2025 Jun 11]. Available from: <https://bravedimension.org/2025/01/15/rohingya-refugee-crisis-bangladesh-is-at-high-risk-of-hiv-aids-stds-stis-2/>.

172. Hsan K, Griffiths MD, Gozal D, Rahman MA. HIV infection in Rohingya refugees in Bangladesh. *Lancet HIV*. 2019;6(7):e419. doi:10.1016/S2352-3018(19)30156-0.
173. UNAIDS. Bangladesh: HIV/AIDS data hub for the Asia-Pacific region [Internet]. 2021 [updated 2021 Aug 03; cited 2025 Jun 23]. Available from: <https://www.aidsdatahub.org/country-profiles/bangladesh>.
174. Shuvo M. Rohingyas highly exposed to HIV. *The Daily Star*. 2023 Dec 01.
175. Hossain MM, Sultana A, Mazumder H, Munzur EM. Sexually transmitted infections among Rohingya refugees in Bangladesh. *Lancet HIV*. 2018;5(7):e342. doi:10.1016/S2352-3018(18)30140-1.
176. Aziz A. AIDS cases increasing in Cox's Bazar, including Rohingya camps. *Dhaka Tribune*. 2022 Aug 1.
177. Mou MMS, Khan MA, Jahan N, Bulbul A, Rahman H, Ferdaus F, et al. Breaking barriers: addressing STI healthcare access challenges among Rohingya refugees in Bangladesh. *LAHS Med J*. 2024;7(1):32–4.
178. UNAIDS. The HIV epidemic in Asia and the Pacific: regional data extracted from the 2023 Global AIDS Update [Internet]. 2024 [cited 2025 Aug 22]. Available from: <https://unaids-ap.org/wp-content/uploads/2023/07/asia-pacific-2023-global-aids-update-summary-report-1.pdf>.
179. Siddiqi H. Protecting autonomy of Rohingya women in sexual and reproductive health interventions. *Voices Bioethics*. 2021;7. doi:10.52214/vib.v7i.8615.
180. Islam S, Habib SE. Gender differences in knowledge and risk perception towards HIV/AIDS among Rohingyas in Cox's Bazar, Bangladesh. *J Soc Behav Community Health*. 2021;5(2):739–49.
181. MSF. MSF focus on Bangladesh [Internet]. 2024 [cited 2025 Jun 15]. Available from: <https://msf.org.au/country-region/bangladesh>.
182. WHO. Minimum package of essential health services for primary and secondary healthcare facilities [Internet]. Health Sector Cox's Bazar and Government of Bangladesh; 2024 [cited 2025 Jul 23]. Available from: [https://rohingyaresponse.org/wp-content/uploads/2024/12/Health-Sector-Coxs-Bazar-Rohingya-Response\\_MPEHS\\_Final-Version\\_October-2024.pdf](https://rohingyaresponse.org/wp-content/uploads/2024/12/Health-Sector-Coxs-Bazar-Rohingya-Response_MPEHS_Final-Version_October-2024.pdf).
183. Hossen F, Anik SSB. Dwindling aid leaves Rohingya women exposed to rising violence in Bangladesh. *The New Humanitarian* [Internet]. 2023 May 9 [cited 2025 Jun 11]. Available from: <https://www.thenewhumanitarian.org/news-feature/2023/05/09/aid-rohingya-women-violence-bangladesh>.

184. Baykan D. UN official cites horrific crimes against Rohingya. *Anadolu Agency – TRANSCEND Media Service* [Internet]. 2019 Feb 1 [cited 2025 Feb 1]. Available from: <https://www.transcend.org/tms/2019/02/un-official-cites-horrific-crimes-against-rohingya/>.
185. WHO. Beyond sexual and reproductive health: developing an adolescent-competent workforce to meet the health care needs of Rohingya adolescents [Internet]. 2020 [cited 2024 Jul 21]. Available from: <https://www.who.int/bangladesh/news/detail/07-12-2020-beyond-sexual-and-reproductive-health-developing-an-adolescent-competent-workforce-to-meet-the-health-care-needs-of-rohingya-adolescents>.
186. UN. UN and partners seek USD 934.5m for life-saving aid to 1.5 million Rohingya refugees and their hosts in Bangladesh [Internet]. IOM: UN Migration; 2025 [cited 2025 Aug 27]. Available from: <https://www.iom.int/news/un-and-partners-seek-usd-9345m-life-saving-aid-15-million-rohingya-refugees-and-their-hosts-bangladesh>.
187. Paul R. School closures push Rohingya refugee children into marriage and work [Internet]. *Reuters*; 2025 [cited 2025 Aug 27]. Available from: <https://www.reuters.com/world/asia-pacific/school-closures-push-rohingya-refugee-children-into-marriage-work-2025-08-22/>.
188. UNFPA. Korean-funded UNFPA project reaches 80,000 Rohingya girls and women to combat child marriage [Internet]. 2025 [cited 2025 May 14]. Available from: <https://bangladesh.unfpa.org/en/news/korean-funded-unfpa-project-reaches-80000-rohingya-girls-and-women-combat-child-marriage>.
189. Reliefweb. About 300,000 children risk losing education as learning centres in Rohingya camps shut due to funding cuts [Internet]. Save the Children; 2025 [cited 2025 Aug 28]. Available from: <https://reliefweb.int/report/bangladesh/about-300000-children-risk-losing-education-learning-centres-rohingya-camps-shut-due-funding-cuts>.
190. Zimmerman LA, Elnakib S, Ali A, Akter R, Hossain T, Traill T, et al. Family formation among adolescent Rohingya refugees: trajectories into adolescent marriage and childbearing in Cox's Bazar, Bangladesh. *Confl Health*. 2025;19(1):41. doi:10.1186/s13031-025-00683-z.
191. Noori N, Proctor JL, Efevbera Y, Oron AP. The effect of adolescent pregnancy on child mortality in 46 low- and middle-income countries. *BMJ Glob Health*. 2022;7(5):e008681.
192. Mojid MI. The struggles of Rohingya adolescent mothers. *Dhaka Tribune*. 2024 Dec 10.
193. UNICEF. Bangladesh humanitarian situation report No. 71 for 01 January – 31 March 2025 [Internet]. 2025 [cited 2025 Aug 27]. Available from:

<https://www.unicef.org/documents/bangladesh-humanitarian-situation-report-no-71-01-january-31-march-2025>.

194. WHO. Health sector Cox's Bazar data and information hub [Internet]. World Health Organization; 2025 [cited 2025 Aug 22]. Available from: <https://rohingyaresponse.org/sectors/coxs-bazar/health/>.
195. WHO. Rohingya: Health Sector Cox's Bazar monthly bulletin June 2025 [Internet]. Health Sector Coordination Team; 2025 [cited 2025 Aug 22]. Available from: <https://rohingyaresponse.org/wp-content/uploads/2025/08/Health-Sector-Coxs-Bazar-monthly-Bulletin-June-2025.pdf>.
196. WHO. Minimum package of essential health services for primary healthcare facilities: a high priority health services package [Internet]. 2024 [cited 2025 Jun 24]. Available from: [https://rohingyaresponse.org/wp-content/uploads/2024/12/Health-Sector-Coxs-Bazar-Rohingya-Response\\_MPEHS\\_Final-Version\\_October-2024.pdf](https://rohingyaresponse.org/wp-content/uploads/2024/12/Health-Sector-Coxs-Bazar-Rohingya-Response_MPEHS_Final-Version_October-2024.pdf).
197. Hossain MA, Huda MN, Ullah AKMA, Renzaho A. Risk factors, contemporary challenges and psychological well-being of the Rohingya refugees in Bangladesh: policy implications. *Int J Health Plann Manage*. 2021. doi:10.22541/au.163111056.62060611/v1.
198. UNFPA. Four women, four stories: safe spaces allow Rohingya refugees to rebuild their lives [Internet]. 2018 [cited 2025 Jun 25]. Available from: <https://asiapacific.unfpa.org/en/news/four-women-four-stories-safe-spaces-allow-rohingya-refugees-rebuild-their-lives>.
199. Akter M, Jamil S, Kabir H. Recognizing Rohingya adolescent girls' menstrual hygiene in Bangladesh to enhance reproductive health: a commentary. *Ann Med Surg (Lond)*. 2023;85(4):1304–5. doi:10.1097/MS9.000000000000283.
200. Parmar PK, Jin RO, Walsh M, Scott J. Mortality in Rohingya refugee camps in Bangladesh: historical, social, and political context. *Sex Reprod Health Matters*. 2019;27(2):1610275. doi:10.1080/26410397.2019.1610275.
201. Hossain MA, Dawson A. A systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan refugee women of reproductive age in Asia. *WHO South East Asia J Public Health*. 2022;11(1):42–53.

## CHAPTER 2: LITERATURE REVIEW

To establish the foundation for the empirical components of this thesis, it was essential to first examine existing literature on the sexual and reproductive health (SRH) of Rohingya refugees in Bangladesh. Chapter 2 presents a comprehensive literature review in the form of two published, peer-reviewed articles: a systematic review protocol and the resulting systematic review (1, 2). These articles critically assess the current state of knowledge, identify key gaps, and inform the design and focus of the subsequent empirical studies. This chapter not only synthesises existing evidence but also provides the rationale for the mixed-methods approach adopted in later chapters.

### 2.1 SYSTEMATIC REVIEW PROTOCOL

#### **Article 1: SEXUAL AND REPRODUCTIVE HEALTH OF ROHINGYA REFUGEE PEOPLE IN BANGLADESH: A SYSTEMATIC REVIEW PROTOCOL**

The systematic review protocol presented here has been published.

##### 2.1.1 Abstract

**Background and Objective:** Rohingya refugees are one of the most vulnerable population groups from any perspective, and that certainly includes their sexual and reproductive health and access to appropriate services. This review synthesises SRH status and needs of Rohingya women of reproductive age, addressing their experiences in accessing services.

**Methods:** Following PRISMA guidelines, this review employs quality assessment tools (Newcastle-Ottawa Scale, MMAT, Cochrane Risk of Bias). The search strategy will be comprehensive, spanning prominent databases such as PubMed, CINAHL, Embase, Web of Science, and Scopus. Additionally, a diligent search will extend to grey literature, reference lists, and citations. **Synthesis:** Employing a narrative synthesis approach, the data synthesis will encompass three critical domains: the SRH status and needs of Rohingya women, the barriers encountered in accessing SRH services, and the effectiveness of existing SRH interventions.

**Implications:** The review seeks to provide valuable insights for policymakers and healthcare practitioners, offering a foundation for evidence-based strategies aimed at advancing SRH outcomes among Rohingya refugees in Bangladesh and similar Asian contexts. The review is registered in PROSPERO (CRD42023444386) for transparency and efficiency.

**Keywords:** Sexual reproductive health, family planning, HIV/STIs, Rohingya refugee, Bangladesh.

### 2.1.2 Background

Rohingya refugees are one of the most vulnerable population groups from any perspective, and that certainly includes their sexual and reproductive health and access to appropriate services. Sexual and reproductive health (SRH) is a crucial aspect of human well-being and is recognised as a fundamental human right (3, 4). This encompasses the ability to make informed choices about one's sexual and reproductive health, access to comprehensive healthcare services related to family planning, contraception, pregnancy, childbirth, and sexually transmitted infections (STIs), as well as other related issues such as unintended pregnancy and abortion, sexual functioning and dysfunction, sexual violence, and harmful practices etc. (5, 6). Despite global efforts to ensure universal access to SRH services by 2030, conflict, violence, and natural disasters have left around one billion people in need of humanitarian aid, with forced displacement exacerbating the vulnerabilities of women and girls (7). In Asia and the Pacific, 9.2 million refugees require humanitarian assistance, 2.3 million of them are women and girls of reproductive age. Bangladesh alone is providing shelter to 1.2 million Rohingya refugees, half of which are women and girls. (8) The World Health Organisation developed the Minimum Initial Service Package (MISP) to provide lifesaving SRH services in humanitarian settings, but the quality and effectiveness of these services vary across different refugee settings (3, 4, 9-12).

Rohingya refugees, who have fled Myanmar as a result of state-sponsored violence and genocide, represent one of the largest refugee groups worldwide (5, 13, 14). Displacement and the associated challenges can have severe consequences for the SRH of individuals, particularly women and girls. In Rohingya refugee settings, various factors contribute to inadequate access to reproductive healthcare services, limited contraceptive options, absence of skilled birth attendance, lack of family planning knowledge, limited awareness of HIV/STI prevention, increased risk of gender-based violence, and insufficient understanding of SRH, early and forced marriages, early childbearing, and gender-based violence (15-17). However, existing research on SRH among refugee populations often lacks specificity and fails to capture the unique experiences, challenges, and perspectives of Rohingya population (13).

We earlier attempted to summarise all available evidence about the SRH of refugees in Asia and suggested a pressing need for SRH services and interventions tailored to this population,

with several barriers to accessing care identified (13). However, it is important to note that the review described research on both Rohingya and Afghan refugees without distinguishing each group. While there are similarities between them, it is crucial to recognise the significant differences in terms of country context, culture, and contrasting needs. By focusing specifically on the needs of Rohingya refugees, a deeper understanding can be gained, leading to the development of more tailored and effective interventions.

Therefore, the purpose of this systematic review is to synthesise the existing evidence on the SRH status and needs of Rohingya refugees in Bangladesh and identify gaps in knowledge. By doing so, this review aims to contribute to the development of effective interventions and policies that address the SRH needs of this vulnerable population. As such, the findings of this systematic review have the potential to inform the provision of targeted SRH services and interventions not only for Rohingya refugees but also for other displaced populations around the world.

### **Review question**

The review will address the following question: What is the status of the sexual and reproductive health of Rohingya refugee women of reproductive age and their needs and experiences in accessing these services?

Our primary objectives, focused on Rohingya refugees in Bangladesh, are to:

- I. Summarise published evidence as to their SRH status.
- II. Describe their barriers to accessing SRH services in Bangladesh.
- III. Review and report interventions that are currently being delivered to address their SRH needs.

### **2.1.3 Methods**

#### **Study design**

This systematic review will be administered according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist, ascertaining comprehensive and precise evaluation. The process of selecting publications for review will be presented using the PRISMA flowchart. All selected publications will be assessed for their quality using the Newcastle-Ottawa Scale for observational studies, the Mixed Methods Appraisal Tool (MMAT) for mixed-methods research, and the Cochrane Risk of Bias tool for randomised controlled trials for systematic reviews (18). Maintaining transparency and

reducing redundancy of efforts, our review has been officially registered in the PROSPERO database, designated with the unique ID CRD42023444386.

### **Search strategy**

A comprehensive search will be conducted using multiple databases of peer-reviewed publications (PubMed, CINAHL, Embase, Web of Science, and Scopus). The systematic review will also search for grey literature from various reputable sources such as institutional repositories, government reports, non-governmental organisation (NGO) databases, and Google Scholar. Additionally, the reference lists of the included studies will be manually screened to identify potential additional studies.

The review will encapsulate studies published from August 2017 through July 2023, providing they're in English or at least contain an English abstract. Our focus will be on women and girls of reproductive age (15-49 years old), specifically featuring results from Rohingya refugees in Bangladesh. The review will rule out studies related to Rohingya refugees based in other countries, given the differences in contextual settings and services offered.

Our key concepts, including sexual and reproductive health, Rohingya refugees, family planning, contraception, STIs, and access to services, will serve as the basis for identifying suitable search terms and Medical Subject Headings (MeSH) (19). The strategy will leverage Boolean terms, connectors, and wildcards to design an efficient search algorithm.

**Search formula:** (Rohingya) AND ("family planning" OR "contraception" OR "Sexual Health" OR "reproductive health" OR "reproductive health services" OR "HIV" OR "STIs" OR "sexually transmitted infections").

Note: The search strategy will be adapted as appropriate for each database and will be reviewed by a research librarian for accuracy and completeness.

All retrieved papers will be downloaded into Covidence for selection and review.

### **Study Selection**

The study selection process will be conducted in two stages: title/abstract screening and full-text screening. Two independent reviewers will evaluate the titles and abstracts of identified studies to determine their eligibility based on predefined inclusion and exclusion criteria. Full-text articles of potentially suitable studies will be obtained and evaluated for final inclusion. Any discrepancies between the reviewers will be resolved through discussion or consultation with a third reviewer (the senior author).

To be considered eligible for inclusion, studies must meet the following inclusion criteria described in Table 1.

**Table 1: Inclusion and exclusion criteria**

	<b>Included</b>	<b>Excluded</b>
Population	Rohingya Refugee women of reproductive age	Other refugee groups
Setting	Humanitarian setting in Bangladesh	Humanitarian settings outside of Bangladesh
Topics	Papers that describe SRH, such as Sexual Health, Family planning and contraception, STIs, HIV/AIDS, and Adolescent reproductive health.	Papers that reported on other SRH topics (e.g., Maternal and child health, gender-based violence, female genital mutilation, forced or early marriage, reproductive cancers)
Types of Paper/Data	Qualitative, quantitative, and mixed-method primary studies	Descriptive quantitative papers with no specific health intervention and no outcomes
Types of publication	Papers in peer-reviewed journals, grey literature, research reports, and working papers.	Reviews, cases, case reports, commentaries, opinion letters/pieces, and editorials. (although these were screened for references)
Language	English	Study titles and abstracts in languages other than English
Publication Date	August 2017 to July 2023	Papers published before and after the period

### **Participants/population**

The systematic review will specifically target Rohingya refugee women of reproductive age (15-49) residing in Bangladesh. The primary objective is to investigate the sexual and reproductive health (SRH) of women, with a particular emphasis on women, adolescent girls, young women, expectant mothers, and women and girls belonging to the Rohingya refugee community in Bangladesh. The review will include studies involving mixed populations, such

as refugees from other backgrounds, if they provide extractable data specific to Rohingya refugee women.

### **Data extraction (selection and coding)**

For this systematic review, we will develop and pilot a standardised data extraction form. Two independent reviewers will extract relevant data from the included studies and input it into a Microsoft Excel form. The data to be extracted includes study characteristics (e.g., author, year, study design), participant characteristics, intervention details, outcome measures, and key findings related to SRH of Rohingya refugee women in Bangladesh. In the event of any disagreements, the reviewers will discuss and consult with a third reviewer (senior author) to reach a consensus.

Following the objectives, the data extraction process will involve extracting relevant information such as women's SRH status, access to comprehensive SRH care services related to contraception, pregnancy, childbirth, and STIs, unintended pregnancy and abortion, sexual functioning and dysfunction, sexual violence, barriers to accessing SRH services, and harmful practices from full-text journal articles, reports, and other literature that meet the predefined inclusion criteria. The extracted data will then be manually coded to identify patterns, with the codes organised into categories and further grouped into MISP themes (9) for analysis.

### **Risk of bias (quality) assessment**

The quality and risk of bias of included studies will be assessed using appropriate tools based on study design: the Newcastle-Ottawa Scale for observational studies, the Mixed Methods Appraisal Tool (MMAT) for studies of that design, and the Cochrane Risk of Bias tool for randomised controlled trials (20-22). These tools allow for a comprehensive evaluation of various aspects of the studies, including study design, study selection, methodology, data collection, data analysis, data presentation, discussions, and results. Two independent reviewers will conduct the quality assessment, resolving any discrepancies through discussion or consultation with a third reviewer (the senior author).

### **Strategy for data synthesis**

The collated data will be synthesised to offer a comprehensive overview across three key domains regarding SRH of Rohingya refugee women in Bangladesh: the SRH status and needs, the barriers they encounter when accessing SRH services, and the currently deployed SRH interventions and their effectiveness, staying aligned with our review objectives.

To summarise and analyse the findings of the included studies, a narrative synthesis approach (23) will be employed. This approach involves organising the extracted data thematically to address the objectives of the review.

Both qualitative and quantitative data will be subjected to content analysis, which aims to present the data descriptively under different themes and classifications. The extracted data will be grouped based on the objectives outlined in the Minimum Initial Service Package (MISP). Within each objective or set of activities, data will be synthesised according to SRH status, need, literacy and knowledge, family planning and contraception, prevention and management of sexually transmitted infections (STIs), and SRH of adolescents and young individuals.

For a deeper exploration of patterns and relationships present within the extracted data across different categories, we will utilise tables and concept maps. The identification of primary themes will involve merging diverse groups and subgroups. Subsequently, these themes will be critically assessed through discussions and reflective analysis, employing the narrative synthesis approach. This would allow us to pinpoint recurring themes and patterns across the studies, which will then be presented in a narrative form and will offer an understanding of the SRH landscape among Rohingya refugee women in Bangladesh.

**Ethical Considerations:** This systematic review will not involve any collection of new data and will only use data from previously published studies. There will be no real or perceived risks or threats to the confidentiality of the previous research participants in studies included in our review; therefore, ethical approval of this systematic review will not be required.

#### 2.1.4 Discussion

The Rohingya refugee crisis in Bangladesh represents a significant forced migration situation (5, 14), yet there remains a research gap regarding the SRH status and needs of this vulnerable population. Although multiple national and international NGOs are working in the Rohingya refugee camps, providing various services, there are still challenges faced by the refugees, including limited access to healthcare and high levels of poverty. Additionally, the lack of formal SRH education and historical discrimination further exacerbate their health outcomes. There is only scarce, patchy published evidence, leaving uncertainties about the extent of coverage and the gaps in knowledge.

Therefore, this systematic review will consolidate existing evidence on the SRH status and needs of Rohingya refugees in Bangladesh to identify knowledge gaps in the areas of access to

SRH services (particularly focusing on uptake of family planning, and HIV and STI prevention), barriers to SRH services among Rohingya refugee women in Bangladesh and interventions. This systematic review aims to contribute to a better understanding of the challenges faced by Rohingya refugees in accessing SRH services and the need for effective interventions to address these challenges.

Through this systematic review, we seek to enhance our comprehension of the hurdles confronting Rohingya refugees as they endeavour to access SRH services. The findings of this review will ideally inform strategies for more effective interventions to surmount these challenges. Consequently, these insights can be utilised in the planning of health services, the implementation of evidence-based interventions, and the formulation of policies to foster improved SRH outcomes.

To disseminate the results, we intend to present our findings at local, national, and international forums and conferences. Moreover, we plan to publish the outcomes in esteemed peer-reviewed journals at both national and international levels. The ultimate goal of this study is to offer actionable recommendations geared toward enhancing SRH outcomes for the Rohingya refugee population in Bangladesh. By doing so, we aspire to equip policymakers and healthcare providers with valuable insights, facilitating the development of impactful strategies to uplift SRH outcomes for Rohingya refugees in Bangladesh, as well as other analogous regions within Asia.

### 2.1.5 Conclusion

In summary, this review protocol describes the procedures of a systematic review which aims to investigate the SRH status and needs of Rohingya refugee women in Bangladesh. Although efforts have been made to address the health and humanitarian needs of Rohingya refugees in Bangladesh, there is still limited knowledge about their SRH. By filling this knowledge gap, the review will help identify areas for future research and programmatic efforts to improve the SRH outcomes of Rohingya refugees in Bangladesh.

**Funding sources/sponsors:** Nil.

**Conflict of interest:** None declared.

### 2.1.6 References

1. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugee people in Bangladesh: a systematic review protocol. *Women Midwives Midwifery*. 2023;3(3). Available from: <https://hdl.handle.net/2123/31832>.

2. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugees in Bangladesh: a systematic review. *Women Midwives Midwifery*. 2025;5(2):1–24. doi:10.36749/wmm.5.2.1-24.2025.
3. Singh NS, Aryasinghe S, Smith J, Khosla R, Say L, Blanchet K. A long way to go: a systematic review to assess the utilisation of sexual and reproductive health services during humanitarian crises. *BMJ Glob Health*. 2018;3(2):e000682. doi:10.1136/bmjgh-2017-000682.
4. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. *BMC Public Health*. 2020;20(1):666. doi:10.1186/s12889-020-08818-y.
5. Hossain MA, Zablotska-Manos I. The changing dynamics of HIV/AIDS during the COVID-19 pandemic in the Rohingya refugee camps in Bangladesh – a call for action. *Glob Biosecurity*. 2022;4(1). doi:10.31646/gbio.135.
6. Glasier A, Gulmezoglu AM, Schmid GP, Moreno CG, Van Look PF. Sexual and reproductive health: a matter of life and death. *Lancet*. 2006;368(9547):1595–607. doi:10.1016/S0140-6736(06)69478-6.
7. Munyuzangabo M, Khalifa DS, Gaffey MF, Kamali M, Siddiqui FJ, Meteke S, et al. Delivery of sexual and reproductive health interventions in conflict settings: a systematic review. *BMJ Glob Health*. 2020;5(Suppl 1):e002206. doi:10.1136/bmjgh-2019-002206.
8. UNHCR. UNHCR global appeal 2021 update [Internet]. Bangkok: UNHCR Asia and the Pacific; 2020 [updated 2021 May 6; cited 2025 Jun 23]. Available from: [https://reporting.unhcr.org/sites/default/files/ga2021/pdf/Chapter\\_Asia.pdf](https://reporting.unhcr.org/sites/default/files/ga2021/pdf/Chapter_Asia.pdf).
9. WHO. Strategy to accelerate progress towards the attainment of international development goals and targets related to reproductive health [Internet]. Geneva: World Health Organization; 2005 [updated 2023 Mar 8; cited 2025 Jun 23]. Available from: [https://www.who.int/reproductivehealth/publications/general/RHR\\_04\\_8/en/](https://www.who.int/reproductivehealth/publications/general/RHR_04_8/en/).
10. WHO. Reproductive health in refugee situations: an inter-agency field manual [Internet]. Geneva: World Health Organization; 1999 [updated 2023 Jan 2; cited 2025 Jun 23]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK305149/>.
11. WHO. Inter-agency field manual on reproductive health in humanitarian settings [Internet]. Geneva: Inter-agency Working Group on Reproductive Health in Crises; 2010 [updated 2023 Apr 12; cited 2025 Jun 23]. Available from: [https://www.who.int/hac/global\\_health\\_cluster/newsletter/2/fields\\_manual\\_rh/en/](https://www.who.int/hac/global_health_cluster/newsletter/2/fields_manual_rh/en/).

12. Casey SE. Evaluations of reproductive health programs in humanitarian settings: a systematic review. *Confl Health*. 2015;9(Suppl 1):S1. doi:10.1186/1752-1505-9-S1-S1.
13. Hossain MA, Dawson A. A systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan refugee women of reproductive age in Asia. *WHO South East Asia J Public Health* [Internet]. 2022;11(1):42–54. Available from: <https://hdl.handle.net/2123/29644>.
14. Hossain MA, Huda MN, Ullah AMA, Renzaho A. Risk factors, contemporary challenges and psychological well-being of the Rohingya refugees in Bangladesh: policy implications. *Int J Health Plann Manage*. 2022;37(4):1912–7.
15. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open*. 2021;11(10):e047516. doi:10.1136/bmjopen-2020-047516.
16. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ*. 2021;99(3):201–8. doi:10.2471/BLT.20.269779.
17. UNICEF. Rohingya crisis [Internet]. Dhaka: UNICEF Bangladesh; 2020 [updated 2022 Apr 5; cited 2025 Jun 23]. Available from: <https://www.unicef.org/emergencies/rohingya-crisis>.
18. Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst Rev*. 2015;4:1. doi:10.1186/2046-4053-4-1.
19. Lipscomb CE. Medical Subject Headings (MeSH). *Bull Med Libr Assoc*. 2000;88(3):265-6.
20. Peterson J, Welch V, Losos M, Tugwell P. The Newcastle-Ottawa scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses. Ottawa: Ottawa Hospital Research Institute; 2011;2(1):1–12.
21. Jorgensen L, Paludan-Muller AS, Laursen DR, Savovic J, Boutron I, Sterne JA, et al. Evaluation of the Cochrane tool for assessing risk of bias in randomized clinical trials: overview of published comments and analysis of user practice in Cochrane and non-Cochrane reviews. *Syst Rev*. 2016;5:80. doi:10.1186/s13643-016-0259-8.
22. Hong Q, Pluye P, Fàbregues S, Bartlett G, Boardman F, Cargo M, et al. Mixed Methods Appraisal Tool (MMAT), version 2018: user guide. Montreal: McGill-Uni; 2018:1-11.
23. Lisy K, Porritt K. Narrative synthesis: considerations and challenges. *JBI Evid Implement*. 2016;14(4):201.

## 2.2 SYSTEMATIC REVIEW

### Article 2: SEXUAL AND REPRODUCTIVE HEALTH OF ROHINGYA REFUGEES IN BANGLADESH: A SYSTEMATIC REVIEW

The systematic review presented here has been published. This review presents a systematic exploration of existing literature on SRH of Rohingya refugee women in Bangladesh. Given the limited and fragmented nature of available evidence, a systematic review was conducted to consolidate current knowledge, identify gaps, and inform the design of the empirical studies in this thesis

#### 2.2.1 Abstract

**Introduction:** The Rohingya refugees in Bangladesh, a severely persecuted ethnic minority of Myanmar, face numerous challenges related to their sexual and reproductive health (SRH), including access to appropriate services. This systematic review examines the SRH status of Rohingya refugee women in Bangladesh, focusing on barriers to accessing SRH services and interventions to address their specific SRH needs.

**Methods:** Following PRISMA guidelines, a systematic search was conducted across databases, including PubMed, CINAHL, Embase, Web of Science, and Scopus, as well as grey literature, from August 2017 to July 2023. Both quantitative and qualitative studies were included, with data extraction and analysis performed independently by two authors using a narrative synthesis approach.

**Results:** Out of 394 citations, ten studies met the criteria. The findings revealed that 48.9% of Rohingya women were unaware of SRH service access, only 11% received frequent (once fortnightly) visits by family planning personnel, 70% lacked knowledge about HIV/STIs, and over two-thirds believed that family planning required husband approval. The prevalence of contraception use was 50.9%, with cultural and religious beliefs and gender dynamics significantly influencing family size decisions.

**Discussion:** Cultural preferences impacted family size decisions, and limited awareness of permanent birth control widened the SRH education gap. The review emphasises the need for comprehensive, community-based interventions, including door-to-door visits, culturally tailored outreach programs, and SRH education within refugee camps. To address the SRH needs of Rohingya women, adopting a multifaceted approach that promotes SRH education,

improves service accessibility, and empowers women to make informed reproductive choices is essential.

**Registration:** This review is registered with PROSPERO under the ID CRD42023444386.

**Keywords:** Sexual reproductive health, family planning, HIV/STIs, Rohingya refugee, Bangladesh.

### 2.2.2 Background

The refugee population is one of the world's most vulnerable groups, facing multiple challenges that significantly impact their sexual and reproductive health (SRH) and access to essential SRH services (1). SRH is an integral aspect of well-being and is universally recognised as a fundamental human right (2). It encompasses the ability to make informed decisions regarding one's SRH, including access to comprehensive healthcare services such as family planning, contraception, antenatal care, childbirth, and prevention and management of sexually transmitted infections (STIs) (2, 3). Globally, despite efforts to ensure universal access to SRH services by 2030, conflict, violence, and natural disasters have left approximately one billion people in need of humanitarian aid, with forced displacement exacerbating the vulnerabilities of women and girls (4). In Asia and the Pacific, 14.3 million refugees and displaced and stateless people require humanitarian assistance, 74% of whom are women of reproductive age, adults, and children (5). The Inter-Agency Working Group for Reproductive Health in Crisis (IAWG) developed the Minimum Initial Service Package (MISP) to provide SRH services in humanitarian settings, but the quality and effectiveness of these services vary across refugee settings (2, 6, 7).

The Rohingya represent one of the largest refugee groups worldwide (1, 8, 9). Most Rohingya who fled from Myanmar reside in Bangladesh, which provides shelter to 1.2 million Rohingya (approximately 85% of all Rohingya refugees in the region), half of whom are women and girls (10). Although we use the term “refugees” in this paper, the government of Bangladesh does not recognise Rohingya as refugees, referring to them as the Forcibly Displaced Myanmar Nationals (FDMN).

Displacement and associated challenges can have severe consequences for the SRH of Rohingya, particularly women and girls. To address their needs, the SRH Working Group, led by the UNFPA, has been formed. This group comprises over 40 partners, including international nongovernmental organisations (NGOs), working in coordination with the local government to provide family planning (FP), maternal and child health services, HIV/STI

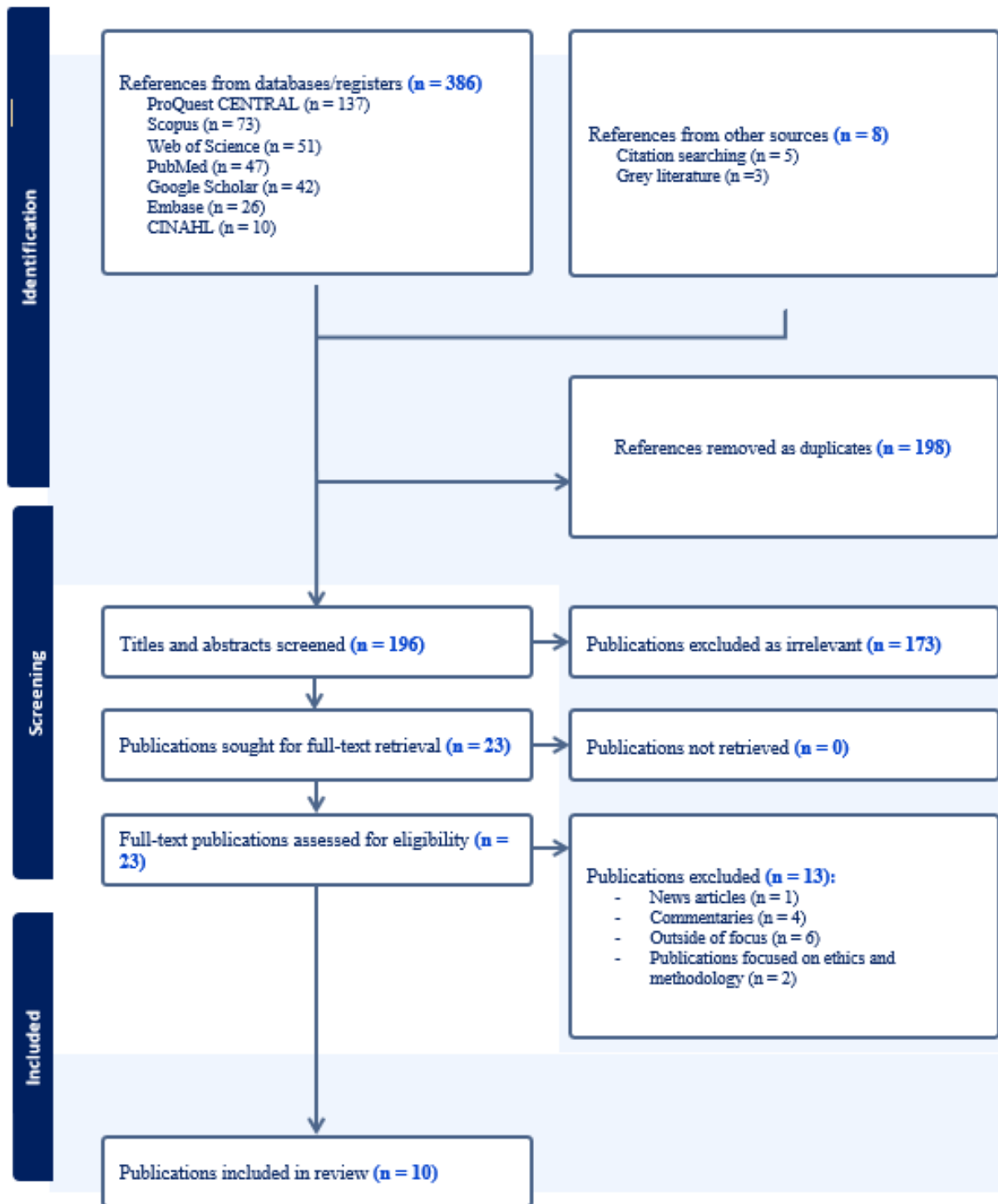
prevention, and gender-based violence (GBV) support in the camps (11). They mostly serve women presenting to health clinics in camps or, sometimes, make door-to-door visits. Common SRH issues in Rohingya refugee settings include inadequate access to reproductive healthcare services, limited contraceptive options, the absence of skilled birth attendants, a lack of FP knowledge, restrictions on permanent contraception methods, little awareness of HIV/STI prevention and insufficient understanding of SRH in general, early and forced marriages, early childbearing, the strict social prohibition of sex outside marriage, and GBV (12).

An earlier review summarised evidence about the SRH of refugees in Asia and suggested a pressing need for SRH services and interventions tailored to this population, identifying several barriers to accessing SRH care (1). However, that review focused on both Rohingya and Afghan refugees without distinguishing each group. While there are similarities between them, it is crucial to recognise significant differences in terms of country context, culture, and contrasting needs. By focusing specifically on the needs of Rohingya refugees, a deeper understanding can be gained, leading to the development of more tailored and effective interventions.

Therefore, the purpose of this systematic review is to synthesise the existing evidence on the SRH status (specifically, the areas of FP and HIV/STIs) and needs of Rohingya refugees in Bangladesh, their barriers to accessing SRH services, and currently delivered interventions to address their SRH needs.

### 2.2.3 Methods

This systematic review was officially registered in the PROSPERO database with a unique registration ID of CRD42023444386. The PROSPERO registration includes details of the review protocol, including the search strategy, inclusion/exclusion criteria, and planned methods for data extraction and synthesis. The review protocol has been previously published (13). This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and checklist (14). The process of selecting publications for inclusion in this review is presented in the PRISMA flowchart (see Figure 1).



**Figure 1: PRISMA flowchart**

## **Search and selection of the papers**

We searched multiple databases for peer-reviewed publications, including PubMed, CINAHL, Embase, Web of Science, and Scopus. Additionally, we searched grey literature sources such as ProQuest and Google Scholar and manually screened reference lists of the included studies for any missed sources.

This review encompasses studies meeting specific inclusion and exclusion criteria. The included studies met the following parameters: studies published from August 2017 through July 2023, available in English (at least an abstract), focused primarily on women and girls of reproductive age (15-49 years) among Rohingya refugees in Bangladesh, and specifically focused on sexual health, FP and contraception, STIs, HIV/AIDS, and adolescent reproductive health. The review considered qualitative, quantitative, and mixed-method studies that included primary data. HIV and STIs were prioritised because of their significant public health impact in refugee settings, where healthcare access is limited. Studies concerning Rohingya refugees in other countries were excluded because of the smaller number of refugees reaching other countries and the differing contexts and health services in those countries. Additionally, studies addressing other SRH topics, such as maternal and child health, GBV, female genital mutilation, menstrual regulation (MR), postabortion care (PAC), forced or early marriage, and reproductive cancers, were excluded from the review to focus on the core SRH issues of FP and HIV/STIs. Reviews, cases, case reports, commentaries, opinion letters/pieces, and editorials, although screened for references, were also excluded.

We used search terms and Medical Subject Headings (MeSH), which describe the following key concepts: sexual and reproductive health, Rohingya refugees, family planning, contraception, STIs, HIV, and access to services. They were connected using Boolean terms, connectors, and wildcards via the following search formula:

(Rohingya) AND ("family planning" OR "contraception" OR "Sexual Health" OR "reproductive health" OR "reproductive health services" OR "HIV" OR "STIs" OR "sexually transmitted infections"). The accuracy of this search formula was evaluated by primary reviewers and our institution's librarian.

All the retrieved papers were uploaded into and managed using Covidence (version 1) to facilitate the study selection process. The study selection was conducted in two consecutive stages. In the initial stage, two independent primary reviewers thoroughly assessed the titles and abstracts of 196 studies identified during the initial screening and selected 23 studies for

full-text review. Any discrepancies or uncertainties between the reviewers were resolved through consensus or consultation with the third reviewer—the senior author. In stage 2, 23 studies were subjected to full-text review. Thirteen studies were excluded for the following reasons: four studies were commentaries, two focused primarily on ethics and methodology, one was a news report, and six were outside the focus of our review. Consequently, a total of ten studies were deemed eligible for inclusion in this systematic review (Figure 1).

### **Data extraction**

We developed a standardised data extraction form, and two independent reviewers used this form to extract pertinent data into a Microsoft Excel spreadsheet. We extracted the study-specific characteristics (author, publication year, study design) and all the information that was required to address our study objectives, including participant demographics, intervention details, outcome measures, and significant findings directly related to the SRH of Rohingya refugee women in Bangladesh. This included comprehensive information concerning SRH status, including family planning, contraception, pregnancy, HIV/STIs, sexual health, barriers to accessing SRH services and interventions addressing SRH needs. In the event of discrepancies or uncertainties arising during data extraction, consensus was reached through the same reconciliation process as in stage 1. We manually coded all the information to identify recurring patterns and themes.

### **Quality assessment**

To assess the quality and risk of bias in the selected studies, we employed the Mixed Methods Appraisal Tool (MMAT) (15), which features tailored criteria for qualitative, observational descriptive quantitative, and mixed-methods research components. The MMAT assigns a score of 1 for each met criterion, contributing to a final proportion score, which categorises articles into quality levels: Strong ( $\geq 0.80$ ), Moderate-Strong (0.66--0.79), Moderate-Weak (0.51--0.65), and Weak ( $\leq 0.50$ ) (16, 17). We resolved any discrepancies in assessment, particularly in interpreting findings related to researchers' influence and quantitative data sampling strategies, following established procedures. We did not exclude or prioritise any studies on the basis of their quality assessment scores.

#### **2.2.4 Results**

We identified ten papers describing the SRH of Rohingya refugees in Bangladesh. These included five quantitative, three qualitative, and two mixed-methods research designs, with all employing convenience sampling methods. Among the reviewed studies, three received weak

ratings (18-20), six attained moderate–strong scores (21-26), and only one was categorised as strong (27). Most of them (n=9) focused on FP and contraception (18-25, 27), and four studies reported on HIV/STIs (20, 24-26). We found no papers describing an evaluation of the efficacy of interventions, but they described participants’ reports of receiving ongoing interventions in the camps. Below, we describe the detailed findings concerning the SRH needs of Rohingya refugee women in Bangladesh, their barriers to accessing SRH services, and currently delivered interventions to address these needs.

### **SRH status and needs**

*Awareness about and use of family planning and contraceptive methods:* The common themes in the papers published in this area were awareness, knowledge about, and practice of contraceptive methods. Chowdhury et al. (2018) reported that 86.3% of married Rohingya women know about FP methods (19). However, Ainul et al. (2018) and Jannat et al. (2022), in their qualitative studies, reported limited knowledge about FP and contraception among these women (24, 25). Similarly, Azad et al. (2022) reported that only 40% of Rohingya refugee women were aware of permanent contraceptive methods and SRH services (21). Fewer than half of the interviewed women (48.9%) were aware of where to access SRH services (19). Moreover, half of the participants lacked knowledge regarding the legal age of marriage, which is 18 years (21).

The published papers highlighted beliefs that were not in support of modern methods of family planning. The average reported family size was 3.96 (20). A high average number of children was associated with a preference for boys. Azad et al. (2022) reported that 58% of participants believed that a couple should continue having children until they have a son (21).

With respect to contraception use by Rohingya women, the evidence varies. Khan et al. (2021) reported a contraception use prevalence of 50.9%, whereas Chowdhury et al. (2018) and Ainul et al. (2018) reported a lower prevalence of 34% (19, 25). Jannat et al. (2022) also noted low contraception use in their qualitative study (24). The most common and accepted methods of contraception were injections (particularly Depo-Provera) (67.3%) and oral contraceptive pills (29.9%) (22). In contrast, men’s participation in FP and contraception use is rare (23), with only 2% of them using condoms as an FP method (21). Contraception use among Rohingya women prior to the first pregnancy was infrequent, and the spacing periods were short (27). Islam et al. (2021) reported that 80% of the participating women had recently given birth or

were pregnant (27). Interest in contraception also remains low among unmarried adolescent girls, with Saidu (2022) reporting that 62% were uninterested in contraception (18).

Access to contraception and SRH services appears inconsistent. A survey conducted by Zakaria et al. in 2022 reported that 79.8% of Rohingya women had consulted a healthcare provider about SRH, 68.4% had received door visits from health workers, and 58.3% were well informed about the benefits of contraception (20). Similarly, Azad et al. (2022) reported that 79.8% of women had visited a health centre or facility for SRH services, and 68.2% had discussed FP with a health worker (21). In contrast, Khan et al. (2021) reported that 51.7% of women received no visits, and only 11% received frequent (once fortnightly) visits during the three months immediately preceding the survey (22). Ainul et al. (2018), in their qualitative study, reported limited access to contraception and SRH services (25). Despite these variations, both Zakaria et al. (2022) and Ainul et al. (2018) noted a common reluctance among Rohingya women to continue using contraception (20, 25).

***Knowledge and awareness about HIV/STI and preventive practices:*** Knowledge and awareness of HIV/STIs among Rohingya refugee women remain limited, as highlighted by two surveys (20, 26) and two qualitative studies (24, 25). Khan et al. (2021) reported that 70% of Rohingya women had inadequate knowledge of HIV transmission (26), a finding corroborated by Ainul et al. (2018), who highlighted prevalent misinformation about HIV transmission methods (25). Similarly, Jannat et al. (2022) reported that they were unaware of STI transmission (24). Khan et al. also revealed that knowledge of HIV transmission was 2.4 times greater among women who received formal education than among those who did not receive formal education. Additionally, the Rohingya refugee women in that study had also had a substantially lower knowledge of HIV than local women in Bangladesh as well as women in Myanmar (26). This low level of knowledge about HIV transmission was in disagreement with the women's belief that they should have knowledge about HIV and STIs before marriage. Specifically, Zakaria et al. reported that 81.7% of women who participated in a survey agreed that girls should be familiar with SRH and STIs before marrying (20). Furthermore, Khan et al. reported that, compared with 60.3% of local women in Bangladesh and 67.3% of women in Myanmar, only 20% of Rohingya women believe that consistent condom use can prevent HIV infection (26). Importantly, no studies have evaluated condom use for HIV and STI prevention among the Rohingya population.

**Table 2: Description and quality assessment of the studies included in the review**

Study ID (year of publication)	Focus/aim	Methodology and methods	Population, sample and data collection period	Quality assessment		
				Tool points	Score	Quality
Ainul et al. (2018) (25)	Evaluate Rohingya youth SRH needs, assess Service Delivery Points (SDPs) services, and pinpoint delivery challenges for better services.	Qualitative research Purposive sampling IDI <sup>3</sup> and FGD <sup>2</sup>	48 Rohingya adolescents (aged 14-24), 48 leaders, 20 adult women, 24 program managers, and 53 host community youth. Data collection period: 2018	3/4	0.75	Moderate-Strong
Azad et al. (2022) (21)	KAP <sup>5</sup> as to FP <sup>1</sup> and associated factors	Cross-sectional survey Convenience sampling	400 female Rohingya refugees from Cox's Bazar, Bangladesh Data collection period: 14 October to 26 December 2019	3/4	0.75	Moderate-Strong
Chowdhury et al. (2018) (19)	Prevalence of pregnant and lactating Rohingya women, SRH needs among Rohingya and health	Cross-sectional survey Structured questionnaires Did not specify the	Collected data from 3,050 Rohingya households currently residing in Bangladesh.	2/4	0.50	Weak

	evaluation of children under five.	sampling method	Data collection period: 2017			
Islam et al. (2022) (23)	Examines the barriers to condom use as a contraceptive method among married Rohingya couples.	Qualitative research Convenience sampling Open-ended questionnaires IDI <sup>3</sup>	Interviewed 14 women and 10 men Data collection period: Not specified	3/4	0.75	Moderate-Strong
Islam, Khan, et al. (2021) (27)	Examines the factors affecting child marriage and contraception use among Rohingya girls who have experienced child marriages.	Mixed method Quantitative: cross-sectional survey Partially random sampling Qualitative: IDI <sup>3</sup>	Rohingya girls (10-19) in Cox's Bazar refugee camps were recruited, with 96 participants for quantitative and 18 for qualitative data, additional interviews conducted with 9 healthcare providers. Data collection period: November 2019	09/11	0.81	Strong
Jannat et al. (2022) (24)	Assess the SRH of Rohingya refugee women, focusing on contraception,	Qualitative research Purposive sampling	50 IDI <sup>3</sup> , one FGD <sup>2</sup> consisting of 10 participants and 3 KIIs <sup>4</sup> of	3/4	0.75	Moderate-Strong

	sanitation, and hygiene.	Semi-structured questionnaires IDI <sup>3</sup> , FGD <sup>4</sup> , KII <sup>4</sup>	Rohingya refugee women and adolescents in Bangladesh. Data collection period: Not specified			
Khan et al. (2021) (22)	Prevalence of the use of contraceptives and the associated factors.	Cross-sectional survey Convenience sampling	493 female Rohingya refugees from Cox's Bazar, Bangladesh Data collection period: November 2019	3/4	0.75	Moderate-Strong
Khan, Rahman, et al. (2021) (26)	Examine the knowledge about HIV transmission among Rohingya refugee women and identify factors that are associated with that knowledge	Cross-sectional survey Multistage random sampling-respondent selection did not specify Structured questionnaire	508 Rohingya women from Cox's Bazar, Bangladesh. Data collection period: November 2019	4/4	1.00	Strong
Saidu (2022) (18)	Contraceptive knowledge, practices, and influencing factors among adolescent	Mixed method Cross-sectional survey Convenience sampling	Survey of 340 adolescent girls, 8 IIDs <sup>3</sup> of husbands, 2 FGDs <sup>2</sup> with married and unmarried	5/11	0.45	Weak

	Rohingya refugee girls.	Qualitative: IDI <sup>3</sup> , FGD <sup>2</sup> Purposive sampling	adolescent girls. Data collection period: Not specified			
Zakaria et al. (2022) (20)	Assess NGO interventions' impact on SRH	Cross-sectional survey Convenience sampling	415 Rohingya married women aged 18-49 residing in Cox's Bazar camps Data collection period: 10 November 2019 to 10 January 2020	2/4	0.50	Weak

Family planning<sup>1</sup>, Focus group discussion<sup>2</sup>, In-depth interviews<sup>3</sup>, Key informant interviews<sup>4</sup>. Knowledge, attitudes, and practice<sup>5</sup>

### Barriers to accessing SRH services

All the papers described the barriers experienced by Rohingya women in Bangladesh when accessing FP and SRH services. These barriers categorised into cultural, religious, sociostructural, and health system-related challenges, significantly limit their access to FP and SRH services (18-27).

Cultural barriers, such as conservative religious beliefs, cultural taboos, preferences for sons, and early marriage practices, also play a significant role (20, 24, 25, 27). Many Rohingya women believe that Islam prohibits contraception, a view reinforced by religious leaders who shape contraceptive practices (18, 20, 25, 27). The use of contraception is often seen as a sin and immoral behaviour, with 43% citing religious prohibition and 44.1% viewing FP as sinful (19, 21, 25). Additionally, the belief that children are gifts from God further complicates the acceptance of modern contraceptive methods (24). Moreover, cultural preferences for male offspring exacerbate the pressure on women to continue bearing children until a son is born, with 58% of women agreeing with this expectation (21). This cultural preference leads to

actively seeking pregnancy (46.0%) and a general desire for more children (15.6%), which hinders the use of contraceptive methods (19, 21).

Gender dynamics, traditional family norms, and male-dominated decision-making affect women's use of contraception. A significant number of women prefer to seek their husband's consent for family planning, with 45% feeling afraid to discuss FP with their husbands (21). Husbands' disapproval is a major barrier, with 51.9% of women in Azad et al. (2022) and 48.8% in Khan et al. (2021) reporting that they required their husband's approval to use contraception (21, 22). In addition, 63.4% of women expressed reluctance to continue using contraception due to their husband's disapproval (20). Disagreement with partners (52%) (19) and the perception that contraception use is always the husband's decision further exacerbate this issue (24).

Perceived stigma and misconceptions about contraception also affect the use of SRH services. Ainul et al. (2018) and Saidu (2022) highlighted that many refugees from Myanmar feared the side effects of contraceptives, with misconceptions about permanent sterility and other health risks leading to reluctance to use these methods (18, 25). Similarly, misconceptions about condom use are prevalent, with both men and women being unfamiliar with their proper use (23). Islam et al. (2022) discussed the contradiction of contraception as the responsibility of women, while condom use is controlled by men (23). This study also identified other significant barriers to condom use, including the stigma attached to its usage and the insecurities it provoked in marital relationships. For example, the use of condoms by men often evokes distrust, with women associating it with infidelity or relationships with "bad women," further deterring its use. Additionally, the differential prioritisation of other contraceptive methods over condoms by health workers also serves to restrict condom use and diminishes efforts to educate women about their contraceptive choices (23). As a result, both men and women were unfamiliar with this method and used it rarely (23).

**Table 3: Findings regarding SRH status, barriers, and interventions among Rohingya refugees in Bangladesh**

Study	Findings		
	SRH Status (FP and HIV/STIs)	Barriers to Accessing SRH Services	Interventions, Programs, and Services Addressing SRH Needs
Ainul et al. (2018) (25)	<ul style="list-style-type: none"> <li>- 34% contraception use</li> <li>- Primary methods: injections (70.5%) and pills (28.9%)</li> <li>- Limited knowledge and use of contraception</li> <li>- Reluctance in using contraception</li> <li>- Limited knowledge about STIs and HIV</li> <li>- Misinformation about HIV</li> </ul>	<ul style="list-style-type: none"> <li>- Host community perceptions</li> <li>- Restricted mobility and stigma</li> <li>- Cultural beliefs and religious prohibitions</li> <li>- Use of contraception as a sin and immoral behaviour</li> </ul>	<ul style="list-style-type: none"> <li>- Outreach by healthcare providers</li> </ul>
Azad et al. (2022) (21)	<ul style="list-style-type: none"> <li>- 40% know about permanent birth control methods</li> <li>- Half of the participants lacked proper knowledge regarding the eligibility for marriage before the age of 18</li> <li>- Strong inclination toward having sons</li> <li>- 2% of respondents' husbands used condoms during the survey period</li> <li>- 68.2% discussed FP with health workers</li> <li>- 79.8% visited a health centre for FP</li> </ul>	<ul style="list-style-type: none"> <li>- Preference for husband's consent in FP</li> <li>- 45% felt afraid to discuss FP with husbands</li> <li>- 58% believed a couple should keep having children until they have a son</li> <li>- Husbands' disapproval of the use of FP (51.9%)</li> <li>- Actively seeking pregnancy (46.0%)</li> <li>- FP as sin (44.1%)</li> </ul>	<ul style="list-style-type: none"> <li>- 74.5% of participants received FP interventions in the camp</li> <li>- FP information through nurse and healthcare provider</li> </ul>

Chowdhury et al. (2018) (19)	<ul style="list-style-type: none"> <li>- 86.3% aware of FP methods</li> <li>- 33.7% use contraceptives</li> <li>- Common methods: Depo-Provera (70.5%) and Pills (28.9%)</li> <li>-48.9% aware of where to access SRH services</li> <li>-42.4% had 4 or more children</li> <li>-60.4% had 3 or more kids</li> </ul>	<ul style="list-style-type: none"> <li>- Religious prohibition (43%)</li> <li>- Disagreement with the partner (52%)</li> <li>- Dislike any FP method (27.3%)</li> <li>- Fear of side effects (7.9%)</li> <li>- Desire for children (15.6%)</li> </ul>	-Not specified
Islam et al. (2022) (23)	<ul style="list-style-type: none"> <li>- Rare male participation in FP</li> <li>- Condom use is also rare</li> </ul>	<ul style="list-style-type: none"> <li>- Education and religious barriers</li> <li>- Sociocultural issues <ul style="list-style-type: none"> <li>-stigma attached to condoms</li> <li>-unfamiliarity with condoms</li> </ul> </li> <li>- concerns about marital stability and safety of women</li> </ul>	- Health workers gave priority to contraceptive methods other than condoms
Islam, Khan, et al. (2021) (27)	<ul style="list-style-type: none"> <li>- 80% recently pregnant or gave birth</li> <li>- 34% contraception use</li> <li>- Contraception use between marriage and the first childbirth was rare</li> <li>-FP personnel visited their homes (48%)</li> </ul>	<ul style="list-style-type: none"> <li>-Desire for children</li> <li>- Religious beliefs</li> <li>- Misapprehension about contraception</li> <li>- Long waiting times at health facilities</li> </ul>	-Male volunteers in outreach services
Jannat et al. (2022) (24)	<ul style="list-style-type: none"> <li>- 50.91% contraception use</li> <li>- Primary method: injections (67.3%) and pills (29.9%)</li> </ul>	- Husbands' disapproval of the use of FP (48.8%)	- Availability of healthcare centres in the camp

	<ul style="list-style-type: none"> <li>-Received no FP personnel visits (51.7%)</li> <li>- Received frequent FP personnel visits (11%)</li> </ul>	<ul style="list-style-type: none"> <li>- Active pregnancy desire (17.4%)</li> <li>- Religious prohibition of using contraceptives (15.3%)</li> </ul>	<ul style="list-style-type: none"> <li>- Only 11% received recommended frequent visits (once fortnightly)</li> <li>- In only 48.3% of visits, services included contraception and/or FP</li> </ul>
Khan et al. (2021) (22)	<ul style="list-style-type: none"> <li>- 70% inadequate HIV knowledge</li> <li>-2.4 times higher HIV knowledge among educated women</li> <li>- Lower HIV knowledge among Rohingya women compared to women in Bangladesh and Myanmar</li> </ul>	<ul style="list-style-type: none"> <li>- Limited HIV knowledge and prevalent misconceptions</li> </ul>	<ul style="list-style-type: none"> <li>- Availability of healthcare centres in the camp</li> </ul>
Khan, Rahman, et al. (2021) (26)	<ul style="list-style-type: none"> <li>- Low contraception use</li> <li>- Frequent pregnancies</li> <li>- Lack of SRH knowledge</li> <li>-Unaware of STI transmission</li> </ul>	<ul style="list-style-type: none"> <li>- Religious belief (child is a gift of God)</li> <li>- Low literacy</li> <li>- Husband’s decision on contraception</li> </ul>	<ul style="list-style-type: none"> <li>- SRH services by NGOs</li> <li>- SRH training and awareness initiatives</li> <li>- Creating “women-friendly” and “adolescent-friendly” spaces.</li> </ul>
Saidu (2022) (18)	<ul style="list-style-type: none"> <li>- Significant knowledge gap between married and unmarried adolescent girls regarding contraception use</li> <li>- 96% of contraception users were married</li> </ul>	<ul style="list-style-type: none"> <li>- Inhibit unmarried adolescents to practice contraception</li> <li>- Influence of husband</li> <li>- Religious beliefs</li> <li>- Community influence</li> <li>- Fear of side effects</li> </ul>	<ul style="list-style-type: none"> <li>-Not specified</li> </ul>

	<ul style="list-style-type: none"> <li>- 62% of unmarried adolescents were uninterested in practicing contraception</li> <li>-43% willing to use contraceptives in the future</li> </ul>		
Zakaria et al. (2022) (20)	<ul style="list-style-type: none"> <li>- 79.8% consulted a healthcare provider about SRH</li> <li>- 68.4% received door visits from health workers</li> <li>- 58.3% well-informed about contraceptive benefits</li> <li>- 62.7% participated in NGO awareness program</li> <li>-52% saw any poster/billboard regarding SRH</li> <li>- 81.7% agree girls should know SRH and STIs before marriage</li> <li>-Average number of children was 3.96</li> </ul>	<ul style="list-style-type: none"> <li>- Cultural taboos and misconceptions</li> <li>- Gender-based violence</li> <li>- Limited knowledge and literacy</li> <li>- Disbelief in modern contraceptives and SRH issues</li> <li>-63.4% expressed reluctance to continue its use in the face of husband's disapproval</li> </ul>	<ul style="list-style-type: none"> <li>- Receiving health communication intervention with clear messages</li> <li>-Women's interpersonal communication with a healthcare provider</li> </ul>

Rohingya women face significant sociostructural and logistical barriers, including restricted mobility within refugee camps, poor road infrastructure, overcrowded living conditions, and the location of camps in flood-prone hilly areas (25). These physical limitations are compounded by negative perceptions of the Rohingya within the host community, which views them as economic and social threats due to disruptions in daily life, involvement in illegal activities, and alleged transactional sex (25). These negative perceptions can create difficulties for refugees in accessing SRH services, with host community members reluctant to support or collaborate with Rohingya women to seek SRH services (25). Additionally, the health system in refugee camps often overcrowded and understaffed facilities, which, coupled with long waiting times, severely limit the capacity of women to receive timely care (27). These logistical issues, along with the inadequate supply of contraceptives and limited knowledge and literacy about SRH issues, contribute to the reluctance to use modern contraceptives (20, 23-26).

## **Interventions, Programs, and Services Addressing SRH Needs**

Eight studies described participants' reports of receiving ongoing interventions, programs and/or services. Two papers highlighted the importance of the presence of health services in the camps (22, 26). Two papers discussed outreach and peer involvement in service provision to increase the engagement and use of FP services (25, 27). Health communication and information intervention to address the SRH needs of Rohingya refugees were described in three papers (20, 21, 24). Prioritisation of contraceptive methods other than condoms and their impact on the use of FP was reported by Islam et al. (2022) (23). These services described in the papers were provided to Rohingya refugees in Bangladesh through collaborative efforts involving the Government of Bangladesh, UN agencies, and both national and international NGOs, coordinated under the SRH Working Group (1, 11, 28). Key interventions focused on FP, contraceptive provision, education, and outreach align with the MISIP to meet the needs of this vulnerable population (6, 7).

Efforts to improve SRH services in the camps emphasised the importance of community-based outreach programs. Effective outreach strategies, such as door-to-door visits by healthcare workers, provided FP counselling, distributed contraceptives, and educated women about SRH services (21, 22, 25). For example, 74.5% of women reported receiving FP interventions at the camp, with access to FP information facilitated by nurses and healthcare providers (21). Zakaria et al. (2022) reported that 68.4% of the study participants received door visits from healthcare workers (20). In only 48.3% of visits, services included contraception and/or FP, and only 11% received recommended frequent home visits (once fortnightly) by healthcare workers (22). Access to FP information was facilitated through nurses and healthcare providers, ensuring that healthcare services are available within the blocks where women reside (26). The involvement of Rohingya volunteers played a significant role in promoting contraception use and could help bridge gaps in access (21, 26).

Community engagement, including the participation of religious leaders and Rohingya men, has been highlighted as essential in overcoming cultural and religious barriers, dispelling misconceptions, and fostering trust between refugees and healthcare providers (22, 27). The involvement of Rohingya men and volunteers in outreach efforts has also proven beneficial, particularly in promoting condom use and increasing awareness of contraceptive methods (27). Equitable promotion of various contraceptive methods and the active participation of volunteers in outreach services were found to enhance the effectiveness of these interventions (23, 27). Training and deploying more community health workers with a focus on SRH

education and services could help bridge the gap in access to contraceptives and SRH information (23, 24).

Jannat et al. (2022) emphasised the importance of training and awareness initiatives that equip women with the knowledge and tools to manage their own SRH needs (24). The creation of ‘women-friendly spaces’ and ‘adolescent-friendly spaces’ ensures safe environments where women and girls could access SRH services, engage in discussions, and receive support tailored to their unique needs (24).

Health communication interventions (HCIs), as highlighted by Zakaria et al. (2022), were identified as significant for improving SRH education among Rohingya women (20). These interventions included clear and comprehensive SRH messages in the Rohingya language and interpersonal communication with healthcare providers. Expanding HCIs to address common misconceptions and increase awareness about contraception, HIV prevention, and STI management could significantly enhance SRH outcomes in camps (20).

#### 2.2.5 Discussion

The findings from our systematic review shed light on the challenges surrounding the SRH of Rohingya refugee women in Bangladesh. First, the reviews highlight significant gaps in SRH education, contraceptive practices, and awareness of HIV/STIs within the Rohingya community. Second, the published evidence points to considerable and persistent barriers to access to SRH services, including the need for the husband’s consent for FP and cultural and religious norms; gender dynamics; stigma and misconception; and logistic and structural factors that impact contraception use and SRH services (20, 21, 25). Third, the papers reported the interventions already delivered in the Rohingya refugee camps in Bangladesh, but more emphasis is needed on interventions prioritising home-based healthcare, i.e., visiting the residents in the camps, tailored health communication, comprehensive SRH care within refugee camps, and educational initiatives (20, 22-24, 27).

The review revealed significant gaps in SRH education, particularly regarding awareness and knowledge about contraceptive methods, HIV/STIs, and SRH services (19, 21). Despite some level of awareness about FP methods, comprehensive knowledge and consistent use remain limited. There is a significant lack of detailed knowledge about various contraceptive methods, especially long-term or permanent options, condoms and multipurpose approaches for the prevention of unwanted pregnancy. The inconsistent use of contraception, particularly among

married women, and the limited awareness of permanent contraceptive methods, which are not provided in the camps, are the result of a lack of comprehensive SRH education (21, 24, 25).

Knowledge and awareness about HIV/STIs among Rohingya communities are inadequate, contributing to low condom use, misconceptions about HIV transmission, and increased overall vulnerability to HIV/STIs (20, 24-26). The estimated number of HIV-infected Rohingya individuals in Bangladesh is likely to be largely underestimated due to poor testing rates. The large-scale forced displacement of Rohingya refugees has resulted in a lack of systematic HIV data in both host and home countries. Approximately 5,000 HIV-infected Rohingya individuals are estimated to have arrived in Bangladesh, on the basis of Myanmar's 0.8% HIV prevalence rate, and this number is likely to be largely underestimated; however, fewer than 600 cases have been identified, mainly due to poor testing rates (8).

The prevalence of contraception use among Rohingya women varies significantly. The most commonly used methods are injections and oral contraceptive pills (22). Men's participation in FP is minimal, with very few using condoms as a contraceptive method (21, 23). This low level of participation is influenced by sociocultural norms and misconceptions about condom use (23).

Cultural and religious norms play a pivotal role in shaping attitudes toward FP. Many Rohingya women face societal pressure to adhere to traditional reproductive roles, which often prioritise large family sizes and the preference for male children (18, 20, 25, 27). These deep-rooted beliefs not only influence reproductive decision-making but also reinforce the notion that women should continue having children until a son is born (21). Such cultural expectations limit women's autonomy in deciding the number and spacing of their children and perpetuate the high fertility rates observed within the community. The persistence of these norms poses a significant challenge to the adoption and sustained use of modern contraceptive methods.

Gender dynamics further exacerbate the challenges associated with FP. In many cases, FP decisions are predominantly influenced by male partners, with women requiring spousal consent to access contraception (19-22). This power imbalance limits women's ability to make independent reproductive choices and perpetuates the idea that contraception is solely a woman's responsibility. Men's participation in FP remains rare, particularly in terms of the use of contraceptives such as condoms. This lack of male involvement, combined with traditional gender roles, restricts the potential for shared responsibility in reproductive health and undermines efforts to promote more equitable FP practices.

Moreover, misconceptions about contraception, often reinforced by religious and community leaders, contribute to a reluctance to adopt or continue using contraceptive methods (18, 25). Misinformation about the potential side effects of contraceptives and religious prohibitions against their use has led to widespread discontinuation and underutilization of available services (19, 25, 27). This reluctance is further reflected in the low contraceptive uptake among unmarried adolescent girls, who face additional cultural stigma around sexual activity and contraception (18). The lack of interest in contraception among young girls highlights the need for more targeted and culturally sensitive educational initiatives aimed at addressing these misconceptions and promoting the benefits of contraception from an early age.

Access to SRH services also remains inconsistent within refugee camps. Although some women have reported receiving SRH counselling and services, there is a lack of uniformity in healthcare outreach, with many women receiving infrequent or no visits from healthcare workers (22, 27). This inconsistency in service provision, coupled with logistical challenges such as overcrowding and inadequate staffing, further limits women's ability to access timely and effective SRH care. Moreover, negative perceptions from the host community further exacerbated access to essential SRH care (20, 23, 25). Even when services are available, cultural reluctance and societal pressures often deter women from fully utilising these resources.

Addressing the SRH needs of Rohingya refugee women in Bangladesh requires a holistic approach, which must be comprehensive, culturally sensitive, and community-driven (22, 23). This should involve the training of Rohingya refugee volunteers—both men and women—and their engagement with healthcare services, the implementation of effective HCI strategies, the provision of comprehensive SRH services, culturally sensitive education promoting gender equity, and initiatives to improve the uptake of the FP (18-24, 26, 27). Community-based approaches, home-based healthcare, and tailored outreach programs were identified as essential strategies for bridging gaps in knowledge, access, and utilisation of SRH services among Rohingya refugees (18-24, 26, 27). For example, in Jordan's Za'atari refugee camp hosting Syrian refugees, the Women and Girls Comprehensive Centre exemplifies this approach, offering a spectrum of services spanning health, education, empowerment, and social support for women and girls (29). We believe that it is important to customise these interventions to address the specific challenges and barriers faced by the Rohingya population, taking into consideration accessibility to services, cultural sensitivity specific to the Rohingya community, and women's empowerment in making informed decisions about their SRH.

There are some SRH challenges that are specific to the Rohingya refugee community, in addition to the challenges faced by refugees in general. First, Rohingya refugees arrived in Bangladesh from a particularly disadvantaged position, as they had been ostracised and had no access to formal education in Myanmar. Therefore, they urgently need comprehensive education and access to SRH services. Second, the government of Bangladesh does not recognise them as refugees, which also limits their access to essential services, including healthcare and legal protections. Third, Rohingya refugees have been denied citizenship in their homeland and are highly unlikely to return to Myanmar with full citizenship rights (30). There is a new generation of Rohingya women growing up in the camps (31), facing significant barriers to education and SRH resources (1, 32), while their opportunity to receive SRH education is limited to refugee camps. Without a shift in the current status quo and meaningful interventions, such as those suggested in this review, the ongoing negative outcomes will likely persist, impacting future generations of Rohingya women. In our view, there is also a critical urgency to take immediate and decisive action to enhance SRH outcomes and break the cycle of disadvantage experienced by this vulnerable population. We call for interventions that are tailored or adapted to the unique circumstances that Rohingya refugees face. Understanding and addressing the multifaceted challenges within the SRH landscape of Rohingya refugee women in Bangladesh is vital for improving their overall health outcomes and ensuring their reproductive rights and well-being.

### **Implication for practice**

The findings of this review underscore the urgent need for culturally sensitive and community-based interventions to address the sexual and reproductive health (SRH) challenges faced by Rohingya refugees in Bangladesh. Strengthening healthcare outreach through frequent, door-to-door visits and training Rohingya community health volunteers, including both men and women, can bridge cultural gaps and improve trust and engagement with SRH services. Expanding SRH education programs with culturally tailored materials in the Rohingya language is essential to dispel prevalent misconceptions about contraception and HIV/STIs. These efforts should actively engage religious and community leaders to normalise SRH discussions and promote gender equity. Additionally, increasing male participation in family planning through targeted interventions can help challenge traditional gender norms and foster shared responsibility in reproductive decision-making.

Improving access to SRH services requires prioritising comprehensive healthcare within safe, easily accessible locations in refugee camps, including the integration of long-term

contraceptive options. Establishing women- and adolescent-friendly spaces can empower individuals to make informed decisions while addressing the specific needs of younger populations. Tailored health communication strategies that emphasise accurate, consistent messaging can further enhance awareness and uptake of SRH services. Advocacy efforts are also critical to ensure the rights of Rohingya refugees to healthcare access, necessitating collaboration among governments, international NGOs, and local organisations. A holistic approach combining education, outreach, and policy advocacy is vital for improving the SRH outcomes and overall well-being of this vulnerable population.

### **Limitations**

We acknowledge certain limitations of this review. It did not include NGOs or government reports, and the search was limited primarily to English-language publications. Notably, our review focused on specific SRH issues, such as sexual health, FP, contraception, STIs, and HIV/AIDS, while omitting other issues, such as maternal and child health, MR, PAC, GBV, and reproductive cancers. Our focus was specifically on Rohingya refugees in Bangladesh, excluding those in other countries. Despite efforts to maintain consistency, variances in applying inclusion criteria may have arisen during the screening process conducted by two team members. Most of the studies were cross-sectional, with limited comparisons across refugee populations and insufficient discussions on the impact of local laws on SRH. Most publications included in this review were of weak or moderate quality, which could have impacted their findings and, consequently, our discussion here. This also indicates a need for higher-quality research in this field. The inclusion of grey literature, often based on self-reported data, may introduce potential biases due to the less rigorous methodological standards typically applied in these types of studies. Despite these limitations, the review highlights the need for and barriers to delivering SRH services among Rohingya refugees in Bangladesh, which may be used to improve the SRH services provided to them.

### **2.2.6 Conclusion**

This systematic review highlights important gaps in SRH knowledge and service utilisation among Rohingya refugee women in Bangladesh. The findings reveal deficiencies in SRH education, particularly with respect to awareness and knowledge about different contraceptive methods and SRH services, a limited understanding of HIV/STI prevention, inconsistent access to SRH services and multiple barriers to accessing SRH services. Cultural norms, gender dynamics, and misconceptions about contraception contribute to low contraceptive uptake and

the use of SRH services. Additionally, the need for spousal consent and limited male involvement in family planning decisions further hinders women's autonomy in reproductive health. To meet the SRH needs of Rohingya refugee women, there must be a concerted effort to scale up a multifaceted approach to interventions, including culturally sensitive interventions, promoting comprehensive SRH education, community-based outreach, and improving access to SRH services. Only through sustained and well-coordinated efforts can we address the complex barriers faced by this vulnerable population and improve their overall reproductive health and well-being.

### 2.2.7 References

1. Hossain MA, Dawson A. A systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan refugee women of reproductive age in Asia. *WHO South East Asia J Public Health*. 2022;11(1):42–53. doi:10.4103/WHO-SEAJPH.WHO-SEAJPH\_144\_21.
2. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. *BMC Public Health*. 2020;20(1):666. doi:10.1186/s12889-020-08818-y.
3. Singh NS, Aryasinghe S, Smith J, Khosla R, Say L, Blanchet K. A long way to go: a systematic review to assess the utilisation of sexual and reproductive health services during humanitarian crises. *BMJ Glob Health*. 2018;3(2):e000682. doi:10.1136/bmjgh-2017-000682.
4. Munyuzangabo M, Khalifa DS, Gaffey MF, Kamali M, Siddiqui FJ, Meteke S, et al. Delivery of sexual and reproductive health interventions in conflict settings: a systematic review. *BMJ Glob Health*. 2020;5(Suppl 1):e002206. doi:10.1136/bmjgh-2019-002206.
5. UNHCR. Asia & the Pacific regional population trends analysis: forced displacement 2022 [Internet]. Geneva: UNHCR; 2022 [cited 2023 Aug 7]. Available from: <https://data.unhcr.org/en/documents/details/101659>.
6. Inter-agency Working Group on Reproductive Health in Crises (IAWG). Inter-agency field manual on reproductive health in humanitarian settings [Internet]. Geneva: IAWG; 2010 [cited 2024 Sep 28]. Available from: <https://www.unfpa.org/resources/minimum-initial-service-package-misp-srh-crisis-situations>.
7. Casey SE. Evaluations of reproductive health programs in humanitarian settings: a systematic review. *Confl Health*. 2015;9(Suppl 1):S1. doi:10.1186/1752-1505-9-S1-S1.

8. Hossain MA, Zablotska-Manos I. The changing dynamics of HIV/AIDS during the COVID-19 pandemic in the Rohingya refugee camps in Bangladesh – a call for action. *Glob Biosecurity*. 2022;4(1). doi:10.31646/gbio.135.
9. Hossain MA, Huda MN, Ullah A, Renzaho A. Risk factors, contemporary challenges and psychological well-being of the Rohingya refugees in Bangladesh: policy implications. *Int J Health Plann Manage*. 2022;37(4):1912–7. doi:10.1002/hpm.3472.
10. UNHCR. UNHCR global appeal 2021 update [Internet]. Bangkok: UNHCR Asia and the Pacific; 2020 [cited 2021 May 6]. Available from: [https://reporting.unhcr.org/sites/default/files/ga2021/pdf/Chapter\\_Asia.pdf](https://reporting.unhcr.org/sites/default/files/ga2021/pdf/Chapter_Asia.pdf).
11. Rahman A, Strong J, Mondal PP, Maynard A, Haque T, Moore AM, et al. Perceptions and attitudes of Rohingya community stakeholders to pregnancy termination services: a qualitative study in camps of Cox's Bazar, Bangladesh. *Confl Health*. 2024;18(1):19. doi:10.1186/s13031-024-00574-9.
12. UNICEF. Rohingya crisis [Internet]. Dhaka: UNICEF Bangladesh; 2020 [cited 2021 Apr 5]. Available from: <https://www.unicef.org/emergencies/rohingya-crisis>.
13. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugee people in Bangladesh: a systematic review protocol. *Women Midwives Midwifery*. 2023;3(3):36–44.
14. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Int J Surg*. 2021;88:105906. doi:10.1016/j.ijisu.2021.105906.
15. Hong Q, Pluye P, Fàbregues S, Bartlett G, Boardman F, Cargo M, et al. Mixed Methods Appraisal Tool (MMAT), version 2018: user guide. Montreal: McGill University; 2018:1–11.
16. Squires JE, Hutchinson AM, Boström AM, O'Rourke HM, Cobban SJ, Estabrooks CA. To what extent do nurses use research in clinical practice? A systematic review. *Implement Sci*. 2011;6(1):21. doi:10.1186/1748-5908-6-21.
17. Crowley T, Petinger C, Nchendia AI, van Wyk B. Effectiveness, acceptability and feasibility of technology-enabled health interventions for adolescents living with HIV in low- and middle-income countries: a systematic review. *Int J Environ Res Public Health*. 2023;20(3):2464. doi:10.3390/ijerph20032464.
18. Saidu S. Knowledge, practices and influencing factors regarding use of contraceptive methods among Rohingya refugee adolescent girls in Cox's Bazar, Bangladesh: a cross-

- sectional mixed method study. *J Reprod Health Contracept.* 2022;7(7). doi:10.36648/2471-9749.22.7.001.
19. Chowdhury MAK, Billah S, Karim F, Khan ANS, Islam S, Arifeen SE. Report on demographic profiling and needs assessment of maternal and child health (MCH) care for the Rohingya refugee population in Cox's Bazar, Bangladesh. Dhaka: Maternal and Child Health Division, ICDDR,B; 2018.
  20. Zakaria M, Nachrin T, Azad MAK. Evaluating the effectiveness of utilization of health communication interventions on sexual and reproductive health of the Rohingya women living in Cox's Bazar refugee camp. *Heliyon.* 2022;8(12):e12563. doi:10.1016/j.heliyon.2022.e12563.
  21. Azad MAK, Zakaria M, Nachrin T, Das MC, Cheng F, Xu J. Family planning knowledge, attitude and practice among Rohingya women living in refugee camps in Bangladesh: a cross-sectional study. *Reprod Health.* 2022;19(1):105. doi:10.1186/s12978-022-01410-0.
  22. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ.* 2021;99(3):201–8. doi:10.2471/BLT.20.269779.
  23. Islam MM, Rahman MM, Khan MN. Barriers to male condom use in Rohingya refugee camps in Bangladesh: a qualitative study. *Lancet Reg Health Southeast Asia.* 2022;2:100008. doi:10.1016/j.lansea.2022.04.004.
  24. Jannat S, Sifat RI, Khisa M. Sexual and reproductive health conditions of women: insights from Rohingya refugee women in Bangladesh. *Sex Res Soc Policy.* 2022;20(3):855–68. doi:10.1007/s13178-022-00758-z.
  25. Ainul S, Ehsan I, Haque E, Amin S, Rob U, Melnikas A, et al. Marriage and sexual and reproductive health of Rohingya adolescents and youth in Bangladesh: a qualitative study. *Population Council.* 2018. doi:10.31899/pgy7.1022.
  26. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open.* 2021;11(10):e047516. doi:10.1136/bmjopen-2020-047516.
  27. Islam MM, Khan MN, Rahman MM. Factors affecting child marriage and contraceptive use among Rohingya girls in refugee camps. *Lancet Reg Health West Pac.* 2021;12:100175. doi:10.1016/j.lanwpc.2021.100175.
  28. UNFPA. SRH working group's strategy on family planning for the Rohingya humanitarian crisis 2021–2023 [Internet]. 2022 [cited 2024 Jan 8]. Available from:

[https://bangladesh.unfpa.org/sites/default/files/pub-pdf/clean\\_final\\_srh\\_wg\\_s\\_family\\_planning\\_strategy\\_2021.pdf](https://bangladesh.unfpa.org/sites/default/files/pub-pdf/clean_final_srh_wg_s_family_planning_strategy_2021.pdf).

29. Krause S, Williams H, Onyango MA, Sami S, Doedens W, Giga N, et al. Reproductive health services for Syrian refugees in Zaatri Camp and Irbid City, Hashemite Kingdom of Jordan: an evaluation of the Minimum Initial Services Package. *Confl Health*. 2015;9(Suppl 1):S4. doi:10.1186/1752-1505-9-S1-S4.
30. Rahman MS, Sakib NH. Statelessness, forced migration and the security dilemma along borders: an investigation of the foreign policy stance of Bangladesh on the Rohingya influx. *SN Soc Sci*. 2021;1(7):160. doi:10.1007/s43545-021-00163-2.
31. Blomqvist O. Five things you didn't know about Rohingya children in Asia [Internet]. Bangladesh: Save the Children; 2021 [cited 2023 Dec 26]. Available from: <https://www.savethechildren.net/blog/five-things-you-didn%E2%80%99t-know-about-rohingya-children-asia>.
32. Jesmin R. Without school, a 'lost generation' of Rohingya refugee children face uncertain future [Internet]. Binghamton University and State University of New York; 2019 [cited 2024 May 1]. Available from: <https://theconversation.com/without-school-a-lost-generation-of-rohingya-refugee-children-face-uncertain-future-118805>.

## CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

### 3.1 Overview

This study employed a convergent mixed-methods design to examine factors that influence sexual and reproductive health (SRH) literacy and access to services among young Rohingya refugee women in Cox's Bazar, Bangladesh. The conceptual design of this study was guided by an intersectional socio-ecological model (1, 2), which helped to examine how individual, community, and structural factors interact to shape SRH outcomes within Rohingya refugee community. This approach improved the understanding of SRH among refugee communities, emphasising their contexts and sociocultural norms (3, 4). In this study, quantitative data were used to measure population-level indicators of literacy, knowledge, behaviour, and utilisation of family planning (FP) and HIV/STI services, while qualitative methods explored the lived experiences, attitudes, and social dynamics underlying these patterns (5, 6). The study consists of two interrelated parts: a cross-sectional quantitative survey and a detailed qualitative exploration involving in-depth interviews (IDIs) and focus group discussions (FGDs) (see Figure 2).

The first part involved a cross-sectional survey of 686 young Rohingya women aged 15-24 years, selected through multistage random sampling across Cox Bazar refugee camps. Data were collected using structured interviews adapted from validated tools, including the Demographic and Health Surveys (DHS) and the Adolescent SRH Toolkit for Humanitarian Settings (7, 8). The survey captured information on FP and HIV/STI knowledge, behaviours, contraception use, service utilisation, and sociodemographic factors.

The second part employed a phenomenological approach to explore sociocultural, religious, community, and structural factors that impacted access to FP and HIV/STI. A total of 40 IDIs and 5 FGDs were conducted with different stakeholders such as community leaders, health professionals, young women and adolescents, and adult males. These data provided insights into the community power dynamics, gender relations, and the barriers and facilitators to SRH in Rohingya refugee camps.

Data from the quantitative and qualitative research parts were analysed separately and are presented accordingly. Once the independent analyses were complete, we brought them together through triangulation to see where they agreed, where they differed, and what unique insights each of the methods offered (9). To link numbers with narratives, we used joint

displays that integrate statistics with qualitative themes to better understand their SRH behaviours and service access. In the final step, we synthesise the findings, which are summarised in Chapter 9 - Integrated Discussion. Throughout every stage of this study, including planning, data collection, and analysis, we followed approaches that were trauma-informed, gender-sensitive, and respectful to the Rohingya culture (10-15).

This chapter provides a detailed account of the research design, theoretical framework, sampling strategies, data collection tools, ethical procedures, and analytical methods used in the study. The presentation of research methods reflects a commitment to methodological rigour, transparency, and cultural responsiveness in conducting sensitive and complex SRH research with refugee populations.

Mixed-Methods Study Design		
	Part 1 Quantitative Household Survey	Part 2 Qualitative Interviews and FGDs
Step 1: Selection of Respondents	<b>Multistage Random Sampling</b> 1. Random selection of 8 camps 2. Random selection of block & Majhii *1 Majhii each block 3. Random selection of households *Every 10 <sup>th</sup> household from Majhii's house 4. Select one young woman per household (15-24) *86 households per camp *Interview 686 young Rohingya women	Same Eight Camps Used in the Quantitative Part <b>Purposive Selection of Respondents</b> <b>In-depth interview: 40</b> *12 young women aged 15-24 *8 adult men *8 formal healthcare providers *4 traditional healthcare providers *8 community leaders <b>FGD: 05 (5 to 7 in each FGD)</b> *2 with young women *1 with adult men *2 with mix-gender
Step 2: Data Collection Tools	<b>Quantitative Data Collection: Structured Interview</b> <b>Domains:</b> *Socio-economic conditions *Sexual behaviour *Health service use *SRH, FP, & HIV/STIs literacy <ul style="list-style-type: none"> <li>▪ Prevention</li> <li>▪ Practices</li> <li>▪ Use of services</li> </ul>	<b>Qualitative Data Collection: Semi-Structured Interview &amp; FGD</b> <b>Domains:</b> *Perspectives and values *SRH, FP, & HIV/STIs literacy <ul style="list-style-type: none"> <li>▪ Prevention</li> <li>▪ Practices</li> <li>▪ Use of services</li> </ul> *Decision-making dynamics *Facilitators and barriers to SRH *Socioeconomic dynamics
Step 3: Data Analysis	<b>Statistical Analysis</b> Descriptive, bivariate, multivariate regression	<b>Thematic Analysis</b> Deductive and Inductive coding
	<b>Data Triangulation</b> Integrate statistics with qualitative themes, Interpretation of the merged result	

**Figure 2: Research flow chart**

### 3.2 Theoretical Framework

This research is theoretically based on an intersectionality framework, integrated with the socio-ecological model (SEM). This combined perspective helped us develop a comprehensive and multi-layered exploration of how overlapping social identities and structural factors influence young Rohingya women's awareness and access to SRH services in a refugee camp

setting. This integrated framework was used to design data collection instruments, sampling approach, and data analysis, aligning the study's theoretical foundation with empirical research.

### 3.2.1 Intersectionality

Intersectionality is a critical feminist framework originally conceptualised by Kimberlé Crenshaw (1989) to describe how multiple, overlapping systems of oppression, such as racism, sexism, and classism, interact to shape unequal life outcomes (1, 2). In refugee contexts, intersectionality offers a powerful analytical lens for unpacking how gender, age, statelessness, displacement, religious norms, and humanitarian governance collectively construct vulnerability and marginalisation among young women (1, 2, 16).

In displacement settings like Cox's Bazar, this framework moves beyond single-factor explanations of health inequities, rejecting the notion that barriers to SRH access among Rohingya youth can be explained solely by gender or refugee status in isolation. Instead, it highlights the combined impact of social identities and structural forces, such as being female, unmarried, Muslim, stateless, and adolescent, all of which can interact to exacerbate barriers to services, knowledge, and autonomy.

Within public health, intersectionality has transitioned from a theoretical critique to a methodological approach, informing study design, sampling strategies, data collection, and analysis (17, 18). Rather than treating refugee populations as homogeneous, intersectional approaches allow for disaggregation and subgroup-specific insights, which are particularly relevant in humanitarian programming where interventions often overlook internal power hierarchies (19, 20).

Recent studies in humanitarian settings have demonstrated that intersectional analyses uncover how statelessness, gender-based violence, displacement history, and marital status collectively influence SRH service access and decision-making autonomy (21). For instance, adolescent and young girls may experience heightened stigma when seeking contraception, while married women may be subject to patriarchal control over reproductive choices (2, 22).

In this research, intersectionality is operationalised not only as a conceptual framework but also as a guiding principle for methodological decisions. Following intersectionality, the sampling of this study was stratified across various subgroups to ensure key intersections, such as age, marital status and population groups (e.g., women aged 15-24 years, women and men of reproductive age above 25, community leaders, etc., for qualitative data collection), were included. Both quantitative and qualitative data were disaggregated to uncover patterns unique

to these subgroups. For example, a 17-year-old unmarried woman navigating SRH in a conservative Rohingya household may face greater stigma and fewer ways to access accurate SRH information compared to a married 22-year-old woman frequently engaging with an NGO. Statelessness further limits legal recourse and protection from coercion or abuse. This approach enables a more precise depiction of lived experiences among young Rohingya women, and the results can inform the development of more inclusive and equitable SRH programmes.

### 3.2.2 Socio-Ecological Model

The Socio-Ecological Model (SEM) has been proposed as an integrative framework for studying the multiple interrelated levels at which health is operated, from individual to structural contexts. The framework originated with Bronfenbrenner (1977) and was later modified for use in public health by McLeroy et al. (1988). SEM recognises that knowledge or individual choices cannot be understood in isolation from the social, institutional, and policy environments in which people live (23-25).

SEM describes health as a property that naturally arises from interconnected environmental systems. In the case of Rohingya refugee community, whose access to SRH is deeply influenced by sociocultural norms, community values, legal status, and humanitarian authorities, SEM offers a holistic perspective to systematically explore multi-level barriers and facilitators to SRH literacy and service access. This study applied SEM across five interrelated levels (26):

- **Microsystem:** Individual-level factors such as age, education, SRH knowledge, attitudes, fertility preferences, and prior health-seeking behaviours.
- **Mesosystem:** Interpersonal relationships, including family dynamics, peer relationships, and spousal interactions that shape SRH decision-making and service access, e.g., partner communication, parental restrictions, or peer stigma.
- **Exosystem:** Community-level forces, such as cultural norms surrounding family planning, the role of Majhis as gatekeeper, and restrictions on women's mobility.
- **Macrosystem:** Policy and structural level, including statelessness, camp governance, gendered service structures, religious doctrine, and humanitarian coordination systems that influence which services are available, to whom, and how.

- Chronosystem: Temporal dimensions including life transitions (e.g., puberty, marriage, childbirth) and shifting humanitarian priorities that affect access and perceptions of SRH over time.

SEM was not treated merely as a conceptual framework but was actively used to structure data collection tools, stakeholder mapping, coding frameworks, and interpretation of both quantitative and qualitative data. For example, the survey instrument included modules that relate to microsystem (individual literacy), mesosystem (household decision-making), and exosystem (fieldworker visits, mobility restrictions) levels. Qualitative interview guides and FGDs were structured to elicit responses across all levels, specifically the factors that belong to Exo and Macrosystems, which are not that easy to assess in individual surveys. For instance, how household gender norms intersect with institutional gatekeeping.

SEM also facilitated cross-actor comparisons during data triangulation, for example, aligning young women's perceptions with those of healthcare providers or Majhis. It enabled thematic mapping of qualitative findings across levels of influence, supporting a holistic understanding of the barriers and facilitators shaping SRH outcomes among young Rohingya women (27).

### 3.2.3 Integrated Intersectional Socio-Ecological Framework

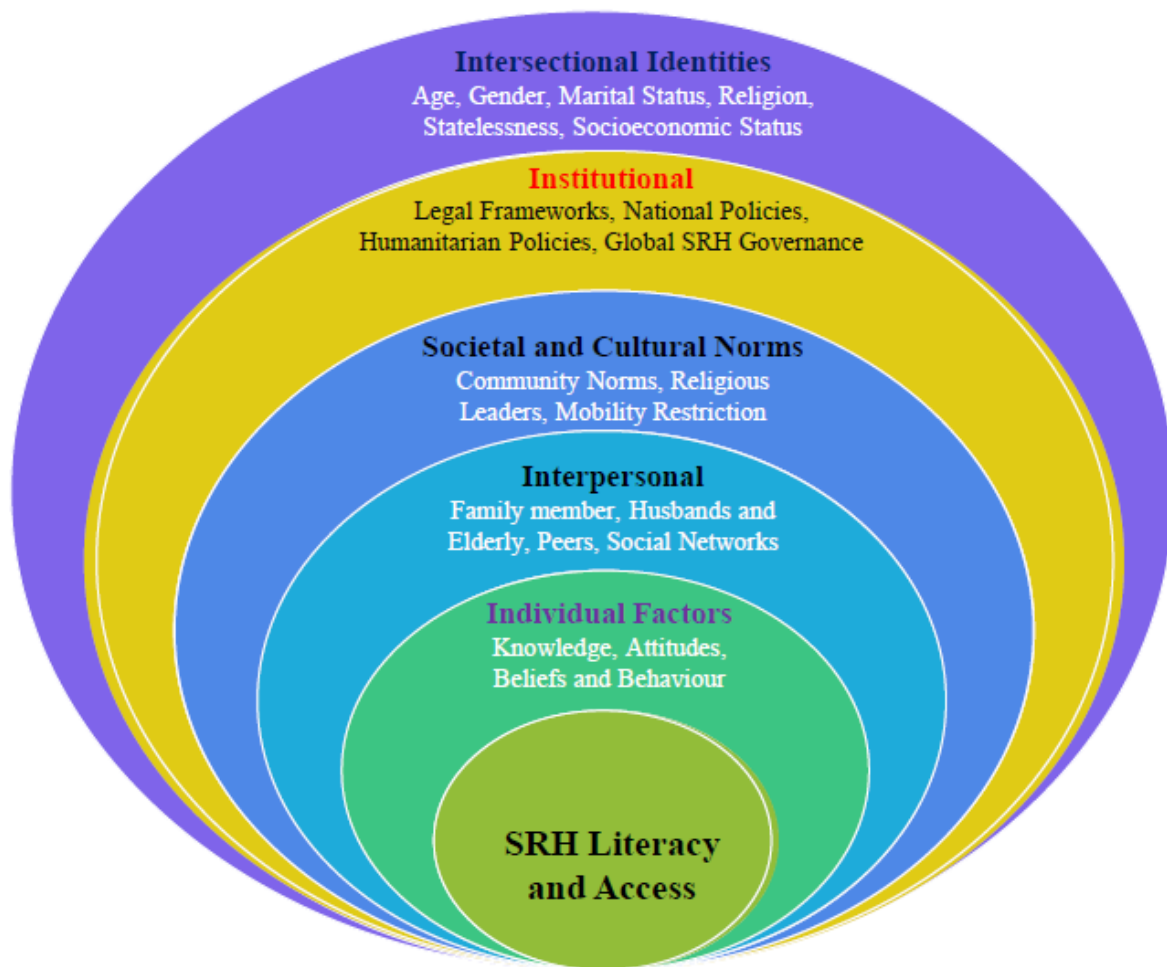
The integrated Intersectional Socio-Ecological Framework (ISEF) captures the complexity of SRH literacy and access to services among Rohingya refugee youth, serving as a combined theoretical framework that unites intersectionality and the SEM (28). Within the context of the Rohingya refugees in Bangladesh, they are experiencing multiple levels of vulnerabilities, such as statelessness, gender-based violence, conservative social norms, and restricted movement, that reduce their rights and access to SRH services (3, 22, 29). ISEF offers a perspective to understand these experiences within complex social and cultural contexts. Using these models can further improve the conceptual and methodological clarification, helping to achieve a thorough understanding of barriers to their SRH.

For this study, we develop ISEF by applying intersectionality at all levels of SEM, considering the cumulative impact of gender, statelessness, age, marital status, and socioeconomic status. For instance, at the individual (micro) and interpersonal (meso) levels, contraceptive knowledge among refugee women is shaped by intersecting factors, including literacy, knowledge, religious norms, family dynamics, peer relationships, spousal interactions, and restrictive formal education (30). At the community (exo) level, patriarchal power structures within camps intersect with inequitable resource distribution to restrict women's mobility to

health facilities (31). For example, young girls may face heightened stigma when seeking contraception, while married women often encounter patriarchal decision-making structures that limit their autonomy (32-34). At the structural (macro) level, gender-diverse individuals experience dual marginalisation, both within their communities and in humanitarian health systems, highlighting the need for inclusive and responsive SRH programming (16, 35-39). Moreover, conservative social norms, structural discrimination, and limited mobility collectively erode young women's SRH rights and access to services (22, 32, 33, 40). At the policy level, statelessness interacts with humanitarian governance to produce legal and administrative barriers to FP service uptake (21) (see Figure 3).

In this study, the ISEF guided our research design, sampling methods, the formulation of research questions, and analytic approaches. For example, sampling was stratified to reflect key intersections such as age, marital status, and population groups. Both quantitative and qualitative data were disaggregated to uncover subgroup-specific patterns (6). Quantitative tools were validated through cross-cultural processes, including forward-back translation and cognitive interviews, to ensure conceptual equivalence across languages (41). Interviewers were matched by sex and language of interview, and data collection was undertaken in secure, familiar settings, which built trust and minimised power imbalances (3, 10-12).

Following ISEF, this research goes beyond the surface level of descriptions to explore how young Rohingya women experience and navigate structural inequalities. This method is consistent with rights-based, equity-focused research principles and can inform the development of inclusive, context-specific SRH programs within a humanitarian setting (16). We adapted Figure 3 from Napier-Raman et al. (2024) with modifications (42) and visually represent this integrative ISEF model, illustrating how multi-level social-ecological influences intersect with social identities to shape SRH literacy and access.



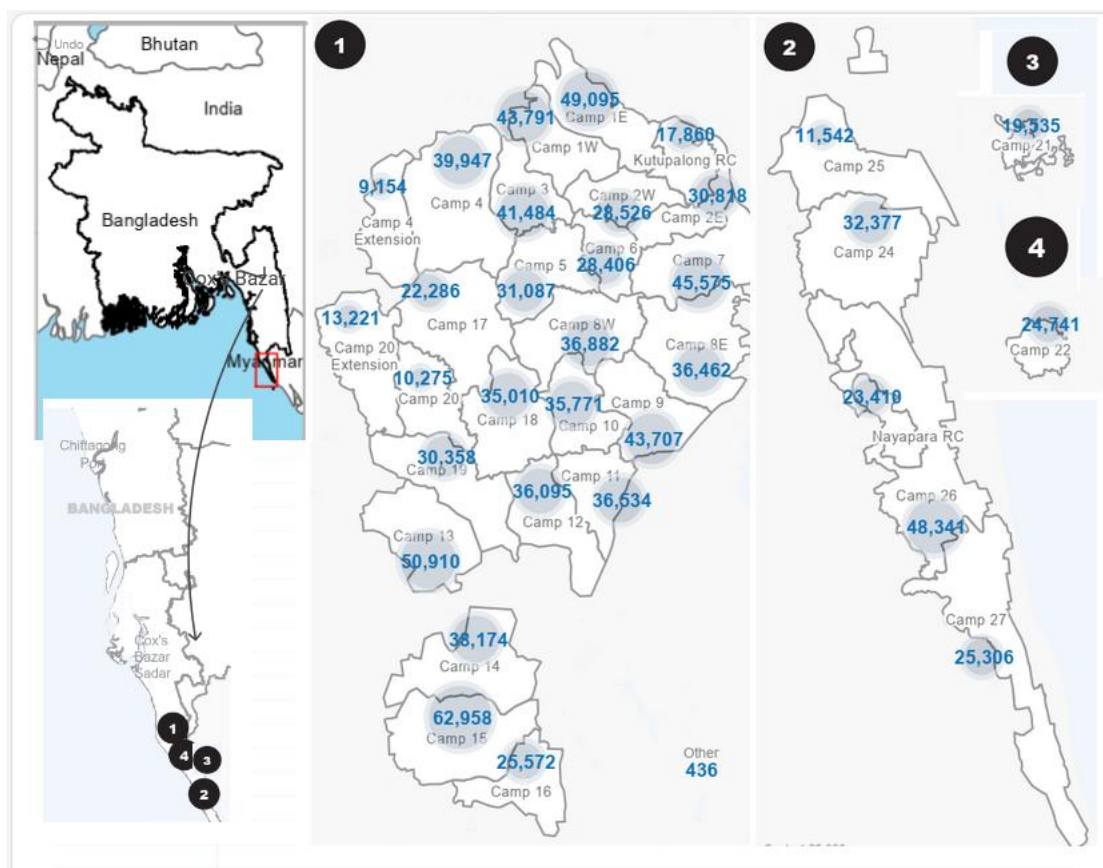
**Figure 3: Integrated Intersectional Socio-Ecological Framework for SRH literacy and access among young Rohingya women**

### 3.3 Study setting

This study was conducted in Cox’s Bazar, Bangladesh, which hosts one of the world’s largest refugee populations. As of May 2025, 1,139,433 Rohingya refugees (across 235,878 households) resided in Bangladesh, including 1,102,353 in Cox's Bazar and 37,980 in Bhasan Char (43, 44). Participants for both the quantitative and qualitative phases were drawn from the 33 camps in the *Kutupalong–Balukhali* expansion site, *Nayapara* camp, *Jamtoli*, *Hakimpara*, and surrounding settlements in *Ukhiya* and *Teknaf* upazilas of Cox’s Bazar (see Figure 4). These sites were established following the major influxes of Rohingya refugees in the early 1990s. They were expanded in August 2017, when over 740,000 Rohingya fled violence in Myanmar’s Rakhine State, and continue to receive new arrivals as of late 2024 and early 2025 (44). The camps now span 23.6 square kilometres, with a population density of approximately 47,000 people per square kilometre - among the highest globally (44). Households in these camps, on average, consist of five members; while 28.2% of households

have fewer than four members, sometimes one individual. The majority are larger households: 35% comprise of 4-5 individuals, 24.8% of 6-7, and 12% of eight or more people (44).

The camp environment presents a unique and complex setting for public health research. Each camp is administered under a joint coordination system involving the Government of Bangladesh (via the RRRC-Office of the Refugee Relief and Repatriation Commissioner), UNHCR, International Organisation for Migration, and multiple NGOs (44, 45). While essential services such as food, shelter, and healthcare are provided, the camp infrastructure remains fragile and constrained by legal, spatial, and political limitations (46). These camps are overcrowded, and residents face strict restrictions on mobility (to leave the camp, one must obtain permission). Access to formal healthcare is limited, as is the availability of gender-sensitive or youth-friendly services. These are major conditions that have the ability to significantly impact SRH outcomes, especially for young women and girls facing cultural as well as logistical challenges to accessing care.



**Figure 4: Map of Rohingya refugee camps in Bangladesh**

### 3.4 Study population

As of 2022 (during the survey), 925,380 Rohingya refugees were living in 208 blocks within 33 camps, and each block had an average of 892 households in Cox’s Bazar (47-49). Table 4 below summarises the age and gender distribution of the Rohingya refugee population in Bangladesh. According to UNHCR estimates, 353,961 (31%) were women aged 12-59 years, including 78,473 (6.9%) adolescent girls aged 12-17 years and 275,488 (24.2%) (44, 49, 50).

**Table 4: Age and gender among Rohingya refugees in Bangladesh**

Age category	Female		Male		Total	
	n	%	n	%	N	%
<1 year	12,185	1.1%	12,546	1.1%	24,731	2.2%
1-4 years	80,947	7.1%	83,873	7.4%	164,820	14.5%
5-11 years	117,900	10.3%	121,083	10.6%	238,983	21%
12-17 years	78,473	6.9%	80,982	7.1%	159,455	14%
18-59 years	275,488	24.2%	225,686	19.8%	501,174	44%
60+ years	22,298	2%	27,972	2.5%	50,270	4.4%

The population of interest for this study comprised young Rohingya refugee women aged 15–24 years. Target populations and research methods differed for the quantitative and qualitative parts of this study. While the qualitative part focused on the issues of the same population of interest as the quantitative component – young Rohingya refugee women aged 15-24 - the enrolment targeted four key population groups, who are the key stakeholders as to the issues of SRH literacy and access to services among our population of interest. These four groups included young (15-24 years old) Rohingya women themselves, as well as adult Rohingya men, community leaders (Majhis, imams, NGO staff), and healthcare providers, both formal (e.g., doctors, nurses) and informal (e.g., traditional birth attendants).

### 3.5 Part 1: Cross-sectional survey of young women

#### 3.5.1 Population and sampling

The survey targeted young Rohingya refugee women aged 15-24 years, which comprised approximately 8-10% of the population of women in the camps (44, 49, 50). This age group was selected in accordance with the United Nations’ definition of youth (44) and reflects a

critical period of reproductive transition, often marked by early marriage, childbearing, and limited autonomy in health decision-making (51).

The sampling frame for quantitative surveys drew on the RRRC-UNHCR Family Counting Exercise registry to identify all female refugees born before 2008 (females aged 15 or more at the start of the study). Inclusion criteria for participation comprised: (1) self-identified Rohingya refugee status, (2) current residence in *Kutupalong-Balukhali* expansion site, *Nayapara* camp, *Jamtoli*, *Hakimpara* and surrounding settlements within Ukhiya and Teknaf, (3) duration of residence in the camp at least six months (4) female aged 15-24 years, and (5) capacity to provide informed consent or assent (for minors) in Rohingya or Bengali, with interpreter support when required.

Excluded were: (1) pregnant women beyond 36 weeks' gestation, (2) with serious cognitive impairment precluding participation, (3) those not willing to provide their consent for participation, and/or women who had also participated in similar SRH studies within the past year (to minimise recall bias and ethical fatigue).

### **Sample size and sampling technique**

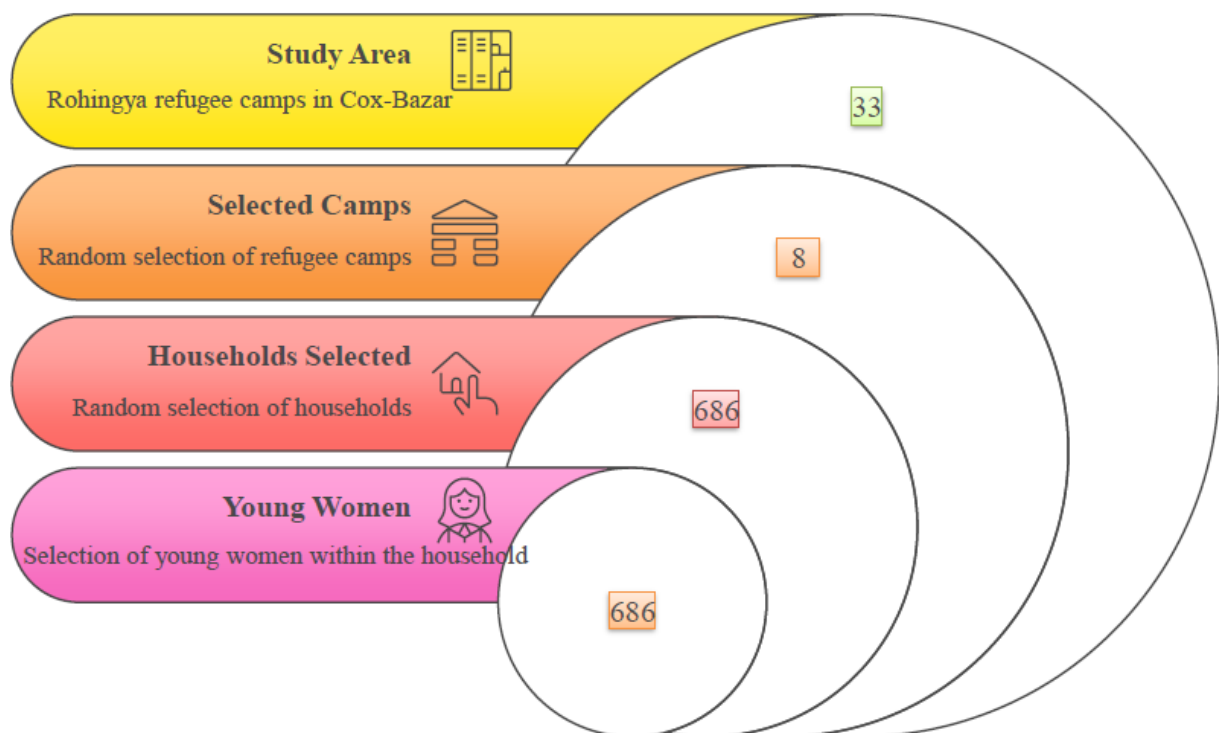
**Sample size:** The sample size for this cross-sectional survey was calculated using Fisher's exact formula (52, 53) based on the following parameters: an assumed 50% prevalence of key SRH indicators (insert specific indicators here), as estimated in previous research(54); a standard normal deviation corresponding to a 95% confidence level; a statistical significance level of 0.05 ( $\alpha = 0.05$ ), and a 5% margin of error ( $d = 0.05$ ). This yielded a required sample size of 423 young women. To account for potential non-response and missing data, a 10% buffer was added, resulting in a target sample size of 465 participants.

However, the final sample size was increased by approximately 50% to 686 to ensure sufficient statistical power ( $\geq 80\%$ ) for multivariate logistic regression with up to 10 variables and subgroup analyses, enabling detection of odds ratios  $\geq 1.5$  at  $\alpha = 0.05$ . This larger sample provides robust stratification and comparison within subgroups, increasing the confidence and the generalisability of findings during complex humanitarian emergencies.

While the survey enrolled a total of 686 young Rohingya women aged 15-24, the empirical chapters drew on analytical sub-samples selected according to the relevance of the research objectives to specific participant groups. All 686 participants were included in the analysis of HIV/STI literacy and testing (Chapter 6). In contrast, the analysis of family planning and

contraception use (Chapter 4) was limited to the 541 participants who reported being currently married.

**Sampling Design:** For quantitative research, multistage random sampling techniques were employed to ensure representativeness across the camps and logistical feasibility. Stage 1 involved randomly selecting eight camps from the 33 camps in Cox’s Bazar, ensuring variation in geography and access to SRH services (55). In Stage 2, 86 households were selected using a systematic walking method. Based on the strategies used in other research (47, 54, 56), a *Majhii* was selected at random from each selected block to serve as the centre point for that block within the camp. Interviewers walked in four directions from the Majhis’ home, stopping at every tenth household tent to identify eligible participants until enough samples had been collected (56). Stage 3 selected one eligible young woman per household. If multiple eligible women were present, the eldest was selected to reduce intra-household clustering (15-24). For the final sample size, see Figure 5.



**Figure 5: Sampling design of the cross-sectional study**

### 3.5.2 Data collection

**Survey Instruments:** Data were collected between March and April 2023 using a structured, interviewer-administered questionnaire (see APPENDIX D - Survey Instruments). The questionnaire was adopted and adapted from the Demographic and Health Survey instruments

(8), guided by the Adolescent Sexual and Reproductive Health Toolkit for Humanitarian Settings (7), and informed by a review of relevant SRH literature in refugee contexts (4). It comprised several modules covering: (a) socio-demographic and household characteristics, (b) sexual partnerships and behaviour, (c) FP and contraceptive knowledge, attitudes, and use, (d) HIV/STIs awareness, prevention, and testing, (e) access to and utilisation of SRH services, and (f) personal health practices and lifestyle.

The questionnaire was pretested with 20 young Rohingya women to ensure cultural and linguistic appropriateness. Feedback from the pilot was used to refine the wording and flow of questions. Due to the absence of a standardised written Rohingya language and high rates of illiteracy, the survey was administered orally in the Rohingya dialect. Key SRH terms were adapted from Bangla and validated through community consultation to ensure conceptual clarity and relevance.

**Recruitment and Training of Research Assistants:** The data collection team comprised trained local interviewers (13 females and 3 males), who were all university graduates fluent in Rohingya and experienced in humanitarian research. To ensure ethical and culturally sensitive engagement, only female interviewers conducted surveys with female participants. Interviewers received intensive two-day training on SRH concepts, research ethics, trauma-informed interviewing, instrument logic, digital data entry and referral protocols for distress disclosures. Certification requires achieving >90% on protocol knowledge assessments and demonstrating competency in mock interviews.

**Data Collection Procedures:** To ensure confidentiality and comfort of the participants, interviews were conducted in safe and secure private spaces within the camps (e.g., women-friendly space, households, isolated home area). All literate participants provided written informed consent; respondents aged 15-17 years also provided written assent, in addition to written consent from a guardian or parent. Fingerprints were obtained on the form from illiterate subjects after reading aloud the information consent form (for details see section 3.9, Ethical Considerations). Participants received a copy of the participant information sheet (see APPENDIX C - Participant Information). Because of the poor internet connectivity in the Rohingya refugee camps, data were collected using paper-and-pencil forms and subsequently entered by the researcher into REDCap, an online data collection system hosted by the University of Sydney (57).

**Quality Assurance:** The study developed a rigorous protocol for data quality assurance and adhered to it to ensure data accuracy, completeness, and ethics, which involved three components:

- daily back-checks verifying instrument adherence for 10% of completed interviews,
- spot-checks of newly uploaded data in REDCap, with automated flags for missing or out-of-range values,
- weekly debriefs to assess interview quality, clarify protocols, and address emerging issues.

A rigorous and systematic three-layer validation system was applied, involving review and cross-checking by field supervisors and the Principal Investigator before the database was finalised.

### 3.5.3 Data analysis

Data from the cross-sectional survey were analysed using the statistical software package STATA (Version 14.0) (StataCorp, 2015). The analysis followed a structured approach to examine patterns in SRH literacy and service access among young Rohingya refugee women. Descriptive statistics were calculated for socio-demographics, knowledge of SRH, FP method, contraceptive literacy, attitudes and use, HIV/STIs literacy, awareness of prevention, testing, and use of services. For all the continuous (age, number of children) variables, means and standard deviations, and categorical variables (marital status, contraception use, HIV/STI testing), frequencies and percentages were calculated.

Bivariate analyses were employed to examine relationships between independent variables (e.g., education, marital status, exposure to SRH information) and primary outcomes (e.g., contraception use and HIV/STI knowledge). Chi-square test of independence was conducted in case of categorical variables, and an independent samples t-test was used for continuous variables.

To identify factors associated with SRH literacy and access to services, multivariable logistic regression models were constructed, using forward stepwise factor selection methods, with a Type I error rate set at 5%. Variables considered for inclusion were the woman's age, her husband's education, exposure to FP, awareness of FP service centres, exposure to SRH information, receipt of SRH-related fieldworker visits in the last 6 months, and acknowledgement of the following: refusing sex with her husband, decision-making autonomy and fertility preferences. The strength of association was expressed as the adjusted odds ratios

(AORs) with their corresponding 95% confidence intervals (CIs). Subgroup analysis of FP literacy, use of modern contraceptive methods, and HIV/STI literacy and testing were compared according to age, marital status, and education levels. Analyses were consistent with the study's intersectional socio-ecological framework by disaggregating data according to key markers of identity.

#### 3.5.4 Outcome and explanatory variables

##### **Outcome of interest**

The study focused on two primary domains of SRH outcomes: FP and HIV/STI. All were explored at the individual level. For FP, outcome variables included FP literacy and awareness of modern contraceptive methods, including injectables, pills, implants, IUDs, and condoms, as well as ever use of FP (yes versus no), current use of FP (yes versus no), frequency of FP service utilisation (number of visits in the last 6 months), and decision-making autonomy regarding contraception use (self, partner, joint).

For HIV/STI, the main outcome variables were whether participants have ever heard about HIV/STIs (yes versus no), knowledge and misconceptions of transmission routes (e.g., unprotected sex, blood transfusion, mother-to-child, mosquito bites), whether they have ever been tested for HIV/STIs (yes versus no), and knowledge of prevention methods, including condom use and limiting sexual partners.

All outcome variables were operationalised as binary or categorical indicators and analysed using descriptive and analytical techniques, including bivariate and multivariable logistic regression, to assess variable distributions and patterns of association.

##### **Explanatory variables**

Explanatory variables were organised across conceptual levels guided by intersectionality and socio-ecological domains. A range of individual, partner, and structural-level variables was included to explore their association with SRH outcomes.

At the individual level, explanatory variables included age (categorised into groups: 22-24 versus 18-21 and 15-17), education (literate versus illiterate), marital status (married versus unmarried), number of children, desire for more children (yes versus no), individual's perception of personal risk regarding HIV/STI acquisition (yes versus no), and employment status (outside work versus household work).

At the partner level, explanatory variables included husband's education (literate vs illiterate), husband's employment status (employed vs unemployed), decision-making dynamics regarding contraception, sexual negotiation (e.g., ever refused sex), and decision-making processes related to HIV/STI testing.

At the structural and contextual levels, variables included exposure to FP or HIV/STI information (via health workers, media, religious leaders, peers), know about SRH service centres in the camp (yes versus no), fieldworker visits in the past six months (yes versus no), availability of healthcare services in the respondent's block, and participation in community-based SRH programs.

These variables were selected based on prior research in refugee and humanitarian contexts, where sociocultural norms, gender power dynamics, and service availability significantly influence SRH behaviours (29, 37, 58). Our ISEF relates directly to these outcomes and explanatory variables, as it fully considers each level, such as individual knowledge and beliefs, community norms, and structures and policies within camps.

### 3.6 Part 2: Qualitative exploration of SRH barriers and facilitators

The qualitative components of this study were conducted in parallel with the survey and were embedded within a broader mixed-methods design to enable data triangulation (9) and enhance the validity of findings. Analysis followed a hybrid approach combining deductive framework analysis (guided by intersectionality and SEM) with inductive thematic development.

#### 3.6.1 Population and sampling

**Study Population:** In the qualitative part, the study focused on four major stakeholders: young Rohingya women (15-24), men and community leaders (Majhis, religious leaders, NGO workers) and healthcare providers, both formal (doctors and nurses) and informal (traditional birth attendants). These groups were selected because each group has different perspectives and viewpoints and can contribute insights into the underlying dynamics of SRH, particularly FP/HIV-STI knowledge, and access to services. For example, young Rohingya women provided their own experiences in seeking SRH literacy and contraceptive knowledge, as well as getting HIV/STI tested, all while having to navigate various systemic barriers such as sociocultural norms, community engagement around these issues, and managing access to services. Additional perspectives on gender norms, religion and decision-making, as well as gatekeeping roles, were provided by adult men such as husbands, fathers or other male community members. The community leaders provided their views on social and cultural

norms. Healthcare providers raised the issues in the SRH service delivery and systemic barriers in the camps, including policies, resources, and the organisation of the system. These insights and viewpoints of key stakeholders aligned with the ISEF (see figure 3) since perspectives at individual, household, community, and institutional levels were represented.

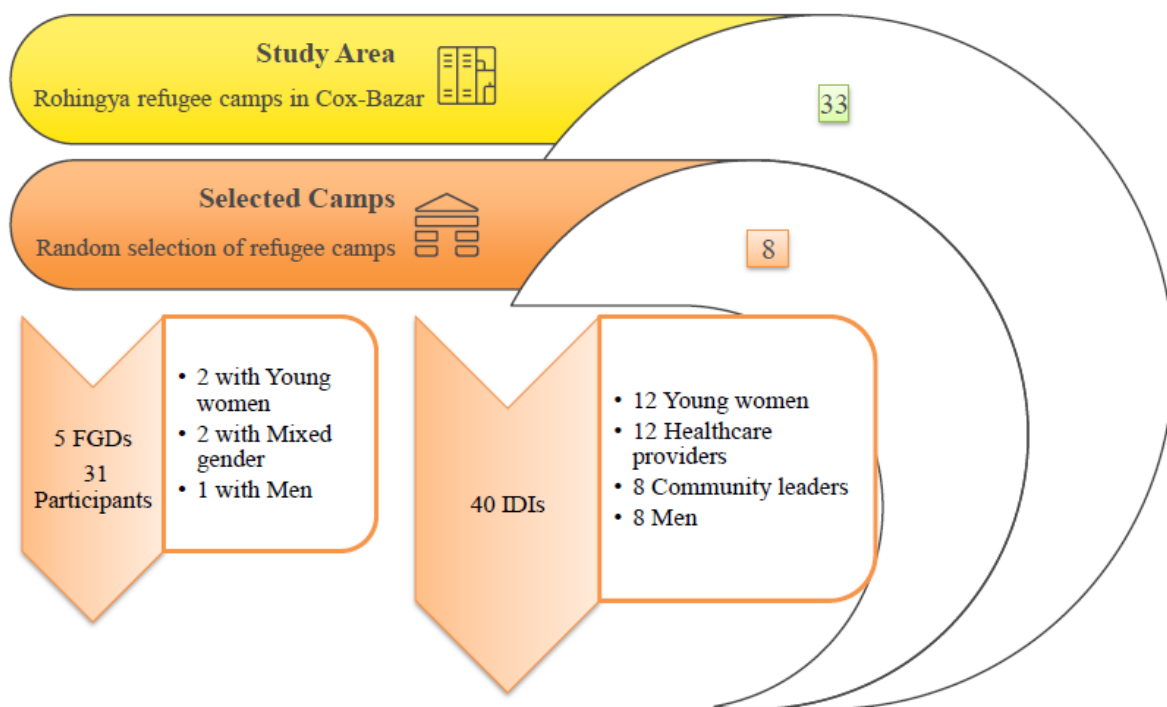
**Eligibility Criteria and Stratification:** The inclusion and exclusion criteria for participants in the qualitative study were similar to those in the quantitative part. Participants were self-identified as Rohingya, lived in the same eight camps for at least six months, were females aged 15-24 or adults, and had the capacity to provide informed consent (or assent for minors). Exclusion criteria included pregnant women beyond 36 weeks' gestation, individuals with severe cognitive impairment, those unwilling to give consent, and anyone who had participated in similar SRH studies in the past year.

**Sampling Strategy:** A combination of purposive and snowball sampling techniques was employed. Participants were selected to ensure diversity in age, marital status, and camp location. Snowball sampling was used to reach underrepresented voices, such as unmarried women or those with limited mobility. To mitigate referral bias, snowball chains were capped at three referrals per seed participant (59). Young women who had participated in the survey were invited to participate in IDIs and FGDs. A total of 19 young women (n=12 for IDIs and n=7 for FGDs) who had previously completed the quantitative survey were purposively recruited for the qualitative phase. This overlap was critical for connecting the data strands; it allowed for member checking of the broad survey trends and provided a platform for participants to elaborate on the socio-cultural nuances of their reported behaviours. Furthermore, this approach enhanced the credibility of the findings by ensuring that the qualitative narratives were directly grounded in the lived realities of the survey population. To maintain a breadth of perspective and mitigate potential response bias, these overlapping participants were supplemented by independent qualitative cohorts, including community leaders and male family members, thereby achieving both depth through nesting and breadth through data source triangulation. Men, community leaders and healthcare providers were identified through local networks and referrals from initial participants.

**Sample Size and Saturation:** The study involved a total of 40 IDIs and 5 FGDs conducted between March and April 2023. This exceeds the sample size typically needed to reach thematic saturation in phenomenological research (60, 61). The IDIs included 12 young women aged 15-24, 8 adult Rohingya men, 12 healthcare providers (8 formal and 4 informal), and 8

community leaders and NGO stakeholders. The FGDs (5-7 participants each) included two with young women, one with men, and two mixed-gender adult groups.

Participants were identified through the quantitative sampling frame and referrals from the initial seed. The final sample size of 71, including 40 for IDIs and 31 for FGDs, was selected based on empirical benchmarks for thematic saturation in qualitative refugee health research (60, 61). Out of 82 individuals screened, five were excluded (three for cognitive impairment, two for acute distress), and six declined participation, resulting in a final participation rate of 92.0%. A summary of the qualitative sample is presented in Figure 6.



**Figure 6: Sampling design of the qualitative study**

### 3.6.2 Qualitative data collection

**Instruments and Guides:** Data were collected in March-April 2023 by gender-matched, bilingual interviewers following trauma-informed protocols using semi-structured interview guides aligned with the intersectional and social-ecological model (see APPENDIX E - IDI and FGD Guides). Separate protocols were designed for IDIs and FGDs. Core topics included SRH knowledge and service access, sociocultural influences, gender norms, GBV disclosure, HIV/STI awareness, transmission routes, testing attitudes, and decision-making dynamics. FGD guides mirrored the IDI topics but included prompts for collective experiences. The main domains explored in the guides are summarised in Table 5 below.

**Table 5: Domains explored in semi-structured interview and FGD guides**

<b>Participant Group</b>	<b>Key Thematic Domains</b>
Young women (15-24)	SRH knowledge and access, contraception beliefs, GBV experiences, HIV/STI awareness, transmission routes, testing attitudes, STI symptoms, religious/cultural norms, decision-making autonomy, stigma, and service delivery recommendations
Adult men	Attitudes toward SRH and contraception, HIV/STI awareness, knowledge of transmission, testing behaviours, male authority in SRH decisions, and peer norms
Community leaders (Majhis, Imams, NGO staff)	Community norms, role in SRH communication and stigma reduction, perceptions of contraception use, HIV/STI awareness, knowledge of transmission routes, attitudes toward testing, perceptions of youth SRH needs
Healthcare providers (formal and informal)	Service provision challenges, gender norms in care delivery, confidentiality concerns, and referral practices

The guides were drafted in English and translated into Bengali, then orally interpreted into the Rohingya dialect and pretested with 10 participants (excluded from analysis) to ensure cultural and linguistic appropriateness. Feedback from the pilot informed revisions to question phrasing and sequencing. Although the Rohingya dialect lacks a standard written form, it is pretty similar to the Bengali oral tradition, so the oral back-translation was conducted by a second independent translator to ensure conceptual equivalence.

**Training and Procedures:** Three female and two male researchers, all fluent in the Rohingya dialect and experienced in humanitarian contexts, were trained over two days. The training covered phenomenological interviewing techniques, trauma-informed communication, IDI/FGD facilitation, research ethics, obtaining voluntary informed consent, and distress response protocols. Mock interviews and role-plays were used to assess interviewer readiness and refine facilitation skills. They were also involved during the quantitative data collection. Gender-matching protocols were strictly followed: female researchers conducted all interviews with women, while male researchers facilitated sessions with men.

**Interview and Consent Logistics:** Interviews and FGDs were conducted in private, secure spaces within the camps, typically WFSs, household courtyards, or community centres, based on participant preference and availability. IDI participants were offered a choice between audio-recorded interviews or interviewer-written notes, depending on their comfort, privacy, trust and literacy level. For those who declined recording, detailed field notes were taken. Consent for audio-recording was obtained separately, after explaining the purpose, risks, and confidentiality protections in the participant's language. FGDs were co-facilitated by a moderator and a note-taker and were not audio-recorded.

IDIs typically lasted 45-60 minutes, while FGDs ranged from 60 to 90 minutes. Each session was followed by a daily debriefing between field staff and the research supervisor to identify logistical challenges, review emerging themes, and adjust field strategies if necessary.

### 3.6.3 Qualitative data analysis

**Thematic Analysis Framework:** Qualitative data were analysed using a thematic analysis approach, guided by Braun and Clarke's six-phase framework (62). This method involves six stages: (1) familiarisation with the data, (2) generation of initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the final report. Thematic analysis was chosen for its flexibility and suitability in capturing complex, context-specific narratives in humanitarian settings.

Audio recordings were transcribed verbatim and translated into English by the principal investigator. Confidentiality of the study participants was ensured by removing all personal identifiers and assigning each participant a unique identifier (explain the system). Transcripts were checked for accuracy against the original recordings and/or notes.

**Coding Strategy:** Data analysis employed a hybrid deductive-inductive approach. Deductive codes were derived from the interview guides, using the intersectionality theory and guided by the social-ecological model, covering topics such as religious beliefs, structural barriers, gender norms, gender power dynamics, and statelessness. Following this, inductive coding was developed after reading and re-reading the interview transcripts to ensure consistency. Using the constant comparative method, the codebook was refined and checked for consistency across all transcripts. Emergent themes were organised into categories (e.g., sociocultural norms), in line with the study's objectives (63). Themes were contextualised within the ISEF to explore interactions between individual, community, and institutional factors (63-65).

The coding of the qualitative transcripts was performed by the lead researcher (the PhD candidate) as the sole coder. While a single-coder approach was adopted, several steps were implemented to enhance the trustworthiness and confirmability of the findings (as detailed in Section 3.7). This included a process of peer debriefing, where the initial codebook and a subset of coded transcripts were reviewed by the doctoral supervisors to ensure that the themes were grounded in the data and that the interpretations were consistent and logical. Discrepancies were resolved through collaborative discussion among the supervisory team, with consensus reached on final code definitions.

**Trustworthiness and Reflexivity:** To enhance analytical rigour, the team maintained an audit trail documenting coding decisions, codebook versions, and theme evolution. Reflexive journals kept by facilitators recorded personal positionality and potential biases, with regular debriefings to surface and mitigate subjective influences (66).

Themes were interpreted not simply as individual experiences, but as expressions of multi-level sociocultural and structural constraints and facilitators intersecting with participants' social identities. Attention was given to inconsistencies and silences in the data. The divergent perspectives were retained where they offered explanatory value.

### 3.7 Data triangulation

The study triangulated (see chapter 8) qualitative findings with the survey responses to achieve more credible and richer insights into SRH literacy and decision-making among young Rohingya refugee women in Bangladesh. In this study, quantitative data (see chapters 4 and 6) and qualitative data (see chapters 5 and 7) were analysed separately using appropriate statistical and thematic techniques, and the results were then compared and synthesised. The points of convergence, divergence, and complementarity were elaborated in the thesis's integrated discussion chapter, which explicitly draws together the findings of all four papers.

Triangulation was conducted using a sequential explanatory mixed-methods design, integrating findings from both qualitative and quantitative parts at three distinct levels:

1. **Methodological triangulation:** This involved combining quantitative data (from the cross-sectional survey) and qualitative data (from IDIs and FGDs) to explore SRH literacy, barriers, and service access from both statistical and experiential perspectives. This combination enabled quantitative patterns (e.g., contraceptive uptake, health-seeking behaviours) to be contextualised with narratives of covert contraception use, stigma, and male decision-making authority.

2. **Data source triangulation:** Insights were validated by cross-referencing three independent data streams: (1) young women's self-reports (from both survey and interviews), (2) key informant perspectives on structural barriers (from IDIs with healthcare providers, men, and community leaders), and (3) humanitarian agency service-delivery metrics. This multi-perspective approach ensured that findings reflected diverse stakeholder experiences and contextual realities.
3. **Analytical triangulation:** Quantitative associations (e.g., multivariable regression outputs) were compared with qualitative themes using joint displays, visual matrices that align statistical results with narrative data. These facilitated the identification of convergence (e.g., consistent findings on low contraception use), divergence (e.g., discrepancies between reported knowledge and actual practices), and complementarity (e.g., statistical associations explained by sociocultural barriers described in narratives).

By integrating findings at these levels, the study produced a more comprehensive account of the structural, cultural, and social determinants influencing SRH. This integrated approach allowed for a deeper understanding of the structural, cultural and social determinants of health challenges that limit SRH for young Rohingya refugee women, but also greatly enhanced the trustworthiness (validity and credibility) of the study (6).

**Resolving discrepancies:** Discrepancies between quantitative and qualitative findings were resolved through discussions with the supervisory team, revisiting raw data, and re-examining coding frameworks to ensure interpretive coherence. Where divergence occurred, contextual factors (e.g., social desirability bias, cultural taboos) were considered to explain inconsistencies. The triangulated findings informed the development of a conceptual model to explain the dynamics of SRH literacy and access in humanitarian settings, which will be presented in Chapter Eight.

### 3.8 Challenges of this project

Conducting SRH research among young and adolescent Rohingya refugee women is confronted with various methodological, ethical, and contextual challenges. Their context, shaped by unique sociocultural characteristics, dense living conditions, and a resource-constrained situation, demands a flexible study design, active engagement of local stakeholders, and strict ethical measures (67). The study addressed these challenges through careful planning and flexible strategies, ensuring active stakeholder participation and upholding high ethical standards.

**Sensitivity of SRH topics:** SRH topics are considered sensitive. FP, contraception, HIV/STIs, and discussions around sexual behaviour in Rohingya culture are taboo, especially before marriage or by adolescent females. In survey and interview responses, cultural sensitivity posed a risk of under-reporting and social desirability bias (67, 68). Respondents, particularly in the survey, might have underreported sensitive experiences surrounding sexual activity, FP, contraception use, or HIV/STI literacy and testing for fear of judgment by the community. The study took steps to reduce these biases, such as using gender-matched (female) interviewers by age group, implementing trauma-informed interview techniques, and adapting the questionnaire to fit local culture and dialects. Interviewers were trained in skills to create a good rapport with non-judgmental and neutral language, ensuring trust and encouraging more open communication.

**Sampling and access limitation:** Many Rohingya refugee camps in Cox's Bazar lacked a complete and current household registry, which made it difficult to draw a representative quantitative sample. To overcome this issue, a multistage sampling strategy based on Majhi households was considered appropriate for this study, as it has already been validated in similar community settings (67). Majhi households were chosen in the absence of other prominent starting points and because of the central position of these households in the camps. In the qualitative part, purposive and snowball sampling led to a selection bias that allowed for the inclusion of underrepresented voices (unmarried/single women, women with limited mobility). Despite these measures, the study also admits that some high-risk and highly mobile groups (e.g., sex workers or those recently married or temporarily absent) may have remained underrepresented.

**Establishing trust and managing research fatigue:** Rohingya refugee communities in Cox's Bazar are experiencing frequent humanitarian surveys, with some members expressing research fatigue and scepticism about the benefits of participating in this study. This was especially evident during initial contact with male gatekeepers and among participants who had previously engaged in similar studies without receiving feedback. To address this, the team partnered with respected Majhis and volunteers to facilitate introductions and explain study objectives in culturally appropriate terms. Interviewers emphasised participants' rights, confidentiality, and the non-clinical, non-service nature of the study. Field staff were trained to respond empathetically to frustration, disengagement, or refusals, which were respected without pressure.

Building rapport was important as they had experienced widespread trauma, displacement, and a lack of trust with outsiders. This was partly resolved by using well-trained local female interviewers who can speak the Rohingya dialect, as well as initially engaging with community leaders and volunteers before the research. The PI had previous knowledge of the Rohingya context and established networks with various humanitarian stakeholders in the camps, which facilitated access to the potential participants and trust-building.

**Logistical and operational barriers:** During the fieldwork, the study faced some logistical challenges, such as poor internet connection within the camps, lack of private spaces for interviews, and gender-matched data collectors. These challenges were mitigated through the use of Majhi's house, quiet households, WFS, flexible scheduling, and extensive interviewer training. The study developed data collection tools for offline use, and paper forms were converted to digital only after interviews to maintain data quality.

**Ethical and Emotional Considerations:** Given the vulnerability of the participants, special care was taken to ensure their safety, especially in terms of confidentiality and referral pathways for vulnerable individuals. Interviewers were trained to recognise signs of distress and, if needed, stop or terminate interviews. Consistent with humanitarian research norms, no monetary incentives were offered.

Despite these challenges, the study design enabled the successful collection of high-quality data. The lessons learned from these challenges informed iterative improvements to field protocols and will guide future SRH research in similar humanitarian contexts.

### 3.9 Ethical considerations

This study was conducted in accordance with international and national ethical standards for research involving displaced and vulnerable populations, including the Declaration of Helsinki (69) and the WHO's guidelines for humanitarian research (10). At every stage, ethical principles were put in place to safeguard the rights, dignity and wellbeing of all participants with a specific focus on sensitive issues linked to SRH in humanitarian settings.

**Ethical Approval and Permissions:** Ethical clearance of this study was granted by the Bangladesh Medical Research Council's National Research Ethics Committee (Ref No. IRB-52324012023) on 16 March 2023. In addition, formal permission to conduct research in the Rohingya refugee camps was given by the Office of the Refugee Relief and Repatriation Commissioner (RRRC) under the Ministry of Disaster Management and Relief, Government of Bangladesh (approval issued 19 March 2023). All procedures adhered to the WHO

guidelines for research with displaced populations. The study also complied with the University of Sydney's Research Data Management Policy and the Declaration of Helsinki.

**Informed Consent and Assent:** Prior to data collection, facilitators provided a clear verbal and written explanation of the study's purpose, procedures, risks, benefits, voluntary nature and confidentiality safeguards. Written informed consent was obtained from all participants. For adolescents aged 15-17 years, written assent was obtained alongside parental or guardian consent. For illiterate participants, the consent form was read aloud by a trained interviewer, and agreement was documented via thumbprint.

All participants were informed that their participation in this study was entirely voluntary and that they could withdraw at any time with no penalty to them. Interviewers also assured that their responses and information would be reported only in summary form to protect their confidentiality and anonymity. Their identifying information will never be reported anywhere. All participants received referral materials for SRH and psychosocial services available in the camps.

**Confidentiality and Data Security:** All personal identifiers were removed from survey forms, transcripts, and databases. Unique participant IDs (e.g., ID-001, IDI-YW01) were used to link datasets across phases. Only the principal investigator and primary supervisor had access to the password-protected REDCap database hosted on University of Sydney servers.

Audio recordings and field notes were stored securely and deleted following transcription and verification. De-identified transcripts and quantitative datasets will be retained for five years post-publication, in line with university policy, and may be shared with external researchers upon request under data-sharing agreements. No personal identifiers were reported in any publication or dissemination activity.

**Special Safeguards for Vulnerable Participants:** Recognising the sensitive nature of SRH topics and the vulnerability of young women, stateless persons, and GBV survivors, additional measures were employed. To protect their wellbeing, the study gave special attention to trauma-informed protocols, including facilitators' training in recognising distress and pausing interviews as needed, gender-matched interviewers, culturally adapted consent procedures, and the option to decline audio recording. Participants disclosing distress or past violence were offered referrals to WFS. A brief field referral guide was used to connect individuals to appropriate care pathways. There was no mandatory reporting obligation in place under the study's ethics approvals to report these disclosures; however, participants were informed of

available support mechanisms and encouraged to access services voluntarily. We did not pressure any participants to seek help.

**Risk-Benefit Assessment and Community Engagement:** For the study participants, the risk of participation were minimal. They could have included primarily psychological discomfort, concerns about privacy and possible social repercussions related to the exposure. They were minimised by ensuring all responses remained anonymous, participation was entirely voluntary, and trauma-informed methods were applied (15). No financial compensation, gift or other benefit was given in return for participating in this research with respect to the ethical standards for research in humanitarian contexts. Participation was entirely voluntary, and researchers clearly communicated that involvement would not affect participants' access to aid or services.

The purpose of the research was explained, indicating that the findings will inform existing and new programmes (including those targeting young people and adolescents), improve project delivery, and strengthen advocacy for SRH rights issues among Rohingya youth. The ethical framework, guided by the WHO Inter-Agency Field Manual on Reproductive Health in Humanitarian Settings (12), ensured that our work respected cultural norms and maintained a commitment to do no harm.

### 3.10 References

1. Crenshaw KW, Bonis O. Mapping the margins: intersectionality, identity politics, and violence against women of color. *Cahiers du Genre*. 2005;39(2):51–82.
2. Kapilashrami A, Hankivsky O. Intersectionality and why it matters to global health. *Lancet*. 2018;391(10140):2589–91. doi:10.1016/S0140-6736(18)31431-4.
3. Lokot M, Avakyan Y. Intersectionality as a lens to the COVID-19 pandemic: implications for sexual and reproductive health in development and humanitarian contexts. *Sex Reprod Health Matters*. 2020;28(1):1764748. doi:10.1080/26410397.2020.1764748.
4. Desrosiers A, Betancourt TS. Barriers to reproductive health access for adolescents in humanitarian settings. *Confl Health*. 2020;14:52–60.
5. Norton A, Tappis H. Sexual and reproductive health implementation research in humanitarian contexts: a scoping review. *Reprod Health*. 2024;21(1):64. doi:10.1186/s12978-024-01793-2.
6. Schoonenboom J, Johnson RB. How to construct a mixed methods research design. *Kölner Z Soz Sozpsychol*. 2017;69(Suppl 2):107–31. doi:10.1007/s11577-017-0454-1.

7. UNFPA. Adolescent sexual and reproductive health toolkit for humanitarian settings: a companion to the inter-agency field manual on reproductive health in humanitarian settings [Internet]. 2009 [cited 2024 Apr 18]. Available from: [https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA\\_ASRHtoolkit\\_english.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA_ASRHtoolkit_english.pdf).
8. National Institute of Population Research and Training (NIPORT), Mitra and Associates, ICF International. Bangladesh Demographic and Health Survey 2014. Dhaka: NIPORT; 2016.
9. Kopinak JK. The use of triangulation in a study of refugee well-being. *Qual Quant*. 1999;33(2):169–83.
10. WHO. Health ethics & governance [Internet]. Geneva: World Health Organization; 2025 [cited 2025 Jun 12]. Available from: <https://www.who.int/teams/health-ethics-governance/standards>.
11. Askew I, Khosla R, Daniels U, Krause S, Lofthouse C, Say L, et al. Sexual and reproductive health and rights in emergencies. *Bull World Health Organ*. 2016;94(5):311. doi:10.2471/BLT.16.173567.
12. Foster AM, Evans DP, Garcia M, Knaster S, Krause S, McGinn T, et al. The 2018 inter-agency field manual on reproductive health in humanitarian settings: revising the global standards. *Reprod Health Matters*. 2017;25(51):18–24. doi:10.1080/09688080.2017.1403277.
13. Alessi EJ, Kahn S. Toward a trauma-informed qualitative research approach: guidelines for ensuring the safety and promoting the resilience of research participants. *Qual Res Psychol*. 2023;20(1):121–54.
14. Stark C, Tapia-Fuselier JL Jr, Bunch K. The trauma-informed ethical decision-making model: an integrative framework. *J Trauma Stud Educ*. 2022;1(1):86–103.
15. U.S. Department of Health and Human Services. SAMHSA's concept of trauma and guidance for a trauma-informed approach. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2014.
16. Lokot M, Avakyan Y. Intersectionality as a lens to the COVID-19 pandemic: implications for sexual and reproductive health in development and humanitarian contexts. *Sex Reprod Health Matters*. 2020;28(1):1764748. doi:10.1080/26410397.2020.1764748.
17. Bauer GR. Incorporating intersectionality theory into population health research methodology: challenges and the potential to advance health equity. *Soc Sci Med*. 2014;110:10–7. doi:10.1016/j.socscimed.2014.03.022.

18. Bauer GR, Scheim AI. Incorporating intersectionality into quantitative research methods in public health. *Eur J Public Health*. 2020;30(Suppl 5):ckaa165.744. doi:10.1093/eurpub/ckaa165.744.
19. Bowleg L. The problem with the phrase women and minorities: intersectionality—an important theoretical framework for public health. *Am J Public Health*. 2012;102(7):1267–73. doi:10.2105/AJPH.2012.300750.
20. Harari L, Lee C. Intersectionality in quantitative health disparities research: a systematic review of challenges and limitations in empirical studies. *Soc Sci Med*. 2021;277:113876. doi:10.1016/j.socscimed.2021.113876.
21. Mothupi M, Dasgupta J, Hosseini Jebeli SS, Stevenson J, Berdichevsky K, Vong S, et al. Using an intersectionality approach to transform health services for overlooked healthcare users and workers after COVID-19. *BMJ*. 2023;381:e072243. doi:10.1136/bmj-2022-072243.
22. Kapilashrami A. What is intersectionality and what promise does it hold for advancing a rights-based sexual and reproductive health agenda? *BMJ Sex Reprod Health*. 2019;46(1):4. doi:10.1136/bmj.srh-2019-200314.
23. Baral S, Logie CH, Grosso A, Wirtz AL, Beyrer C. Modified social ecological model: a tool to guide the assessment of the risks and risk contexts of HIV epidemics. *BMC Public Health*. 2013;13:482. doi:10.1186/1471-2458-13-482.
24. McLeroy KR, Bibeau D, Steckler A, Glanz K. An ecological perspective on health promotion programs. *Health Educ Q*. 1988;15(4):351–77. doi:10.1177/109019818801500401.
25. Bronfenbrenner U. Toward an experimental ecology of human development. *Am Psychol*. 1977;32(7):513–31.
26. Mengesha ZB, Perz J, Dune T, Ussher J. Refugee and migrant women's engagement with sexual and reproductive health care in Australia: a socio-ecological analysis of health care professional perspectives. *PLoS One*. 2017;12(7):e0181421. doi:10.1371/journal.pone.0181421.
27. Ma PHX, Chan ZCY, Loke AY. The socio-ecological model approach to understanding barriers and facilitators to the accessing of health services by sex workers: a systematic review. *AIDS Behav*. 2017;21(8):2412–38. doi:10.1007/s10461-017-1818-2.
28. Merz S, Jaehn P, Mena E, Pöge K, Strasser S, Saß AC, et al. Intersectionality and eco-social theory: a review of potentials for public health knowledge and social justice. *Crit Public Health*. 2023;33(2):125–34.

29. Zaman ST, Akhter A, Sadeque J, Lily FB, Arnott G. Rights in the response: exploring human rights implementation strategies to ensure accountability for the sexual and reproductive health and rights of Rohingya refugees in Bangladesh. *Jindal Glob Law Rev.* 2024;15(2):415–35. doi:10.1007/s41020-024-00244-0.
30. Mandelbaum J. Advancing health equity by integrating intersectionality into epidemiological research: applications and challenges. *J Epidemiol Community Health.* 2020;74(9):761–2. doi:10.1136/jech-2020-213847.
31. Ghanem S, Marulappa N, Qiang V. Key considerations for applying intersectionality theory to partner and stakeholder engagement in public health. *Can J Public Health.* 2025;116:1–10. doi:10.17269/s41997-025-01023-7.
32. Ivanova O, Rai M, Kemigisha E. A systematic review of sexual and reproductive health knowledge, experiences and access to services among refugee, migrant and displaced girls and young women in Africa. *Int J Environ Res Public Health.* 2018;15(8):1583. doi:10.3390/ijerph15081583.
33. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. *BMC Public Health.* 2020;20(1):666. doi:10.1186/s12889-020-08818-y.
34. Guglielmi S, Seager J, Mitu K, Jones N. Sexual and reproductive health for Rohingya young people living in Bangladesh. 2024.
35. Glasier A, Gulmezoglu AM, Schmid GP, Moreno CG, Van Look PF. Sexual and reproductive health: a matter of life and death. *Lancet.* 2006;368(9547):1595–607. doi:10.1016/S0140-6736(06)69478-6.
36. Shair D, Akhter K, Shama A. The role of psychosocial support in coping with incidents of gender-based violence among Rohingya refugees. *Intervention.* 2019;17(2):238–42. doi:10.4103/intv.Intv\_16\_19.
37. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ.* 2021;99(3):201–8. doi:10.2471/BLT.20.269779.
38. Islam MM, Khan MN, Rahman MM. Intimate partner abuse among Rohingya women and its relationship with their abilities to reject husbands' advances to unwanted sex. *J Interpers Violence.* 2022;37(13–14):NP11315–NP32. doi:10.1177/0886260521991299.
39. Welton-Mitchell C, Bujang N, Hussin H, Husein S, Santoadi F, James L. Intimate partner abuse among Rohingya in Malaysia: assessing stressors, mental health, social norms and

- help-seeking to inform interventions. *Intervention*. 2019;17(2):187–96. doi:10.4103/intv.Intv\_18\_19.
40. Kluge HHP, Jakab Z, Bartovic J, D'Anna V, Severoni S. Refugee and migrant health in the COVID-19 response. *Lancet*. 2020;395(10232):1237–9. doi:10.1016/S0140-6736(20)30791-1.
  41. Fernandez J. *Diasporas: critical and inter-disciplinary perspectives*. Oxford: Inter-Disciplinary Press; 2009.
  42. Napier-Raman S, Hossain SZ, Mpofo E, Lee MJ, Liamputtong P, Dune T. Abortion experiences and perspectives amongst migrants and refugees: a systematic review. *Int J Environ Res Public Health*. 2024;21(3):312. doi:10.3390/ijerph21030312.
  43. UNHCR. Situation refugee response in Bangladesh [Internet]. Geneva: UNHCR; 2024 [cited 2025 Jan 28]. Available from: <https://data.unhcr.org/en/country/bgd>.
  44. UNHCR. Rohingya refugee population in Bangladesh: joint Government of Bangladesh and UNHCR [Internet]. 2025 [cited 2025 Jun 27]. Available from: <https://reliefweb.int/report/bangladesh/joint-government-bangladesh-unhcr-rohingya-refugee-population-dashboard-31-mar-2025>.
  45. WHO. Rohingya: health sector Cox's Bazar monthly bulletin June 2025 [Internet]. Health Sector Coordination Team; 2025 [cited 2025 Aug 22]. Available from: <https://rohingyaresponse.org/wp-content/uploads/2025/08/Health-Sector-Coxs-Bazar-monthly-Bulletin-June-2025.pdf>.
  46. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugees in Bangladesh: a systematic review. *Women Midwives Midwifery*. 2025;5(2):1–24. doi:10.36749/wmm.5.2.1-24.2025.
  47. Ahmed R, Farnaz N, Aktar B, Hassan R, Shafique SB, Ray P, et al. Situation analysis for delivering integrated comprehensive sexual and reproductive health services in humanitarian crisis condition for Rohingya refugees in Cox's Bazar, Bangladesh: protocol for a mixed-method study. *BMJ Open*. 2019;9(7):e028340. doi:10.1136/bmjopen-2018-028340.
  48. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open*. 2021;11(10):e047516. doi:10.1136/bmjopen-2020-047516.
  49. UNHCR. Situation refugee response in Bangladesh [Internet]. Geneva: UNHCR; 2022 [cited 2025 Jun 23]. Available from: [https://data.unhcr.org/en/situations/myanmar\\_refugees](https://data.unhcr.org/en/situations/myanmar_refugees).

50. UNHCR. Rohingya JRP 2025: humanitarian action [Internet]. 2025 [cited 2025 May 3]. Available from: <https://humanitarianaction.info/plan/1212/article/rohingya-jrp-2025>.
51. Islam MM, Khan MN, Rahman MM. Factors affecting child marriage and contraceptive use among Rohingya girls in refugee camps. *Lancet Reg Health West Pac*. 2021;12:100175. doi:10.1016/j.lanwpc.2021.100175.
52. WHO. Preparing the sample [Internet]. Geneva: World Health Organization; 2017 [updated 2021 May 25; cited 2025 Jun 23]. Available from: [https://www.who.int/ncds/surveillance/steps/Part2\\_Section2.pdf](https://www.who.int/ncds/surveillance/steps/Part2_Section2.pdf).
53. Jung SH. Stratified Fisher's exact test and its sample size calculation. *Biom J*. 2014;56(1):129–40. doi:10.1002/bimj.201300048.
54. Abul Kalam Azad M, Zakaria M, Nachrin T, Chandra Das M, Cheng F, Xu J. Family planning knowledge, attitude and practice among Rohingya women living in refugee camps in Bangladesh: a cross-sectional study. *Reprod Health*. 2022;19(1):105. doi:10.1186/s12978-022-01410-0.
55. UNHCR. Country – Bangladesh – operational data portal [Internet]. UNHCR; 2025 [cited 2025 Jun 26]. Available from: <https://data.unhcr.org/en/country/bgd>.
56. Ahmed R, Aktar B, Farnaz N, Ray P, Awal A, Hassan R, et al. Challenges and strategies in conducting sexual and reproductive health research among Rohingya refugees in Cox's Bazar, Bangladesh. *Confl Health*. 2020;14(1):83. doi:10.1186/s13031-020-00329-2.
57. Patridge EF, Bardyn TP. Research electronic data capture (REDCap). *J Med Libr Assoc*. 2018;106(1):142.
58. Tirado V, Godfrey E. Addressing myths and misconceptions about contraception among displaced populations. *Int J Gynecol Obstet*. 2020;150:59–65.
59. Ullah ANZ, Pratley P, Shariful Islam M, Islam K, Roy T. Exploring mental health status and psychosocial support among Rohingya refugees in Bangladesh: a qualitative study. *Ment Illn*. 2023;2023(1):6128286.
60. Hennink M, Kaiser BN. Sample sizes for saturation in qualitative research: a systematic review of empirical tests. *Soc Sci Med*. 2022;292:114523. doi:10.1016/j.socscimed.2021.114523.
61. Dworkin SL. Sample size policy for qualitative studies using in-depth interviews. *Arch Sex Behav*. 2012;41(6):1319–20. doi:10.1007/s10508-012-0016-6.
62. Ahmed SK, Mohammed RA, Nashwan AJ, Ibrahim RH, Abdalla AQ, Ameen BM, et al. Using thematic analysis in qualitative research. *J Med Surg Public Health*. 2025;6:100198. doi:10.1016/j.glmedi.2025.100198.

63. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol.* 2013;13:117. doi:10.1186/1471-2288-13-117.
64. Aibangbee M, Micheal S, Liamputtong P, Pithavadian R, Hossain SZ, Mpofu E, et al. Barriers to sexual and reproductive health and rights of migrant and refugee youth: an exploratory socioecological qualitative analysis. *Youth.* 2024;4(4):1538–66.
65. Islam M, Habib SE. "I don't want my marriage to end": a qualitative investigation of the sociocultural factors influencing contraceptive use among married Rohingya women residing in refugee camps in Bangladesh. *Reprod Health.* 2024;21(1):32. doi:10.1186/s12978-024-01763-8.
66. Woolf NH, Silver C. *Qualitative analysis using NVivo: the five-level QDA® method.* London: Routledge; 2017.
67. Ahmed R, Aktar B, Farnaz N, Ray P, Awal A, Hassan R, et al. Publisher correction to: challenges and strategies in conducting sexual and reproductive health research among Rohingya refugees in Cox's Bazar, Bangladesh. *Confl Health.* 2020;14(1):88. doi:10.1186/s13031-020-00335-4.
68. Hossain MA, Dawson A. A systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan refugee women of reproductive age in Asia. *WHO South East Asia J Public Health.* 2022;11(1):42–53. doi:10.4103/WHO-SEAJPH.WHO-SEAJPH\_144\_21.
69. Goodyear MD, Krleza-Jeric K, Lemmens T. The Declaration of Helsinki. *BMJ.* 2007;335(7621):624–5. doi:10.1136/bmj.39339.610000.BE.

## CHAPTER 4: FAMILY PLANNING LITERACY AND USE (QUANTITATIVE RESEARCH COMPONENT)

### **Article 3: Family Planning Awareness and Contraception Use among Young Rohingya Refugee Women: A Representative Cross-sectional Study in Cox's Bazar, Bangladesh**

This chapter marks the beginning of the empirical part of the thesis. Building on the evidence gaps identified in the systematic review and the conceptual framework outlined in previous chapters, this study investigates family planning literacy and contraception use among young Rohingya refugee women in Cox's Bazar, Bangladesh. Using a cross-sectional survey design, the study explores levels of awareness, patterns of contraception use, and associated socio-demographic factors. The findings provide critical insights into reproductive health behaviours and inform targeted interventions. The article in this chapter was presented at the 25th IUSTI World Congress Incorporating the Australasian Sexual and Reproductive Health Conference. It was peer-reviewed and published in *Women's Health* journal.

#### 4.1 Abstract

**Background:** Young refugee women face elevated sexual and reproductive health (SRH) risks, but their family planning (FP) needs remain understudied.

**Objectives:** This study aims to assess FP awareness, contraception use, and associated factors among young married Rohingya women aged 15-24 years in Cox's Bazar refugee camps, and to compare knowledge and use among women who report no desire for additional children.

**Design:** A prospective cross-sectional survey was conducted between March and April 2023.

**Methods:** A multistage random sample was used to select 541 married women across eight refugee camps. Data were collected via interviewer-administered structured questionnaires. Descriptive statistics and multivariate logistic regression were used to identify sociodemographic, informational, and gender-power factors associated with current contraception use.

**Results:** Among 541 participants, 84.7% reported general awareness of FP, but only 27.0% could name a contraceptive brand. Current contraception use was 44.9%, and 37.6% of women who wished to avoid pregnancy were not using any method. Factors positively associated with contraception use included older age, husband's education, exposure to FP information (AOR: 1.74; 95% CI: 1.06–2.87), fieldworker visits (AOR: 2.00; CI: 1.31–3.04), and awareness of FP

centres (AOR: 5.18; CI: 2.30–11.67). Husband-controlled FP decisions were negatively associated with use (AOR: 0.46; CI: 0.30–0.73).

**Conclusion:** Interventions are needed to enhance women's empowerment, increase contraception use among young women, and support local and international organisations in Bangladesh working with refugees by providing more targeted fieldworker visits for education and the delivery of FP services.

**Keywords:** Sexual and reproductive health, family planning, contraception, young Rohingya refugees, Bangladesh.

## 4.2 Introduction

Sexual and reproductive health (SRH) is a critical public health issue for refugees, whose displacement and precarious living conditions heighten their vulnerability to poor health outcomes. Family planning (FP), as a fundamental aspect of SRH, is identified by international humanitarian guidelines, particularly through the Minimum Initial Service Package (MISP), as a priority intervention aimed at addressing unmet contraceptive needs and reducing maternal and child morbidity and mortality during humanitarian crises (1, 2). Despite this global recognition, the availability, acceptability, and uptake of FP services remain inadequate in many humanitarian settings, particularly among young women, whose specific needs are often overlooked in aggregated data or sidelined in programmatic planning (3-7).

The Rohingya, a stateless ethnic minority from Myanmar, have faced decades of systemic persecution, leading to one of the largest refugee crises in recent history. Since the outbreak of violence and genocide in Myanmar in 2017, more than one million Rohingya have sought refuge in neighbouring Bangladesh, primarily in Cox's Bazar district, which is now home to the world's largest refugee camp (8, 9). While the Bangladesh government classifies them as 'forcibly displaced Myanmar nationals (FDMNs)', this population faces substantial health challenges, exacerbated by limited autonomy and entrenched patriarchal norms significantly impacting women and young girls, particularly regarding reproductive health and decision-making (10-12).

Family planning services within Cox's Bazar refugee camps, coordinated by the SRH Working Group led by UNFPA and supported by various international NGOs, offer a range of contraceptive methods, including injectables, oral contraceptives, and condoms (13). However, use remains low due to irregular outreach, strong cultural resistance, and pervasive male dominance in reproductive decisions (10, 11, 14, 15). Systematic reviews focused on

humanitarian settings consistently report low contraception use despite moderate awareness, emphasising sociocultural factors and male influence as primary barriers to FP utilisation among refugee populations, including the Rohingya (7, 10). Previous studies reported that contraception use among Rohingya women of reproductive age 18-49 in Cox's Bazar varies from approximately 34% to 51%, which is still lower than the national levels among Bangladeshi women (7, 10).

More than 30% of the Rohingya population are adolescents and youth, indicating a large cohort transitioning to adulthood in such a resource-constrained setting, and in 2024, 22% experienced difficulties accessing healthcare (16, 17). Young Rohingya refugee women aged 15-24 are particularly vulnerable to poor reproductive outcomes due to early marriage, high fertility rates, insufficient spacing of pregnancies, and gendered power imbalances that restrict their decision-making autonomy (12). Only 29% of those aged 11-18 were enrolled, and girls are less likely to be enrolled after age 10 compared with boys, which limits their access to health information and life skills (16). They also belong to the generation of women who have been growing up and coming of age in refugee camps (since their arrival in 2017); therefore, they fully rely on access to SRH education and FP services provided in this setting (12). Indeed, SRH services in the camps may be their only source of reliable FP information. However, existing research has overwhelmingly treated Rohingya women as a monolithic reproductive-age group (15-49 years) (14, 15, 18), overlooking the age-specific barriers and FP needs of younger women (7). The only study that has thus far described young women had enrolled adolescents aged 10-19 years with experience of early marriage (19), limiting our understanding of the specific FP needs and barriers faced by young women aged 15-24 years.

To date, no study has specifically examined FP among married Rohingya women aged 15-24 years using a representative, probability-based design, nor has prior work adequately analysed gender-power dynamics and exposure to services as potential determinants of contraception use in this age group. Therefore, this study seeks to examine the FP awareness and use of contraception among young married Rohingya refugee women aged 15-24 years residing in refugee camps in Cox's Bazar, Bangladesh. Specifically, we aim to assess their FP awareness and current contraception use, compare knowledge and use among women who wish to avoid further childbearing, and identify determinants of current use aligned with the socio-ecological framework.

### 4.3 Methods

#### **Study design**

This cross-sectional quantitative survey was conducted in the refugee camps of Cox's Bazar in Bangladesh between March and April 2023. The study focused on assessing SRH issues, including FP. We adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist for cross-sectional studies (20). The study employed a representative multistage random sampling design.

#### **Population and setting**

We used the UN definition of young people and targeted young Rohingya women aged 15-24 years (21). At the time of data collection, more than 968,981 Rohingya refugees resided in 34 refugee camps in Cox's Bazar and were distributed across 208 blocks, with an average of 892 households per block (9, 22). Included in this study were currently married, sexually active Rohingya women aged 15-24 years residing in the selected camps. Unmarried women and those outside the target age range were not eligible to participate.

#### **Sample size and sampling technique**

The minimum required sample size for this cross-sectional survey ( $n=384$ ) was calculated using Fisher's formula (23) based on the following assumptions: an estimated 50% prevalence of key SRH indicators (current contraceptive knowledge, use, and practice) derived from previous research (18); a standard normal deviation value corresponding to a 95% confidence level; a significance level of  $\alpha = 0.05$ ; and a margin of error of 5% ( $d = 0.05$ ). To account for the multistage sampling design, a design effect of 1.3 and an anticipated 10% non-response rate were applied, resulting in a target sample size of 541 with sufficient statistical power ( $\geq 80\%$ ) for multivariate logistic regression.

To achieve the desired sample size, we employed multistage random sampling. We randomly selected eight camps out of 34 and intended to randomly select 68 households per each (541 households in total). Due to the lack of a complete household list or identification numbers within the camps, we took the following recruitment approach: a residence of Majhi (community leader) was identified in each camp to serve as a central point (24). Households were randomly selected by walking away from each side of Majhi's residence and stopping every ten steps in front of a household tent. In each household, one young married woman was invited to participate in the survey. If there was more than one eligible young woman, the eldest woman within the specified age group (15-24) was invited. This approach has been used in

prior humanitarian surveys where sampling frames are unavailable and yields approximate spatial randomisation around a known landmark (24).

### **Data collection and measures**

Data were collected using a face-to-face, interviewer-administered survey via a structured paper-and-pencil questionnaire. The survey collected information about SRH literacy (including FP and contraception), sociodemographic characteristics, personal health and lifestyle factors, sexual partnerships, behaviour and sexual self-efficacy, awareness and use of SRH health services, contraception, and condoms. It was developed based on Demographic and Health Survey questions (24, 25). We used the Adolescent Sexual and Reproductive Health Toolkit for humanitarian crisis situations as a guideline (26). The questionnaire was pretested with 20 young married Rohingya women, and adjustments were made to ensure the questions were culturally and contextually appropriate for the refugee setting. Participants provided written informed consent; for participants under 18 years, written assent was obtained along with parental/guardian consent. For illiterate participants, the consent form was read aloud, and a thumbprint was obtained. The respondents were informed that participation was voluntary and that they had the right to refuse to answer any questions or withdraw at any time during data collection.

Upon completion of data collection, the data were promptly entered into REDCap (27), a secure online data collection platform. A team of ten local women, all fluent in the Rohingya language and experienced in data collection for various international organisations, were trained and served as interviewers. The data are stored in accordance with the policies of the University of Sydney, Australia.

We focused on measuring contraception use. Guided by the intersectional socio-ecological framework (28), we propose that contraception use is shaped by three domains: (i) sociodemographic characteristics, (ii) exposure to FP information and services, and (iii) household gender–power dynamics. Our outcomes of interest were ever use of contraceptive methods and current use of contraception - both measured as binary variables (yes/no). We selected three groups of independent factors. Sociodemographic characteristics were selected to allow comparison with findings from previous research in similar settings. They included age in years (categorised as 22-24 vs 18-21 and 15-17), women’s education (literate/illiterate), women’s employment status (work outside of the home/household work), husband’s education (literate/illiterate), husband’s employment status (employed/unemployed), current number of

children, the expected number of children, and woman having a desire for more children (no more/have another child).

Exposure to FP information was measured using a set of questions asking if they had received any FP information from various sources, such as radio, TV, social media, newspapers, health workers, peers, religious leaders, and family members (yes vs no for each) in the last six months. Given limited mass media access in the camps, this composite primarily captures interpersonal and community channels (for example, health workers, family and community members, peers, religious leaders) and media channels (e.g., radio, television, newspapers, posters, mobile messages, social media).

We intended to assess whether participants had a clear knowledge of FP methods and asked them to name specific brand names. It is possible that some participants who use FP methods lack detailed knowledge about FP. Knowledge about modern FP methods ('knowledge about FP' henceforth) was measured based on the recognition of at least one contraceptive brand name. Awareness about the existence of FP service centres in the camps ('awareness about FP service centre' henceforward, yes/no), receiving any fieldworker visits for FP in the last 6 months (talked/gave method/both/no) and exposure to FP information were recorded.

To assess the decision-making dynamics as to contraception use, we asked young married Rohingya women about who, in their relationship, had made a decision to use contraception (mainly husband, mainly women, joint decision). We also asked about the preference of expanding family (yes vs no) and asked each woman if they had ever refused having sex with their husband (yes vs no). We also compared FP knowledge and use in the overall sample with the subgroup of women who reported no desire for any more children, to identify gaps in meeting contraceptive needs.

### **Statistical analysis**

Sample characteristics were assessed using descriptive statistics (means with standard deviations and frequencies with percentages, as appropriate). Comparisons of groups were investigated using Pearson's  $\chi^2$  test for independence or a t-test, depending on the nature of the variables; where expected cell counts were  $<5$ , Fisher's exact test was used. A p-value of 0.05 was used as a cutoff for the determination of statistical significance.

To approximate the unmet need for contraception among married young Rohingya refugee women, we assessed the knowledge and use of modern contraception methods in the entire sample and in a subsample of women who did not want to have any more children.

To identify factors associated with the current use of contraception, we used logistic regression. Regression models were built using a forward stepwise model-building technique. The final model included the following variables: woman’s age, her husband’s education, exposure to FP, awareness about FP service centres, receiving any fieldworker visits for FP in the last 6 months, having ever refused to have sex with her husband, husband controlling the decision-making about contraception use, and woman having no desire to have more children. Model fit was evaluated using the Hosmer-Lemeshow goodness-of-fit test and a pseudo-R<sup>2</sup> statistic. We report unadjusted and adjusted odds ratios (ORs and AORs, respectively) with the corresponding 95% confidence intervals (95% CIs). All the statistical analyses were performed using Stata (Version 14.0; StataCorp, College Station, TX, USA).

#### 4.4 Results

We enrolled 541 young married Rohingya women aged 15-24 years. Their characteristics, FP awareness, and contraception use are presented in Table 6. The mean age of the participants was 21.4 years (SD: 2.3 years). The sample included 35 (6.5%) women aged 15-17 years, 192 (35.5%) aged 18-21 years, and 314 (58%) aged 22-24 years. The mean age of their husbands was 26.1 years (SD: 4.6 years). In this sample, 541 (100%) women were married; 293 (54.2%) were illiterate; 522 (96.5%) were engaged in household work; and only 19 (3.5%) worked outside the household. Among their husbands, 264 (48.8%) were illiterate, and 459 (84.8%) were engaged in income-generating activities such as day labourers.

The average number of children per woman was 1.7 (SD: 1.1). The desired number of children was 3.7 (SD: 1.3), and 416 of 541 participants (76.9%) wanted to have another child, while 125 (23.1%) did not.

**Table 6: Sociodemographic characteristics, FP awareness and contraception use of the sample: married Rohingya refugee women aged 15-24 years (n=541)**

Characteristics	N	Percentage
<b>Total</b>	541	100%
<b>Women Age</b>		
15-17	35	6.5%
18-21	192	35.5%
22-24	314	58.0%
<b>Husband’s Age (mean (SD))</b>	541	26.1 (4.6)
<b>Women’s Education</b>		

Literate	248	45.8%
Illiterate	293	54.2%
<b>Women's Occupation</b>		
Household work	522	96.5%
Work outside of the home	19	3.5%
<b>Husband's Education</b>		
Literate	277	51.2%
Illiterate	264	48.8%
<b>Husband's Occupation</b>		
Unemployed	82	15.2%
Employed	459	84.8%
<b>Length of Stay in the Camps</b>		
Less than 2 years	22	4.1%
More than 2 years	519	95.9%
<b>Number of Children (mean (SD))</b>	519	1.7 (1.1)
<b>Expected Number of Children (mean (SD))</b>	541	3.7 (1.3)
<b>Desire for more children</b>		
Yes	416	76.9%
No	125	23.1%
<b>FP exposure and knowledge</b>		
Know about FP	458	84.7%
Know the emergency contraception pill	68	12.6%
Know about Lactational pill	44	8.1%
Know a contraceptive brand name	146	27.0%
Know about the FP service centre	570	83.1%
Received fieldworker visits at home for FP in the last 6 months	180	33.3%
Visited the health centre in the last three months	356	65.8%
Talked/received FP counselling or services in the last three months	134	24.8%

Exposure to FP information from any of sources in the last 6 months		
Exposure to interpersonal or community-based sources	376	69.5%
Exposure to media sources	04	0.7%
<b>Use of Contraception</b>		
Ever used a contraceptive	299	55.3%
Currently using a contraceptive	243	44.9%
Couple ever used a condom	34	6.3%

Table 6 also presents the knowledge and use of contraception among those who desired no more children. In the entire sample (n=451), 458 women (84.7%) reported knowing about FP, 68 (12.6%) knew about the emergency contraception pill, and 44 (8.1%) knew about the ‘lactational pill’ (progestin-only contraceptives). A quarter of the participants (n=146, 27%) could identify specific FP brand names. A substantial proportion (n=458, 84.7%) reported awareness of the FP service centre.

One-third of the participants (n=180, 33.3%) reported receiving fieldworker visits to their home for FP in the last six months, including 29 (5.4% who received only one visit) and the remaining 140 women (25.9%) receiving multiple visits, but none of these women reported receiving visits every two weeks, as recommended. Participants reported that 356 (65.8%) visited health service centres for various reasons, such as FP, immunisation, antenatal care, vitamin A for children, monitoring child growth, pregnancy-related care, and others. About 134 (24.8%) received FP-related services and counselling from the health service centre in the three months before the survey. Overall, 380 (70.2%) reported exposure to FP information from any source including 376 (69.5%) through interpersonal and community-based channels (e.g., health workers, religious leaders, peers, family and community members) and 4 (0.7%) via media channels (radio, TV, social media, and newspapers) in the last six months. As to contraception use, 299 (55.3%) reported ever using contraceptive methods, whereas 243 (44.9%) reported current use. The ever use of condoms was relatively low (n=34, 6.3%).

When compared to the entire sample, women who had no desire to have more children (n=125) were more likely to be aware about FP (92.0% vs 84.7%), know a contraceptive brand name (35.2% vs 27.0%), receive any fieldworker visits at home for FP in the last 6 months (40.8%

vs 33.3%), and use any contraceptive, ever (72.8% vs 55.3%) or currently (62.4% vs 44.9%). Still, 47 of 125 women (37.6%) who desired no more children were not using any contraception at the time of the survey, and condom use in this group was low at 9.6%.

Table 7 compares current contraception users and nonusers among Rohingya refugee women aged 15-24 years. Compared with nonusers, contraception users were, in general, older (66.7% vs 51.0% were aged 22-24 years, respectively;  $p < 0.001$ ) and more likely to report that their husbands were literate (86.4% vs 83.6%,  $p = 0.004$ ). Contraception users and nonusers did not differ in terms of their own education (59.7% vs. 49.7%,  $p = 0.020$ ), occupation (96.3% vs. 96.6%,  $p = 0.827$ ), or husband's occupation (86.4% vs. 83.6%,  $p = 0.356$ ).

Contraception users were more likely to report exposure to FP information (81.9% vs. 60.7%,  $p < 0.001$ ), knowing a contraceptive brand name (59.3% vs. 0.7%,  $p < 0.001$ ), being aware about the FP service centre (93.4% vs. 78.2%,  $p < 0.001$ ), having received any fieldworker visits at home for FP (44.4% vs. 24.2%,  $p < 0.001$ ), reporting that they had ever refused having sex with their husband (57.2% vs. 32.2%,  $p < 0.001$ ), and reporting that their husband controlled decision-making about FP (62.6% vs. 78.9%,  $p < 0.001$ ). Among women who did not desire additional children, contraception use was higher compared to those who wanted more children (67.9% vs. 84.2%,  $p < 0.001$ ). Where expected cell counts were  $< 5$ , Fisher's exact test was applied.

**Table 7: Comparison of the sociodemographic and other characteristics of contraception users and nonusers: married Rohingya refugee women aged 15-24 years (n=541)**

Variable	All participants	Contraception users	Contraceptive Non-Users	$\chi^2/\dagger$ (p-value)
<b>Total</b>	541 (100%)	243 (100%)	298 (100%)	
<b>Age Group</b>				
15-17 years	35 (6.5%)	4 (1.6%)	31 (10.4%)	(<0.001†)
18-21 years	192 (35.5%)	77 (31.7%)	115 (38.6%)	
22-24 years	314 (58.0%)	162 (66.7%)	152 (51.0%)	
<b>Women's education</b>				
Illiterate	293 (54.2%)	145 (59.7%)	148 (49.7%)	5.398 (0.020)
Literate	248 (45.8%)	98 (40.3%)	150 (50.3%)	
<b>Women's occupation</b>				
Household work	522 (96.5%)	234 (96.3%)	288 (96.6%)	0.048 (0.827)

Work outside of the home	19 (3.5%)	9 (3.7%)	10 (3.4%)	
<b>Husband's education</b>				8.220
Illiterate	264 (48.8%)	102 (42.0%)	162 (54.4%)	(<0.004)
Literate	277 (51.2%)	141 (58.0%)	136 (45.6%)	
<b>Husband's Occupation</b>				0.853
Unemployed	82 (15.2%)	33 (13.6%)	49 (16.4%)	(0.356)
Employed	459 (84.8%)	210 (86.4%)	249 (83.6%)	
<b>FP Exposure</b>				28.657
Not Exposed	161 (29.8%)	44 (18.1%)	117 (39.3%)	(<0.001)
Exposed	380 (70.2%)	199 (81.9%)	181 (60.7%)	
<b>Know the Brand Name</b>				
Don't know brand name	395 (73.0%)	99 (40.7%)	296 (99.3%)	(<0.001†)
Know the brand name	146 (27.0%)	144 (59.3%)	2 (0.7%)	
<b>Know about FP service centre</b>				54.250
No	91 (16.8%)	09 (3.7%)	82 (27.5%)	(<0.001)
Yes	450 (83.2%)	234 (96.3%)	216 (72.5%)	
<b>Fieldworker Visit for FP</b>				24.804
No	361 (66.7%)	135 (55.6%)	226 (75.8%)	(<0.001)
Yes	180 (33.3%)	108 (44.4%)	72 (24.2%)	
<b>Ever refused having sex with her husband</b>				33.654
No	305 (56.4%)	104 (42.8%)	201 (67.4%)	(<0.001)
Yes	236 (43.5%)	139 (57.2%)	97 (32.2%)	
<b>Husband controls decision-making about FP</b>				17.480
No	154 (28.5%)	91 (37.4%)	63 (21.1%)	(<0.001)
Yes	387 (71.5%)	152 (62.6%)	235 (78.9%)	
<b>Desire for more children</b>				20.083
No	125 (23.1%)	78 (32.1%)	47 (15.8%)	(<0.001)
Yes	416 (76.9%)	165 (67.9%)	251 (84.2%)	

Footnotes: P-values are from Pearson's  $\chi^2$  unless indicated. † Fisher's exact test used due to sparse cells (Fisher-Freeman-Halton for  $r \times c$ ).

Table 8 presents the results of the unadjusted and adjusted analyses of the associations between selected independent variables and the use of contraceptives. In the multivariate logistic regression model, women were more likely to use contraceptives if they were aged 22-24 years (AOR=1.76; 95% CI: 1.19-2.61) compared to the younger women (aged 15-21 years). Women whose husbands were literate were approximately 1.5 times more likely to use contraceptives compared to those whose husbands were illiterate (AOR=1.47; 95% CI: 1.00-2.17).

**Table 8: Factors associated with the use of contraception among Rohingya refugee women aged 15-24 years (n=541)**

Variable	Number of contraception users out of the row total, and prevalence of contraception use n/N (%)	Logistic regression models	
		Univariate, OR (95% CI)	Multivariate, AOR (95% CI)
Age			
15-17	4/35 (11.4%)	Ref.	Ref.
18-21	77/192 (40.1%)	5.19 (1.76-15.30)	
22-24	162/314 (51.6%)	8.26 (2.85-23.97)	1.76 (1.19-2.61)
Husband's education (Yes)	210/459 (45.8%)	1.65 (1.17-2.32)	1.47 (1.00-2.17)
Exposure to FP (Yes)	199/380 (52.4%)	2.92 (1.96-4.37)	1.76 (1.07-2.90)
Know about FP service centre (Yes)	234/450 (52.0%)	9.87 (4.84-20.14)	5.07 (2.25-11.45)
Fieldworker Visit for FP (Yes)	108/180 (60.0%)	2.51 (1.74-3.62)	2.05 (1.35-3.10)
Ever refused having sex with their husband (Yes)	139/236 (59.2%)	2.80 (1.97-3.98)	1.90 (1.28-2.81)
Decision controlled by husband (Yes)	152/387 (39.3%)	0.45 (0.31-0.66)	0.46 (0.30-0.72)
Desire to have more children (No)	78/125 (62.4%)	2.52 (1.67-3.81)	2.36 (1.44-3.86)

Higher likelihood of contraception use was associated with exposure to FP information (AOR=1.76; 95% CI: 1.07-2.90), awareness about the FP service centre (AOR=5.07; 95% CI:

2.25-11.45), having fieldworker visits at home for FP (AOR=2.05; 95% CI: 1.35-3.10), having ever refused having sex with their husband (AOR=1.90; 95% CI: 1.28-2.81) and having a desire to have no more children (AOR=2.36; 95% CI: 1.44-3.86). The only factor associated with lower likelihood of women reporting contraception use was their husband's control over decision-making regarding FP (AOR=0.46;95% CI:0.30-0.72).

We conducted a sensitivity analysis that combined ages 15-17 and 18-21 into a single category (15-21 years). The direction and statistical significance of the age effect were unchanged, with older age associated with higher odds of current use. The final multivariate model showed good fit (Hosmer-Lemeshow test:  $\chi^2(8)=11.96$ ,  $p=0.153$ ), and its explanatory power was moderate for contraception use (McFadden  $R^2=0.184$ ; Cox-Snell  $R^2=0.224$ ; Nagelkerke  $R^2=0.299$ ).

#### 4.5 Discussion

This study revealed several key findings regarding the FP awareness and use of contraception among young married Rohingya women residing in refugee camps in Bangladesh. First, awareness of FP methods was moderate. A significant proportion of women have been exposed to FP information, yet detailed and comprehensive knowledge of contraceptive methods remains limited. Second, the observed prevalence of contraception use was low on the backdrop of women's desire for a larger family size. Third, the decision-making process regarding contraception use has remained primarily patriarchal, with a significant majority reporting that the decision was made by their husbands. Fourth, a significant proportion of women who had unmet need for FP were not using any contraceptive methods. Finally, factors associated with the higher likelihood of contraception use included older age, husband's education, exposure to FP information, awareness of the FP service centre, fieldworker visits at home, having ever refused to have sex with their husband, and having desire to have no more children, while the husband's control of decision-making about FP was associated with lower likelihood of contraception use.

Awareness of FP methods among young married Rohingya women in refugee camps in Bangladesh is moderate. A significant proportion reported knowing about family planning in general (84.7%), which is somewhat higher than that reported in previous studies in similar settings. Zakaria et al. (2022) reported that 58.3% were well informed about the benefits of contraception (14). This suggests that efforts to disseminate FP information within the camps have reached a considerable proportion of the population. However, this general awareness does not extend to detailed and comprehensive knowledge about modern contraceptive

methods, which remains notably low, as a large proportion of women (73%) could not name specific contraceptive brands or methods they were using. Only one in ten women had heard about the emergency contraception pill, and even fewer knew about progestin-only contraception, probably because these methods had not been promoted in the camps. These findings align with the FP communication setting, mainly involving face-to-face counselling and fieldworker messaging, where awareness of contraceptive brand names might be limited despite frequent use of depo injections. The gap in detailed knowledge about contraceptive methods limits the ability of young women to make fully informed decisions about their reproductive health. Without a clear understanding of the different contraceptive methods, their benefits, and potential side effects, women may be hesitant to adopt any method, thereby perpetuating low interest in FP and poor contraception use.

The use of contraception among young married Rohingya refugee women in Bangladesh is low, with less than half of married women currently using contraceptives. This prevalence is generally in agreement with previous literature on the topic. For example, the rate is slightly lower than the 50.9% reported by Khan et al. in 2021 (15) but somewhat higher than the 34% reported by both Chowdhury et al. and Ainul et al. in 2018 among married Rohingya women (29, 30). Only a small portion of couples (6.3%) have ever used condoms as a contraceptive method. In contrast, national Bangladeshi data show higher uptake among similarly aged women, with 48% of married adolescents and up to 64% of young women using any FP method (31). We found that about two-thirds of participants in our study planned to expand their families, and only half of the married young Rohingya women intended to use contraceptives in the future. This low rate of contraception use, despite moderate awareness, is understandable in the population of young women who are still building their families. However, we found that levels of current contraception use are also insufficient among women who have reached their desired family size and want no more children. More than a third of this group were not using any FP despite having a need for contraception. Indeed, the unmet FP need may be much higher, because contraception use is also recommended for healthy birth spacing, which was reportedly not used by many Rohingya refugee women (15). Unfortunately, we did not have sufficient information to measure the use of contraception for birth spacing. This gap indicates missed opportunities for counselling, method mix optimisation, and timely follow-up.

We also found that the average desired family size among young married Rohingya refugee women in Bangladesh was high at 3.7 children per woman, which is consistent with the 3.96 children per Rohingya refugee woman of reproductive age reported by Zakaria et al. (2022)

(14). This desired family size is notably higher than the government-recommended limit of two children per family for local Bangladeshi women. The government of Bangladesh actively promotes this smaller family size through its family planning campaigns, contributing to the decline in the population growth rate from 2.64% to 1.37% (32). Underlying this large desired number of children is a complex interplay of several factors.

Previous studies have reported a cultural preference for larger families among Rohingya (18, 29). Having many children is not only common among Rohingya refugees in Bangladesh but may also be valued within this community. In traditional societies such as the Rohingya, larger family sizes are often associated with economic security, social status, and the fulfilment of cultural or religious expectations (14, 18, 30). The larger number of children may also be perceived as a matter of social security by Rohingya refugee families in Bangladesh. These norms and perceptions have the potential to influence reproductive behaviour, making the adoption of contraceptive methods less likely, even when these methods are available and known.

Therefore, preferences for higher number of children in Rohingya refugee families cannot be overcome by simply providing information and access to contraceptive methods. Programs need to focus on changing norms, perceptions, and attitudes, and the best way of dealing with this is by addressing the root causes and targeting influential community members and decision-makers. That is, engaging the religious and community leaders, as well as men in general. This can best be done by generating and demonstrating evidence of a negative impact of family size and a lack of the use of contraception on community development, access to resources, and the health and wellbeing of children, women, and all family members. By engaging religious and community leaders and promoting the health benefits of smaller families (15, 30). FP programs can gradually shift these norms while respecting community values.

Our study found that only 6.5% of young girls were married before the age of 18. Most of the young women lacked formal education and were primarily engaged in household work. Limited educational and economic opportunities for women continue exacerbating vulnerabilities related to SRH (14, 18). The combination of poor education, early marriage, large family size, as well as preference for sons reported by previous authors, suggests a traditional societal structure that may limit the knowledge of and access to FP (14, 19, 30, 33).

Our study found that contraception use among young Rohingya refugee women was predominantly influenced by patriarchal decision-making, with a significant majority reporting that the decision to use or not use contraception was made by husbands. This highlights the deeply rooted patriarchal gender dynamics within the Rohingya community, where men often exert substantial control over reproductive decisions. Many women are conditioned to accept their husbands' authority over reproductive decisions, reflecting broader societal norms that prioritise male authority and female subordination (14). In such settings, women's autonomy over their reproductive health is severely constrained, which may contribute to the low prevalence of contraception use despite the moderate level of awareness and access to FP information. This finding aligns with broader evidence from previous studies among Rohingya refugees and other refugees in similar settings, where patriarchal norms have been shown to impede women's access to and use of FP services. In many cases, men's approval or consent is required for women to access contraceptives, effectively placing the control of fertility in the hands of men (14, 15, 18, 34). This can lead to unmet contraceptive needs, unintended pregnancies, and larger family sizes than desired by the women themselves.

Our study identified several factors, including age, husband's education, exposure to FP information, knowledge of the FP service centre, fieldworker visits, women's refusal to have sex with their husbands, and desire to have no more children, that were significantly associated with the higher likelihood of contraception use among young Rohingya refugee women in Bangladesh. With increasing age, women were more likely to use contraceptives. This trend may suggest that with age, marriage, and having children, women are increasingly exposed to information about FP, along with a heightened desire to space or limit pregnancies as they are nearing their desired family size. Additionally, the education level of husbands appeared to be an important factor, with higher educational attainment among husbands associated with greater contraception use reported by their wives. Among Rohingya, reproductive health decisions are heavily influenced by male partners, and men typically hold substantial decision-making power regarding FP. Our finding as to FP decision-making highlights the need for targeted FP education and the engagement of men in reproductive health dialogues, including training for male and female Rohingya volunteers to work closely with health services.

Exposure to FP information was positively associated with contraception use, as was knowledge of FP service centres. Women exposed to FP information were significantly more likely to use contraception. This highlights the important role of FP education in influencing contraceptive behaviours. Women who were aware about an FP service centre in the camp

were nearly five times more likely to use contraceptives. Our results clearly show that access to knowledge is strongly associated with contraception use, which is in agreement with evidence from previous research on refugee populations (14).

Fieldworker visits were also strongly associated with higher likelihood of contraception use. Women who received fieldworker visits were more likely to use contraceptives than those who did not have such visits. It is noteworthy that in our study, none of these women reported receiving fortnightly fieldworker visits in the last six months as recommended (15). Mass media channels have limited reach and are often not accessible in the camps; therefore, exposure to FP information likely reflects the FP education provided by community-based sources, especially community health workers, particularly during their home visits. Findings indicate that only one quarter of the participants receive FP counselling and services from the healthcare service centre. Our findings also highlight the importance of exposure to FP information and services and suggest that expanding outreach services and ensuring regular fieldworker visits could improve contraception use. This underscores the importance of direct community-based interventions, where health workers engage women in their homes, providing FP information and addressing misconceptions. Regular fieldworker visits could be an effective strategy to increase contraception use, particularly in conservative communities like the Rohingya, where women may have limited mobility and access to health services.

The ability of women to refuse having sex with their husbands was also associated with higher contraception use. This suggests that women with greater autonomy within their marital relationships are more empowered to make informed decisions about their reproductive health. Enhancing women's agency and decision-making power within their marital relationships could be critical in improving SRH outcomes. The dominance of male decision-making in contraception use underscores the need for FP interventions that engage both men and women. Promoting spousal communication and shared decision-making could help shift these entrenched power dynamics, allowing women more say as to their reproductive choices. Educational initiatives targeting men, along with efforts to empower women through increased access to education and economic opportunities, are crucial for fostering a more gender-equitable approach to FP (14, 19).

This study contributes to the literature on SRH among young Rohingya refugees by highlighting the interplay of sociocultural norms, gender dynamics, and access to information on FP practices. To improve contraception use, a multifaceted approach is needed, one that includes enhancing access to accurate FP information, improving male engagement, and

empowering young women through education and community-based programs. This approach should also include providing comprehensive, evidence-based education and counselling to ensure informed contraceptive choices (14, 35). Culturally sensitive outreach efforts that improve access to condoms and promote their use as part of a comprehensive FP program are essential for addressing SRH needs (30, 36). Such strategies are already used by local and international organisations working in refugee camps in Bangladesh and providing SRH services, which tirelessly work to improve the SRH of refugees. However, better coordinated, supported, and resourced, they could further significantly improve SRH outcomes for Rohingya refugee women in Bangladesh.

Examples from other refugee settings highlight the success of multifaceted approaches in improving contraception use. In Jordan, programs for Syrian refugees combined education on contraceptive options, community health worker outreach, and gender-based violence support, leading to increased contraception use and awareness (37, 38). Similarly, in Uganda, engaging South Sudanese male community leaders and offering youth-friendly services enhanced contraception use among young women (39, 40). In the Democratic Republic of Congo, integrating FP services with maternal health programs and community outreach significantly increased contraception use among displaced populations (39, 41). These examples highlight that a comprehensive approach addressing both supply-side (service delivery) and demand-side (community engagement and education) barriers can be effective and can improve SRH outcomes among Rohingya refugees in Bangladesh.

### **Limitations**

The strength of our study lies in the direct collection of first-hand data from young Rohingya refugee women, providing their perspective on FP practices. The data were gathered voluntarily using their native language within familiar camp settings, fostering candid responses and enhancing reliability. Unlike previous studies that relied on convenience sampling, our study is the first in Cox's Bazar to employ random sampling across multiple camps, ensuring a broad cross-section of the Rohingya population and increasing the generalizability of our findings. Our sample of 541 participants provided sufficient power for multivariate analyses of factors associated with contraception use. However, our study has several limitations. This was a cross-sectional survey; our findings establish associations but cannot infer causal relationships. This study did not collect data related to certain potentially important confounding factors, such as the perspectives of husbands and other influential family and community members, previous contraception use by women, and use of

contraception for birth spacing. All the information was self-reported in the context of an interviewer-administered survey, so there may be a potential for socially desirable answers, as well as reporting and recall bias. The interviewer-administered survey approach was necessary because most Rohingya refugee women are illiterate or have low literacy and could not complete the questionnaire on their own. However, the interviewers avoided probing and validation to minimise information bias. They also conducted interviews in the Rohingya language and were well-trained to deliver the interviews to minimise any potential misreporting and bias. Despite these constraints, our research yields valuable insights into the sexual and reproductive health of young Rohingya refugee women in Bangladesh and adds to the already available evidence about the SRH of Rohingya refugees by focusing on young women and their needs.

#### 4.6 Conclusion

The SRH of refugee populations, particularly those residing in low-income countries, remains a critical area of concern within the global public health landscape. Our findings reveal that while general awareness of FP is relatively high, detailed and actionable knowledge about modern contraceptive methods remains limited, and overall contraception use is insufficient to meet the needs of young women, especially those wishing to limit or space births. Persistent patriarchal decision-making and gender norms continue to constrain women's reproductive autonomy, resulting in substantial unmet need and suboptimal SRH outcomes.

Our findings underscore critical policy implications aligned with international humanitarian FP guidelines, particularly the Minimum Initial Service Package (MISP). Enhancing FP awareness and detailed contraceptive knowledge among young refugee women is essential, necessitating intensified community-based outreach and educational initiatives. Furthermore, addressing gender dynamics through engaging husbands and community leaders in FP education is crucial to shifting patriarchal norms and fostering women's reproductive autonomy. Therefore, targeted humanitarian interventions that include youth-friendly FP services, culturally sensitive education campaigns, and robust community outreach are urgently needed. These strategies are not only applicable to the Rohingya context but also provide valuable insights for addressing FP needs in similar humanitarian crises globally.

Future research should explore the effectiveness of these interventions and identify additional strategies to enhance the SRH of young Rohingya women. Humanitarian FP programs should prioritise comprehensive, age-specific, and gender-sensitive approaches to effectively meet the

reproductive health needs of young refugee women, thus fulfilling international commitments to reproductive health rights and ensuring equitable access to family planning in crisis-affected populations.

## **Declarations**

**Ethics approval and consent to participate:** The study received ethical approval from the National Research Ethics Committee under the Bangladesh Medical Research Council (registration number 52324012023). Permission to conduct the research in the Rohingya refugee camps was also obtained from the local authorities, including the Office of the Refugee Relief and Repatriation Commissioner (RRRC), Bangladesh. All procedures adhered to the Declaration of Helsinki and WHO ethical guidelines for research with displaced populations. All participants provided written informed consent. For participants aged 15-17, written assent was obtained alongside parental/guardian consent, emphasising voluntary participation and withdrawal rights. For illiterate participants, the consent form was read aloud, and a thumbprint was obtained. Consent procedures explicitly covered: (1) study objectives, (2) anonymisation measures, (3) voluntary participation and the right to decline to answer questions or withdraw at any time without consequences and (4) data storage protocols. We put strong measures in place to protect privacy and confidentiality. All interviews were conducted in a private setting within the camps, such as quiet tented areas or offices, where conversations could not be overheard. Participants received no monetary compensation or gifts; participation was entirely voluntary. Personal identifiers were removed from all datasets. All identifying information was anonymised, and unique IDs were assigned (e.g., ID001). All consent forms, data, and study-related materials were stored securely and accessed only by authorised members of the research team.

**Consent for publication:** The informed consent provided by the participants included the use of their anonymous data for study documents and communication of the study results. No identifiable images or personal information are published.

**Competing interests:** N/A

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**Availability of data and materials:** The data that support the findings of this study are available on request from the corresponding author.

#### 4.7 References

1. WRC. Creating a Better World for Refugee Women and Girls: Women's Refugee Commission; 2024 [21/05/2025]. Available from: <https://www.womensrefugeecommission.org/>.
2. Foster AM, Evans DP, Garcia M, Knaster S, Krause S, McGinn T, et al. The 2018 Inter-agency field manual on reproductive health in humanitarian settings: revising the global standards. *Reprod Health Matters*. 2017;25(51):18-24. Epub 20171212. doi: 10.1080/09688080.2017.1403277. PubMed PMID: 29231788.
3. Casey SE. Evaluations of reproductive health programs in humanitarian settings: a systematic review. *Confl Health*. 2015;9(1):S1. Epub 20150202. doi: 10.1186/1752-1505-9-S1-S1. PubMed PMID: 25685183; PubMed Central PMCID: PMC4328944.
4. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. *BMC Public Health*. 2020;20(1):666. Epub 20200512. doi: 10.1186/s12889-020-08818-y. PubMed PMID: 32398129; PubMed Central PMCID: PMC7216726.
5. Tirado V, Chu J, Hanson C, Ekstrom AM, Kagesten A. Barriers and facilitators for the sexual and reproductive health and rights of young people in refugee contexts globally: A scoping review. *PLoS One*. 2020;15(7):e0236316. Epub 20200720. doi: 10.1371/journal.pone.0236316. PubMed PMID: 32687519; PubMed Central PMCID: PMC7371179.
6. Ivanova O, Rai M, Kemigisha E. A Systematic Review of Sexual and Reproductive Health Knowledge, Experiences and Access to Services among Refugee, Migrant and Displaced Girls and Young Women in Africa. *Int J Environ Res Public Health*. 2018;15(8):1-12. Epub 20180726. doi: 10.3390/ijerph15081583. PubMed PMID: 30049940; PubMed Central PMCID: PMC6121882.
7. Soeiro RE, de Siqueira Guida JP, da-Costa-Santos J, Costa ML. Sexual and reproductive health (SRH) needs for forcibly displaced adolescent girls and young women

- (10-24 years old) in humanitarian settings: a mixed-methods systematic review. *Reprod Health*. 2023;20(1):174. Epub 20231124. doi: 10.1186/s12978-023-01715-8. PubMed PMID: 37996929; PubMed Central PMCID: PMC10668438.
8. 8. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and Reproductive Health of Rohingya Refugee People In Bangladesh: A Systematic Review Protocol. *Women, Midwives and Midwifery*. 2023;3(3):36-44.
  9. 9. UNHCR. Situation Refugee Response in Bangladesh: UNHCR: The UN Refugee Agency; 2024 [28/01/2025]. Available from: <https://data.unhcr.org/en/country/bgd>.
  10. 10. Hossain MA, Dawson A. A Systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the rohingya and the afghan refugee women of reproductive age in Asia. *WHO South East Asia J Public Health*. 2022;11(1):42-53. doi: 10.4103/WHO-SEAJPH.WHO-SEAJPH\_144\_21. PubMed PMID: 36308272.
  11. 11. Hossain MA, Huda MN, Ullah A, Renzaho A. Risk factors, contemporary challenges and psychological well-being of the Rohingya refugees in Bangladesh: Policy implications. *Int J Health Plann Manage*. 2022;37(4):1912-7. Epub 20220410. doi: 10.1002/hpm.3472. PubMed PMID: 35403250.
  12. 12. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and Reproductive Health of Rohingya Refugees In Bangladesh: A Systematic Review. *Women, Midwives and Midwifery*. 2025;5(2):1-24. doi: 10.36749/wmm.5.2.1-24.2025.
  13. 13. Rahman A, Strong J, Mondal PP, Maynard A, Haque T, Moore AM, et al. Perceptions and attitudes of Rohingya community stakeholders to pregnancy termination services: a qualitative study in camps of Cox's Bazar, Bangladesh. *Confl Health*. 2024;18(1):19. Epub 20240304. doi: 10.1186/s13031-024-00574-9. PubMed PMID: 38433199; PubMed Central PMCID: PMC10910813.
  14. 14. Zakaria M, Nachrin T, Azad MAK. Evaluating the effectiveness of utilization of health communication interventions on sexual and reproductive health of the Rohingya women living in Cox's Bazar refugee camp. *Heliyon*. 2022;8(12):e12563. Epub 20221224. doi: 10.1016/j.heliyon.2022.e12563. PubMed PMID: 36643313; PubMed Central PMCID: PMC9834746.
  15. 15. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ*. 2021;99(3):201-8. Epub 20210107. doi: 10.2471/BLT.20.269779. PubMed PMID: 33716342; PubMed Central PMCID: PMC7941109.

16. Guglielmi S, Seager J, Mitu K, Jones N. Sexual and reproductive health for Rohingya young people living in Bangladesh. 2024 ..
17. ISCG. INTER-SECTOR NEEDS ASSESSMENT (ISNA) | BANGLADESH, ROHINGYA REFUGEE CRISIS: The Inter-Sector Coordination Group (ISCG); 2025 [19/08/2025]. Available from: [https://rohingyaresponse.org/wp-content/uploads/2025/04/BGD\\_CXB\\_ISNA-2024\\_Full\\_Report\\_Camps\\_Feb-2024.pdf](https://rohingyaresponse.org/wp-content/uploads/2025/04/BGD_CXB_ISNA-2024_Full_Report_Camps_Feb-2024.pdf).
18. Abul Kalam Azad M, Zakaria M, Nachrin T, Chandra Das M, Cheng F, Xu J. Family planning knowledge, attitude and practice among Rohingya women living in refugee camps in Bangladesh: a cross-sectional study. *Reprod Health*. 2022;19(1):105. Epub 20220502. doi: 10.1186/s12978-022-01410-0. PubMed PMID: 35501903; PubMed Central PMCID: PMC9063234.
19. Islam MM, Khan MN, Rahman MM. Factors affecting child marriage and contraceptive use among Rohingya girls in refugee camps. *Lancet Reg Health West Pac*. 2021;12:100175. Epub 20210608. doi: 10.1016/j.lanwpc.2021.100175. PubMed PMID: 34527969; PubMed Central PMCID: PMC8356092.
20. Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *The lancet*. 2007;370(9596):1453-7.
21. UNFPA. Adolescent Sexual and Reproductive Health for Humanitarian Settings: Women's Refugee Commission, Save the Children, UNHCR, UNFPA; 2012 [12/10/2023]. 1-92]. Available from: [https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH\\_good\\_practice\\_documentation\\_English\\_FINAL.pdf](https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH_good_practice_documentation_English_FINAL.pdf).
22. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open*. 2021;11(10):e047516. Epub 20211001. doi: 10.1136/bmjopen-2020-047516. PubMed PMID: 34598982; PubMed Central PMCID: PMC8488728.
23. Ahmed R, Aktar B, Farnaz N, Ray P, Awal A, Hassan R, et al. Challenges and strategies in conducting sexual and reproductive health research among Rohingya refugees in Cox's Bazar, Bangladesh. *Confl Health*. 2020;14(1):83. Epub 20201201. doi: 10.1186/s13031-020-00329-2. PubMed PMID: 33292373; PubMed Central PMCID: PMC7708138.
24. Jung SH. Stratified Fisher's exact test and its sample size calculation. *Biometrical journal*. 2014;56(1):129-40.

25. 25. MoHS. Myanmar Demographic and Health Survey 2015-16. Nay Pyi Taw, Myanmar: Ministry of Health and Sports - MoHS/Myanmar and ICF.; 2017.
26. 26. NIPORT. Bangladesh Demographic and Health Survey 2014. National Institute of Population Research and Training (NIPORT), Mitra and Associates, and ICF International.; 2016.
27. 27. UNFPA. Adolescent Sexual and Reproductive Health Toolkit for Humanitarian Settings: A Companion to the Inter-Agency Field Manual on Reproductive Health in Humanitarian Settings 2009 [18/04/2024]. Available from: [https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA\\_ASRHtoolkit\\_english.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA_ASRHtoolkit_english.pdf).
28. 28. Patridge EF, Bardyn TP. Research electronic data capture (REDCap). *Journal of the Medical Library Association: JMLA*. 2018;106(1):142.
29. 29. Merz S, Jaehn P, Mena E, Pöge K, Strasser S, Saß A-C, et al. Intersectionality and eco-social theory: a review of potentials for public health knowledge and social justice. *Critical Public Health*. 2023;33(2):125-34.
30. 30. Chowdhury MAK, Billah S, Karim F, Khan ANS, Islam S, Arifeen SE. Report on Demographic profiling and needs assessment of maternal and child health (MCH) care for the Rohingya refugee population in Cox's Bazar, Bangladesh. Maternal and Child Health Division, ICDDR,B2018.
31. 31. Ainul S, Ehsan I, Haque E, Amin S, Rob U, Melnikas A, et al. Marriage and sexual and reproductive health of Rohingya adolescents and youth in Bangladesh: a qualitative study. *Population Council*. 2018. doi: 10.31899/pgy7.1022.
32. 32. Research NIOp, Training, ICF. Bangladesh Demographic and Health Survey 2022: Key Indicators Report. NIPORT and ICF Dhaka, Bangladesh, and Rockville, Maryland, USA; 2023.
33. 33. Hossain S, Akter T, Mohsin M, Islam MM, Chowdhury PB, Khudri MM. Contraceptive uses among married women in Bangladesh: a systematic review and meta-analyses. *J Health Popul Nutr*. 2024;43(1):10. Epub 20240117. doi: 10.1186/s41043-024-00502-w. PubMed PMID: 38233954; PubMed Central PMCID: PMC10795415.
34. 34. Saidu S. Knowledge, practices and influencing factors regarding use of contraceptive methods among Rohingya refugee adolescent girls in Cox's Bazar, Bangladesh: A cross-sectional mixed method study. *Journal of Reproductive Health and Contraception*. 2022;7(7). doi: 10.36648/2471-9749.22.7.001.

35. 35. Jannat S, Sifat RI, Khisa M. Sexual and Reproductive Health Conditions of Women: Insights from Rohingya Refugee Women in Bangladesh. *Sexuality Research and Social Policy*. 2022;20(3):855-68. doi: 10.1007/s13178-022-00758-z.
36. 36. Lusti-Narasimhan M, Khosla R, Baggaley R, Temmerman M, McGrory E, Farley T. WHO guidance grounded in a comprehensive approach to sexual and reproductive health and human rights: topical pre-exposure prophylaxis. *J Int AIDS Soc*. 2014;17(3 Suppl 2):19279. Epub 20140908. doi: 10.7448/IAS.17.3.19279
37. 19279. PubMed PMID: 25224620; PubMed Central PMCID: PMC4163998.
38. 37. Islam MM, Rahman MM, Khan MN. Barriers to male condom use in Rohingya refugee camps in Bangladesh: A qualitative study. *Lancet Reg Health Southeast Asia*. 2022;2:100008. Epub 20220520. doi: 10.1016/j.lansea.2022.04.004. PubMed PMID: 37383296; PubMed Central PMCID: PMC10305886.
39. 38. Amiri M, El-Mowafi IM, Chahien T, Yousef H, Kobeissi LH. An overview of the sexual and reproductive health status and service delivery among Syrian refugees in Jordan, nine years since the crisis: a systematic literature review. *Reprod Health*. 2020;17(1):166. Epub 20201028. doi: 10.1186/s12978-020-01005-7. PubMed PMID: 33115474; PubMed Central PMCID: PMC7592572.
40. 39. Krause S, Williams H, Onyango MA, Sami S, Doedens W, Giga N, et al. Reproductive health services for Syrian refugees in Zaatri Camp and Irbid City, Hashemite Kingdom of Jordan: an evaluation of the Minimum Initial Services Package. *Confl Health*. 2015;9(Suppl 1 Taking Stock of Reproductive Health in Humanitarian):S4. Epub 20150202. doi: 10.1186/1752-1505-9-S1-S4. PubMed PMID: 25798190; PubMed Central PMCID: PMC4331816.
41. 40. Ninsiima LR, Chiumia IK, Ndejjo R. Factors influencing access to and utilisation of youth-friendly sexual and reproductive health services in sub-Saharan Africa: a systematic review. *Reproductive health*. 2021;18(1):1-17.
42. 41. Achola R, Atuyambe L, Nabiwemba E, Nyashanu M, Garimoi Orach C. Barriers to contraceptive use in humanitarian settings: Experiences of South Sudanese refugee women living in Adjumani district, Uganda; an exploratory qualitative study. *PLoS One*. 2024;19(3):e0278731. Epub 20240301. doi: 10.1371/journal.pone.0278731. PubMed PMID: 38427612; PubMed Central PMCID: PMC10906906.
43. 42. Kabra R, Allagh KP, Kini BN, Kanke RM, Kiarie J. Scaling postpartum family planning services in the Democratic Republic of Congo: outcomes and lessons learned.

BMJ Sex Reprod Health. 2024;50(2):146-9. Epub 20240411. doi: 10.1136/bmjsex-2023-202114. PubMed PMID: 38290799; PubMed Central PMCID: PMC11041570.

## CHAPTER 5: QUALITATIVE EXPLORATION OF BARRIERS AND FACILITATORS TO FAMILY PLANNING

### Article 4: Facilitators and Barriers to Family Planning Services: Perspectives of Young Rohingya Women, Men, Community Leaders, and Healthcare Providers in Cox's Bazar, Bangladesh

This chapter presents the first qualitative study of the thesis, building on the quantitative findings from Chapter 4, which examined family planning literacy and contraception use among young Rohingya refugee women. To deepen understanding of the patterns observed in the survey data, this study explores the facilitators and barriers to accessing family planning services from the perspectives of young Rohingya women and men, community leaders, and healthcare providers. This qualitative article addresses Objective 3 of the thesis and provides contextual insights into the socio-cultural and structural dynamics influencing sexual and reproductive health behaviours. It was peer-reviewed, revised and resubmitted, with a decision pending.

#### 5.1 Abstract

Young Rohingya refugee women in Bangladesh face high unmet family planning needs due to restrictive sociocultural norms and healthcare issues. This qualitative study of women aged 15-24 in Cox's Bazar identified barriers like patriarchal norms, religious beliefs, early marriage, and healthcare system limitations, including long waits and lack of privacy. Facilitators such as trusted female health workers, religious leaders, and peer networks help improve access. The findings suggest the importance of culturally tailored FP education, consistent contraceptive supplies, and engaging community leaders to support young women's reproductive rights.

**Keywords:** Rohingya refugees, Family planning, Sexual and reproductive health, Young women, Humanitarian settings

#### 5.2 Introduction

Refugee and displaced populations often face barriers to family planning (FP), which can be broadly divided into two closely interconnected challenges. First, displacement disrupts healthcare systems by limiting access to contraception, reducing provider training, and restricting youth-friendly services (1-3). Second, social and cultural factors, such as community values, stigma, and misinformation, influence FP decisions and reduce women's autonomy (4-

6). These barriers are particularly severe among the Rohingya refugees in Cox's Bazar, Bangladesh, where over one million people, mainly women and girls of reproductive age, live in overcrowded camps (7, 8). Within this population, more than 20% are youths and adolescents (15-24 years), yet this group is often overlooked in the provision of sexual and reproductive health (SRH) services (9, 10).

In this context, structural challenges such as shortages of contraceptives, long waiting times, and under-resourced clinics intersect with cultural dynamics. Patriarchal norms prioritise male authority over reproductive choices, while religious interpretations and pronatalist values discourage FP use (5, 6, 11, 12). Young Rohingya women face compounded vulnerabilities to SRH due to early marriage, stigma around premarital sex, and limited autonomy to seek FP services without familial consent (7, 12, 13). However, research on FP among this population remains fragmented and has largely ignored the interaction between displacement, socio-cultural influences, and the multiple perspectives of stakeholders.

Existing literature identifies key gaps. First, most studies mainly focus on women's perspectives, overlooking the views of men, community leaders, and SRH service providers regarding women's experiences and access to FP. Second, little is known about the age-specific barriers faced by young Rohingya women aged 15-24, including stigma, early marriage, and provider biases. Third, there is limited understanding of the structural challenges faced by healthcare workers, such as workload pressure and cultural resistance. Finally, few studies examine how displacement trauma and religious beliefs intersect with FP decision-making. These gaps in evidence impede the development of socially inclusive, culturally grounded interventions for these marginalised populations.

This qualitative study aims to address these limitations by exploring the barriers and facilitators to FP access among young Rohingya women aged 15-24 in Cox's Bazar, Bangladesh. The study aims to triangulate multi-stakeholder insights to explore how patriarchal norms, displacement, and age-related vulnerabilities shape FP access and uncover systemic challenges in delivering culturally competent care for young Rohingya refugee women in Bangladesh.

### 5.3 Materials and methods

#### **Study Design**

This qualitative study employed in-depth interviews (IDIs) and focus group discussions (FGDs) with four groups of participants: young Rohingya women (defined below), men, community leaders, and healthcare providers in selected Rohingya refugee camps in

Bangladesh. The study employed a phenomenological approach to understand participants' lived experiences and perceptions of FP access. This study was part of a broader mixed-method project investigating the SRH needs of young Rohingya refugees in Bangladesh. The research was conducted between March and April 2023 in selected Rohingya refugee camps located in *Ukhiya* and *Teknaf* upazilas of Cox's Bazar district. The camps are administered by the Government of Bangladesh, with humanitarian services delivered by the United Nations High Commissioner for Refugees (UNHCR) and other national and international NGOs.

### **Population and Sampling**

This study targeted four key groups: young Rohingya women aged 15-24 years, adult Rohingya men, Rohingya community leaders (including *Majhis*, religious leaders, and NGO workers), and healthcare providers (both formal and traditional). Young women who had previously participated in a cross-sectional survey were invited to participate in IDIs and FGDs. This age bracket of 15-24 years was selected to align with the global definition of youth (14) and to capture the older adolescent and young adult period, when many Rohingya females marry and begin childbearing (12). Participants aged 15-17 were enrolled only after rigorous assessment by the ethics committee confirmed that the study's benefits (e.g., improving youth-friendly SRH services) outweighed minimal risks. The study used purposive and snowball sampling to recruit participants, aiming to capture a range of perspectives. The study recruited 40 participants for in-depth interviews, including 12 young women, 8 Rohingya men, 8 formal healthcare providers, 4 informal/ traditional healthcare providers, and 8 community leaders (community leaders also known as *Majhis*, religious leaders, and NGO workers). Additionally, five FGDs were conducted, each comprising 5 to 7 participants, including two with young women, one with men, and two with adults of both genders. All individuals invited to the study were informed that their decision to participate or not would have no effect on any aid, services, or benefits they receive.

### **Data Collection**

Data were collected between March 20 and April 10, 2023, using semi-structured interviews. The interview included topics such as perceptions of SRH services, access barriers, socio-economic influences, cultural and religious norms, and recommendations for improving service delivery. The interview guides were pretested before finalisation. Three trained qualitative researchers, fluent in the Rohingya dialect and experienced in conducting qualitative research, facilitated the IDI and FGD discussions. To maintain cultural sensitivity, female researchers

conducted interviews with women, while male researchers interviewed men. Participants were informed of the study's objectives and provided written consent prior to participation. For participants who were illiterate, thumbprint consent was obtained following verbal explanation. Participants were offered a choice between audio-recorded interviews or written interview notes, depending on their comfort and literacy level. If participants did not grant consent for audio recording, detailed notes were taken during the interviews instead. All interviews were conducted in private settings within the camps and lasted approximately 45-60 minutes. FGDs were co-facilitated by a moderator and a note-taker and ranged from 60-90 minutes in duration.

### **Data Analysis**

Data analysis followed Braun and Clarke's (2006) six-step framework for thematic analysis, which included data familiarisation, initial coding, theme development, reviewing and defining themes, and final interpretation (15). Audio recordings were transcribed verbatim and translated into English by bilingual research assistants, then integrity-checked by listening to the recordings and reading the written texts to ensure accuracy. Transcripts were reviewed for accuracy and anonymised by removing all identifying information. A hybrid coding strategy was employed. Deductive codes were derived from the interview guide (e.g., religious beliefs, structural barriers), while inductive codes emerged iteratively (e.g., covert contraception use, generational shifts in male attitudes). Codes were organised into categories (e.g., Sociocultural Norms) and mapped to the study's objectives (16). Themes were contextualised within a socioecological model to explore interactions between individual, community, and institutional factors (6, 16, 17).

### **5.4 Results**

We conducted 40 in-depth interviews (IDIs), including 12 young women (aged 15–24 years), 8 men, 8 formal healthcare providers, 4 traditional healthcare providers, and 8 community leaders. Five focus group discussions (FGDs) were conducted, comprising two groups of young women (12 women in total), one group of men (7 men in total), and two mixed groups (6 women and 6 men in total). See Table 9 for participant characteristics. Most participants were married (92%) and lacked formal schooling (85.7%). All young women were not employed and worked within their households. Participants were evenly distributed across four refugee camps in Cox's Bazar.

**Table 9: Socio-demographic characteristics of IDI and FGD participants**

Participant Category	Total (n)	Gender	Marital Status	Education Level	Occupation	Camp Distribution
<b>IDI</b>						
Young Women (15-24 years)	12	Female	75% Married	92% No Formal	Homemaker (100%)	3 per camp Camps 1,7, 20, 21
Men	8	Male	100% Married	100% No Formal	Daily Labourer (75%), Trader (25%)	2 per camp Camps 4,7,15,21
Community Leaders	8	75% Male	100% Married	63% No Formal	<i>Majhii</i> (50%), Religious Leader (38%), NGO Worker (12%)	2 per camp Camps 1,7,15,21
Formal Healthcare Providers	8	62% Female	75% Married	88% Secondary+	Nurse (62%), Doctor (25%), Midwife (13%)	2 per camp Camps 1,10,14,21
Informal Healthcare Providers	4	100% Female	75% Married	100% No Formal	Traditional Midwife (100%)	1 per camp Camps 10, 14,15, 20
<b>FGD</b>						
Young Women (15-24 years)	2 FGDs (n=12)	Female	100% Married	92% No Formal	Homemaker (100%)	1 FGD Camps 02 & 15
Men	1 FGD (n=7)	Male	100% Married	100% No Formal	Daily Labourer (86%), Fisherman (14%)	Camp 01
Mixed Gender	2 FGDs (n=12)	50% Female	83% Married	92% No Formal	Homemaker (50%), Labourer (42%), Trader (8%)	1 FGD Camps 14 & 20

Table 10 presents the themes and subthemes identified in the study and our analysis found six core themes shaping access to FP among young Rohingya women: (1) sociocultural and pronatalist norms that restrict women’s autonomy, (2) religious beliefs and interpretations, (3) age-related vulnerabilities of young women, (4) health system challenges, (5) widespread misperceptions and stigma, and (6) community-driven facilitators. These themes, supported by perspectives from young women, men, community leaders, religious authorities, and healthcare providers, highlight the complex interplay of cultural, institutional, and individual factors influencing access to FP.

### **Sociocultural and Pronatalist Norms**

Patriarchal attitudes and pronatalist values were the primary barriers to contraception use. Many young Rohingya refugee women said they needed permission from their husbands or family members before accessing FP services. In our sample of 12 women, as many as 10 reported needing spousal or familial consent to seek FP services. One 19-year-old participant explained:

*“I asked my husband to consider spacing out births, but he replied, ‘A wife’s role is to bear children, not to question God’s Plan.’”* (IDI-YW08, married, age 19)

The theme in the quote reflects the silencing of women’s reproductive desires by patriarchal norms. Majhi echoed similar sentiments, describing large families as essential for the Rohingya’s survival. A male community leader asserted:

*“We Rohingya face persecution because of our faith, and having more children helps secure our future.”* (IDI-CL02, married, age 55)

Men also commonly equated children with wealth and status, which pressured couples to have many children. A middle-aged man stated:

*“Children are our wealth. If my father had nine, why would I stop at four?”* (FGD-M01, married, age 42)

The majority of men (7 out of 8 IDIs) considered FP to be a “women’s issue,” but also claimed authority over contraception use. A 38-year-old husband argued:

*“FP is for the woman to consider, but the man makes the final decision. My wife needs to ask my permission.”* (IDI-M04, married, age 38)

The desire for large families emerged as a strong sociocultural norm, influenced by pronatalist beliefs and concerns about displacement. Older participants, especially men and community

leaders, viewed large families as crucial for maintaining Rohingya identity and resilience. One grandfather shared his expectations for his sons:

*“My sons are expected to have at least six children each so that our lineage continues to grow.”*

(IDI-M03, married, age 50)

**Table 10: Facilitators and barriers to family planning services for young Rohingya refugee women aged 15-24, reported by different groups of participants**

Main Theme	Subtheme	In-depth interviews				Focus group discussions		
		Young	Men	Commu	Healthc	Young	Men	Mixed
Sociocultural and Pronatalist Norms	Patriarchal authority	✓	✓	✓	✓	✓	✓	✓
	Male-dominated decision-making	✓	✓	✓	✓	✓	✓	✓
	Pressure from in-laws	✓	✓	✓	✓	✓	✓	✓
	Cultural pride in large families	✓	✓	✓	✓	✓	✓	✓
	Desire for more children	✓	✓	✓	✓	✓	✓	✓
Religious Beliefs and Interpretations	Conflicting religious interpretations	✓	✓	✓	✓	✓	✓	✓
	Permissible FP for maternal health			✓	✓		✓	
	Internal conflict among women	✓				✓		
Age-Related Vulnerabilities	Exclusion of unmarried adolescents	✓			✓	✓		
	Early marriage	✓			✓	✓		
	Pressure to prove fertility	✓			✓	✓		
Health System Challenges	Reliance on informal networks	✓		✓	✓	✓		✓
	Lack of culturally adapted information	✓	✓	✓	✓	✓	✓	✓
	Understaffing and service delays	✓		✓	✓	✓		✓

	Long wait times (dropout from queue)	✓		✓	✓	✓	✓	✓
	Limited youth-friendly services	✓			✓	✓		✓
Misperceptions and stigma	Rumours and fear	✓	✓	✓	✓	✓	✓	✓
	Myths about contraceptives	✓	✓	✓	✓	✓	✓	✓
	Fear of social judgment	✓	✓	✓	✓	✓	✓	✓
Community-driven facilitators	Home-based counselling (door-to-door)	✓	✓	✓	✓	✓		✓
	Trusted FCHWs	✓			✓	✓		✓
	Progressive religious leadership		✓	✓	✓			
	Youth-led information sharing	✓				✓		
	Peer networks	✓			✓	✓		

### Religious Beliefs and Interpretations

Religion becomes a double-edged influence. Many conservative religious leaders cited Islamic teachings when they discouraged contraception, essentially making FP akin to opposing God’s will. An Imam warned,

*“God states, ‘Using FP is haram because it’s akin to killing your children. Contraceptives go against His will.’”* (IDI-CL07, married, age 48)

However, interpretations differed among religious and community members, with some progressive religious leaders reinterpreting FP as a health issue. A female religious teacher countered:

*“FP is allowed in Islam to save the lives of mothers.”* (IDI-CL08, married, age 42)

Many young women shared their internal struggles between their religious beliefs and their real health realities, particularly after experiencing complications during childbirth. One young woman expressed this personal dilemma:

*“I’m worried about taking an injection, it’s haram,” the permissibility of my last birth. I’m torn.”* (IDI-YW06, married, age 24)

## Age-specific vulnerabilities

Young Rohingya women highlighted how age-related vulnerabilities created barriers to accessing FP services. These vulnerabilities were not only related to youth but also originated from societal restrictions on marriage, sexuality, and health rights. Many unmarried young women were excluded from FP programs because providers considered them too young or not at risk. A 16-year-old revealed:

*“The clinic nurse advised me to visit after getting married for FP. I went there because I had some personal issues.”* (IDI-YW05, unmarried, age 16)

Newly married young women were under enormous pressure to show that they were not infertile. Many described mothers-in-law checking menstrual cloths and blaming them if conception did not happen right away. A 17-year-old participant shared:

*“My mother-in-law checks my clothes every month. They’ll say, “If I’m not pregnant, they’ll send me to my father’s house.”* (IDI-YW02, married, age 17)

Providers observed that families believed that early childbearing with a woman’s value. A nurse explained:

*“Married woman's honour depends on bearing sons quickly after marriage. To delay pregnancy is to risk divorce or abuse.”* (IDI-HP02, female, age 32)

Many Rohingya adolescent and young women marry early, which limits their control over their lives and reproductive choices. Marriage at a young age (sometimes as early as 15-17) increases pressures to prove fertility. Some women shared that they were getting pregnant soon after their first period, with little say in the decision. One participant shared:

*“I was married when I was just 13, and at that young age, I didn’t really understand what it meant. My first child arrived when I was only 14.”* (IDI-YW06, married, age 18)

Healthcare providers also highlighted the challenges they face when addressing the reproductive health needs of young married women. A female provider noted:

*“They arrive at age 15 or 16 already pregnant. They don’t understand about birth spacing, and their husbands do not permit it.”* (IDI-HP03, married, age 35)

Community leaders acknowledged the fact that early marriage was widespread, but they emphasised cultural need, particularly within the context of displacement. As one Majhi explained:

*“Girls are married off when they are young for the honour of the family. It’s our tradition.”*  
(IDI-HP04, married, age 48)

### **Health System Challenges**

Respondents across all stakeholders highlighted ongoing systemic challenges in SRH services as a major barrier to FP access in the young Rohingya refugee camps. These included long waiting times, inadequate numbers of female healthcare workers, inconsistent availability of contraceptives, and the absence of privacy at service delivery points.

#### ***Strained and underprepared Healthcare providers***

Healthcare providers recognised these challenges, pointing to heavy patient volumes and resource shortages as persistent barriers to providing quality care. One provider noted:

*“We sometimes cover 80-90 patients in one shift. There is no time for counselling. We are usually short of injectables.”* (IDI-HP07, married, age 33)

A 17-year-old woman recounted:

*“The nurse said to me: ‘You’re too young for this! Focus on your husband.’* (IDI-YW07, married, age 17)

#### ***Long Waiting Times for Services***

Clinic inefficiencies reduced FP uptake, as respondents experienced long wait times, sometimes around 3-4 hours. Many left due to childcare responsibilities at home or concerns about stigma. A young mother recounted:

*“I’d been waiting all morning, but the nurse said, ‘Come back tomorrow.’ My kid was crying, and I couldn’t go back.”* (IDI-YW09, married, age 21)

Health care workers recognised the pressures of the large number of patients on them, with less time for each patient consultation. As one provider described:

*“We attempt to be helpful, but with this number of patients, we can only get through a few questions and use what we have.”* (IDI-HP01, married, age 30)

#### ***Limited Information Sources***

There was little formal, culturally appropriate FP education. Young wives reported that peers, mothers-in-law, and traditional healers were the main FP advisors.

A 22-year-old explained:

*“A friend said pills cause cancer, so I stopped taking them.”* (FGD-YW02, married, age 22)

Healthcare professionals are concerned about misinformation. They also mentioned that key barriers include time constraints and the absence of culturally appropriate materials for counselling. There were limited formal health education resources available in the Rohingya dialect, as this language has no written format. As one provider explained:

*“We want to teach and educate them, but it’s really difficult because many of them can’t read and even their language has no written form.”* (IDI-HP08, married, age 29)

### **Misperceptions and Stigma**

Women said they heard myths about contraception, and they consider it haram (forbidden). Misinformation and social stigma discouraged FP usage. For instance:

*“My cousin says getting injected causes permanent infertility, so now I’m scared to do anything.”* (IDI-YW08, married, age 19)

Another recalled:

*“My friend says pills give you cancer. I stopped taking them.”* (FGD-YW02, married, age 22)

Fear of judgment deterred unmarried adolescents from seeking SRH information.

Unmarried women were afraid of being judged, so they avoided seeking SRH information. A 16-year-old unmarried girl whispered:

*“Asking about FP would ruin me, and no one will want to marry me.”* (IDI-YW04, married, age 16)

Even married young women faced stigma, with mothers-in-law policing their reproductive choices.

Even young married women were stigmatised, with mothers-in-law scrutinising their reproductive decisions. A 20-year-old participant shared:

*“My mother-in-law checks my belongings. She said, if you’re stopping pregnancy, you’re selfish.”* (IDI-YW06, married, age 20)

Husbands also showed deep distrust of contraceptives, often connecting them to infidelity or marital disobedience. One man stated:

*“If my wife is secretly taking injections behind my back, then she’s not being honest with me. That’s not acceptable.”* (FGD-M05, married, age 33)

A 25-year-old man argued:

*“Condoms are for sex workers. Putting them to use with my wife would humiliate us.”* (IDI-M05, married, age 25)

Providers reported difficulties in countering these fears, especially when misinformation was supported by influential family members or local cultural beliefs. A female provider explained:

*“Some women are told by their mothers-in-law or husbands that injections will harm their health. We try to clarify, but they don’t always believe us.”* (IDI-HP05, married, age 35)

### **Community-Driven Facilitators**

Several community-based facilitators were proposed by the participants. Female health workers, often Rohingya refugees, were highly trusted. Their shared cultural understanding and similar life experiences built trust, especially with young women. A traditional midwife described her approach:

*“I tell stories of mothers who almost died in childbirth. I say, ‘Birth spacing heals your body.’ Women listen to me because I’ve walked in their shoes.”* (IDI-TP01, female, age 50)

A 28-year-old Rohingya volunteer conveyed the message simply:

*“I use simple terms like ‘birth spacing lets mothers get well’ because women listen since I’m one of them.”* (FGD-MG06, female, age 38)

Young women confirmed this trust. A 22-year-old woman noted:

*“She speaks our language, so I feel comfortable asking her anything.”* (IDI-YW09, married, age 21)

Progressive religious leaders reinterpreted FP through Islamic teachings about maternal health, countering conservative discourse. One imam appropriated FP as a mercy for mothers:

*“I like to remind people that caring for your wife is a sacred duty, and FP isn’t wrong, it’s mercy.”* (IDI-CL03, married, age 38)

Female youths and health providers mentioned that when religious leaders endorsed FP in public, the resistance in the community decreased. One provider explained:

*“When the imam discusses FP at the mosque, men listen attentively. It then becomes less controversial.”* (IDI-HP01, married, age 30)

Male participants in the FGD sessions showed greater openness, with one husband admitting:

*“I was against FP, but after the Imam’s address, I agreed for my wife to get injections.” (FGD-MG10, married, age 32)*

Finally, peer networks and youth-oriented services helped fill the gaps. Young women shared how they meet secretly for information and mentioned that WFS provides separate hours for them. An 18-year-old explained:

*“We meet at WFS to discuss FP, and no men are allowed.” (FGD-YW04, married, age 18)*

A young woman shared that her neighbour’s positive experience with contraceptives influenced her own decision:

*“My neighbour also said she takes injections and is fine. She told me everything, so I said I would try it.” (IDI-YW07, married, age 17)*

## 5.5 Discussion

This study explored the multi-layered barriers and facilitators to FP service access among young Rohingya refugees in Cox’s Bazar, Bangladesh. Findings reveal that young Rohingya women’s reproductive autonomy is shaped by the intersection of displacement-related disruptions, entrenched gender hierarchies, sociocultural expectations, and systemic weaknesses in the humanitarian health infrastructure. Firstly, this study underscores the profound influence of sociocultural norms on FP access, where patriarchal decision-making and pronatalist values systematically restrict young Rohingya women’s autonomy in contraception use. Secondly, religious interpretations emerged as a dual-edged sword, with conservative narratives framing FP as religiously impermissible, while progressive leaders recontextualised it as a means to safeguard maternal health. Thirdly, age-specific vulnerabilities - particularly early marriage, stigma, and exclusion from youth-friendly services - left adolescents uniquely marginalised. Fourthly, systemic inefficiencies, including understaffing, reliance on informal networks, and long waiting times at the service centre, exacerbated inequities, reflecting gaps in humanitarian healthcare infrastructure. Fifthly, widespread misinformation and stigma, perpetuated by informal networks and myths, eroded trust in modern contraceptives. Finally, the study identifies community-driven facilitators - such as trusted female health workers, religious advocacy, and peer networks - as critical levers for change, demonstrating the potential of localised, culturally resonant strategies.

Young Rohingya women’s ability to exercise reproductive choice is profoundly constrained by sociocultural norms. In our study, virtually all female participants noted that decisions about family planning were ultimately made by their husbands or elder relatives, reflecting deeply

patriarchal family structures. This is consistent with broader evidence that Rohingya society is extremely male-dominated, where women are expected to obey male authority and cannot voice opinions on matters like birth spacing (6, 11). Surveys in the camps have likewise found that over two-thirds of Rohingya women believe contraception should not be used without the husband's permission, and nearly half feel ashamed or afraid to even discuss family planning with their spouse (18, 19). Such gender inequities are compounded by pronatalist pressures. Many women feel obliged to prove their fertility early and continuously, driven by a cultural preference for large families and male children. Our findings further suggest that pronatalist expectations-valuing large families and early childbearing-serve both cultural and political functions, with community leaders associating population growth with resilience and survival in the face of statelessness. This normalisation of high fertility, combined with gendered power imbalances, entrenches women's reproductive subordination.

Religious beliefs wield a double-edged influence on family planning in the Rohingya camps, acting as both barriers for some and potential enablers for others. Many participants conveyed those conservative Islamic interpretations that, in their community, view contraception as forbidden or as interfering with God's plan. This reflects a broader pattern in the camps whereby religious opposition dampens contraceptive uptake. Prior studies have identified religious beliefs as a significant factor dissuading Rohingya women from using birth control (12). Humanitarian workers have similarly observed that family planning initiatives among the Rohingya have been limited by a conservative religious culture, wherein some Imams preach against contraception (18). Such viewpoints equate FP with sin or a lack of faith, reinforcing the idea that refugees should trust in divine will for the number of children they have. At the same time, religion can be a powerful facilitator if framed differently. Some progressive local religious and community leaders are beginning to recast family planning in terms of Islamic principles of health and compassion, for instance, by emphasising maternal well-being and birth spacing as sanctioned methods of caring for one's family. Importantly, our study demonstrates that such reinterpretations are not merely rhetorical; they can shift community norms when shared in trusted spaces like mosques or community gatherings. Thus, engaging progressive religious leaders offers a culturally anchored strategy for legitimising FP within conservative communities.

Young Rohingya women aged 15-24 face compounded vulnerabilities, including early marriage, limited access to youth-friendly services, and social expectations of rapid fertility. Many participants were married before age 18 and reported being monitored for signs of

pregnancy soon after marriage, findings consistent with Islam et al. (2021), who documented child marriage as both a normative and protective practice in the Rohingya context (12). There is profound stigma attached to unmarried girls seeking contraception, and even married adolescents often lack information or access until after their first child is born. In fact, contraception use before the first pregnancy is exceedingly rare in this population (12). Unmarried adolescents, meanwhile, were routinely excluded from SRH services due to provider biases and cultural taboos. These findings align with global evidence on SRH access in humanitarian contexts, where adolescents often face the greatest gaps in service availability and acceptability (1, 20). Addressing adolescent needs requires not only service adaptations - such as confidential clinic hours - but also broader norm shifts around the acceptability of discussing FP before marriage.

Structural barriers within the health system, including long wait times, limited provider availability, and reliance on informal networks, exacerbated the effects of displacement and reinforced gender-based inequities (21). Cox's Bazar shelters nearly 1.3 million Rohingya refugees in 33 overcrowded camps, where they remain almost entirely dependent on humanitarian aid for basic services. This displacement has disrupted health infrastructure, limiting the availability of contraceptives, trained providers, and youth-friendly outreach. For example, one analysis noted an enormous shortage of FP services in the settlements and inconsistent referral practices between organisations (22). Participants described inadequate counselling due to staff overload, with some providers admitting they could not spend enough time addressing concerns about side effects or myths. The impact is especially acute when structural and cultural barriers intersect: women who need to seek out distant clinics face not only physical hurdles (e.g. lack of transport) but also conservative norms that restrict their mobility outside the home (22). These service delivery gaps reflect both the constraints of operating in humanitarian settings and insufficient investment in tailored, rights-based reproductive care. The repeated need to return to facilities or navigate poorly explained referrals deterred many women from seeking services altogether, especially those facing domestic restrictions or childcare responsibilities.

Misinformation and stigma were pervasive across age and gender groups. Myths about contraceptive-induced infertility or moral decay - often spread through family networks and reinforced by social taboos - contributed to fear and mistrust of modern FP methods. Many women harbour unfounded fears-for example, a common belief is that contraceptive methods (especially permanent ones) will cause lasting harm or infertility. In this study, several

participants cited anecdotes of neighbours who supposedly became sick or barren from using birth control, illustrating how quickly misinformation spreads through informal networks. Such misapprehensions about contraception are not unique to this setting; they have been documented as major barriers among displaced adolescent girls in these camps (12). These findings echo those from, who found that misinformation in refugee settings not only limits uptake but can actively erode prior trust in SRH services (2).

Talking about contraception or sexuality is taboo, particularly for young women. Our study also found that stigma was especially pronounced among unmarried adolescents, who feared social condemnation if seen asking about contraception. This "culture of silence" where reproductive health is shrouded in moral judgment not only deters service-seeking but also perpetuates gender-based shame and ignorance. Addressing this requires more than information provision; it requires deliberate community engagement to shift normative boundaries around what is acceptable to discuss and seek.

Despite these barriers, participants identified several culturally resonant facilitators that enabled FP access. Female community health workers (FCHWs), many of whom were Rohingya themselves, played a critical role in delivering trusted, home-based counselling and navigating male gatekeepers. Consistent with Islam & Habib (2024), our findings affirm that FCHWs provide a bridge between humanitarian systems and community norms. Their cultural fluency, lived experience, and gender make them uniquely positioned to counter myths and build trust. Progressive religious leaders and male champions also helped reduce resistance, particularly when advocating for maternal health. Evidence from elsewhere in the camps supports their impact: women who have interacted with healthcare providers or participated in FP awareness sessions show significantly better knowledge and more favourable attitudes toward contraception (18). Peer networks, especially among young women, served as informal platforms for learning about contraceptives and navigating access barriers. These findings support the potential of community-based and gender-transformative interventions that recognise and mobilise local actors —not as passive recipients but as critical agents of change.

Our findings align with qualitative studies in other refugee contexts, which reveal a similar mix of entrenched sociocultural barriers and modest enabling factors for FP. In African displacement settings (e.g. Nigeria and Uganda), young women commonly cite husband or elder disapproval, stigma around contraception, and practical obstacles like cost or distance as major barriers to FP access (23, 24). Likewise, among Syrian refugees in Lebanon and Jordan, early marriage and family pressures to prove fertility early remain pervasive, while many

young women lack awareness or trust in available free contraceptive services, perceiving cost or clinic mistreatment as deterring factors (25, 26). Afghan refugee communities in Pakistan, Iran and Turkey face a similar interplay of patriarchal norms and access challenges: despite decent knowledge of methods, women often view childbearing as a divine mandate and source of future security, and regard unplanned pregnancies as God's will, which limits contraceptive uptake (27). These beliefs, coupled with language or documentation barriers and experiences of discrimination in host healthcare systems, further impede youth from seeking FP in those settings (28). Notably, across these diverse contexts, studies have identified that supportive family attitudes and youth-friendly services can facilitate greater FP use. When adolescents and young refugee women have trusting relationships with husbands or parents and when clinics offer privacy, respectful care, and free methods, young refugees feel more empowered to use contraception (24, 29). For example, in Thai border camps and Malaysian urban refugee communities, the provision of free contraceptive supplies has reduced financial hurdles, yet uptake still hinges on overcoming myths (such as fears that birth control causes infertility) and on engaging community influencers to endorse FP (27, 29). Overall, the barriers hindering young Rohingya women in Cox's Bazar, from conservative gender norms and religious misconceptions to partner non-approval, mirror those reported in refugee settings from the Middle East to Africa, even as each context presents unique challenges (such as service inaccessibility in Lebanon vs. pronounced pronatalism in the Rohingya camps) and opportunities to support young people's reproductive choices (23, 25).

This study has several limitations. First, the use of purposive and snowball sampling introduces potential selection bias, as participants were not randomly selected and may not fully represent the broader Rohingya refugee community. Second, although we included multiple stakeholder groups across four camps, the participant pool was skewed toward married individuals with minimal formal education; as a result, perspectives of unmarried youth or those from different socio-demographic backgrounds were underrepresented. Third, conducting interviews and discussions within the refugee camp environment, even in private settings, may have influenced participants' willingness to speak openly about sensitive FP issues, and cultural stigma or social desirability bias could have led some to temper their responses. Fourth, not all interviews were audio-recorded (per participant preference), meaning some data relied on detailed notetaking, which may have reduced the richness and accuracy of those accounts; moreover, all conversations were held in the Rohingya dialect and then translated into English, raising the possibility that nuanced meanings were lost in translation. Finally, as a qualitative

study in a specific humanitarian context, our findings are inherently context-bound and not statistically generalizable to other settings or populations. Nonetheless, these limitations do not detract from the study's contribution in providing in-depth insights that can inform culturally tailored FP interventions for displaced communities.

## 5.6 Conclusion

Family planning access for young Rohingya refugees in Cox's Bazar is shaped by a complex interplay of sociocultural, religious, and systemic barriers. Deeply entrenched patriarchal norms and pronatalist expectations, often reinforced by conservative religious interpretations, continue to curtail women's autonomy in contraceptive decision-making. These challenges are intensified for adolescents, many of whom are married early and face stigma along with a dearth of youth-friendly information and services. Health system gaps within the camps, including delays, understaffed clinics, and pervasive misinformation, further erode trust in modern methods. Nevertheless, the findings also illuminate pathways for change: community-driven facilitators such as trusted female health workers, supportive religious leaders, and peer networks are emerging as powerful enablers that can help normalise contraception and dispel myths in this marginalised population.

Translating these insights into action will require coordinated, contextually tailored interventions. Policy and programmatic efforts should prioritise partnering with community gatekeepers, including male heads-of-household, elders, and religious figures, to champion the health and social benefits of birth spacing in culturally resonant terms. Simultaneously, scaling up the recruitment and training of female Rohingya health workers can enhance trust and cultural sensitivity in family planning counselling. Health services must become more youth-friendly and accessible, ensuring that adolescent girls (and boys) can obtain accurate information and contraception without fear or shame. Equally critical is a sustained commitment to dispelling myths through community education and dialogue, while strengthening supply chains and clinic capacity so no woman is turned away due to stock-outs or long waits. Grounding these efforts in the community and humanitarian context of the camps will not only improve contraceptive uptake and reproductive health outcomes but also uphold the dignity and autonomy of Rohingya women and girls even amidst displacement.

## 5.7 References

1. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in

- humanitarian and lower-and-middle-income country settings. *BMC Public Health*. 2020;20(1):666. doi:10.1186/s12889-020-08818-y.
2. Tirado V, Chu J, Hanson C, Ekstrom AM, Kagesten A. Barriers and facilitators for the sexual and reproductive health and rights of young people in refugee contexts globally: a scoping review. *PLoS One*. 2020;15(7):e0236316. doi:10.1371/journal.pone.0236316.
  3. Ivanova O, Rai M, Kemigisha E. A systematic review of sexual and reproductive health knowledge, experiences and access to services among refugee, migrant and displaced girls and young women in Africa. *Int J Environ Res Public Health*. 2018;15(8):1583. doi:10.3390/ijerph15081583.
  4. Mahmud MU, Aktar S, Ahmed S, Islam TT, Paul D, Rubayet S, et al. Findings of an evaluation of a sexual and reproductive health programme in a humanitarian setting for the forcibly displaced Myanmar nationals in Cox's Bazar, Bangladesh. *J Glob Health*. 2024;14:04146. doi:10.7189/jogh.14.04146.
  5. Ahmed R, Aktar B, Farnaz N, Ray P, Awal A, Hassan R, et al. Publisher correction to: challenges and strategies in conducting sexual and reproductive health research among Rohingya refugees in Cox's Bazar, Bangladesh. *Confl Health*. 2020;14(1):88. doi:10.1186/s13031-020-00335-4.
  6. Islam M, Habib SE. "I don't want my marriage to end": a qualitative investigation of the sociocultural factors influencing contraceptive use among married Rohingya women residing in refugee camps in Bangladesh. *Reprod Health*. 2024;21(1):32. doi:10.1186/s12978-024-01763-8.
  7. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugees in Bangladesh: a systematic review. *Women Midwives Midwifery*. 2025;5(2):1–24. doi:10.36749/wmm.5.2.1-24.2025.
  8. UNHCR. Rohingya JRP 2025: humanitarian action [Internet]. 2025 [cited 2025 May 3]. Available from: <https://humanitarianaction.info/plan/1212/article/rohingya-jrp-2025>.
  9. UNICEF. Integrated community and adolescent engagement in humanitarian response [Internet]. 2021 [cited 2025 Jul 1]. Available from: <https://www.unicef.org/media/109926/file/UNICEF-Community-Adolescent-Engagement-In-Humanitarian-Response-Coxs-Bazar-ENG.pdf>.

10. Ahmed I. The Rohingya crisis: eight potential pathways to repatriation [Internet]. 2024 [cited 2025 Jun 4]. Available from: <https://newlinesinstitute.org/state-resilience-fragility/the-rohingya-crisis-eight-potential-pathways-to-repatriation/>.
11. Akter F, Burhan NAS, Ahmad N, Rifa IH. Cultural attitudes of Rohingya men and women on reproductive decision-making. *Int J Acad Res Bus Soc Sci*. 2023;13(16). doi:10.6007/IJARBSS/v13-i16/18731.
12. Islam MM, Khan MN, Rahman MM. Factors affecting child marriage and contraceptive use among Rohingya girls in refugee camps. *Lancet Reg Health West Pac*. 2021;12:100175. doi:10.1016/j.lanwpc.2021.100175.
13. Chynoweth SK, Buscher D, Martin S, Zwi AB. Characteristics and impacts of sexual violence against men and boys in conflict and displacement: a multicountry exploratory study. *J Interpers Violence*. 2022;37(9–10):NP7470–NP501. doi:10.1177/0886260520967132.
14. UNFPA. Adolescent sexual and reproductive health for humanitarian settings [Internet]. Women’s Refugee Commission, Save the Children, UNHCR, UNFPA; 2012 [cited 2023 Oct 12]. Available from: [https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH\\_good\\_practice\\_documentation\\_English\\_FINAL.pdf](https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH_good_practice_documentation_English_FINAL.pdf).
15. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101.
16. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Med Res Methodol*. 2013;13:117. doi:10.1186/1471-2288-13-117.
17. Aibangbee M, Micheal S, Liamputtong P, Pithavadian R, Hossain SZ, Mpofu E, et al. Barriers to sexual and reproductive health and rights of migrant and refugee youth: an exploratory socioecological qualitative analysis. *Youth*. 2024;4(4):1538–66.
18. Abul Kalam Azad M, Zakaria M, Nachrin T, Chandra Das M, Cheng F, Xu J. Family planning knowledge, attitude and practice among Rohingya women living in refugee camps in Bangladesh: a cross-sectional study. *Reprod Health*. 2022;19(1):105. doi:10.1186/s12978-022-01410-0.
19. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ*. 2021;99(3):201–8. doi:10.2471/BLT.20.269779.

20. Aibangbee J, Rana S. Adolescent sexual and reproductive health in displacement: a global scoping review. *Lancet Glob Health*. 2024;12(3):e334–45.
21. Percival V, Richards E, MacLean T, Theobald S. Health systems and gender in post-conflict contexts: building back better? *Confl Health*. 2014;8:1–14.
22. Islam MM, Hossain MA, Yunus MY. Why is the use of contraception so low among the Rohingya displaced population in Bangladesh? *Lancet Reg Health West Pac*. 2021;13:100175.
23. Okorafor KA, Okeibunor J, Oyinlola FF, Ouedraogo L, Tinuola FR. Exploring sexual and reproductive health needs, barriers, and coping strategies of internally displaced women of reproductive ages in north-central Nigeria: a qualitative analysis. *PLoS One*. 2024;19(12):e0309317. doi:10.1371/journal.pone.0309317.
24. Bukenya JN, Ssekamatte T, Komuhendo R, Stillman M. Young people's access to sexual and reproductive health services in Uganda: understanding barriers and facilitators. 2025.
25. Cherri Z, Gil Cuesta J, Rodriguez-Llanes JM, Guha-Sapir D. Early marriage and barriers to contraception among Syrian refugee women in Lebanon: a qualitative study. *Int J Environ Res Public Health*. 2017;14(8):836. doi:10.3390/ijerph14080836.
26. Mourtada R, Melnikas AJ. Syrian refugee women's access to family planning services and modern contraception during overlapping crises in Bekaa, Lebanon. *BMC Womens Health*. 2023;23(1):475. doi:10.1186/s12905-023-02613-8.
27. Ak EY, Tandoğan Ö, Aslan E. The views of Syrian immigrant women on family planning and unplanned pregnancy: a qualitative study. *Int J Public Health*. 2025;70:1607967.
28. Shafiq Y, Muhammad A, Kumar K, Wajid Ali Z, Noor S, Suhag ZH, et al. Toward resilient maternal, neonatal and child health care: a qualitative study involving Afghan refugee women in Pakistan. *Health Serv Insights*. 2025;18:11786329241310733. doi:10.1177/11786329241310733.
29. Asnong C, Fellmeth G, Plugge E, Wai NS, Pimanpanarak M, Paw MK, et al. Adolescents' perceptions and experiences of pregnancy in refugee and migrant communities on the Thailand-Myanmar border: a qualitative study. *Reprod Health*. 2018;15(1):1–13.

## CHAPTER 6: HIV/STI LITERACY AND TESTING (QUANTITATIVE RESEARCH COMPONENT)

### **Article 5: HIV/STI awareness and testing among young Rohingya refugees in Bangladesh: a cross-sectional analysis**

Following the exploration of family planning literacy and contraception use in Chapter 4, this chapter presents the second empirical study focused on HIV/STI awareness and testing among young Rohingya refugee women in Bangladesh. Using data from a cross-sectional survey, the study examines levels of knowledge, testing behaviours, and associated factors influencing access to HIV/STI services. The findings contribute to a deeper understanding of sexual health literacy in humanitarian settings and inform targeted public health interventions. This article has been peer-reviewed and published in the *Sexual Health* journal (1).

#### 6.1 Abstract

**Background:** Young Rohingya women in Bangladesh are undoubtedly vulnerable to HIV/STIs, but little is known about their awareness or testing behaviours. We assessed HIV/STI awareness and identified factors associated with awareness and testing among Rohingya women aged 15-24.

**Methods:** In 2023, we conducted a cross-sectional survey in Cox's Bazar camps, enrolling 686 Rohingya women aged 15-24. Data were collected via interviewer-administered structured questionnaires on HIV/STI awareness, transmission knowledge, and testing history. Multivariable logistic regression identified factors associated with HIV/STI awareness and testing.

**Findings:** Only 12.4% of participants had heard of HIV, and 9.2% of STIs. Correct knowledge of transmission routes and symptoms was limited. Testing uptake was extremely low: 2.6% had ever tested for HIV, and 2.5% for STIs. Literacy, employment outside the home, and recent fieldworker visits were positively associated with awareness (AOR 3.5, 95% CI 2.1–5.8; AOR 2.6, 95% CI 1.1–6.0; AOR 2.4, 95% CI 1.2–4.7). Awareness, in turn, was strongly associated with having ever been tested (AOR 24.8; 95% CI 7.7–79.5).

**Conclusion:** We uncovered alarmingly low levels of HIV/STI awareness and testing among young Rohingya refugee women, which were associated with important social and structural barriers. Our findings underscore the need for context-specific strategies to expand HIV/STI knowledge, access, as well as uptake of HIV/STI testing.

**Keywords:** Rohingya refugees; HIV awareness; STI awareness; STI testing; Sexual and reproductive health; Humanitarian settings; Young women's health; Bangladesh

## 6.2 Introduction

The Rohingya, a stateless Muslim minority from Myanmar, have faced protracted persecution, culminating in a mass exodus to Bangladesh since 2017. Over 1,005,520 now reside in densely populated camps in Cox's Bazar, characterised by restricted mobility and limited access to essential services, including healthcare, education, and economic opportunities (2-5). Within these resource-limited environments, sexual and reproductive health (SRH) challenges, particularly concerning HIV and sexually transmitted infections (STIs), have emerged as critical public health concerns. Young Rohingya women are particularly vulnerable due to sociocultural norms, early marriages, and restricted autonomy over health decisions.

HIV and STIs pose a substantial public health threat, particularly in humanitarian settings where access to healthcare services is often disrupted. Among Rohingya, HIV/AIDS prevalence has surged alarmingly, with confirmed cases rising from 273 in 2018 to 1135 in 2023 (6-10), while COVID-19 diverted resources from STI/HIV programs, exacerbating undiagnosed cases and transmission risks (11). Recent studies indicate that 20-33% of Rohingya women experience STI symptoms such as genital ulcers and painful urination, yet fewer than half seek treatment due to financial constraints and limited awareness (12). Adolescent and young women (aged 15–24) are disproportionately affected: over 50% marry before age 18 (2), 66% lack accurate knowledge of STI/HIV transmission (7), and mobility restrictions further limit access to sexual health services. Despite these risks, data on HIV/STI awareness, knowledge, and testing behaviours within this demographic remain sparse.

Limited existing research underscores low HIV/STI awareness and pervasive misconceptions among displaced populations (2, 7). For instance, Khan et al. (2021) found that a significant proportion of Rohingya women in Bangladesh had limited knowledge about HIV transmission routes and symptoms and also established baseline knowledge deficits (2). And Zakaria (2024) reveals that communication strategies, not socioeconomic factors, drive behavioural change potential (7). No studies to date explore how age-specific vulnerabilities, such as early marriage and restricted mobility, intersect with awareness and testing behaviours among adolescent and young Rohingya women.

To address this gap, we conducted a cross-sectional study to assess HIV/STI awareness, knowledge, and testing behaviours among Rohingya women aged 15-24 years residing in

refugee camps in Cox's Bazar, Bangladesh. We were guided by two specific research questions: (1) What is the current state of HIV/STI awareness, knowledge of transmission and symptoms, and testing behaviour among Rohingya women aged 15-24 years in Cox's Bazar camps? (2) Which individual and community-level factors are associated with HIV/STI awareness and testing in this population?

### 6.3 Methods and materials

#### **Study Design**

This cross-sectional quantitative study was conducted in the refugee camps of Cox's Bazar, Bangladesh, between March 14 and April 10, 2023. The study followed Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies (13).

#### **Study Population and Setting**

The study targeted adolescent girls and young Rohingya women (young Rohingya women hereafter) aged 15–24 years, in line with the UN's definition of young people (14). At the time of data collection, more than 968,981 Rohingya refugees resided in 34 camps across Cox's Bazar, organised into 208 blocks, each with an average of 892 households (2, 3).

#### **Sample size and sampling technique**

Participants were recruited using multistage random sampling. Eight camps were randomly selected from the 34 camps in Cox's Bazar. Within each selected camp, 86 households were targeted (totalling 686 households). Given the absence of an official household registry or unique identification numbers, the following systematic selection method was employed. A *Majhi* (community leader) in each camp was identified, and their residence served as a reference point (15). Households were selected by walking in four different directions from the *Majhi's* residence, stopping at every tenth step. Within each chosen household, one eligible young woman (aged 15–24 years) was invited to participate. If more than one eligible woman was present, the eldest was selected.

#### **Data Collection and Measures**

Data were collected through a face-to-face, interviewer-administered survey using a structured paper-and-pencil questionnaire. The survey gathered information on HIV/STI awareness, knowledge of transmission routes, attitudes toward testing, history of STI symptoms, engagement with healthcare services, and sociodemographic characteristics. The survey

instrument was developed based on the Demographic Health Survey, literature review, and the Adolescent Sexual and Reproductive Health Toolkit for humanitarian contexts (16-18). Before implementation, the questionnaire was pretested with 20 young Rohingya women. Revisions were made for cultural and linguistic appropriateness.

To reduce social desirability and recall bias, all interviews were conducted by trained female data collectors from the local community, in private settings, and interviewers emphasised confidentiality and that responses would not affect access to services. Data were entered into REDCap, a secure electronic data capture platform (19).

The primary outcome variables were HIV/STI awareness (defined as having heard about HIV or STIs) and testing (defined as ever having been tested for HIV or STIs) (yes/no). Independent variables included socio-demographic factors e.g., age in years, women's education (literate vs illiterate), women's occupation (household work vs work outside of the home), husband's education (literate vs illiterate), husband's occupation (employed vs unemployed), marital status (married vs unmarried or single), being aware about FP services (yes vs no), and fieldworker visits (yes vs no). Knowledge about how HIV/STIs are transmitted and about STI symptoms was assessed through a series of questions, with responses categorised as correct knowledge or misconceptions (including yes vs no/don't know or no response). Sources of information about HIV and STIs were self-reported, and the list included health workers, media, television, radio, religious leaders, family members, and healthcare workers in the last six months (yes vs no).

### **Ethical considerations**

Ethical approval for the study was obtained from the National Research Ethics Committee under the Bangladesh Medical Research Council (registration number 52324012023), and all procedures adhered to the Declaration of Helsinki. Participants provided written informed consent; for participants under 18 years, written assent was obtained along with parental/guardian consent. For illiterate participants, the consent form was read aloud, and a thumbprint was obtained. Participants were informed of their right to decline or withdraw at any time without any consequences. Confidentiality and privacy were maintained throughout the study. Participants were provided with information on available camp-based SRH services and encouraged to seek care; however, no formal referral letter nor facilitated linkage was provided as part of the study.

## Data Analysis

Descriptive statistics, including means, standard deviations, and frequency distributions, were used to summarise the study variables. Statistical significance was determined at  $p < 0.05$ . To identify factors associated with HIV/STI awareness and testing, we used logistic regression methods. A forward stepwise model-building approach was used, incorporating covariates based on theoretical relevance and statistical significance. The final model included women's education, women's occupation, husband's education, husband's occupation, marital status, know about family planning facilities, fieldworker visits, and exposure to HIV/STI information. We report unadjusted and adjusted odds ratios (ORs and AORs, respectively) with the associated 95% confidence intervals (CIs). All analyses were performed using Stata Corp. (2015). Stata Statistical Software: Release 14. College Station, TX: StataCorp LLC.

### 6.4 Results

We enrolled 686 young Rohingya refugee women aged 15-24 years. Table 11 presents their socio-demographic characteristics, HIV/STI awareness and testing status. The mean age of the women was 20.7 years (SD=2.9), while the mean age of their husbands was 26.1 years (SD=4.6). The majority were married (541, 78.9%), while the rest were unmarried or single.

Regarding literacy, 298 (43.4%) women were literate, whereas 388 (56.6%) were illiterate. In terms of occupation, 658 (95.9%) women were engaged in household work, with only 28 (4.1%) working outside the household. Among their husbands, 278 (51.4%) were literate, and the rest were not. The majority of husbands were employed (459, 84.8%), while the rest (82, 15.2%) were not.

HIV/STI awareness was generally low among participants (Table 11). Only 85 (12.4%) had heard about HIV, and 63 (9.2%) had heard about STIs. Exposure to HIV/STI-related information in the past six months was reported by 62 (9.04%) women.

HIV/STI testing rates were also low. Only 18 (2.6%) women had ever been tested for HIV, and 17 (2.5%) had ever been tested for STIs (23 were tested for either HIV or STIs, and 6 were tested for both).

**Table 11: Socio-demographic characteristics and HIV/STI awareness and testing among Rohingya refugee women aged 15-24 (n=686)**

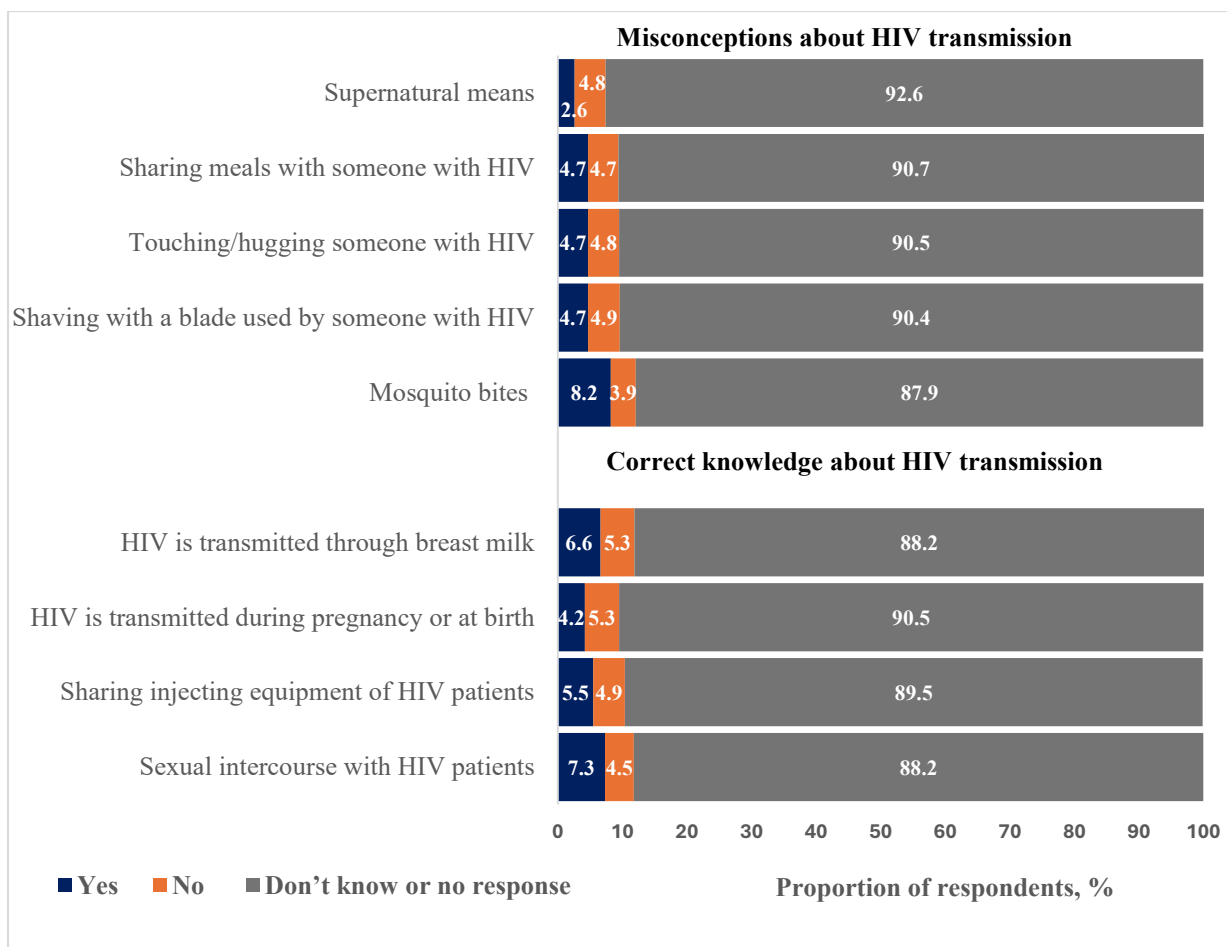
Characteristics	N	Percentage
<b>Total</b>	686	100%
<b>Women's Age (mean (SD))</b>	686	20.66 (2.93)
<b>Husband's Age (mean (SD))</b>	541	26.1 (4.6)
<b>Marital status</b>		
Married	541	78.9%
Unmarried/single	145	21.1%
<b>Women's Education</b>		
Literate	298	43.4%
Illiterate	388	56.6%
<b>Women's Occupation</b>		
Household work	658	95.9%
Work outside of the home	28	4.1%
<b>Husband's Education</b>		
Literate	278	51.4%
Illiterate	263	48.6%
<b>Husband's Occupation</b>		
Unemployed	82	15.2%
Employed	459	84.8%
<b>HIV/STI Awareness</b>		
Heard about HIV	85	12.4%
Heard about STI	63	9.2%
Exposure to HIV/STI information in last 6 months	62	9.04%
<b>HIV/STI Testing</b>		
Ever tested for HIV	18	2.6%
Ever tested for STIs	17	2.5%

Figure 7 illustrates the distribution of correct knowledge and misconceptions about HIV among young Rohingya refugee women aged 15–24 years (n = 686). Correct knowledge of HIV transmission modes was as follows: 50 (7.3%) women correctly identified sexual intercourse with HIV individuals as a mode of transmission, 38 (5.5%) recognised sharing injecting

equipment as a risk factor, 29 (4.2%) acknowledged transmission during pregnancy or birth, and 45 (6.6%) identified transmission through breast milk.

Misconceptions about HIV transmission were common. A total of 56 (8.2%) women incorrectly believed that mosquito bites could spread HIV, 32 (4.7%) thought shaving with a used blade from an HIV patient could transmit the virus, 32 (4.7%) believed touching or hugging an HIV patient posed a risk, 32 (4.7%) thought sharing meals could spread HIV, and 18 (2.6%) believed in supernatural means of transmission. A significant proportion responded with "don't know/no response" across all items assessing HIV transmission knowledge (range: 87.9%-92.6%).

Knowledge of STI symptoms was similarly low. Among the participants, 64 (9.3%) identified fever on and off as a symptom, 22 (3.2%) recognised swelling in the groin, 68 (9.9%) acknowledged lower abdominal pain, 44 (6.4%) mentioned vaginal discharge, 18 (2.6%) identified genital ulcers, 62 (9.0%) recognized genital itching, and 56 (8.2%) identified painful urination as an STI symptom. Approximately 90.0% of respondents answered "don't know/no response" to items assessing STI symptoms.



**Figure 7: Knowledge and misconceptions about HIV among Rohingya refugees (n=686)**

Table 12 presents factors associated with HIV/STI awareness. In univariate analysis, literate women (77 [19.9%] of 388) had significantly higher odds of HIV/STI awareness compared to illiterate women (20 [6.7%] of 298) (AOR = 3.44; 95% CI: 2.05–5.78). Similarly, women working outside of the home (8 [28.6%] of 28) were more likely to be aware of HIV/STI than those engaged in household work (89 [13.5%] of 658) (AOR = 2.56; 95% CI: 1.09–5.99). In addition, women who reported knowledge of FP facilities (92 [17.2%] of 534) had higher odds of HIV/STI awareness compared to those who did not (5 [3.3%] of 152) (AOR = 6.12; 95% CI: 2.44–15.35). Furthermore, fieldworker visits related to SRH were associated with higher HIV/STI awareness; 47 (24.5%) of 192 women who received a visit were aware, compared to 49 (9.9%) of 492 women who did not (AOR=2.93; 95% CI: 1.88–4.56). In contrast, husband’s education (AOR=1.32; 95% CI: 0.82–2.12), husband’s occupation (AOR=1.48; 95% CI: 0.91–2.41), and marital status (AOR=1.31; 95% CI: 0.75–2.29) showed no significant associations with awareness in univariate analyses.

In multivariate regression analysis, literacy (AOR= 3.49; 95% CI: 1.73–7.06), working outside the home (AOR = 2.70; 95% CI: 1.07–6.84), and receipt of fieldworker visits (AOR = 2.41; 95% CI: 1.24–4.67) remained significantly associated with HIV/STI awareness. The knowledge of FP facilities (AOR = 2.48; 95% CI: 0.89–6.87) was no longer significantly associated with this outcome of interest.

**Table 12: Determinants of HIV/STI awareness among Rohingya refugees (n=686)**

Variable	N	HIV/STI Awareness	Univariate model	Multivariate model
<b>Women’s Education</b>				
Illiterate	298	20 (6.7%)	1.00	1.00
Literate	388	77 (19.9%)	<b>3.44 (2.05–5.78)</b>	<b>3.49 (1.73–7.06)</b>
<b>Women’s Occupation</b>				
Household work	658	89 (13.5%)	1.00	1.00
Work outside of the home	28	8 (28.6%)	<b>2.56 (1.09–5.99)</b>	<b>2.70(1.07-6.84)</b>
<b>Husband’s Education</b>				
Illiterate	268	35 (13.1%)		
Literate	278	46 (16.6%)	1.32 (0.82–2.12)	
<b>Husband’s Occupation</b>				
Unemployed	225	25 (11.1%)	1.00	
Employed	461	72 (15.6%)	1.48 (0.91–2.41)	
Unmarried	145	17 (11.7%)		
<b>Marital Status</b>				
Unmarried	145	17 (11.7%)	1.00	
Married	541	80 (14.1%)	1.31 (0.75–2.29)	
<b>Knowledge of FP Facility</b>				
No	152	5 (3.3%)	1.00	1.00
Yes	534	92 (17.3%)	<b>6.12(2.44-15.35)</b>	2.48 (0.89–6.87)
<b>Fieldworker Visit (SRH)</b>				
No	492	49 (9.9%)	1.00	1.00
Yes	192	47 (24.5%)	<b>2.93 (1.88–4.56)</b>	<b>2.41 (1.24–4.67)</b>

Table 13 presents the determinants of HIV/STI testing. In univariate analysis, literate women were considerably more likely to have been tested for HIV/STI compared to illiterate women; 26 (6.7%) of 388 literate women had been tested versus 3 (1.0%) of 298 illiterate women, yielding AOR of 7.06 (95% CI: 2.11–23.58). For husbands' education, 16 (5.8%) of 277 women with literate husbands had been tested compared to 12 (4.55%) of 264 women with illiterate husbands (OR = 1.85; 95% CI: 0.87–3.92). In terms of husband's occupation, 27 (5.9%) of 459 women with employed husbands had been tested compared to only 1 (1.2%) of 82 with unemployed husbands (OR = 6.94; 95% CI: 1.63–29.47). Marital status also showed a significant univariate association, with 28 (5.2%) of 541 married women having been tested relative to 1 (0.7%) of 145 unmarried women (OR = 7.86; 95% CI: 1.06–58.35). Fieldworker visits (AOR=3.12; 95% CI: 1.46–6.70), HIV/STI awareness (AOR=38.4; 95% CI: 14.20–103.81), and recent exposure to HIV/STI information (AOR=11.84; 95% CI: 5.40–25.99) were also associated with testing. The large adjusted odds ratio for the association between HIV/STI awareness and having ever been tested (AOR = 24.78) should be interpreted cautiously because the absolute number of participants who reported having been tested was small (n=29). Small event counts inflate sampling variability and therefore widen confidence intervals.

In multivariate analysis (Table 13), only women's literacy AOR=5.34; 95% CI: 1.25–26.91 and HIV/STI awareness (AOR=24.78; 95% CI: 7.73–79.46) remained significantly associated with testing. Associations with husband's occupation (AOR=4.00; 95% CI: 0.41–38.65), marital status (AOR=2.23; 95% CI: 0.11–44.41), fieldworker visits (AOR=1.11; 95% CI: 0.46–2.74), and recent HIV/STI information exposure (AOR=1.03; 95% CI: 0.40–2.96) were not significant after adjustment.

**Table 13: Determinants of HIV/STI testing among Rohingya refugees (n=686)**

Variable	N	HIV/STI Testing	Univariate model	Multivariate model
<b>Women's Education</b>				
Illiterate	298	3(1.0%)	1.00	1.00
Literate	388	26(6.7%)	<b>7.06 (2.11-23.58)</b>	<b>5.34(1.25-26.91)</b>
<b>Husband's Education</b>				
Illiterate	264	12(4.6%)	1.00	
Literate	277	16(5.8%)	1.85(0.87-3.92)	

<b>Husband's Occupation</b>				
Unemployed	82	1(1.2%)	1.00	1.00
Employed	459	27(5.9%)	<b>6.94 (1.63-29.47)</b>	4.00(.41-38.65)
<b>Marital Status</b>				
Unmarried	145	1(0.7%)		
Married	541	28(5.2%)	<b>7.86(1.06-58.35)</b>	2.23(.11-44.41)
<b>Fieldworker Visit (SRH)</b>				
No	492	13(2.6%)	1.00	1.00
Yes	192	15(7.8%)	<b>3.12 (1.46-6.70)</b>	1.11(0.46-2.74)
<b>HIV/STI Awareness</b>				
Not Aware	589	5(0.9%)		
Aware	97	24(24.7%)	<b>38.4(14.20-103.81)</b>	<b>24.78(7.73-79.46)</b>
<b>HIV/STI Exposure</b>				
No	624	15(2.4%)	1.00	1.00
Yes	62	14(22.6%)	<b>11.84 (5.40-25.99)</b>	1.03(0.40-2.96)

## 6.5 Discussion

This study revealed several key findings regarding HIV/STI awareness, knowledge, and testing among young Rohingya women residing in refugee camps in Bangladesh. Firstly, the findings reveal a very low level of awareness of HIV/STIs among young Rohingya refugee women, with only a small proportion demonstrating correct knowledge about HIV transmission and STI symptoms. Secondly, misconceptions about HIV and STIs are very common. Thirdly, access to sources of HIV/STI-related information is limited, with particularly low exposure to awareness-raising programs and fieldworker visits. Fourthly, we observed extremely low HIV/STI testing rates. Fifthly, socioeconomic and outreach factors, such as higher education, employment outside the home, and exposure to fieldworker visits, emerged as key determinants of HIV/STI awareness and were significantly associated with HIV/STI testing. Finally, we found a strong association between HIV/STI awareness and testing.

Firstly, the findings reveal a very low level of awareness of HIV/STIs among young Rohingya refugee women, with only a small proportion demonstrating correct knowledge about HIV

transmission and STI symptoms. Our findings reveal that fewer than one in eight participants had ever heard of HIV, and even fewer could identify common modes of HIV transmission, such as sexual contact, sharing injecting equipment, or vertical transmission. Alarming, the majority responded with "don't know", which indicated a near-complete absence of sexual health literacy in this community. Taken together, these patterns are more consistent with a structural "information vacuum" than with a landscape of firmly held false beliefs. This profile contrasts with Bangladeshi women in the host population, who typically report substantially higher awareness in national surveys, and aligns with evidence that displacement disrupts schooling and information flows for adolescent and young girls (2, 7). The data suggest that young Rohingya women have virtually no exposure to sexual health education. These deficits likely result from disrupted formal education, especially impacting young women, deep-rooted cultural taboos limiting open discussion, reliance on informal and inaccurate sources, and inadequate SRH education programs within refugee camps. Consequently, effective programming must begin with foundational literacy before expecting behaviour change.

Secondly, misconceptions about HIV and STIs were very common among the participants. A significant proportion of women believed in incorrect modes of HIV transmission, such as through mosquito bites, shaving with a used blade, touching or hugging an HIV patient, sharing meals, and supernatural means. Such misinformation can fuel stigma and discourage testing (20). In the context of Uganda's refugee youths, HIV has even been perceived as an "outsider's disease," with reported fear and shame as barriers to testing (20). However, in our sample, most women answered "don't know" rather than firmly endorsing a specific myth or barrier, implying that ignorance dominates more than deep-seated beliefs. In other words, the issue seems to be systemic knowledge gaps rather than local myths. The pervasive "don't know" responses reflect exclusion from formal education and health communication, rather than cultural narratives. Educational programs in camps are typically informal, lacking comprehensive SRH curricula, and refugees have restricted access to external information. Camp-based health programs often face resource limitations, inconsistent coverage, and inadequate outreach, especially toward adolescent girls and young women (21, 22). Similar barriers observed in other refugee contexts highlight the need for targeted, comprehensive SRH education interventions to improve health literacy and address misinformation (20). A practical implication is to phase messaging: first establish core facts (what HIV/STIs are; how transmission does and does not occur), then address a short list of locally salient myths to avoid cognitive overload.

Thirdly, access to sources of HIV/STI-related information was limited, with only a small percentage of women reporting exposure to HIV/STI information in the past six months. This six-month window is important as it reflects recent recall and serves as an indicator of the visibility and effectiveness of ongoing SRH outreach within the camps. Despite years of humanitarian presence and SRH being a stated priority, our findings suggest that current information dissemination may be insufficient. Notably, we found that women visited by an SRH fieldworker had higher awareness, highlighting the impact of active community engagement. In Uganda and other similar refugee settings, structured peer education and community-based campaigns have effectively increased HIV/STI knowledge and health service use (20, 23, 24). The limited exposure observed in our study suggests that existing SRH initiatives are either inconsistently implemented or fail to reach marginalised groups, particularly young women restricted to the home by gender norms. This gap reflects a missed opportunity, as community-based interventions—such as peer outreach, women’s groups, and mobile clinics—have demonstrated success in similar settings (2). The findings highlight an urgent need for inclusive, sustained, and systematically delivered SRH education to ensure equitable access to essential health information among displaced populations (22).

Fourthly, we observed extremely low HIV/STI testing rates among the participants. This implies weak linkage between awareness opportunities and service access, with confidentiality, mobility, and stigma likely acting as friction points. In our study, only a small fraction of women had ever been tested for HIV or another STI, a figure far below rates seen in other contexts. For example, one study reported that over half of youth had been tested for HIV in a well-resourced African refugee settlement (20). This low testing rate is concerning, as it indicates that many women may be unaware of their HIV/STI status and may not be receiving appropriate treatment and care. It echoes reviews that identify inadequate testing as a common barrier in refugee health (24). Our results suggest that both knowledge deficits and service shortfalls contribute to this gap. Evidence from the Zaatari camp in Jordan suggests that bringing services closer to women (e.g., female-led mobile clinics, opt-out offers embedded in routine visits) can increase uptake (25).

Fifthly, the study identified several key determinants of HIV/STI awareness and testing. Higher education, employment outside the home, and exposure to fieldworker visits emerged as significant factors associated with both awareness and testing. These variables operate as proxies for social exposure and individual agency: literacy improves the ability to access, interpret, and act on health information; employment expands social contacts and routine

interactions with service providers; and fieldworker home visits provide tailored, context-specific entry points to care. These findings echo other reports that education is a critical social determinant of health, and they align with Khan et al.'s finding that educated Rohingya women had significantly better HIV knowledge (2). Similarly, studies of refugee youth in Uganda emphasise that community outreach significantly boosts testing uptake (20). These findings suggest that improving educational opportunities, economic empowerment, and community outreach can have a positive impact on HIV/STI awareness and testing rates among young Rohingya women (2, 7). For example, UNHCR describes how female-led mobile clinics and home-based testing in camps (such as Jordan's Zaatari settlement) dramatically improved women's access to HIV screening (25). Such approaches, bringing services to women and respecting cultural norms, can help surmount gender and mobility restrictions.

Finally, we emphasise that knowledge without support is not enough. Although awareness strongly raised testing odds, low testing persisted. The effect of fieldworker visits diminished when controlling for other factors, suggesting that outreach must be coupled with accessible, confidential, and stigma-free services. Knowledge alone does not translate into action when individuals face structural and socio-cultural barriers, such as lack of privacy, fear of judgment, gender-based mobility restrictions, and limited availability of youth-friendly services (26, 27). Behavioural science literature supports this gap between knowledge and action, emphasising that intention does not always lead to behaviour unless enabling environments are in place (28). Similarly, the HIV prevention cascade underscores that motivation (awareness) must be matched by opportunity (access) to produce uptake (20). Therefore, effective interventions must integrate education with tangible service delivery, addressing both informational and structural barriers to ensure meaningful engagement with testing services.

Our finding of low HIV/STI awareness is in agreement with prior studies of displaced populations, where fragmented healthcare systems and cultural stigma restrict SRH education (2, 7). Notably, misconceptions were less prevalent than in other refugee contexts (e.g., sub-Saharan Africa), where supernatural beliefs often dominate HIV narratives (29). Instead, the Rohingya's knowledge gaps reflect systemic exclusion from formal education and targeted health campaigns, exacerbated by their protracted displacement. The strong association we found between literacy and HIV outcomes mirrors global evidence that education is a critical social determinant of health (17, 18, 30). This reinforces the value of cross-sectoral strategies that link education support for young women with SRH programming - approach increasingly recommended in fragile settings.

The findings of this study have important public health implications. First, there is an urgent need to expand sexual health education in these camps. Community-driven initiatives, for example, peer education or integrated women's health sessions, should be strengthened to convey accurate HIV/STI information. Education should start with essentials (what HIV/STIs are; accurate transmission routes) and then selectively debunk the few myths we observed, using simple visuals in Rohingya-language materials. Second, education efforts must be coupled with accessible services. Programs should ensure confidential, convenient testing (for example, through women-only clinics or mobile outreach) and use messaging that explicitly dispels the most common myths we identified (e.g. clarifying that HIV is not transmitted by mosquitoes or casual contact). These strategies align with international guidelines on improving refugee health. By prioritising both knowledge and access in tandem, humanitarian actors can begin to address the critical gaps we have documented.

### **Limitations and Strengths**

This research has several important limitations. Data were self-reported, so responses on sensitive topics may be influenced by social desirability and/or recall bias. Importantly, as this was a cross-sectional survey, we cannot infer causality of associations observed. Despite these limitations, our methods bolster confidence in the findings. We used multistage random sampling (following STROBE guidance) to enrol a large, representative sample (n=686) of this marginalised population. By focusing specifically on Rohingya adolescent girls and young women, we provide valuable insights for humanitarian programs. However, our results may not be fully generalisable to all Rohingya settlements or host-community populations; longitudinal studies covering the Bhasan Char area would broaden external validity. Future research should consider longitudinal designs to assess the impact of targeted health interventions over time and explore additional factors (such as intra-household decision-making or health system characteristics) that may influence HIV/STI testing in refugee settings.

### **6.6 Conclusion**

This study found substantial gaps in HIV/STI awareness and testing among adolescent and young Rohingya women in Cox's Bazar. Most participants lacked basic knowledge about HIV and STI transmission routes or symptoms, and testing uptake was minimal. Factors such as literacy, employment outside the home, and recent exposure to fieldworkers were associated with higher awareness, while awareness itself was strongly associated with having ever been tested. However, the majority of women who were aware had still not been tested, suggesting

that while awareness may be an important enabling factor, it does not, on its own, lead to uptake of testing. This indicates the likely presence of other potential barriers which warrant further research, such as logistical constraints, limited-service access, concerns about confidentiality, stigma, or mistrust of healthcare providers, that were beyond the scope of this study but may influence testing behaviours.

Efforts to improve HIV/STI outcomes in this context should therefore consider not only awareness-building, but also the broader gendered social norms, trust in service providers, and structural conditions that shape HIV/STI health-seeking behaviours in humanitarian contexts, where these factors likely interact with individual knowledge to influence outcomes. While the present study does not assess interventions directly, it underscores the need for more comprehensive, context-sensitive approaches to SRH programming, such as community-based peer education and women-focused outreach sessions that deliver age-appropriate HIV/STI information, and integrating confidential, female-friendly testing (for example, mobile and home-based testing like self-collection kits) with existing family-planning and maternal health services to reduce the access and privacy barriers. Future research should rigorously examine these factors and integrate qualitative methods to evaluate how targeted outreach, improved service delivery models, unpack the cultural and structural mechanisms, and community engagement may contribute to increasing testing uptake. Our results provide an initial evidence base for such inquiry.

### **Disclosure of interest statement**

**Data availability:** The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions, as they contain information that could compromise the confidentiality of research participants.

**Competing interests:** The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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## 6.7 References

1. Hossain MA, Zablotska-Manos I. HIV/STI awareness and testing among young Rohingya refugees in Bangladesh: a cross-sectional analysis. *Sex Health*. 2025;22(6). doi:10.1071/SH25093.
2. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open*. 2021;11(10):e047516. doi:10.1136/bmjopen-2020-047516.
3. UNHCR. Situation refugee response in Bangladesh [Internet]. Geneva: UNHCR; 2024 [cited 2025 Jan 28]. Available from: <https://data.unhcr.org/en/country/bgd>.
4. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugees in Bangladesh: a systematic review. *Women Midwives Midwifery*. 2025;5(2):1–24. doi:10.36749/wmm.5.2.1-24.2025.
5. UNHCR. Rohingya JRP 2025: humanitarian action [Internet]. 2025 [cited 2025 May 3]. Available from: <https://humanitarianaction.info/plan/1212/article/rohingya-jrp-2025>.
6. Shuvo M. Rohingyas highly exposed to HIV. *The Daily Star*. 2023 Dec 1.
7. Zakaria M. Exploring STI/HIV knowledge and effect of communication activities among Rohingya refugee women: a camp-based cross-sectional study in Bangladesh. *J Psychosex Health*. 2024;6(1):55–65.
8. Hossain MM, Sultana A, Mazumder H, Munzur EM. Sexually transmitted infections among Rohingya refugees in Bangladesh. *Lancet HIV*. 2018;5(7):e342. doi:10.1016/S2352-3018(18)30140-1.
9. Hsan K, Griffiths MD, Gozal D, Rahman MA. HIV infection in Rohingya refugees in Bangladesh. *Lancet HIV*. 2019;6(7):e419. doi:10.1016/S2352-3018(19)30156-0.
10. Aziz A. AIDS cases increasing in Cox’s Bazar, including Rohingya camps. *The Dhaka Tribune*. 2022 Aug 1.
11. Hossain MA, Zablotska-Manos I. The changing dynamics of HIV/AIDS during the COVID-19 pandemic in the Rohingya refugee camps in Bangladesh – a call for action. *Glob Biosecurity*. 2022;4(1). doi:10.31646/gbio.135.
12. Mou MMS, Khan MA, Jahan N, Bulbul A, Rahman H, Ferdaus F, et al. Breaking barriers: addressing STI healthcare access challenges among Rohingya refugees in Bangladesh. *IAHS Med J*. 2024;7(1):32–4.
13. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)

- statement: guidelines for reporting observational studies. *Lancet*. 2007;370(9596):1453–7. doi:10.1016/S0140-6736(07)61602-X.
14. UNFPA. Adolescent sexual and reproductive health for humanitarian settings [Internet]. Women’s Refugee Commission, Save the Children, UNHCR, UNFPA; 2012 [cited 2023 Oct 12]. Available from: [https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH\\_good\\_practice\\_documentation\\_English\\_FINAL.pdf](https://www.unfpa.org/sites/default/files/resource-pdf/AAASRH_good_practice_documentation_English_FINAL.pdf).
  15. Ahmed R, Aktar B, Farnaz N, Ray P, Awal A, Hassan R, et al. Challenges and strategies in conducting sexual and reproductive health research among Rohingya refugees in Cox's Bazar, Bangladesh. *Confl Health*. 2020;14(1):83. doi:10.1186/s13031-020-00329-2.
  16. UNFPA. Adolescent sexual and reproductive health toolkit for humanitarian settings: a companion to the inter-agency field manual on reproductive health in humanitarian settings [Internet]. 2009 [cited 2024 Apr 18]. Available from: [https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA\\_ASRHtoolkit\\_english.pdf](https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA_ASRHtoolkit_english.pdf).
  17. Ministry of Health and Sports (MoHS). Myanmar demographic and health survey 2015–16. Nay Pyi Taw: MoHS/Myanmar and ICF; 2017.
  18. National Institute of Population Research and Training (NIPORT). Bangladesh demographic and health survey 2014. Dhaka: NIPORT, Mitra and Associates, and ICF International; 2016.
  19. Patridge EF, Bardyn TP. Research electronic data capture (REDCap). *J Med Libr Assoc*. 2018;106(1):142.
  20. Logie CH, Okumu M, Loutet M, Coelho M, McAlpine A, MacKenzie F, et al. Contextualizing HIV testing experiences within the HIV prevention cascade: qualitative insights from refugee youth in Bidi Bidi refugee settlement, Uganda. *BMC Public Health*. 2024;24(1):2599. doi:10.1186/s12889-024-20135-2.
  21. Bogale B, Scambler S, Mohd Khairuddin AN, Gallagher JE. Health system strengthening in fragile and conflict-affected states: a review of systematic reviews. *PLoS One*. 2024;19(6):e0305234. doi:10.1371/journal.pone.0305234.
  22. Vasylyeva TI, Horyniak DS, Bojorquez I, Pham MD. Left behind on the path to 90-90-90: understanding and responding to HIV among displaced people. *J Int AIDS Soc*. 2022;25(11):e26031. doi:10.1002/jia2.26031.

23. Logie CH, Okumu M, Kibuuka Musoke D, Hakiza R, Mwima S, Kyambadde P, et al. Intersecting stigma and HIV testing practices among urban refugee adolescents and youth in Kampala, Uganda: qualitative findings. *J Int AIDS Soc.* 2021;24(3):e25674. doi:10.1002/jia2.25674.
24. Ullah AA. Displacement and disease: HIV risks and healthcare gaps among refugee populations. *Venereology.* 2025;4(2):7. doi:10.3390/venereology4020007.
25. UNHCR. Zaatari camp factsheet [Internet]. 2022 [cited 2025 Sep 18]. Available from: <https://data.unhcr.org/en/documents/details/109581>.
26. Bedingar E, Ebengho S, Paningar F, Bedingar N, Mbaidoum E, Ngaradoum N, et al. Bridging the gap: enhancing HIV care pathways for young key populations in Chad. *PLoS Glob Public Health.* 2025;5(4):e0003790. doi:10.1371/journal.pgph.0003790.
27. Newton-Levinson A, Leichliter J, Chandra-Mouli V. STI services for adolescents and youth in low and middle income countries: perceived and experienced barriers to accessing care. *J Adolesc Health.* 2017;59:S7–16. doi:10.1016/j.jadohealth.2016.10.024.
28. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci.* 2011;6:42. doi:10.1186/1748-5908-6-42.
29. Koschollek C, Kuehne A, Mullerschön J, Amoah S, Batemona-Abeke H, Dela Bursi T, et al. Knowledge, information needs and behavior regarding HIV and sexually transmitted infections among migrants from sub-Saharan Africa living in Germany: results of a participatory health research survey. *PLoS One.* 2020;15(1):e0227178. doi:10.1371/journal.pone.0227178.
30. The Lancet Public Health. Education: a neglected social determinant of health. *Lancet Public Health.* 2020;5(7):e361. doi:10.1016/S2468-2667(20)30144-4.

## CHAPTER 7: QUALITATIVE EXPLORATION OF BARRIERS AND FACILITATORS TO HIV/STI

### Article 6: “They’ll Think You’re Infected”: Perceived Barriers and Facilitators of HIV/STI Awareness and Testing Among Young Rohingya Refugee Women in Bangladesh

This chapter extends the quantitative findings presented in Chapter 6, which focused on HIV/STI awareness and testing among young Rohingya refugee women. Through qualitative methods, this study explores the barriers and facilitators to HIV/STI-related services, drawing on the lived experiences and perspectives of young Rohingya women and men, community leaders, and healthcare providers. Aligned with Objective 3 of the thesis, this chapter provides a deeper understanding of the challenges and enablers surrounding HIV/STI service access in humanitarian settings. It was peer reviewed and published in Sexual Health journal.

#### 7.1 Abstract

**Introduction:** Young Rohingya refugee women in Cox’s Bazar have limited knowledge of the human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs), and low testing rates. This study explores sociocultural and structural barriers and facilitators, including the cross-cutting issue of information challenges, affecting their HIV/STI literacy and testing. We present perspectives of young women, men, community leaders, and healthcare providers.

**Methods:** We used purposive sampling to select young Rohingya women, men, community leaders and healthcare providers and conducted a total of 40 in-depth interviews and five focus group discussions. The data were thematically analysed using a socio-ecological framework.

**Results:** Knowledge about HIV/STIs was limited, and misconceptions were common. Access to information and testing was restricted by social and gender norms, as well as structural challenges such as strict health policies for refugees, the limited of youth-friendly services, and fragmented referral systems. Participants also noted the lack of male-friendly HIV/STI services, which matters for women because untreated male partners increase the risk of reinfection and undermine the effectiveness of women-focused interventions. Mistrust in the healthcare system and poor communication also contributed to lower testing rates. However, participants identified several community-based facilitators that helped raise awareness and increase testing, including home-based HIV/STI education delivered by female health workers,

peer testimonies and support, messages from religious leaders, and dedicated youth-friendly spaces.

**Discussion:** These findings underscore the value of culturally tailored, community-led approaches that address gender norms and systemic barriers. Female-led education, peer support, and positive faith-based messaging offer promising avenues to improve HIV/STI awareness and testing among young Rohingya refugee women.

**Keywords:** Rohingya refugees; HIV/STI awareness; Sexual and reproductive health; Health communication; Gender norms; Humanitarian settings; Young women's health; Bangladesh

## 7.2 Introduction

The Rohingya refugee crisis represents one of the most severe humanitarian emergencies of the past decade. Since August 2017, over 1,005,520 stateless Rohingya, of whom 52% are women and girls, have fled state-sponsored violence in Myanmar to overcrowded camps in Cox's Bazar, Bangladesh (1-4). Nearly eight years after the 2017 exodus, with no safe repatriation in sight, this displaced population endures prolonged vulnerability characterised by fragmented health infrastructure, limited access to sexual and reproductive health (SRH) services, and widespread gender-based violence (1, 5). In such settings, human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs) emerge as critical but understudied threats, amplified by high population density, social disruption, and constrained prevention and testing capacity (5, 6).

The HIV/STI burden among Rohingya refugees in Cox's Bazar represents a significant public health challenge. There is scarce evidence about the HIV/STI burden and trends over time among Rohingya refugees, as data is not collected systematically. As of August 2018, there were 319 HIV cases among Rohingya refugees in Cox's Bazar (7). According to The Daily Star (English-language newspaper in Bangladesh), as of December 2023, a total of 1,135 people were diagnosed with HIV in Cox's Bazar, and 927 (94%) of them were Rohingya refugees (8). Since there has been no significant influx of Rohingya refugees into Cox's Bazar since 2017, the more than threefold increase in HIV diagnoses among this population by 2024 likely reflects a genuine rise in cases rather than demographic changes. Mou et al (2024) documented that 20-33% of Rohingya women report STI symptoms, genital ulcers, and dysuria, yet few seek care, citing limited access to STI services and lack of awareness as key barriers (9). However, low testing uptake (10), high proportion of asymptomatic infections (9), and fragmented surveillance mean true prevalence is almost certainly higher (5, 11).

Young adults and adolescents (aged 15-24) constitute roughly one-fifth of the camp population (4) but remain especially underserved. This group faces risks of early and forced marriage (affecting one in five girls) (5), sexual violence, and transactional sex born of economic desperation (3), while possessing limited agency over their sexual health (6, 12). Khan et al (2021) reported that knowledge of HIV transmission was quite low among Rohingya, with only about 30% being able to accurately identify key transmission routes and had substantial misconceptions (6). This contrasts with the national data from Bangladesh, where 53.1% of women aged 15-49 were aware of prevention methods and 62.7% knew about transmission routes (13).

The Rohingya's heightened HIV/STI vulnerability is rooted in both pre-existing epidemiology and displacement-related factors. Prior to displacement, Rohingya experienced challenges in accessing healthcare services. While Médecins Sans Frontières and Malteser International offered HIV related services in northern Rakhine State, where Rohingya originate from, the latter were not able to reach those services due to severe mobility restrictions, requiring travel authorisation, even to access HIV services (6). In 2018, Myanmar's national HIV prevalence was 0.7% (240,000 HIV diagnoses) (6), nearly seven times higher than in Bangladesh in the same year (< 0.1%) (14). Forced migration and displacement increased the risk of sexual violence, with 18,000 documented cases of rape by Myanmar's army and police (15). Another factor potentially contributing to HIV transmission among Rohingya refugees may be injecting drug use (IDU), as more than one-third of new HIV cases in the local population in Bangladesh are recorded among people who inject drugs (16), and IDUs have also been found among Rohingya in the camps. However, harm-reduction programs like needle exchange are almost non-existent (5, 11).

Health services in Cox Bazar Rohingya refugee camps are free. However, upon arrival, Rohingya have experienced worsened access to health services due to local health facilities being underfunded and under-resourced, with only 17% of 200 facilities providing 24/7 health services (17, 18). Importantly, Bangladesh's policy does not allow HIV testing and treatment within camps, requiring referrals to distant government facilities outside the camps, while STI testing and treatment are provided within broader SRH services across the camps. Specifically, primary healthcare clinics operated by Médecins Sans Frontières (MSF), United Nations (UN) agencies, and non-governmental organisations (NGOs) offer syndromic management, basic testing, and treatment of STIs as part of the Minimum Package of Essential Health Services (19-21). This structural exclusion of HIV services is further worsened by mobility restrictions

and deeply rooted cultural and religious norms, such as the need for male permission to visit clinics, strict prohibition of pre-marital or extramarital sex, stigma around sexual discussion, and reluctance to test partners for HIV/STIs (1, 22-26). These norms create barriers even in the absence of structural constraints, reinforcing gendered inequities in access to HIV/STI services.

Existing literature remains fragmented across three critical dimensions. First, quantitative studies focus narrowly on Rohingya women's knowledge gaps while overlooking multi-stakeholder perspectives, particularly those of community powerholders (religious and community leaders) and healthcare providers (6, 22, 27). Second, there is little research on how religious stigma (such as framing testing as inviting suspicion), male gatekeeping, and institutional failures work together to hinder health-seeking behaviours. Third, limited prior work has explored the HIV/STI literacy and testing experiences among young Rohingya refugee women, including the facilitators and barriers to accessing these services through the diverse community perspectives (28). In particular, unmarried adolescents and young adults (15-24 years) are rarely studied, even though they face unique barriers (such as acute stigma around premarital sex) and distinct influences from parents, peers, or religious leaders (3). Similarly, the views of men, community leaders (*Majhis*), and camp health workers, all of whom shape norms and access, have been almost absent in the literature. This gap limits understanding of how social and structural factors together constrain (or potentially enable) HIV/STI awareness, prevention, and testing in the camps.

Through phenomenological exploration of lived experiences, this qualitative study investigates facilitators and barriers to HIV/STI awareness and testing among young (15-24 years) Rohingya refugee women in Cox's Bazar, Bangladesh. By triangulating perspectives from young women (15-24 years), men, community leaders, and healthcare providers across eight camps in Cox's Bazar, the study aims to identify the social, cultural, and health-system factors that influence young Rohingya women's awareness about and access to testing for HIV/STIs.

### 7.3 Methods

#### **Study Design**

This qualitative cross-sectional study involved in-depth interviews (IDIs) and focus group discussions (FGDs) with four participant groups: (1) young Rohingya women (aged 15-24), (2) Rohingya men, (3) community leaders (*Majhis*, religious figures, NGO workers), and (4) healthcare providers (formal and informal). This study was part of a broader mixed-method

project that investigated the SRH needs of young Rohingya refugees in Bangladesh (28). Our phenomenological approach prioritised lived experiences of SRH health-seeking barriers using Bronfenbrenner's socio-ecological framework across three interconnected levels: individual (knowledge and misconceptions), community (religious and socio-cultural), and structural (service availability and accessibility) (29). The study adhered to consolidated criteria for reporting qualitative research (COREQ) (30).

### **Study Setting**

We randomly selected 8 out of 33 camps (same as the quantitative part) (28) to represent varying access to UNFPA-supported Women Friendly Spaces (WFS), Médecins Sans Frontières (MSF), and youth spaces. This random selection aimed to capture diversity in service availability and geographic distribution, reducing selection bias. The selected camps include the Kutupalong and Nayapara areas, the world's largest refugee settlement (31), located in the Ukhiya and Teknaf subdistricts of Cox's Bazar. Health services in these settings are fragmented across 200 facilities, with only 17% operating 24/7. They do not offer HIV/AIDS testing and treatment in camps and only provide free syndromic STI testing and treatment (1, 18).

### **Population and Sampling**

We used purposive and snowball sampling to recruit participants, targeting heterogeneity in camp residence, age, and marital status. As stated above, this study targeted four key groups because each group has different perspectives and viewpoints, contributing insights into the underlying dynamics of HIV-STI knowledge and access to services. Participants were self-identified as Rohingya, lived in the camps for at least six months, were females aged 15-24 or adults, and had the capacity to provide informed consent (or assent for minors). Young women who participated in a cross-sectional survey were invited to participate in IDIs and FGDs. Unmarried adolescents were intentionally included to explore age-specific socio-cultural barriers to SRH, though their representation remained limited due to cultural sensitivities. Formal (nurses/doctors) and informal (traditional midwives) healthcare providers currently delivering SRH services were recruited from the same camps. Men were included to capture male perspectives on HIV/STI awareness and to understand gendered gatekeeping, decision-making power, and community norms that influence young women's access to SRH services. These insights were critical for identifying structural and cultural barriers and facilitators. Men, community leaders and healthcare providers were identified through local networks and

referrals from initial participants in each of the respective groups. We aimed to conduct 40 IDIs, including 12 young women, 8 men, 8 formal healthcare providers, 4 traditional midwives, and 8 community leaders, and 5 FGDs, including 2 with young women, 1 with men, and 2 mixed-gender groups.

### **Data collection**

Data were collected between 20 March and 10 April 2023. Semi-structured IDIs and FGD guides were developed. Interview guides covered topics including socio-demographic information, understanding of HIV/STI transmission and prevention, sources of information, personal and community attitudes towards testing, experiences with testing services, barriers to accessing care, sociocultural factors such as patriarchal authority and religious beliefs, and participants' suggestions for improving literacy awareness and testing uptake.

Interview guides were developed in English and then translated into Bengali, with a backcheck to ensure quality. They were pretested on 10 participants (5 women and 5 men) from non-study camps who shared similar socio-demographic characteristics with the target population (excluded from analysis). These individuals were selected to ensure cultural and linguistic appropriateness of the tools. Feedback from pretesting informed minor revisions to question wording and sequencing. Because the Rohingya dialect lacks a standardised written form, conventional translation and back-translation of questionnaires were not possible. However, due to its similarity to the Bengali oral tradition, interviewers received specialised training in ethically translating and interpreting questions, ensuring culturally sensitive communication and informed consent during data collection.

Three trained researchers and the principal investigator, fluent in the Rohingya and Bengali languages, conducted the interviews. To ensure cultural sensitivity, two female researchers interviewed women, and one male researcher interviewed men. All interviews were conducted in private settings such as homes, WFS tents, or community centres. IDI and FGD sessions lasted 45-60 or 80-90 minutes, respectively. All were audio-recorded with consent and supplemented by field notes. FGDs were co-facilitated by a moderator and a note-taker. No participants reported expecting benefits from participation. Two individuals declined participation due to time constraints.

### **Data analysis**

Bilingual research assistants transcribed the audio recordings verbatim and translated them into English. The transcripts were checked and verified for accuracy by the principal investigator, who is multilingual in Bengali, Rohingya, and English, by listening to the recordings and reviewing the written texts. Written notes were in Bengali, and final transcripts were in English. Transcripts were anonymised by removing all identifying information. Two coders independently coded and analysed the data. Discrepancies were resolved through collaborative discussion among the supervisory team, with consensus reached on final code definitions.

Analysis followed Braun and Clarke's six-step thematic framework, which included data familiarisation, initial coding, theme development, reviewing and defining themes, and final interpretation (32, 33), combined with descriptive phenomenological principles. To ensure phenomenological rigour, researchers engaged in bracketing by recording preconceptions in analytic memos. Meaning units were identified from transcripts, clustered into experiential categories, and synthesised into themes that reflected participants' lived experiences. Interpretations were grounded in verbatim quotes and contextualised within the socio-ecological framework. Deductive codes represented socio-ecological levels, such as individual knowledge gaps, whereas inductive codes captured emerging phenomena like clinic avoidance rituals. All steps were reviewed and approved by the principal investigator and the supervisory team.

### **Ethical Considerations**

Ethical approval was obtained from the Bangladesh Medical Research Council (BMRC; Ref. No. 52324012023) and authorised by the Office of the Refugee Relief and Repatriation Commissioner (RRRC) for research in Cox's Bazar camps. All procedures conformed to the Declaration of Helsinki and the WHO guidelines for research with displaced populations (34). Prior to data collection, participants received a clear explanation of the study's purpose, voluntary nature, and confidentiality safeguards. Written informed consent was obtained from all literate adults. For participants unable to read, a trained researcher read the consent form aloud and documented agreement via thumbprint. For adolescents aged 15-17 years, we obtained written assent in addition to parental or guardian consent.

All interviews and FGDs were conducted in a private setting within the camps, such as quiet tented areas or offices, where conversations could not be overheard. Participants received no monetary compensation or gifts; participation was entirely voluntary. We assigned unique identifiers (e.g., IDI-YW01: In-depth interview with a young woman) and removed personal

information from the transcripts. Hard copies of consent forms were stored in a locked cabinet, and audio files and electronic data were stored on encrypted OneDrive as per the university data management policy, accessible only to authorised research personnel.

#### 7.4 Result

We conducted 40 IDIs and 5 FGDs as per the aim described above. See Table 14 for participant characteristics. Most participants were married (87%), with 70% lacking formal education, which was defined as never having attended any formal schooling, including primary education and informal or religious instruction (e.g., madrasa). Out of 28 young women, 23 (82%) were married, and of those, 19 (83%) were married before the age of 18. Healthcare providers reported 2-5 years of camp service experience. IDIs included 12 young women, 8 men, 8 formal healthcare providers (nurses/doctors), 4 traditional midwives, and 8 community leaders, consistent with the study design. FGDs included 6-8 participants each, a total of 31 participants. All IDIs and FGDs were conducted in Rohingya language.

**Table 14: Participant demographics**

Category	n	Median Age	Married n (%)	No Formal Education n (%)	Occupation n (%)	IDI n	FGD n
Young Women (15-24)	28	19	23 (82%)	26 (93%)	Homemakers 28 (100%)	12	16
Men	18	37	18 (100%)	16 (89%)	Daily labourers 13 (72%)	8	10
Community Leaders	13	52	13 (100%)	8 (62%)	Majhis 6 (46%), Imams 5 (39%), NGO staff 2 (15%)	8	5
Healthcare Providers	12	34	8 (67%)	0 (0%*)	Nurses 6 (50%), doctors 2 (17%), Traditional midwives 4 (33%)	12	0

Table 15 presents a thematic synthesis of multi-level factors influencing HIV/STI awareness and testing among young Rohingya refugee women (aged 15-24), as reported by four key

stakeholder groups: young women, men, community leaders, and healthcare providers. Ten themes emerged, organised using a socioecological framework, spanning individual-level barriers (e.g., severe knowledge gaps and misconceptions), community-level obstacles (e.g., moral stigma and religious condemnation), and structural constraints (e.g., policy restrictions and gender-exclusionary service design). It also captures enabling factors such as community health worker outreach, peer influence, and faith-compatible messaging.

### **Individual-Level Barriers**

**Knowledge, awareness, and misconceptions:** Many young women lacked accurate information about HIV/STIs, their transmission, symptoms, and prevention. Out of 12 young Rohingya women, 10 (84%) could not name a single STI testing location, with 11 (91%) incorrectly believing STI services required marriage certificates, and 9 (75%) believed HIV is transmitted via mosquito bites or shared utensils.

*“I never heard about HIV/STI.”* (IDI-YW01, unmarried, age 16)

*“We heard something about AIDS at the clinics, but nobody told us what it is.”* (IDI-YW11, married, age 19)

One 17-year-old explained:

*“My cousin told me AIDS is a ‘bad disease’, if I sit next to someone with HIV, I’ll definitely catch it, and I’ll die before my marriage.”* (IDI-YW03, unmarried, age 17)

They also had common misconceptions about HIV. A 37-year-old man stated that:

*“I stopped visiting my HIV-positive neighbour, fearing her shadow could infect my children.”* (FGD-M02, married, age 37)

HIV/STI symptom illiteracy was almost universal, and they knew very little about HIV/STIs.

*“I have a genital ulcer, and my urine is painful, but I’m not aware of what it is.”* (IDI-YW08, married, 19)

Similarly, another young unmarried woman stated that:

*“STI? Is that a new food ration card?”* (FGD-YW08, unmarried, age 17)

Men exhibited greater symptom denial, dismissing genital pain as normal:

*“Real men don’t complain about private pains.”* (FGD-M02, married, age 37)

**Internalised stigma and fatalism:** The fear of being judged or isolated discouraged individuals from seeking information or being tested. Out of 12 young Rohingya women, 11 (91%) avoided health services due to self-stigmatisation, linking testing to moral failure.

*“To get tested means I have to admit to doing something shameful.”* (IDI-YW03, unmarried, age 17)

Young women also felt shy to discuss HIV/STIs. A young woman stated that:

*“When the health worker asked me if I had any HIV/STI symptoms, I just felt shy and looked at my feet.”* (IDI-YW07, married, age 17)

Fatalistic beliefs discouraged prevention. Out of 12 young Rohingya women, 9 (75%) viewed HIV as “God's punishment,” favouring traditional remedies over clinical treatment.

*“Allah protects us if we drink the holy water and apply turmeric.”* (IDI-YW04, married, age 16)

**Critical service access and navigation failures:** Rohingya youth showed almost no understanding of sexual health systems, particularly HIV/STIs services, and could not tell the difference between clinics, pharmacies, or traditional healers.

*“I have no idea about these (HIV/STI, sexual health). I have an ulcer in my private part, but don't know where to get tested or how to ask.”* (IDI-YW01, unmarried, age 16)

Conservative tradition limited open discussion about sexual health, especially among unmarried women. Unmarried adolescents were systematically excluded, as none accessed formal HIV/STI services due to provider restrictions and gatekeeping.

*“We are not allowed to participate in the SRH conversation; our family member suggested that we join after marriage if we want to.”* (IDI-YW03, unmarried, age 17)

### **Community-Level Barriers**

**Moral stigmatisation as social control:** Community members often equated HIV/STI testing with sexual deviance. Both unmarried and married young Rohingya women feared being labelled immoral, with 92% of youth avoiding services due to perceived associations with promiscuity. This was reinforced by community leaders through public shaming.

*“If a girl goes to test alone, her neighbours will label her ‘used goods. No one will marry her.”* (FGD-M04, married, age 31)

Gossip networks policed behaviour. Fear of gossip or being labelled negatively served as barriers to seeking testing or discussing SRH topics. Women described surveillance systems where clinic visits triggered community judgment.

*“Majhi’s wife saw me at the clinic. By the evening, the entire block was whispering ‘I have a bad disease.’”* (IDI-YW08, married, age 19)

Misinformation, gender dynamics, and moral judgment within the community discouraged young women from accessing sexual health services and highlighted the urgent need for culturally sensitive education and support systems.

*“These are, of course, immoral and sinful, and a curse from God for immoral women. If you go for testing, they’ll think you’re infected.”* (IDI-YW08, married, age 19)

**Religious authority in health decision-making:** The religious authority often stood behind conservative interpretations of religious teachings and tended to categorise HIV/STIs as morally forbidden or prohibited. Among the four religious leaders interviewed, three (75%) explicitly stated HIV/STI testing as “opposing the will of God.”

*“It is haram to seek STI tests. Only the sinful need them.”* (IDI-CL04, Imam, age 37)

In most cases, elderly Rohingya family members described genital pain as normal. They viewed pain as a form of spiritual purification and encouraged people not to seek medical care.

*“The pain of the genitals is a way to clean it, advice offered by her mother-in-law.”* (IDI-YW09, married, age 21)

**Patriarchal restriction of mobility:** Male relatives such as fathers and husbands often controlled women’s movements and access to the SRH clinics. All married women required spousal permission for clinic visits, with violent enforcement documented.

*“When the doctor gave me a referral slip, my husband tore it up, yelling: ‘Only prostitutes get those tests!’”* (IDI-YW11, married, age 19)

Male relatives, elderly or imams, often controlled the movement of women, reducing SRH clinic visits.

*“If you go to that clinic, my father warned, ‘I will bury you before marriage.’”* (IDI-YW03, unmarried, age 17)

**Community leader complicity:** Interviews revealed that unmarried youth were excluded from SRH services through coordinated community mechanisms. Majhis and other male

members of the community reinforced cultural norms by often actively and intentionally pressuring family members and healthcare workers, thereby creating deliberate barriers to SRH access.

*“We say to NGOs: Target married women. Unmarried girls in need of testing bring dishonour to our block.”* (IDI-CL08, married, age 52)

Community leaders might be reluctant to promote HIV/STI education or testing due to prevailing cultural or religious beliefs. At the same time, they also acknowledged their influential role within the community, which could be leveraged to support future health initiatives.

*“We are telling girls to stay in the home. Sexual sickness is embarrassing to talk about.”* (IDI-CL01, married, age 31)

**Table 15: Facilitators and barriers to HIV/STI awareness and testing among Rohingya refugee women (15-24)**

Theme	Subtheme	Young Women	Men	Community Leaders	Healthcare Providers
<b>Individual Barriers</b>					
Awareness Gaps	Transmission misconceptions	✓	✓	✓	✓
	Symptom illiteracy	✓	✓		✓
Internalised Stigma	Testing as moral failure	✓	✓	✓	✓
	Fatalistic health beliefs	✓	✓	✓	
Gendered Knowledge Disparities	Symptom denial by men		✓	✓	✓
Critical Service Navigation Failures	Exclusion of unmarried adolescents from services	✓	✓	✓	
<b>Community Barriers</b>					
Moral Stigmatization	Gossip networks and public shaming	✓		✓	✓

Religious Prohibitions	Testing as sinful	✓	✓	✓	✓
Patriarchal Control	Male permission requirements	✓	✓	✓	✓
	Active enforcement of Youth exclusion	✓		✓	✓
<b>Structural Barriers</b>					
Policy Exclusion	HIV testing prohibition in camps	✓	✓	✓	✓
Gendered Apartheid	No/limited male STI services		✓		✓
System Failures	Limited STI services	✓			✓
	Public waiting shaming	✓			✓
<b>Facilitators</b>					
Health Worker Bridges	Doorstep education by female fieldworkers	✓	✓	✓	✓
	Literacy-powered navigation	✓			
Religious Reframing	Fatwas against stigma			✓	
	Mosque-based condom distribution		✓	✓	✓
Youth-Led Stealth Networks	Peer Testimonials	✓			
Male Engagement	Encrypted clinic alerts	✓			
	Economic framing		✓	✓	✓

### Structural Barriers

**Availability of services:** Bangladesh Government policy does not allow HIV/AIDS testing and treatment for Rohingya within Cox's Bazar camps, limiting services to syndromic STI screening only (1, 26). A community health worker explained:

*“We only have STI rapid tests. For HIV, we refer patients to Cox’s Bazar Sadar Hospital.”*  
(IDI-HP07, married, age 33)

Many Rohingya perceived HIV/STI testing services as expensive and believed that these services were not intended for them, contributing to low testing uptake and increased health risks. A young Rohingya woman stated that:

*“Testing? For us? That’s a luxury for Rohingya.”* (IDI-YW06, married, age 18)

**Gendered service gaps:** Men were systematically excluded from STI care due to the absence of dedicated services. Many were forced to rely on less effective alternatives, such as traditional remedies. STI testing was only offered by WFS, which men could not access, resulting in a significant service gap for young men.

*“As a man, I don’t know where to go; those tents are for women only.”* (FGD-M01, married, age 42).

*“The ‘Health Corner’ is merely a paracetamol shop. For such illness, I paid a quack who burnt my penis with acid.”* (IDI-M02, married, age 38)

Public waiting areas discouraged many young women from accessing SRH clinics. A nurse observed that the lack of privacy and fear of community judgment often led young women to avoid seeking care at public services:

*“Girls see neighbours in line and hurry off.”* (IDI-HP01, married, age 30)

### **Facilitators and Adaptive Strategies**

**Community health workers as cultural bridge:** Literate peers and female fieldworkers enabled doorstep education and confidential signposting to services, helping young women circumvent mobility restrictions and male gatekeeping.

*“I’d read clinic posters to my illiterate neighbours. Now 10 families know STI comes to the doctor, not to kobiraj (traditional healer).”* (IDI-YW03, unmarried, age 17)

*“Sisters who come in the house to teach us, I learn from them and (I) am not afraid to ask.”*  
(IDI-YW12, married, age 24)

*“Apa (sister) teaches us how condoms block those diseases.”* (IDI-YW12, married, age 24)

**Religious reframing for health legitimacy:** One in four (25%) progressive religious leaders reinterpreted Islamic texts and framed testing as a way to protect life.

*“In my Friday lecture, I mentioned that 'Allah commands us to seek testing out of concern for health. Ignoring clinics dishonours His gift of medicine.’” (IDI-CL05, Imam, age 44)*

Fatwas (official religious rulings) can be made against gossip about SRH services. It refers to an intention to control or manipulate the behaviour of community members and to use religious authority to discourage rumours that aim to prevent gossip or the spread of rumours, thereby encouraging a more ethical and sensitive attitude.

*“Now if individuals shame test-seekers, we repeat the fatwa: 'Gossipers burn in hell.'” (FGD-MG06, married, 38)*

**Youth-led stealth networks:** Peer testimonials played an important role in motivating testing among those few women who accessed services. Hearing success stories from peers who had undergone treatment helped reduce fear and stigma, encouraging them to get tested.

*“My friend got medicine and is fine; that convinced me to attend once.” (IDI-YW10, married, age 23)*

If youths obtain self-test kits through NGOs, they often secretly share them with their friends.

*“If we secretly get free testing kits, then we can test.” (FGD-YW10, married, age 22)*

**Male engagement through economic framing:** Engaging men in STI care by emphasising the economic and family consequences of untreated STIs is important. By framing STI treatment as a way to protect family wellbeing, it appeals to men's sense of responsibility and economic role, potentially encouraging them to seek care.

*“I say to men, 'If you go untreated, you can be impotent. Can you feed families if you're sick?'” (IDI-HP06, married, age 28)*

## 7.5 Discussion

This study examined the complex, multi-layered barriers and community-driven facilitators to HIV/STI literacy and testing among young Rohingya refugee women in Cox's Bazar, Bangladesh. Five major insights emerged: severe knowledge gaps, stigma and fatalism, community-level moral policing, structural exclusion, and culturally grounded facilitators. The findings of this study revealed that their literacy and testing behaviours were shaped by intersecting individual, community, and structural-level factors, which were also compounded by confusion, mistrust of reliable information and perceptions of stigma. Despite these barriers, our study found several community-based facilitators that provide cultural entry points for future interventions.

At the individual level, young Rohingya refugee women face challenges such as limited knowledge, widespread misconceptions, and internalised fatalism that reduce awareness of HIV/STIs and discourage care-seeking. Many women arrived from Myanmar with little formal education and minimal exposure to health promotion (3). Findings indicated that mobility constraints—both within and outside the camps—further limit access to information and care. Their access to health information is restricted to what is available in the camps (3). Women often need permission from husbands or family members to leave their homes. This is compounded by infrequent home visits and limited outreach by healthcare workers. Our data also showed that some young women could not differentiate between clinics, pharmacies, and traditional healers, and several believed that a marriage certificate was required for STI services. Rohingya refugees' literacy and awareness about HIV are lower compared to the host population of Bangladesh, with only a few aware of how HIV is transmitted (6). Our study findings align with the previous studies, reporting low HIV knowledge among Rohingya and other displaced populations (6, 27, 35-37). For example, among refugee and internally displaced youth in Uganda, only about 45% of Ugandan youth aged 15-24 have basic knowledge, reflecting similar structural and cultural barriers to those observed in Cox's Bazar (37, 38).

Many young Rohingya women believed HIV could be transmitted via non-sexual physical interactions such as sharing utensils, sitting together, or touching, while others expressed fatalistic views. Similar myths have been observed among Bangladeshis, including transmission through mosquito bites or supernatural causes (39). HIV related misconceptions are common (6) and in some cases, HIV is seen as a minor illness, similar to the common cold, reducing perceived risk and undermining prevention efforts (27). In Uganda, among refugee and internally displaced youth, young adults and adolescents were reported to assume that a friend's negative test result applied to others (35, 37, 38). These misconceptions not only distort risk perceptions but also undermine motivation for taking preventive action (35).

Many young Rohingya refugee women linked HIV/STI testing with the sin of moral wrongdoing and feared judgment, worried that the community people might gossip about their testing. This fear of social surveillance emerged repeatedly in interviews and FGDs. This is consistent with observations in other refugee settings, where testing was linked to fears, blame, and rumours (40), with stigma as a key factor constraining the HIV testing strategies (36). In the most severe cases, fear of disclosure was associated with suicidal thoughts (35, 36). Fatalistic beliefs, such as believing HIV is divine punishment or relying on religious protection,

undermined motivation to engage in prevention or care (41, 42). Traditional cultural practices also restrict open discussion and promote silence around HIV, resulting in the marginalisation of people and limiting service access (39). Gendered differences were evident, with men often denying symptoms and framing illness as a threat to masculinity, echoing patterns observed in other low-resource contexts.

At the community level, social norms and gatekeeping, such as husbands' control over women's health seeking, shaming of testing by religious leaders, and Majhis' enforcement of youth exclusion, gossip, and gendered moral judgment, all suppress demand through stigma and disgrace. Male authority, religious censure, and community screening were identified as key barriers to literacy and testing for HIV/STIs. Women often report the need to ask their husbands for permission to visit SRH clinics, with many of them being threatened with beatings for doing so. Religious leaders often describe testing as sinful, adding to stigma and silence around sexual health. These findings are supported by participant narratives and align with previous studies describing both male gatekeeping and religious taboos in Rohingya communities (1, 22, 43). These barriers are common among other refugee and displaced populations, where power structures and gendered moral norms combine to constrain female autonomy, reduce her agency, and discourage the use of SRH services (44, 45). In Uganda, such blame, shame, and restrictions on movement are proven to lower HIV testing rates and even deter youths from seeking care (38).

Majhis and elders also actively discouraged participation in SRH programs, especially for unmarried women, which placed reliance on male consent. Siddiqi (2021) warned about involving community gatekeepers without safeguards that may reinforce patriarchal norms and limit women's autonomy (26). Male community figures appear to follow a pattern common to traditional societies by often serving as barriers to health information and services and marginalising women from HIV/STI care (26).

Other factors that create a hostile environment for HIV/STI health-seeking are community gossip and social surveillance. Young women avoided testing, fearing being labelled immoral if they were seen at clinics. Logie and colleagues (2024) found that refugee youth in Kampala's Bidi Bidi settlement often avoid HIV testing because they fear stigma, gossip, and social judgment around HIV status undermines their motivation to seek testing (35). Similar patterns have been observed in other countries in sub-Saharan Africa - Ethiopia, Uganda, and Botswana - where social judgment discourages individuals from accessing HIV/STI services (35, 36, 46,

47). These findings underscore how male authority, religious condemnation, and communal stigma suppress health-seeking behaviours (43, 48).

Participants also referred to the structural factors, such as HIV testing policy in Bangladesh, lack of friendly services and fragmented access to STI services, that constrain young Rohingya refugees' access to HIV testing in the camps. For instance, Bangladesh's HIV policy does not allow HIV services, including testing, at camp-based health facilities (49). Rohingya refugees often need to travel to district government hospitals, which involves financial costs, logistical challenges, and stigma-related risks, especially when confirmatory testing is needed off-site after initial screening (1, 25, 26). These barriers lead to the near-complete exclusion of camp residents from the formal HIV testing pathways (1).

STI services within camps are limited to basic syndromic management, with few trained staff and scarce diagnostic tools (19-21). Frequent stockouts and irregular service hours further erode trust in healthcare system. These gaps contribute to misconceptions that STIs are untreatable or pose minimal risk, despite evidence showing that nearly 30% of Rohingya adults report STI symptoms (9). In addition, our findings indicate that SRH programs largely target women and lack tailored services for their male partners. Male-friendly spaces are rare, and health workers seldom promote condom use or involve males in treatment and prevention (1, 50, 51), which not only undermines intervention effectiveness but also creates significant risks for women. When men remain untreated, women face increased vulnerability to HIV/STI transmission, reinfection after treatment, and persistent infection cycles within couples. This structural gap perpetuates gendered health inequities and compromises the impact of women-focused interventions, while reports of men resorting to harmful informal treatments further heighten these risks. Gender disparities in service access, combined with fragmented program implementation, limit comprehensive HIV/STI care for young Rohingya women.

Young Rohingya refugee women often lack basic understanding of the sexual health system, struggling to differentiate between clinics, pharmacies, doctors, nurses, or traditional healers. Confusion and mistrust are common, with many unsure of where and how to access HIV/STIs testing. Inconsistent outreach and limited health communication reinforce misinformation. These challenges mirror those in other low and middle-income country (LMIC) settings, where poor outreach and low health literacy hinder access to SRH services (52-55). For young Rohingya women, this not only limits care but also deepens vulnerability to untreated infections and ongoing transmission, underscoring the urgent need for targeted, culturally sensitive health education and system navigation support.

Despite these challenges, study findings shed light on some facilitators that provide culturally grounded solutions. Participants highlighted that trusted home-based education delivered by female health workers from the refugee community enhances acceptability and trust, making young women more comfortable discussing sexual health and HIV/STI services. Peer testimonials motivated testing, and faith-compatible messaging reframed HIV/STI care as religiously legitimate. Participants considered informal youth learning spaces and interpersonal education more meaningful than institutional campaigns. Trusted messengers, especially local women or peers, were seen as non-threatening and relatable. In some refugee settings, similar interventions proved to be successful. These findings resonate with the evidence from Uganda's refugee settlement and other LMICs, where a combination of peer-led youth education, HIV self-testing kits, and edutainment increased both awareness and testing uptake among refugee youths (35, 36, 47, 54, 56, 57). These interventions offer promising opportunities for future programs and should be expanded across camps to reach underserved young adults and adolescents.

This study has several limitations. The qualitative design and small sample size limit the representativeness and generalisability of the findings to the entire refugee population within the Cox's Bazar camps. While the results may not be generalisable to other refugee groups and/or settings outside Bangladesh, they are reminiscent of similar issues experienced by refugees elsewhere (58, 59). Self-reported data may be influenced by social desirability bias, especially due to the sensitive nature of HIV/STIs. The data was collected in 2023, and any changes since then, such as policy changes or service enhancements, may have altered the context in which these findings should be interpreted. Although we aimed to include all key stakeholders, certain subgroups, such as unmarried youth or men, remain underrepresented. Further research is needed to explore their specific barriers and needs, which may differ significantly from those of young Rohingya women and are crucial for designing inclusive and effective SRH interventions.

## 7.6 Conclusion

This study contributes to a deeper understanding of key barriers and facilitators to HIV/STI literacy and testing among young Rohingya refugee women in Bangladesh. It highlights several persistent barriers, including limited HIV/STI knowledge, widespread myths, cultural taboos, internalised stigma, restrictive gender norms, social control, and fears of gossip associated with seeking SRH services. Structural challenges, such as the exclusion of HIV services from camps

and limited availability of STI care, further restrict access to testing. Despite these challenges, the study identified promising facilitators, including female-led home-based education, peer testimonials, and faith-compatible messaging. These approaches are culturally resonant and supported within community, offering meaningful pathways to improve HIV/STI awareness, knowledge, and service uptake.

Based on the findings, multi-level strategies are recommended to improve HIV/STI knowledge, literacy, and testing and overcome mobility restrictions among young Rohingya women. First, expanding community-based, culturally tailored education, such as door-to-door outreach and informal youth learning spaces, delivered by trusted Rohingya female health workers and peer educators. Second, engaging religious and community leaders through sensitisation and anti-stigma campaigns to foster dialogue around HIV/STIs and to reduce moral judgment and shame. Third, integrating HIV/STI services into existing SRH programs, with a focus on confidential, youth-friendly options like mobile clinics, discreet service points, and trained female providers.

These combined efforts are critical to address the complex social, cultural and structural barriers to improve HIV/STI knowledge and equitable access to appropriate services. Ultimately, these actions will reinforce the responsiveness of the health system and empower young Rohingya refugee women to have more autonomy over their SRH in refugee contexts.

### **Disclosure of interest statement**

#### **Data availability**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions, as they contain information that could compromise the confidentiality of research participants.

#### **Competing interests**

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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## 7.7 References

1. Schnabel L, Huang C. Removing barriers and closing gaps: improving sexual and reproductive health and rights for Rohingya refugees and host communities [Internet]. Washington, DC: Center for Global Development; 2019 [cited 2025 Jun 10]. Available from: <https://www.cgdev.org/publication/removing-barriers-and-closing-gaps-improving-sexual-and-reproductive-health-and-rights>.
2. UNHCR. Situation refugee response in Bangladesh [Internet]. Geneva: UNHCR; 2024 [cited 2025 Jan 28]. Available from: <https://data.unhcr.org/en/country/bgd>.
3. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugees in Bangladesh: a systematic review. *Women Midwives Midwifery*. 2025;5(2):1–24. doi:10.36749/wmm.5.2.1-24.2025.
4. UNHCR. Rohingya JRP 2025: humanitarian action [Internet]. 2025 [cited 2025 May 3]. Available from: <https://humanitarianaction.info/plan/1212/article/rohingya-jrp-2025>.
5. Hossain MA, Zablotska-Manos I. The changing dynamics of HIV/AIDS during the COVID-19 pandemic in the Rohingya refugee camps in Bangladesh – a call for action. *Glob Biosecurity*. 2022;4(1). doi:10.31646/gbio.135.
6. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open*. 2021;11(10):e047516. doi:10.1136/bmjopen-2020-047516.
7. Hsan K, Griffiths MD, Gozal D, Rahman MA. HIV infection in Rohingya refugees in Bangladesh. *Lancet HIV*. 2019;6(7):e419. doi:10.1016/S2352-3018(19)30156-0.
8. Shuvo M. Rohingyas highly exposed to HIV. *The Daily Star*. 2023 Dec 1.
9. Mou MMS, Khan MA, Jahan N, Bulbul A, Rahman H, Ferdaus F, et al. Breaking barriers: addressing STI healthcare access challenges among Rohingya refugees in Bangladesh. *IAHS Med J*. 2024;7(1):32–4.

10. Hossain MA, Zablotska-Manos I. HIV/STI awareness and testing among young Rohingya refugees in Bangladesh: a cross-sectional analysis. *Sex Health*. 2025;22(6). doi:10.1071/SH25093.
11. Stoken JM. Suffering in silence: sexual and gender-based violence against the Rohingya community and the importance of a global health response. *J Glob Health*. 2020;10(2):020324. doi:10.7189/jogh.10.020324.
12. Rahman S. Rohingya refugee crisis: Bangladesh is at high risk of HIV/AIDS, STDs & STIs [Internet]. Brave Dimension Global; 2019 [cited 2025 Jun 11]. Available from: <https://bravedimension.org/2025/01/15/rohingya-refugee-crisis-bangladesh-is-at-high-risk-of-hiv-aids-stds-stis-2/>.
13. Ripon RK, Hossain S, Manami ST, Rifat M, Motahara U. Determinants of HIV/AIDS prevention and transmission knowledge factors among women aged 15–49: a trend analysis based on the Bangladesh Demographic and Health Survey. *Soc Med*. 2023;16(3).
14. UNAIDS. Country progress report – Bangladesh: Global AIDS Monitoring 2018 [Internet]. Geneva: UNAIDS; 2018. Available from: [https://www.unaids.org/sites/default/files/country/documents/BGD\\_2018\\_countryreport.pdf](https://www.unaids.org/sites/default/files/country/documents/BGD_2018_countryreport.pdf).
15. Baykan D. UN official cites horrific crimes against Rohingya [Internet]. Anadolu Agency – TRANSCEND Media Service; 2019 [cited 2025 Feb 1]. Available from: <https://www.transcend.org/tms/2019/02/un-official-cites-horrific-crimes-against-rohingya/>.
16. Khan SI, Reza MM, Crowe SM, Rahman M, Hellard M, Sarker MS, et al. People who inject drugs in Bangladesh — the untold burden! *Int J Infect Dis*. 2019;83:109–15. doi:10.1016/j.ijid.2019.03.009.
17. Hossen F, Anik SSB. Dwindling aid leaves Rohingya women exposed to rising violence in Bangladesh [Internet]. The New Humanitarian; 2023 [cited 2025 Jun 11]. Available from: <https://www.thenewhumanitarian.org/news-feature/2023/05/09/aid-rohingya-women-violence-bangladesh>.
18. Government of Canada. Addressing gaps in refugee access to health [Internet]. Global Affairs Canada; 2022 [cited 2025 Jun 11]. Available from: <https://w05.international.gc.ca/projectbrowser-banqueprojets/project-projet/details/p010742001>.

19. Médecins Sans Frontières (MSF). MSF focus on Bangladesh [Internet]. 2024 [cited 2025 Jun 15]. Available from: <https://msf.org.au/country-region/bangladesh>.
20. WHO. Minimum package of essential health services for primary and secondary healthcare facilities [Internet]. Health Sector Cox's Bazar and Government of Bangladesh; 2024 [cited 2025 Jul 23]. Available from: [https://rohingyaresponse.org/wp-content/uploads/2024/12/Health-Sector-Coxs-Bazar-Rohingya-Response\\_MPEHS\\_Final-Version\\_October-2024.pdf](https://rohingyaresponse.org/wp-content/uploads/2024/12/Health-Sector-Coxs-Bazar-Rohingya-Response_MPEHS_Final-Version_October-2024.pdf).
21. Ahmed R, Farnaz N, Aktar B, Hassan R, Shafique SB, Ray P, et al. Situation analysis for delivering integrated comprehensive sexual and reproductive health services in humanitarian crisis condition for Rohingya refugees in Cox's Bazar, Bangladesh: protocol for a mixed-method study. *BMJ Open*. 2019;9(7):e028340. doi:10.1136/bmjopen-2018-028340.
22. Islam S, Habib SE. Gender differences in knowledge and risk perception towards HIV/AIDS among Rohingyas in Cox's Bazar, Bangladesh. *J Soc Behav Community Health*. 2021;5(2):739–49.
23. Zakaria M, Nachrin T, Azad MAK. Evaluating the effectiveness of utilization of health communication interventions on sexual and reproductive health of the Rohingya women living in Cox's Bazar refugee camp. *Heliyon*. 2022;8(12):e12563. doi:10.1016/j.heliyon.2022.e12563.
24. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ*. 2021;99(3):201–8. doi:10.2471/BLT.20.269779.
25. Hossain MA, Huda MN, Ullah A, Renzaho A. Risk factors, contemporary challenges and psychological well-being of the Rohingya refugees in Bangladesh: policy implications. *Int J Health Plann Manage*. 2022;37(4):1912–7. doi:10.1002/hpm.3472.
26. Siddiqi H. Protecting autonomy of Rohingya women in sexual and reproductive health interventions. *Voices Bioethics*. 2021;7. doi:10.52214/vib.v7i.8615.
27. Zakaria M. Exploring STI/HIV knowledge and effect of communication activities among Rohingya refugee women: a camp-based cross-sectional study in Bangladesh. *J Psychosex Health*. 2024;6(1):55–65.
28. Hossain MA, Zablotska-Manos I. HIV/STI awareness and testing among young Rohingya refugees in Bangladesh: a cross-sectional analysis. *Sex Health*. 2025;22(6). doi:10.1071/SH25093.

29. Aibangbee M, Micheal S, Liamputtong P, Pithavadian R, Hossain SZ, Mpofu E, et al. Socioecologies in shaping migrants and refugee youths' sexual and reproductive health and rights: a participatory action research study. *Reprod Health*. 2024;21(1):134. doi:10.1186/s12978-024-01879-x.
30. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349–57. doi:10.1093/intqhc/mzm042.
31. UNHCR. Rohingya refugee crisis explained [Internet]. 2024 [cited 2025 Jun 11]. Available from: <https://www.unrefugees.org/news/rohingya-refugee-crisis-explained/>.
32. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101.
33. Braun V, Clarke V. Toward good practice in thematic analysis: avoiding common problems and be(com)ing a knowing researcher. *Int J Transgend Health*. 2023;24(1):1–6. doi:10.1080/26895269.2022.2129597.
34. WHO. Health ethics & governance [Internet]. Geneva: World Health Organization; 2025 [cited 2025 Jun 12]. Available from: <https://www.who.int/teams/health-ethics-governance/standards>.
35. Logie CH, Okumu M, Loutet M, Coelho M, McAlpine A, MacKenzie F, et al. Contextualizing HIV testing experiences within the HIV prevention cascade: qualitative insights from refugee youth in Bidi Bidi refugee settlement, Uganda. *BMC Public Health*. 2024;24(1):2599. doi:10.1186/s12889-024-20135-2.
36. Logie CH, Okumu M, Kibuuka Musoke D, Hakiza R, Mwima S, Kyambadde P, et al. Intersecting stigma and HIV testing practices among urban refugee adolescents and youth in Kampala, Uganda: qualitative findings. *J Int AIDS Soc*. 2021;24(3):e25674. doi:10.1002/jia2.25674.
37. Logie CH, Okumu M, Kibuuka Musoke D, Hakiza R, Mwima S, Kacholia V, et al. The role of context in shaping HIV testing and prevention engagement among urban refugee and displaced adolescents and youth in Kampala, Uganda: findings from a qualitative study. *Trop Med Int Health*. 2021;26(5):572–81. doi:10.1111/tmi.13560.
38. Logie CH, Okumu M, Latif M, Parker S, Hakiza R, Kibuuka Musoke D, et al. Relational factors and HIV testing practices: qualitative insights from urban refugee youth in Kampala, Uganda. *AIDS Behav*. 2022;26(7):2191–202. doi:10.1007/s10461-021-03567-4.

39. Tariqujjaman M, Hasan MM, Kafi MAH, Hossain MA, Khan SA, Sultana N, et al. Trends and correlates of low HIV knowledge among ever-married women of reproductive age: evidence from cross-sectional Bangladesh Demographic and Health Survey 1996–2014. *PLoS One*. 2023;18(5):e0286184. doi:10.1371/journal.pone.0286184.
40. Ullah AA. Displacement and disease: HIV risks and healthcare gaps among refugee populations. *Venereology*. 2025;4(2):7. doi:10.3390/venereology4020007.
41. Taylor TN, DeHovitz J, Hirshfield S. Intersectional stigma and multi-level barriers to HIV testing among foreign-born Black men from the Caribbean. *Front Public Health*. 2019;7:373. doi:10.3389/fpubh.2019.00373.
42. Zou J, Yamanaka Y, John M, Watt M, Ostermann J, Thielman N. Religion and HIV in Tanzania: influence of religious beliefs on HIV stigma, disclosure, and treatment attitudes. *BMC Public Health*. 2009;9:75. doi:10.1186/1471-2458-9-75.
43. Islam M, Habib SE. "I don't want my marriage to end": a qualitative investigation of the sociocultural factors influencing contraceptive use among married Rohingya women residing in refugee camps in Bangladesh. *Reprod Health*. 2024;21(1):32. doi:10.1186/s12978-024-01763-8.
44. Darebo TD, Spigt M, Teklewold B, Badacho AS, Mayer N, Teklewold M. The sexual and reproductive healthcare challenges when dealing with female migrants and refugees in low and middle-income countries (a qualitative evidence synthesis). *BMC Public Health*. 2024;24(1):520. doi:10.1186/s12889-024-17916-0.
45. Adeniyi T, Horwood J, Doran M, Piggott K, Namurach AM, Harryman L, et al. Barriers and facilitators to HIV testing among African and Caribbean heritage communities: a mixed methods study. *Sex Transm Infect*. 2025;sextrans-2025-056491. doi:10.1136/sextrans-2025-056491.
46. Rosenfeld D. Gossip about HIV status drives stigma and limits uptake of HIV care [Internet]. *aidsmap*; 2023 [cited 2025 Jul 22]. Available from: <https://www.aidsmap.com/news/mar-2023/gossip-about-hiv-status-drives-stigma-and-limits-uptake-hiv-care>.
47. Kalichman SC, Shkempi B, Wanyenze RK, Naigino R, Bateganya MH, Menzies NA, et al. Perceived HIV stigma and HIV testing among men and women in rural Uganda: a population-based study. *Lancet HIV*. 2020;7(12):e817–24. doi:10.1016/S2352-3018(20)30198-3.

48. Hasnain M. Cultural approach to HIV/AIDS harm reduction in Muslim countries. *Harm Reduct J.* 2005;2:23. doi:10.1186/1477-7517-2-23.
49. Aktar B, Rajendra KL, Clark E, Messier K, Aissaoui A, Elamurugan K, et al. Feasibility of establishing a core set of sexual, reproductive, maternal, newborn, child, and adolescent health indicators in humanitarian settings: results from a multi-methods assessment in Bangladesh. *Reprod Health.* 2022;19(1):121. doi:10.1186/s12978-022-01424-8.
50. Santana N. Denied and dismissed: examining healthcare access for Rohingya adolescent girls residing in Kutupalong refugee camp, Bangladesh [Internet]. Maiya School Research; 2025 [cited 2025 Jul 22]. Available from: <https://reliefweb.int/report/bangladesh/denied-and-dismissed-examining-healthcare-access-rohingya-adolescent-girls-residing-kutupalong-refugee-camp-bangladesh>.
51. Islam MM, Rahman MM, Khan MN. Barriers to male condom use in Rohingya refugee camps in Bangladesh: a qualitative study. *Lancet Reg Health Southeast Asia.* 2022;2:100008. doi:10.1016/j.lansea.2022.04.004.
52. Johnson LJ, Schopp LH, Waggie F, Frantz JM. Challenges experienced by community health workers and their motivation to attend a self-management programme. *Afr J Prim Health Care Fam Med.* 2022;14(1):e1–e9. doi:10.4102/phcfm.v14i1.2911.
53. Lapidos A, Kieffer EC, Guzman R, Hess K, Flanders T, Heisler M. Barriers and facilitators to community health worker outreach and engagement in Detroit, Michigan: a qualitative study. *Health Promot Pract.* 2022;23(6):1094–104. doi:10.1177/15248399211031818.
54. Tirado V, Chu J, Hanson C, Ekstrom AM, Kagesten A. Barriers and facilitators for the sexual and reproductive health and rights of young people in refugee contexts globally: a scoping review. *PLoS One.* 2020;15(7):e0236316. doi:10.1371/journal.pone.0236316.
55. Fox S, Kramer E, Agrawal P, Aniyizhai A. Refugee and migrant health literacy interventions in high-income countries: a systematic review. *J Immigr Minor Health.* 2022;24(1):207–36. doi:10.1007/s10903-021-01152-4.
56. Shafiq Y, Muhammad A, Suhag ZH, Tahir R, Jan A, Atiq H, et al. Navigating challenges in access to antenatal and intrapartum care: Afghan refugee women's experiences amidst the COVID-19 pandemic in Pakistan. *Womens Health (Lond).* 2025;21:17455057251347081. doi:10.1177/17455057251347081.

57. Halder CE, Hasan MA, Mohamud YM, Nyawara M, Okello JC, Mizan MN, et al. Understanding the challenges and gaps in community engagement interventions for COVID-19 prevention strategies in Rohingya refugees: a qualitative study with frontline workers and community representatives. *Front Public Health*. 2023;11:1169050. doi:10.3389/fpubh.2023.1169050.
58. Hossain MA, Dawson A. A systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan refugee women of reproductive age in Asia. *WHO South East Asia J Public Health*. 2022;11(1):42–53. doi:10.4103/WHO-SEAJPH.WHO-SEAJPH\_144\_21.
59. Logie CH, MacKenzie F, Malama K, Lorimer N, Lad A, Zhao M, et al. Sexual and reproductive health among forcibly displaced persons in urban environments in low and middle-income countries: scoping review findings. *Reprod Health*. 2024;21(1):51. doi:10.1186/s12978-024-01780-7.

## CHAPTER 8: INTEGRATED DISCUSSION

### 8.1 Introduction

In the earlier four chapters, we presented four empirical papers - two quantitative, on family planning and HIV/STI literacy and use, and two qualitative, on barriers and facilitators to family planning (FP) and HIV/STI services. This chapter offers a comprehensive synthesis of the findings presented in the empirical chapters, culminating in a coherent and theoretically grounded interpretation. The discussion of this chapter is organised thematically according to the research objectives, which broadly examined (a) sexual and reproductive health (SRH) literacy and (b) access to SRH services among young Rohingya refugee women in Bangladesh.

The chapter is structured into four main sections. It starts with the discussion of SRH literacy, with a specific focus on FP and HIV/STI literacy and awareness. The following section analyses access to SRH services, particularly access to FP, contraceptive services, and HIV/STI testing services. The third section presents the integrated interpretation of the findings guided by the intersectional socioecological framework, which situates individual SRH literacy and access to services within the intrapersonal, interpersonal, community, and structural levels. This framework also accounts for the intersecting influences of gender, age, marital status, refugee status, literacy, and cultural context on young Rohingya women's SRH. This framework has gained increasing recognition in global SRH research for its ability to capture the layered determinants of health in humanitarian settings (1). Through the integration of both quantitative and qualitative findings across these levels, this chapter highlights areas where the findings converge or diverge and unpacks the complexity of the SRH challenges faced by young Rohingya women in Bangladesh. Finally, the chapter critically examines the methodological strengths and limitations, with particular attention to the integration of quantitative and qualitative data sources.

### 8.2 Sexual and reproductive health literacy

In this section, we synthesise the findings from the quantitative survey and qualitative interviews to offer a comprehensive understanding of FP literacy, contraception use, and HIV/STI awareness and testing among young Rohingya refugee women aged 15-24 years in Cox's Bazar, Bangladesh. It integrates results from the earlier four empirical chapters and highlights the individual, interpersonal, cultural, and structural influences that shape SRH literacy, use, and health-seeking behaviours in the Rohingya community. The discussion is

organised thematically according to the research objectives, which broadly examined (a) FP literacy and contraception use, and (b) HIV/STI literacy and testing.

### 8.2.1 Family planning literacy and contraception use

In this study, we conducted a cross-sectional survey of married young Rohingya refugee women, revealing that while general awareness of FP was relatively high, detailed knowledge of contraceptive methods remained limited. Moreover, awareness of emergency contraception and progestin-only methods was notably low. We noted that the overall FP awareness was lower in prior studies in similar settings. For example, Zakaria et al. reported that only 58.3% of Rohingya women were well-informed about the benefits of contraception in comparison to 84.7% in our study (2). As to the current use of contraceptives, it stood at 44.9%, which is slightly lower than the 50.9% reported by Khan et al. (2021) among women of reproductive age (3). More than one-third of young Rohingya women who did not want more children were not using any contraception at the time of the survey, indicating a significant gap in unmet need.

Qualitative data support these findings, revealing that most of the young Rohingya women had inaccurate or fragmented knowledge of FP. Their information was often derived from informal sources, such as peers, family members, or community gossip, rather than formal education or health services personnel. Many participants articulated concerns, fear, misconceptions and confusion related to potential side effects and perceived risks of infertility, which often dominated their understanding of FP and contraceptives. These concerns were deepened by internalised stigma, moral judgements, as well as religious disapproval, and even prohibitions, related to contraception use. Such narratives, revealed in our study, are consistent with research conducted in similar refugee and humanitarian settings, where religious beliefs, along with gendered perceptions, often shape contraceptive practices (4). Some young women even equated the use of contraception with sin or rebellion against God's will, reinforcing feelings of shame.

In general, awareness about FP and contraception did not necessarily translate into functional knowledge of family planning and service utilisation. The internalised stigma and misconceptions observed in our study contributed to hesitancy toward contraception use as well as persistent and unmet need, leading to unintended pregnancies and larger family sizes than women themselves desire. Behavioural science literature supports this gap between knowledge and action, emphasising that intention does not always lead to behaviour unless

enabling environments are in place (5). Similarly, the use of the contraceptives cascade underscores that motivation (awareness) must be matched by opportunity (access) to produce uptake (6). Among young Rohingya women, a significant leak becomes apparent between the stages of awareness and functional literacy. In this study, while 85% of the married participants reported general awareness of FP (the motivation stage), only 27% had the functional literacy to name specific methods, and ultimately, 44.9% were current users. This attrition from knowledge to service utilisation is consistent with the ‘know-do gap’ frequently reported in broader global health literature, where awareness of a health service does not automatically translate into health-seeking behaviour due to various systemic and cognitive barriers (75, 76). However, in the context of the Rohingya camps, this transition is further complicated by the place-based structural paradox and the high-surveillance environment. This attrition illustrates that the cascade leakage is primarily situated at the knowledge-to-action interface, confirming that in this population, the transition from being aware of a service to successfully navigating the healthcare system is uniquely hindered by the low SRH literacy and internalised stigma documented in the qualitative phases of this research. Therefore, effective interventions must integrate education with tangible service delivery, addressing both informational and structural barriers to ensure meaningful engagement with SRH services.

However, we also discovered that despite limited knowledge and low contraception use, there is some openness to FP among young Rohingya women, especially when framed in terms of maternal and child health. For example, women were more open to FP and contraception when they understood its benefits for their wellbeing. These findings reflect global evidence in low and middle-income countries (LMICs) humanitarian settings (7) that functional health literacy, defined by Alhussaini et al (2025) as the ability to obtain, process, and apply general SRH information (8), is often compromised among displaced populations due to disrupted education, restricted gendered communication norms, religious prohibition, and restricted SRH service exposure of the young women (7, 9, 10).

### ***Determinants of Contraception Use***

Both the quantitative survey and the qualitative interview identified the determinants, barriers, and facilitators of FP and contraception use among young Rohingya refugee women in Bangladesh. From survey data, multivariate analysis identified several factors positively associated with contraception use, such as older age, education of husband, exposure to FP information, fieldworker visits, and awareness of FP service centres. However, contraception use was negatively associated with the patriarchal decision-making system, such as the

husband-controlled FP decision, showing the influence of patriarchal culture on the contraceptive autonomy of young women. Young Rohingya refugee women were more likely to use contraception if they felt more free and independent, such as being able to express their desire for sex and refuse it with their husbands if they wished.

This finding was supported and strengthened by data from in-depth interviews (IDIs) and focus group discussions (FGDs). Many young Rohingya women said that their husbands or other older male members of their family decided whether women should practice FP and contraception. That just shows how societal gender hierarchies are embedded within the Rohingya community. These findings are also supported by broader evidence from other humanitarian contexts, where access to and use of contraceptive methods commonly need the permission or approval of the husband (11, 12). Studies from other refugee settings, such as Uganda, Nigeria, and Syria, confirm similar patterns, where traditional patriarchal family structures, disapproval from religious leaders, and limited reproductive autonomy for women hinder FP uptake, despite moderate awareness (4, 7, 13-17). Most importantly, lack of knowledge and fear of side effects stood out as major barriers to FP and contraception use across these settings. For example, in a Ugandan refugee settlement, modern contraceptive prevalence among adolescent girls was only 8.7%, even though most did not wish to become pregnant (17). Similarly, a review conducted by Sawadogo et al (2023) found that limited knowledge about services and fears about side effects are among the most frequent barriers to contraception use for refugee and migrant women globally (18).

The qualitative findings of our study also revealed the role of sociocultural norms and stigma in shaping access to SRH information and services. The qualitative findings from IDIs and FGDs presented a more complex picture. In general, community and religious norms discouraged FP and contraception use. Conservative religious leaders described FP as sin, and some women feared community gossip or moral condemnation if they were seen seeking contraception. However, some young women reported encountering more supportive perspectives. Not all local religious leaders were conservative or opposed to contraception; in fact, some advocated for its use when framed as a means of protecting maternal health. These contradictory statements coming from religious leaders created internal conflicts for young women, especially those who had experienced complications during pregnancy and childbirth. These dynamics have been reported in similar Muslim-majority refugee contexts, such as Lebanon and Ethiopia, where religious leaders can strongly influence contraceptive acceptance (19, 20).

Cultural preferences for large families were also an influential factor among the Rohingya refugee community in Bangladesh. In this study, the average desired family size was 3.7 children, significantly higher than the Bangladesh government's two-child norm. The findings of this study are consistent with research by Zakaria et al., who recorded in 2022 a mean desired family size of 3.96 among Rohingya (2). Rohingya participants often described having a large number of children as a source of strength, pride, and a means of fulfilling religious duty. These pronatalist beliefs diminished the perceived need for contraception, even among women who were generally aware of FP methods.

Age and marital status further intersected with these factors. Age-specific vulnerabilities were common among Rohingya. Unmarried adolescents and young women were excluded from FP services due to health provider biases and stigma expressed by community members against young refugees, while newly married Rohingya women faced intense pressure from family members to conceive. Many Rohingya get married early, often by age 15-17 (21), and often without knowledge about contraception. Rohingya women who marry so young have less voice in decision-making about pregnancy, its timing and the desired number of children. They also face much stronger opposition from their husbands and in-laws (who may also influence their spouses, who may, in turn, be very young). This had a significant influence on their reproductive decision-making. These findings are consistent with other similar contexts of Syrian refugees in Jordan, where early marriage significantly constrained adolescent girls' access to SRH services (19).

Exposure to FP information and fieldworker visits was strongly associated with contraception use among young Rohingya women in the quantitative part of this study. Women who received any counselling or visits from fieldworkers were far more likely to use FP and contraception. However, none of the young women reported receiving the recommended fortnightly fieldworker visits in the past six months before the survey. Both qualitative and quantitative findings confirm that female community health workers (FCHWs) are trusted sources of information and support for FP. Young women frequently described FCHWs as older sisters who helped them overcome fears of public judgment and offered culturally sensitive strategies to navigate and overcome restrictions on mobility. These findings are supported by studies from other comparable refugee contexts in the Global South. They demonstrate that community-based family planning programs that educate young women and address community cultural norms are all effective ways of overcoming barriers to sexual and reproductive health access (7, 22).

### 8.2.2 HIV/STI literacy and testing

Combining quantitative and qualitative data offers a clearer understanding of HIV/STI knowledge, testing, and the factors influencing the use of sexual health services among young Rohingya women in Bangladesh. The cross-sectional survey of 686 young women explored low levels of HIV/STI awareness among them. Only 12.4% had heard of HIV, and 9.2% of STIs. Correct knowledge of HIV/STI transmission routes, such as sexual contact, sharing of injecting equipment, or vertical transmission, was rare. In our study, over 90% of respondents answered “I don’t know” to most items assessing the transmission of HIV and STI symptoms. Misconceptions were widespread. For example, 8.2% of young Rohingya women believed that HIV could be transmitted via mosquito bites, and 4.7% thought that sharing meals or hugging could spread the virus. This reflects a critical gap in general SRH literacy, and they know almost nothing of early detection and prevention of HIV/STIs. These trends echo the findings of other studies in the Rohingya refugee context. For example, a survey reported that roughly 70% of Rohingya refugee women were unable to answer at least half of the basic HIV transmission questions correctly, and fewer than one-third had relatively good HIV knowledge (23).

The qualitative data from our study confirmed these trends. Many participants lacked correct knowledge about the transmission, symptoms, or HIV/STIs prevention strategies. Even the terms ‘STI’ and ‘HIV’ were not familiar to many young Rohingya women. In several cases, they confused HIV and STIs with other illnesses and, most of the time, framed them as divine punishment for sins. This limited understanding stems from several overlapping factors, including a lack of general education, stigma surrounding HIV and STIs, limited engagement with healthcare providers, and the near absence of targeted HIV/STI education. Studies in similar refugee and humanitarian contexts have shown that displaced young women and girls often receive no formal education on HIV and STIs before marriage, leaving them reliant on male partners, families/in-laws, and community gossip for information (19, 24).

Among the few participants who had heard of HIV or STIs, the most common information sources were informal, such as husbands, community gossip, or vague memories of NGO campaigns. Formal sources such as fieldworkers, educational materials, or counselling from health professionals were not commonly reported. In several cases, young Rohingya women echoed the community and religious leaders’ negative views, often associating HIV with immorality or prostitution. This further discouraged women from openly discussing HIV/STIs or seeking testing. Such moral framing of HIV has been documented in other LMIC refugee

settings and contributes to silence, stigma, and missed opportunities for early HIV/STI detection (10, 25). This moralisation of disease has been shown to reduce testing uptake even in settings like Uganda, where services are normally available (6).

HIV/STI testing uptake among the participants was minimal. Our study found that only 2.6% had ever been tested for HIV and 2.5% for STIs. However, 20-33% of Rohingya women reported STI symptoms, yet fewer than half sought care, citing poor access to STI services and lack of awareness about where to seek testing and care as key barriers (26). In our study, among young women who had symptoms indicative of an STI, the vast majority did not seek formal healthcare and often resorted to traditional home remedies. Qualitative interviews further revealed that many young Rohingya women were unaware that STI testing services existed within the camps. They also feared being labelled as promiscuous if they sought STI testing. These concerns contributed to the near-total absence of sexual health testing in practice.

Although HIV testing is part of the Minimum Initial Service Package (MISP) in humanitarian settings, its implementation in the Rohingya refugee camps in Bangladesh has been fragmented. Healthcare providers in our study noted a lack of training, diagnostic supplies, and institutional support for HIV/STI services. As a result, both women and health workers remain unprepared and unempowered to engage in routine HIV/STI education or testing. Similar gaps between formal healthcare policies and operational practices have been documented in LMIC refugee settings (7, 24, 27).

Most SRH interventions in the camps targeted married women, leaving adolescents and unmarried girls without access to relevant information or services. Some young women who had married at ages 15-17 reported never learning about HIV or STIs before marriage and relying solely on husbands for related information. This reflects a broader pattern in refugee contexts like Afghanistan, Syria, and Bangladesh: unmarried adolescent girls are often overlooked in SRH outreach (28, 29).

### ***Determinants of HIV/STI Literacy and Testing***

Quantitative analysis showed that a few sociodemographic factors were significantly associated with HIV/STI awareness. Women who had any formal education, those employed outside the home, and those who had recent visits from fieldworkers were more likely to be aware of HIV/STIs. Multivariate analysis confirmed that these factors independently predicted higher levels of awareness. In turn, awareness itself was strongly associated with testing behaviour: women who had at least heard of HIV or STIs were more likely to have been tested

(although the overall prevalence of HIV/STI testing remained very low). Education was also positively associated with ever having been tested, suggesting that women with more schooling were more inclined or able to seek out diagnostic services. However, even among the small subgroup of participants who were aware of HIV/STIs, actual testing remained low, indicating that knowledge alone was insufficient to trigger behavioural changes.

Stigma was pervasive and emerged as a key barrier to testing. Young Rohingya women often perceived an HIV or STI infection as a punishment from God. These beliefs emerged in qualitative narratives in which individuals expressed fears of social judgment or marital issues if they accessed such services. Similarly, in other refugee contexts, young women have reported avoiding HIV testing because they believed that getting tested implied immoral or premarital sexual behaviour (30). A cross-sectional study in Kampala, Uganda, for example, found that young refugee women were particularly hesitant to get tested for HIV because of stigma and generally low HIV/STI awareness (31). Our findings are consistent with these patterns; HIV/STI illiteracy and stigma emerged as decisive factors in poor testing uptake. Young women who possessed at least some HIV literacy (for instance, understanding that early treatment can improve their health outcomes) were more willing to consider testing. In contrast, those who held serious misconceptions or fatalistic views about HIV tended to avoid testing altogether.

Social and cultural norms also significantly influenced HIV/STI testing behaviours among young Rohingya women. Among them, getting tested for HIV/STIs was often regarded as sexual misconduct. Even women who knew about available STI testing services avoided using them due to fear of being recognised, publicly judged, or socially ostracised. Fear of gossip, shame, and moral judgment acted as strong deterrents to visiting SRH clinics. These emotional and social factors were not captured in the survey but became evident through qualitative stories, emphasising the importance of triangulation. Our findings are in full agreement with another qualitative study with refugee youth in sub-Saharan Africa, which previously reported that sociocultural factors greatly shape testing behaviours (6).

Religious fatalism and misinformation further undermined HIV/STI literacy and access to SRH services. Some young Rohingya women believed that HIV could be transmitted through supernatural means or was the result of personal sin, while others thought HIV was only a concern for people outside their immediate community. These beliefs led even those women who had some factual knowledge to feel that preventive actions or medical care were futile. Prior studies have noted that framing HIV as a divine punishment can significantly affect

health-seeking behaviour and contribute to avoidance of care (24). Our findings showed that such fatalistic attitudes often went hand in hand with low perceived self-efficacy in preventing infection or seeking treatment.

As with contraception use, exposure to FCHWs was associated with higher HIV/STI awareness. However, the reach of these workers was limited. Fieldworker visits were infrequent and inconsistent across the camps, and several health workers admitted they deliberately avoided discussing HIV during community visits for fear of provoking community backlash or misunderstanding. Unmarried and younger women - particularly those not engaged in NGO-run education sessions - were the least likely to receive information about HIV/STIs or be invited to participate in testing opportunities. These gaps align with findings from research among Syrian refugee communities in Lebanon, where a lack of targeted outreach to young unmarried women severely curtailed their access to SRH information and services (32).

Taken together, the findings suggest a complex and layered picture of HIV/STI literacy and testing behaviours - shaped not only by individual awareness, but also by stigma, social norms, provider practices, and the broader institutional context of humanitarian response. Findings from Cox's Bazar align with broader literature on HIV/STI literacy and testing in refugee contexts. Studies among Syrian refugees in Lebanon and South Sudanese youth in Uganda similarly report low testing rates, high stigma, and widespread misinformation surrounding HIV/STIs (4, 6, 33, 34). However, the Rohingya context is distinguished by particularly severe knowledge gaps and systemic exclusion from formal education and health communication. Unlike other refugee settings where prevalent myths dominate, Rohingya responses frequently reflected a pervasive 'don't know' attitude, suggesting structural neglect rather than deeply ingrained sociocultural beliefs.

### 8.3 Access to SRH services

#### 8.3.1 Contraceptive services

The findings from the quantitative part demonstrated that the current use of contraceptives (44.9%) was very low despite a high level of literacy about FP service centres (83.1%) and a high level of unmet need among those wanting to prevent pregnancy, with 37.6% not using any method at all. Injectables and pills were the most popular short-term methods, while long-acting reversible contraceptives were rarely used. Factors associated with contraception use in multivariate analysis included exposure to FP information, awareness of service centres, or visits from fieldworkers, and were significantly more likely to use contraception. Notably,

women who were aware of FP service locations were five times more likely to use them. However, only a small proportion of respondents reported receiving regular fieldworker visits focused on FP, as recommended by humanitarian protocols, once a fortnight.

Qualitative in-depth interviews revealed a complex web of structural and sociocultural barriers that restrict young Rohingya women from applying their FP knowledge in practice. The qualitative narrative highlighted how patriarchal restrictions on mobility were reinforced by the fact that most of the young Rohingya women interviewed needed permission from their husbands or other senior family members to attend FP service centres. Stigma around contraception persisted, with many women afraid of being judged if they went to SRH service centres. Societal expectations around demonstrating fertility and the traditional customs of early marriage intensified these fears for newly married young women. Family and provider gatekeeping, consistent with reports from other refugee contexts, illustrates how conservative attitudes and provider biases continue to restrict access to contraception for adolescent and unmarried women (19, 35, 36).

In-depth interviews also revealed logistical and design barriers within SRH service centres, such as long waiting times, insufficient staffing, and a lack of privacy in service areas. Design flaws, including shared waiting rooms and the presence of male staff, were perceived as intimidating and culturally inappropriate, especially for younger women. Similar challenges have been reported among South Sudanese and Somali refugees in Kenya and Uganda, where overcrowded, understaffed clinics and limited access to female providers or private spaces have discouraged visits to SRH service centres, resulting in low levels of contraception use (15, 37).

Findings indicate that young Rohingya women's use of FP services was influenced by a complex interconnected barrier of structural exclusion, gender norms, religious beliefs, service delivery issues, and SRH literacy. We observed a similar pattern across other refugee and humanitarian settings, where stigma, perceived judgment from service providers, and structural barriers often deter attendance at SRH clinics (15, 38, 39).

### 8.3.2 HIV/STI services

Findings from the quantitative survey and qualitative interviews indicate that access to HIV/STI services was even more constrained than access to contraceptives. The survey showed that only 2.6% of respondents had ever been tested for HIV and 2.5% for any STI, despite 83.1% reporting awareness of FP clinics. This contrast suggests a major service gap in HIV/STI care. Roughly one-third of Rohingya experienced STI-like symptoms in the past year, and most

did not seek formal care (26). Multivariate analyses revealed that young women's level of education, visits from fieldworkers, and employment outside the home were associated with HIV/STI awareness. Knowledge and education of women were strongly associated with HIV/STI testing. However, the levels of HIV/STI testing remained low even among educated women, suggesting that simply providing knowledge is insufficient to overcome structural and behavioural barriers.

Qualitative research findings demonstrated high levels of HIV/STI stigma and misconceptions that were compounded by the Rohingya's moral policing practices. Unmarried women were commonly denied access to SRH services by their own community members, as HIV/STI testing was commonly associated with sexual misconduct or 'sin' within the community. Young Rohingya women often avoided visiting SRH centres to protect their reputations from community gossip and social scrutiny. Newly married Rohingya women and teenage girls, who were subject to intense social monitoring, expressed particularly high levels of concern about maintaining their reputations. These challenges are not unique to Cox Bazar refugee camps and have been reported previously among refugee women in South Sudan and Somalia, where HIV testing faced stigma and was linked to assumptions about their sexual misconduct (6, 40, 41).

Open discussion of sexual health was not permitted in the conservative Rohingya society. Women's movements were tightly controlled by male relatives and some religious leaders. Majhis and some religious leaders often discouraged HIV/STI testing, framing it as haram (forbidden), which further reinforced barriers to accessing SRH services. Due to this social surveillance, many women did not feel safe to access SRH services or even information about them. Religious representations of HIV as a punishment from God have also discouraged testing and created silence around sexual health in other LMIC refugee settings, including Jordan and Chad (24, 42).

Multiple systemic barriers further limited Rohingya access to HIV services. For example, Bangladesh's policy did not offer HIV testing and treatment within the Cox Bazar camps, creating a structural barrier since refugees required referrals to distant government hospitals. If a woman tested positive for HIV, antiretroviral treatment was only available at the district hospital, and refugees could access it only with a formal referral and under escort by camp authorities (43). These movement restrictions and bureaucratic procedures create major obstacles for young women. While some camp clinics offered syndromic STI treatment, the availability was inconsistent. Many SRH service centres lacked adequate privacy, and women

often felt unsafe or judged, and felt discouraged, young women from seeking STI care even when experiencing symptoms.

As a result, even when young women had information or experienced STI/HIV symptoms, they rarely pursued testing or treatment. Further interviews with healthcare providers confirmed that demand for STI services remained low, partly because of limited outreach and literacy, but also due to overwhelming feelings of shame. These observations align with findings in refugee settlements in Uganda and Kenya, where low service uptake has been linked to fear of exposure, inadequate confidentiality, and the absence of youth-friendly service models (15, 44).

Young and adolescent Rohingya girls experience a form of systematic exclusion from HIV/STI and broader SRH services at the very time they are most vulnerable. This illustrates a long-established pattern in humanitarian contexts where young people are often marginalised in SRH programmes due to the limited targeted interventions (45).

### 8.3.3 Community-driven facilitators

Qualitative data also showed community-level facilitators that supported young Rohingya women's access to FP despite these barriers. FCHWs were able to overcome husbands' and community members' gatekeeping and access barriers by conducting counselling through home visits, as women in their area of operation tended to trust FCHWs. Young women valued this approach because they feared being observed in public. They served as vital links to information and services, with their familiar language, cultural sensitivity, and confidentiality providing a silent support to the community. Some participants called them 'older sisters' or 'aunties,' trusting their advice more than that of official health professionals. This is consistent with evidence from refugee settings in Ethiopia, Nigeria, and Lebanon, where community-based FCHWs increased utilisation of SRH services among displaced women (16, 19, 46, 47).

Progressive religious leaders and peer networks also played supportive roles. When religious figures endorsed FP for maternal health and redefined HIV/STI testing as a religious duty to safeguard family wellbeing, women reported feeling more comfortable seeking information. This approach has been effectively employed in other Muslim-majority humanitarian settings to lessen resistance to SRH programmes (36). Literate women also acted as informal health navigators, sharing the information they had with peers and occasionally accompanying others to clinics. Peer support, particularly from sisters-in-law or other young mothers, helped some women manage the stigma and misconceptions associated with their situation. In several FGDs,

young women and other stakeholders mentioned that word-of-mouth referrals from neighbours or relatives played a vital role in shaping SRH knowledge and attitudes.

Youth-focused strategies, such as confidential clinic hours and home-based education, were identified as promising, although they are currently underutilised. These approaches helped reduce the shame and fear often linked to public SRH-seeking. Similar youth-sensitive models have seen success in refugee settlements in Uganda and Jordan, where adolescent girls reported feeling more comfortable and engaged with SRH services when confidentiality and peer-led education were prioritised (15, 48, 49).

Although some knowledge of FP and contraceptives is evident in camps, actual use is determined by a variety of factors at the household, community, and health system levels. Both qualitative and quantitative evidence indicate that access to FP and HIV/STI services is not simply a function of awareness, but is also shaped by interconnected structural, religious, community, and gender-based mechanisms that lead to social exclusion. These results highlight the importance of dealing with demand- and supply-side barriers. Community-based programs, such as FP and HIV/STI education involving young Rohingya women as opinion leaders, are critical for increasing the uptake of contraception and HIV/STI testing among them. They will help promote and ensure access to SRH services for all. As in other refugee settings from the LMICs, more sustainable, ongoing investments in engagement with community leadership, religion, and youth will be required to achieve sustained change (50-52).

#### 8.4 Intersectional socioecological interpretation

This study uses an intersectional socioecological framework to integrate and synthesise the above findings. By using this framework, we examine how SRH literacy, FP and HIV/STIs, and service access among young Rohingya refugee women are shaped by the intersections of multiple health determinants, ranging from personal to structural factors, such as literacy, socio-cultural beliefs, and government and humanitarian organisation policies, alongside individual identities like age, gender, marital status, and refugee status, as well as resources. The intrapersonal, interpersonal, community, and structural (social-ecological model) are the four interconnected levels on which the framework is grounded. Additionally, temporal and displacement dimensions associated with SRH experiences of Rohingya refugee populations are also addressed.

This analysis synthesises the lived experiences of a diverse array of social actors to achieve the rich and multi-layered understanding of SRH of young Rohingya women. By integrating

perspectives from young women, men, community leaders, and healthcare providers, the study captures the intersubjective essence of SRH access in their refugee context. This multi-perspective approach reveals that the phenomenon of seeking care is not an isolated individual act; rather, it is a shared social event where a woman's agency is continuously negotiated against the clinical mandates of providers, the moral gatekeeping of leaders, and the patriarchal expectations of male partners, mothers/fathers-in-law, and older family members. The barriers identified in earlier chapters are not static obstacles but the result of overlapping and often conflicting lived worlds that together define the reality of young Rohingya women.

#### 8.4.1 Intrapersonal level: knowledge, beliefs, and attitudes

At an individual level, both quantitative and qualitative analyses highlight gaps in SRH knowledge, more specifically on modes of HIV/STI transmission and contraception among young Rohingya refugees in Bangladesh. These knowledge gaps are reinforced by strongly held misconceptions and beliefs about contraception and HIV/STI testing. Many young Rohingya women feared that contraception use would lead to infertility; HIV was believed to be transmitted through mosquito bites or casual contact, and testing was considered morally wrong. This misinformation highlights both educational exclusion issues and limited exposure to formal health communication.

At this level, interconnected determinants (such as illiteracy, early marriage, and limited autonomy of young women in reproductive and FP decision-making) increase women's vulnerabilities. The study found that both age and marital status emerged as key drivers of inequality. Younger and unmarried Rohingya women were often excluded from FP or HIV education programs based on assumptions about their sexual activity (or rather lack of it). Participants aged 15-17 years were considerably less likely to use contraception or seek HIV/STI testing, which was indicative of both their life stage and social marginalisation. However, newly married Rohingya women reported feeling pressure to become pregnant early on, often driven by cultural expectations, family influence and social norms, which lead to deprioritisation of contraception, even when women might prefer to delay pregnancy. Unmarried women tended to avoid negotiation of SRH altogether for fear of being judged socially.

In each of these circumstances, personal decisions were influenced not just by the lack of literacy and access to information but also by social meanings attached to gender, age, and reproductive roles. This trend is documented by studies from other refugee camps in Jordan

and Nigeria, where refugee women internalised community norms regarding fertility and modesty, which limited their access to SRH services (16, 19, 53-56). SRH literacy was a protective factor. In our study, quantitative data revealed that literate women were more likely to have heard of HIV and other STIs. This suggests a clear link between literacy and health awareness. Complementing this, qualitative findings underscored the role of literate peers as informal health educators within refugee communities, serving as vital conduits for health knowledge in the Cox Bazar setting, where formal education is limited. Within this intrapersonal domain, a critical distinction emerges between place-based and online pathways to literacy. While young women's physical agency is restricted by the camp's boundaries, the digital space offers a nascent alternative; mobile phones can serve as a private digital window, potentially allowing individuals to bypass the immediate shame associated with in-person inquiries. However, this is complicated by a digital gender gap and limited access to mobile phones and the internet, which often mirrors the traditional exclusions found in the physical environment. The intrapersonal layer of SRH access among young Rohingya women is characterised by limited knowledge, widespread misinformation, internalised stigma, and significantly restricted personal autonomy. For example, intersecting stigmas around youth, sexuality, and refugee status have been found to discourage SRH health-seeking behaviour among displaced women and adolescents (53), showing how stigma intensifies individual barriers. These factors, combined with social status indicators such as literacy and marital status, create unique barriers within the refugee population. Successful interventions should identify sub-groups and customise health education based on age, marital status, and literacy levels, while also tackling harmful beliefs and misconceptions that prevent service utilisation (18, 44, 57).

#### 8.4.2 Interpersonal level: family, partners, and peer influences

Intersections are most visible at the interpersonal level through the lens of marital status and age. The gatekeeping role of the husband is not uniform; it is most intense for newly married adolescents (15-18), where the pressure to prove fertility (age-based) intersects with a lack of household decision-making power (marital-based). Conversely, for slightly older married women with at least one child, the patriarchal bargain shifts, allowing for more negotiation regarding birth spacing. This shows that the interpersonal level of the ISEF is a dynamic site of intersectional negotiation rather than a fixed structural barrier.

On an interpersonal level, gendered power relations within households, especially among spouses, mothers-in-law, and older relatives, play a significant role in shaping young women's

SRH knowledge and access to services. The patriarchal structure typical of Rohingya families tends to restrict and oversee a young woman's opportunity to seek SRH information or discuss SRH issues, making her more dependent on her husband, close family members or community gossip.

Both quantitative and qualitative data indicated that husbands/parents/mothers-in-law are the main decision-makers for FP, contraception use, and healthcare. Many young Rohingya women reported that they need their husbands' approval to use contraception. The survey revealed that contraception use is usually lower among young Rohingya when husbands control the decision-making. Qualitative interviews also highlighted that women often have to seek permission from husbands/parents/mothers-in-law spouses to access SRH services. This pattern is consistent with broader trends seen in other refugee settings like Lebanon, Sudan, and among the Rohingya, where male gatekeeping greatly limits women's reproductive autonomy (3, 32, 58-60). Qualitative narratives revealed that many women felt they could not use FP without their husbands' consent. Additionally, feelings of shame and fear often prevented them from initiating discussions about FP with their husbands. For many young Rohingya women, open discussions about contraception are uncommon, as prevailing social norms often position such discussions as the husband's prerogative.

Among the Rohingya, negotiations and discussions about sexual matters with husbands were very limited, even if they were married. Young married women, in particular, felt shy about discussing sexual matters with their husbands. Even when they were concerned about their health, many young Rohingya women said they were unable to refuse sex or start conversations about contraception or HIV/STIs. This lack of agency, influenced by patriarchal family norms, is felt most keenly among them.

Combined mixed-methods data consistently show that husbands and elder relatives often act as gatekeepers. In the Rohingya community, mothers-in-law played a dual role in shaping attitudes towards FP. In some Rohingya families, they supported FP in order to reduce the physical and emotional burden of frequent pregnancies on young wives and to mitigate health risks related to early pregnancy. However, in other households, mothers-in-law actively discouraged the use of contraception, driven by a desire and value of having as many grandchildren as possible and believing that a woman's primary role was continuous childbearing. This ambivalence underscores the complex influence of elder women in reproductive decision-making within Rohingya families. The family dynamics teach young women early that discussing or seeking SRH information is taboo and that they should follow

elders' expectations regarding childbearing. Religious leaders from the Rohingya community often reinforce these family pressures and demand that extended family frequently take priority over young women's wishes, especially for newly married girls and adolescents.

Peer pressure had both beneficial and detrimental effects on their SRH. Friends and sisters-in-law who were literate played a crucial role as sources of information and essential informal support, particularly for women without access to formal health services. However, in the absence of official health education, peer networks also spread false information about HIV/STIs, such as believing it is a punishment from God and associating contraception with causing infertility and cancer. This dual role of peer groups is also observed in other refugee contexts, such as Lebanon and Kenya, where misinformation exists within the network of the informal support system (18, 32, 37).

An intersectional perspective allows us to better explain these dynamics. Young women without children are more likely to be monitored and to have less say in household decisions. Newly married young Rohingya refugee women, for example, frequently face strong pronatalist pressure from their husbands and extended family to prove they are fertile, which discourages them from seeking SRH services. This pattern is similar to that seen in South Sudan and Nigeria, where early marriage and fertility expectations limit refugee women's access to SRH services (15, 16, 54). The use of FP is statistically associated with factors such as age, marital status, and husband's education, but in reality, their SRH behaviour is more influenced by underlying power dynamics, such as social, cultural, religious, and familial influences, which determine whether SRH literacy or access translates into concrete behaviours.

Our findings suggest that improving SRH outcomes among young refugee women in Bangladesh requires interventions focusing on the interpersonal level. Specifically, strategies should foster positive peer networks, family member engagement, and open communication between spouses. However, these efforts must operate within the gender and generational hierarchies of Rohingya family structures. Similar refugee and humanitarian settings have seen the success of interventions that use culturally specific discussions facilitated by male partners and older females (3, 59, 61).

#### 8.4.3 Community level: norms, narratives, and gatekeeping influence

At the community level, restrictive gender norms, conservative religious beliefs, and informal power structures (with Majhis and religious leaders at the pinnacle) collectively shape the SRH

environment for young Rohingya women. These influences often reinforce stigma, restrict access to services, and portray discussions about FP, HIV and STI as culturally inappropriate or even immoral.

Qualitative data consistently reveal that community narratives equate the use of FP with disobedience to divine will and consider HIV/STI testing as a sign of promiscuity. Newly married girls and unmarried adolescents are especially affected, as gossip networks and public shame discourage even passive engagement with SRH services or education. Similar patterns have been observed in refugee settings in Jordan and Nigeria, where community monitoring and moral policing limit adolescent girls' access to SRH services (16, 19, 54-56, 62).

Religious leaders, like family elders, held significant influence in the Rohingya community, often serving a dual role in shaping attitudes toward SRH. Many conservative Imams opposed the use of contraception and HIV testing, considering them sinful or unnecessary. Their lecture and community messages often reinforced fatalistic beliefs, discouraging engagement with SRH services. Almost all religious leaders advocate abstinence until marriage and high fertility as religious duties. Some religious scholars warned families that using contraception could bring divine punishment. These messages increased fear and shame among young women and undermined trust in health providers. Consequently, NGOs struggled to gain trust or deliver culturally appropriate education.

Majhis and other male elders served as informal gatekeepers, exerting control over how SRH messages and services reached women. They regulated access to NGO workers, approved community events, and monitored women's movements and participation. Often, male health workers were prevented from entering homes, hindering outreach. This widespread gatekeeping and community oversight shaped perceptions of what was considered socially acceptable, significantly influenced the dissemination of SRH information and shaped women's ability to engage with health services.

Indeed, community surveillance was pervasive. Young Rohingya women reported being judged or labelled as immodest if they attended SRH sessions or were seen near health facilities that provided FP or HIV/STI services. This level of scrutiny was particularly intense for adolescent girls and unmarried women, fostering a culture of silence and fear concerning reproductive health. This environment reinforces 'place-based' barriers where the extreme population density of the temporary camps renders a woman's physical movement to a clinic a public act, subject to immediate moral policing. Conversely, emerging online facilitators,

such as stealth peer networks on social media, offer a degree of anonymity and privacy that is physically impossible within the congested camp layout. Nevertheless, the transition from physical to digital surveillance remains a risk, as community norms regarding appropriate information seeking permeate both the physical and virtual community spheres. These findings are consistent with observations in Somali refugee camps in Kenya, where visibility at SRH clinics was associated with sexual impropriety, thereby discouraging the utilisation of services (44, 63, 64).

However, facilitating factors at the community level were also identified. In order to align these practices with Islamic principles of health and responsibility, some progressive religious leaders started to view FP and HIV/STI education and testing as acts of compassion, maternal care, and family wellbeing. These reinterpretations helped change social norms and legitimise SRH practices when they were expressed in places of trust, such as mosques or women's gatherings. Research from Lebanon and Chad shows that religious involvement can significantly increase acceptance of SRH, especially when it emphasises family and health wellbeing (24, 32).

FCHWs played a key role in influencing community values and norms. They were able to convey SRH messages to community members in a way that was regarded as reliable and acceptable because of their shared identity, cultural awareness, and tactful approach. They also enabled the attainment of community approval for outreach activities or home visits, thus reducing resistance from male gatekeepers.

Our findings demonstrate the influence of community norms but also show that they are flexible and can improve through systematic efforts. The key findings of this study are that there is low SRH knowledge and limited access to services within the camps. However, engaging trusted community members who can challenge these harmful myths with positive alternatives will help open pathways to accessing SRH services. Interventions must recognise the role of informal leaders and work within a culturally competent framework to facilitate change. In practice, community mobilisation strategies have proven effective. For instance, in Uganda's Bidi Bidi settlement, peer-led education sessions combined with engagement of local faith leaders significantly increased awareness of contraceptive options and reduced stigma around family planning (6). Similar successes have been observed in other refugee contexts, particularly when highlighting local leadership and religious dialogue (39). These approaches should be prioritised in the design and delivery of SRH services for the Rohingya community. By addressing interpersonal and community-level influences, such as family decision-making

norms and the role of religious leaders, interventions can be more culturally responsive and effective in improving SRH outcomes for young Rohingya women.

#### 8.4.4 Structural level: institutional, infrastructural, and policy barriers

Systemic barriers to SRH literacy and service access among young Rohingya refugee women in Bangladesh are deeply rooted in structural challenges such as displacement, statelessness, restrictive policies, governance practices, ambiguous legal statuses, and inadequate infrastructure. Research shows that similar issues, such as a lack of health workers, restrictive policies and laws, language barriers, and gender inequality, hinder women's access to SRH in Ethiopia for Eritrean refugees (22). These systemic limitations perpetuate the exclusion of young refugee women, regardless of their personal awareness or drive.

The health infrastructure within Rohingya refugee camps in Bangladesh is characterised by inadequate resources, insufficient health personnel, and a scarcity of services tailored for youth. Qualitative interviews have revealed problems such as constrained financial resources, lengthy waiting periods at SRH centres, and poor service quality, particularly within SRH units. While certain facilities do offer syndromic management for STIs, the extent of coverage remains irregular. Young Rohingya refugee women have reported dismissive attitudes, rushed consultations, a lack of privacy, and health workers frequently lacking the training needed to provide comprehensive counselling. These factors discourage women from seeking SRH care. While SRH services are often physically located within the camp's administrative boundaries, the temporary and high-surveillance nature of the infrastructure necessitates that refugees navigate intense social and physical gatekeeping to reach them. Digital health interventions are often proposed to bridge these structural gaps; they are currently hindered by the lack of a formal digital infrastructure, limited internet access and the high cost of data. Consequently, structural improvements must focus on both the physical delivery of care within the camp's 'place-based' constraints and the expansion of secure, digital platforms that can provide the confidentiality currently lacking in the physical humanitarian landscape. Comparable difficulties have been reported in other refugee settings in Uganda and Ethiopia, where workforce shortages and the unavailability of youth-friendly services impede access to SRH resources (15, 22, 47, 54).

Bangladesh's national policy does not permit HIV testing in Rohingya refugee camps. This forces young women to travel around two hours from the camps for HIV care, which is frequently impractical because of financial constraints and mobility restrictions. Some policies

also reinforce conservative ideologies, as seen in programs that discourage unmarried girls from accessing contraceptives or information on HIV/STIs based on the supposition that they are not sexually active. Such institutional exclusions and restrictions are in violation of rights-based principles and particularly put young women at risk by reinforcing misinformation and unmet healthcare needs. Similar challenges arise in Jordan and Chad, where restrictive eligibility requirements and referral systems impede refugee women from accessing HIV and STI services (24, 29, 32, 65, 66).

Statelessness significantly affects SRH outcomes among Rohingya refugees. The Rohingya refugees, who have been living in legal limbo, are not officially recognised by Myanmar as citizens, and they have not been recognised by Bangladesh as refugees (67, 68). This uncertain status restricts their access to national health services and protections, forcing them to depend on humanitarian aid. This situation is explained by the theory of intersectionality. Young Rohingya refugee women from conservative homes who are illiterate are subject to several overlapping exclusions. They struggle to navigate systems that often overlook their unique needs because they lack a formal legal identity. Unmarried young Rohingya women face particularly acute challenges due to limited access to SRH education, restricted freedom of movement, and exclusion from SRH services. These constraints are often compounded by conservative family norms and community-level restrictions, leaving their SRH needs largely unmet.

Structural barrier (the national policy prohibiting HIV testing in camps) does not affect all young Rohingya women equally; it intersects with individual literacy and interpersonal power dynamics. A literate young woman may use her peer network to seek information, effectively bypassing the structural gap, whereas an illiterate, newly married adolescent experiences this structural barrier as a total blackout of information due to her lack of mobility and high household surveillance. This cross-level interaction demonstrates that vulnerability is not a fixed trait of the Rohingya woman, but a dynamic result of how her specific identity intersections collide with the camp's socio-ecological layers. The structural barriers identified in this study are not merely localised failures of camp infrastructure; they are symptomatic of a global humanitarian model struggling with the crisis of chronic temporariness. As the Rohingya displacement in Bangladesh enters its tenth year, the emergency logic of aid, which prioritises caloric intake and basic shelter, has failed to evolve into a rights-based framework that addresses the complex, gendered, and long-term SRHR needs of a stateless population.

Much of the gendered service gap documented in this research is a byproduct of donor-driven funding streams that frequently equate gender-sensitive programming with women-only services. Those programs exclude men from formal SRH and HIV/STI programming, and international donors inadvertently mirror and reinforce the patriarchal segregations of the camp. This study argues that such siloed approaches are counter-productive; by failing to engage men as relational partners in health, the humanitarian system leaves the underlying moral surveillance and household power dynamics unchallenged, thereby placing the entire burden of reproductive responsibility and social stigma onto young women.

Our findings emphasise the need for coordinated efforts at multiple levels, structural reforms, and sustained investment in customised, rights-based reproductive health care. Policy changes are essential to facilitate HIV/STI testing and expand SRH rights and justice within Rohingya refugee camps in Bangladesh. Donor funding should prioritise staff training, infrastructure upgrades, and the establishment of youth- and gender-sensitive services as the standard. Importantly, refugees must be actively involved in the design and delivery of healthcare services to ensure that these services are linguistically, culturally, and contextually appropriate. Models of participatory governance and refugee-led services have demonstrated considerable promise for enhancing SRH outcomes during prolonged crises and should be prioritised in future initiatives (22, 52).

#### 8.4.5 Temporal and displacement dimensions

Temporality and displacement dimensions, often ignored in static models, are critically important in understanding young Rohingya refugee women's changing SRH experiences. These dimensions indicate how health pathways and access to SRH services and information are also influenced by ongoing unrest and women's life transitions. After arriving in the Cox's Bazar refugee camps, many young Rohingya women married and had children early, often without prior exposure to SRH information. During displacement, conditions were chaotic, disorganised, insecure, and lacked basic services. In this context, women mainly focused on urgent needs, including access to food, shelter, and safety. As a result, education, health promotion, and peer learning for young women and girls were deprioritised, creating long-term gaps in their SRH literacy and increasing their vulnerabilities.

A young Rohingya refugee woman's intent to use contraception is not an isolated decision; it is a negotiated phenomenon. Young women have experienced the internalised surveillance within the camp. This individual fear is then layered with the interpersonal reality revealed in

the men's IDIs, where husbands expressed a crisis of masculinity, fearing that a lack of early pregnancy would lead to community gossip about their virility. This journey is further complicated by the structural gatekeeping described by the Majhis, who view SRH services as a threat to communal morality. By layering these distinct voices, the woman's fear, the husband's social pressure, and the leader's moral policing, the analysis reveals that access is a highly individualised and fragile negotiation. This composite view shows that even within a seemingly homogenous community, every act of seeking SRH care is a unique act of resistance against a multi-level socio-ecological cage.

A critical finding emerging from the integration of qualitative data is the reciprocal relationship between structural gender bias and community-level discrimination. The data from the IDIs suggest that the gendered service gap, where men are systematically excluded from STI and SRH care, is not merely a lack of service; it is a catalyst for further gender-based monitoring.

Because the humanitarian framework primarily targets young women, the *Shanti Khana* (health centres) are often perceived by men as female-only spaces that challenge traditional moral boundaries. When men are structurally denied formal SRH information, they fill this vacuum with community myths and protective narratives. Consequently, a woman's attempt to seek care is viewed not as a health-seeking behaviour, but as a potential violation of communal *Purdah* or *Sharam* (shame). This creates a cycle where structural exclusion (at the policy level) reinforces interpersonal surveillance (at the household level), transforming male partners into suspicious gatekeepers. Recognising this dynamic is essential: the stigmatisation of women is exacerbated by a service model that fails to engage the patriarchal structures that govern their lives.

Utilising the integrated ISEF (details on page 112), this analysis recognises that the socio-ecological levels are not static silos but a series of nested, reciprocal systems. The lived experience of a young Rohingya woman is the point of tension where these systems collide. For example, the structural barrier of limited legal status (macrosystem) filters down through community gatekeepers (mesosystem) to create an individual sense of hyper-surveillance (microsystem).

However, the data also reveals bottom-up resistance: young women who leverage their literacy (individual level) to form stealth peer networks (interpersonal level) effectively create a safe space that bypasses community gatekeeping. This inter-level movement demonstrates that the barriers to SRH are not merely cumulative but are dynamically negotiated. A change in one

level, such as a progressive reinterpretation of religious texts by a local religious leader, can trigger a cascade of increased agency at the individual level. By analysing these cross-level flows, the study provides a more complex understanding of the socio-ecological cage and the specific points where it can be unlocked.

Over time, some changes in attitudes towards SRH became apparent. Younger Rohingya women, who had a chance to be engaged in community health worker and peer education initiatives, exhibited heightened receptivity to FP and HIV/STI testing. These developments suggest that sustained investment in community-oriented, culturally suitable programmes can gradually influence prevailing social norms. Evidence from Uganda and Lebanon substantiates that continuous engagement with peer-led and youth-centred SRH initiatives can lead to incremental shifts in perceptions and an increase in service utilisation (15, 32). These improvements remain fragile. These small changes in SRH could be lost quickly if institutions fail to change, funding remains unchanged, and refugee rights aren't recognised by law. Displacement harms health systems and hinders social development, resulting in slower progress in education, empowerment, and long-term growth.

A long-term strategy is needed to address the SRH issues faced by young Rohingya refugee women in Bangladesh. Humanitarian responses should move beyond short-term solutions and focus on sustained, rights-based, community-driven initiatives that can adapt to changing vulnerabilities and promote intergenerational development. This involves integrating SRH education across the lifespan, supporting adolescent transitions, and providing ongoing care across displacement cycles (52). Previous research indicates that a multilevel, intersectional approach is essential to addressing complex SRH disparities and achieving health equity (22, 69).

### 8.5 Methodological reflections

This section provides the discussion on methodological issues in mixed methods research, specifically reflexivity, trauma-informed practice, and ethics, as well as the challenges of cross-sectional research within humanitarian and refugee studies. It is crucial to consider these factors when interpreting findings in context, recognising the perspectives and positions of the researchers, and ensuring the study design supports the complex nature of refugee settings to better understand their real experiences.

### 8.5.1 Reflexivity and trauma-informed approaches

Given the personal and sensitive nature of the SRH topics, especially in refugee and conservative settings, the study was focused on employing a reflexive approach alongside trauma-informed data gathering methods. This approach was used to keep the researcher aware of their positionality, social identity, and possible effects on the study. As a male researcher with a background in public health and social sciences, I was aware that respondents' responses may be influenced by my positionality, particularly in the culturally conservative and gendered environment of the Rohingya refugee camps in Bangladesh. Factors such as gender, language, professional status, and institutional affiliation were important, but my identity as a Bangladeshi citizen and my cultural background also played a significant role. Sharing a common cultural context and linguistic familiarity allowed me to communicate effectively and understand nuanced cultural references, which helped me interpret responses more accurately. Moreover, being Bangladeshi provided easier access to the camps and local networks, enabling smoother coordination with community leaders and gatekeepers. Nevertheless, I remained reflexive about how these dynamics might shape participants' openness and the authenticity of their narratives, and I employed strategies such as emphasising confidentiality and engaging community intermediaries to mitigate potential biases.

It was also difficult as a male researcher to work on FP/HIV/STI because of the sensitive nature of the topic and the gendered relationship between young Rohingya refugee women and a male researcher. To address these challenges, female research assistants were employed and trained to administer survey questionnaires, conduct qualitative in-depth interviews, and facilitate discussions in focus groups with women. These research assistants were fluent in the participants' language, shared their faith, and belonged to the same culture, making them perceived as insiders with credibility. They were well-trained to detect emotional distress and not to use leading questions or judgmentally charged language. The employment of these assistants not only enhanced the quality of the information gathered but also helped further generate a respectful, culturally safe environment for conducting the study. This approach follows already established best practices for participatory, gender-sensitive study development for refugee and humanitarian settings (51).

Ethical concerns were a top priority for this study due to the vulnerability of the young Rohingya refugee women within the humanitarian context in Bangladesh. The present study adhered to rigorous ethical principles, including respect for autonomy, informed consent, confidentiality, and non-maleficence. The purpose of the study was fully explained to all

participants, as well as the study's aims. Prospective, voluntariness, and the possibility of withdrawal without negative consequences were explained to the participants.

The research used a trauma-informed ethical framework (70) that guided every part of the study. Knowing that many participants had faced displacement, conflict, violence, and gender-based trauma, the team prioritised emotional safety, respected participant autonomy, and practised compassionate listening. All surveys and interviews were conducted in familiar and private settings. Participation was fully voluntary, and respondents had the right to refuse to answer questions without providing a reason. In addition, these methods not only safeguarded the welfare of participants but also enhanced data integrity through trust and openness. When participants felt both respected, safe, and secure, they offered accounts of what are often personal experiences.

Special care was given to prevent re-traumatisation. SRH questions were asked slowly and deliberately, with interviewers trained to read body language and pause when participants showed signs of distress. In the qualitative part of the study, sometimes questions were omitted or phrased differently in response to emotional cues, and when appropriate, referrals were made to relevant support services.

In this study, the analysis and interpretation of data were also informed by trauma. Quotes were chosen to protect the anonymity and dignity of research participants, and the research narrative was written with the aim of avoiding deficit language. Rather than depicting women as passive victims, the study drew attention to their agency, coping mechanisms, and acts of resistance within the displaced context.

Reflexivity also informed the plan for dissemination of our research results. In dissemination, the study findings on FP and HIV/STIs among young Rohingya refugees in Bangladesh will be communicated to humanitarian organisations and other SRH service providers at camps in a culturally relevant manner. By translating academic evidence and published articles into actionable practitioner knowledge, the study aimed to advance not only the scholarly understanding but also the development of more ethical, inclusive, and responsive SRH programs for Rohingya refugees and other displaced populations. Using reflexivity in conjunction with trauma-informed principles ensured that the study was ethical and remained culturally relevant and that we remained sensitive to the complexity of the young Rohingya women's experiences. These methodological choices are in line with an emerging consensus on decolonial and participatory ethics in global health research (39).

### 8.5.2 Strengths and limitations

This mixed-methods - qualitative and quantitative - research provides a broader picture of SRH among young Rohingya refugee women in Bangladesh. In this study, we triangulated surveys with IDIs and FGDs, which allowed us to investigate SRH practices and their sociocultural determinants. While developing and utilising mixed-method techniques for the research was beneficial, the study also faced limitations that need to be acknowledged.

#### ***Strengths***

- The mixed method, combining qualitative and quantitative approaches, enhanced internal validity and increased the explanatory power through the triangulation method. Quantitative data revealed patterns and relationships, while qualitative data provided depth and layered insights into meaning, emotional, and normative aspects, which are rarely captured through quantitative methods alone.
- The intersectional socioecological model used in this study offered consistent analytic support, facilitating a unified approach to interpreting data across various types and levels of influence.
- In the quantitative part, multistage random sampling enabled research representativeness and minimised selection bias, supporting generalisable insights for the Rohingya refugee camp population in Bangladesh.
- During the qualitative phase, involving a range of stakeholders, married and unmarried women, men, community leaders, and health workers offered a comprehensive and multifaceted view of SRH barriers and facilitators among young Rohingya refugee women in Bangladesh.
- Female interviewers who shared cultural backgrounds with participants increased their comfort levels and encouraged more detailed responses, especially on sensitive topics such as the SRH of the Rohingya community.
- The iterative design of the study allowed for adaptation to emerging themes, with quantitative findings guiding purposive sampling and thematic analysis of qualitative data. This approach kept the study flexible and engaging, ensuring that no key insights were overlooked.

#### ***Limitations***

Despite these strengths, several limitations are inherent in the methodology.

- Firstly, one of the limitations of this cross-sectional research design is that it limits inference of causality. While we identified associations, the temporal sequence of events-

such as whether exposure to peer education leads to increased SRH knowledge or vice versa-cannot be definitively established. Despite this limitation, the study offers valuable insights into the lived experiences, perceptions, and structural barriers faced by young Rohingya refugee women. These findings are instrumental in informing culturally sensitive, evidence-based interventions and policies, even if causal relationships require further longitudinal research.

- Secondly, self-reported and interviewer-assisted data collection may have introduced a potential bias of social desirability, particularly regarding sensitive topics like FP, contraception, and HIV/STI among young Rohingya refugee women in Bangladesh. To mitigate this, trained interviewers made every effort to create a safe and respectful environment where women felt empowered to speak openly and provide honest answers.
- Thirdly, the area of generalisation is limited. The sample comprised solely young women, predominantly married, living in registered camps in Cox's Bazar. Accordingly, the results may not be representative of and generalisable to unmarried adolescents, male partners, or residents of unregistered camps and host communities. However, despite this limitation, the study provides critical insights into the SRH awareness, experiences and needs of a highly vulnerable and often underrepresented subgroup within the Rohingya refugee population. These findings hopefully inform targeted interventions and can serve as a foundation for future research expanding to other refugee subgroups and settings.
- Fourthly, the integration process presented analytical challenges. While harmonising datasets collected with various instruments — quantitative and qualitative — posed initial challenges, overcoming these obstacles led to a more comprehensive understanding of the research themes. Notably, the qualitative approach revealed nuances — such as fatalism, community surveillance, and moral judgment — that might otherwise have been overlooked, thereby transforming a challenge into an opportunity for richer interpretation.
- Lastly, translating from the Rohingya dialect to English presented challenges that might have resulted in slight changes in meaning, despite thorough back-checking.

Despite these limitations, the methodological integration enabled a rich, multi-layered understanding of young Rohingya refugee women's SRH in Bangladesh, informed by empirical evidence. Although representativeness and causality challenges remain, this study offers robust, evidence specific to the Rohingya context for the development of SRH policy and programming in refugee settings. Future studies should be longitudinal in nature to assess the long-term consequences of the intervention and attempt to engage underrepresented groups.

## CHAPTER 9: CONCLUSIONS AND RECOMMENDATIONS

This final chapter summarises key findings and discusses their implications for public health, SRH policies, programs, and future research. This study, employing a mixed-methods approach through an intersectional socioecological theoretical lens, examined SRH knowledge, literacy, and service access, as well as the barriers and facilitators to accessing health services among young Rohingya refugee women aged 15-24 in Cox's Bazar, Bangladesh. It applied the intersectional socioecological framework and triangulation to link cross-sectional survey data with IDIs and FGDs. Table 16 describes an integrated summary of key findings and recommendations. Key findings are summarised below.

### 9.1 Summary of key findings

#### **a. Limited SRH Literacy**

Although awareness of FP was generally high, there was a lack of detailed knowledge about contraceptive options and HIV/STIs. Misconceptions, such as contraception causing infertility or HIV spreading through casual contact, were common. Younger women, those with lower literacy levels, and unmarried adolescents showed the largest knowledge gaps, often being overlooked by both formal and informal sources of SRH information.

#### **b. Low Utilisation and High Unmet Need for Services**

Contraception use was modest, with more than a third (37.6%) of those wanting to avoid pregnancy not using any method. HIV/STI testing was almost non-existent, with fewer than 3% having ever been tested. While awareness of SRH service centres was somewhat high, this did not lead to high service utilisation, highlighting important gaps in service availability and barriers to access. This comparison confirms that while the community has been saturated with general FP messages over eight years of displacement, HIV/STI education lacks the functional literacy, knowing specific testing locations or correct condom use, required to convert motivation into clinical health-seeking behaviour.

#### **c. Convergent Barriers: Universal Stigma and Place-Based Surveillance**

A primary similarity across both health domains is the role of community surveillance and moral policing. The fear of being labelled immodest acts as a universal barrier, whether seeking a contraceptive pill or an STI consultation; the physical act of navigating the camp to reach a health facility is governed by the same patriarchal gatekeeping structures. This suggests that

stigma in the Cox's Bazar camps is not issue-specific but is a broad structural barrier to female health agency.

#### **d. Temporal Vulnerabilities and Emerging Shifts**

The study identifies that while prolonged displacement has deepened systemic exclusion and interrupted education, there is an emerging shift among younger, literate women. These women are increasingly utilising digital windows and literate peer educators to challenge the misconceptions, such as infertility fears, that remain prevalent among the older or illiterate cohorts. This intergenerational shift suggests that while structural barriers remain stagnant, community-led facilitators are beginning to recalibrate the SRH landscape.

#### **e. Divergent Interpersonal Dynamics: Spousal vs. Peer Influence**

A significant difference emerges in how interpersonal relationships facilitate or hinder access. For FP, spousal communication is the primary determinant of uptake (as seen in the 37.6% unmet need often linked to lack of husband's approval). However, for HIV/STI services, husbands are often excluded from discussions due to fears of blame. Conversely, peer-led stealth networks were more active facilitators for sharing HIV/STI information than for FP, indicating that while FP is a contested domestic issue of fertility, HIV concerns are often managed through informal, high-trust female networks to bypass formal gatekeepers.

**Table 16: Integrated summary of key findings and recommendations**

<b>Level</b>	<b>Key Findings</b>	<b>Recommendations</b>
<b>Intrapersonal</b>	<ul style="list-style-type: none"> <li>-Low SRH literacy</li> <li>-Moderate contraceptive literacy</li> <li>-Limited contraception use</li> <li>-Fear of infertility</li> <li>-Very low HIV/STI literacy and testing</li> <li>-Widespread myths &amp; misinformation</li> <li>- Internalised stigma &amp; shame</li> </ul>	<ul style="list-style-type: none"> <li>- Peer-led SRH workshops (school &amp; camp settings)</li> <li>- Stigma-reduction counselling</li> <li>-Empowerment circles for young women</li> <li>- Targeted outreach to unmarried adolescents</li> </ul>
<b>Interpersonal</b>	<ul style="list-style-type: none"> <li>- Husbands/in-laws control SRH decisions</li> <li>- Poor spousal communication</li> <li>- Peer networks spread both support &amp; misinformation</li> </ul>	<ul style="list-style-type: none"> <li>-Engage husbands in SRH programs</li> <li>- Couple’s communication training &amp; counselling</li> <li>- Family dialogue forums with elders</li> <li>- Train literate peers as SRH promoters</li> </ul>
<b>Community</b>	<ul style="list-style-type: none"> <li>- FP/HIV/STI labelled immoral by social/religious norms</li> <li>- Gatekeeping by Majhis &amp; elders</li> <li>- Intense public scrutiny &amp; gossip</li> </ul>	<ul style="list-style-type: none"> <li>- Partner with respected Majhis &amp; progressive Imams</li> <li>- Enlist male elders as partners in outreach</li> <li>- Expand female community health worker programs</li> </ul>
<b>Structural</b>	<ul style="list-style-type: none"> <li>- Camp policies bar HIV testing</li> <li>-Fragmented STIs services</li> <li>- Clinics understaffed, non-youth-friendly, privacy gaps</li> <li>- Distrust of external providers</li> <li>-Statelessness denies legal health entitlements</li> </ul>	<ul style="list-style-type: none"> <li>- Advocate policy reform to permit comprehensive SRH services</li> <li>- Invest in youth-friendly clinic upgrades (privacy, female staff)</li> <li>- Co-design services with Rohingya women</li> <li>-Secure sustained funding</li> <li>-Integrate SRH across the life-course in formal/informal education</li> </ul>

## 9.2 Contributions to knowledge and public health

This study contributes to academic research and public health practice, particularly in refugee and humanitarian contexts.

### **a. Empirical Contribution to an Under-Researched Population**

Our study addresses a critical gap in empirical knowledge. Until now, evidence regarding Rohingya women's SRH was limited, with a 2025 review identifying only ten studies on this broad and multifaceted topic (68). This study comprehensively assessed SRH literacy and access to services among young Rohingya refugee women in Cox's Bazar, using a mixed-methods design, and generated robust, contextually rich insights into the SRH of an underserved population. Triangulating data to produce findings deepens and strengthens the analysis by allowing for a more comprehensive understanding of complex issues.

### **b. Theoretical Advancement Through an Intersectional Socioecological Lens**

The research extends the application of the intersectional socioecological model in public health. Despite the widespread application of the socioecological model, its use in conjunction with intersectionality is relatively uncommon. It describes how the complex and overlapping nature of different identities, such as age, gender, literacy, marital status, and displacement, and experiences of marginalisation influence SRH behaviours across various socioecological levels. This approach extends beyond simple explanations, recognising the multidimensional complexity of SRH issues in refugee and displaced settings. Additionally, it reinforces recent evidence indicating that ecological and intersectional frameworks work synergistically to provide a more comprehensive understanding of health outcomes (71, 72).

### **c. Policy-Relevant Evidence for Humanitarian and Public Health Systems**

We hope our findings have implications for the development and improvement of public health programs for Rohingya refugees, service provision in the camps, and policy reform in Bangladesh, among other issues. The barriers and facilitators identified in the study are similar to those found in other refugee contexts, offering lessons learned that can be applied globally to SRH programming. And it underscores the role of programs in the community that are targeting youth and are shaped around cultural needs. Our results suggest possible approaches for intervention. In line with international guidelines, such as UNHCR's emphasis on life-course SRH (73), they argue that programming has to be holistic and culturally adapted. These findings are important for humanitarian practitioners, national policy makers, and international health organisations engaged in the continuing efforts for refugees.

#### **d. Reframing SRH Within Rights-Based and Decolonial Public Health**

This research deepens the understanding of SRH within refugee settings. It reveals that, for a complex interplay of various barriers to knowledge and access to services, refugees in camp settings are unable to exercise their basic SRH rights, framing SRH as a matter of rights and justice, rather than simply as an optional or secondary service. The study highlights the voices and experiences of young Rohingya refugee women to challenge negative stereotypes and emphasise the necessity for inclusive, context-specific public health strategies that acknowledge structural violence underlying health service exclusion.

### **9.3 Policy and program recommendations**

Drawing on the findings of this study, a set of policy and program recommendations is proposed to support SRH literacy and access to services among young Rohingya refugee women in Cox's Bazar. These recommendations are categorised into short-term and long-term priorities due to the need for immediate actions as well as structural reforms. All recommendations are framed within the intersectional socioecological framework and are tailored to the life experiences of young Rohingya refugee women in humanitarian and displaced contexts.

#### **9.3.1 Short-term recommendations**

##### **a. Invest in Evidence and Data Collection**

Enhance routine health information systems to incorporate adolescent and young women-specific SRH indicators and ensure disaggregation by age and sex (74). Conduct comprehensive research and program evaluations to determine optimal strategies for engaging young Rohingya refugee women and adolescents into SRH interventions and research. Utilise this evidence to inform policy adaptations and expand interventions that yield favourable SRH outcomes.

##### **b. Strengthen Community-Based SRH Outreach**

Recruit more FCHWs and train them to deliver culturally sensitive, home-visit counselling on FP and HIV/STI prevention. Equip FCHWs with skills to provide trauma-informed and confidential counselling, especially to young Rohingya refugee women. These women need to be respected and trusted community members who can navigate sociocultural challenges and reach underserved young women. FCHWs should focus on home visits to reach youth, newly

married women, adolescents, and women with restricted mobility. They can also support youth in creating peer-led educational materials to combat misinformation, stigma, and fear.

#### **c. Improve Clinic Accessibility and Develop Youth- and Adolescent-Friendly Services**

Create private and confidential spaces within existing SRH service centres or outreach programmes specifically for young Rohingya refugee women, both married and unmarried. For example, introduce dedicated youth hours and ensure confidentiality in service delivery. It is also vital to provide SRH services that are non-judgemental, especially concerning FP and contraception, menstrual hygiene management, and HIV/STI services. Involve young girls and boys in designing, implementing, and evaluating SRH programmes in the camps. Support or facilitate local youth-led initiatives and feedback channels to make sure services meet the needs of young Rohingya refugee women and to empower girls to make informed decisions. Establish mobile clinics or satellite services in areas of the camps that lack adequate coverage.

#### **d. Strengthen health systems and workforce**

Strengthen existing SRH services and provide training to healthcare providers to deliver youth-friendly SRH services in the Rohingya refugee camps in Bangladesh. SRH interventions in the camps should include FP, HIV/STI services, and GBV support integrated into primary and maternal health services and also increase the budget to ensure the sustainability of SRH services. It is also important to introduce mobile clinics or outreach teams to overcome access barriers within refugee camps and settlement areas.

#### **e. Engage Men, Religious Leaders and Gatekeepers Through Dialogue-Based Interventions**

Implement gender-transformative initiatives that include husbands, mothers-in-law, Majhis, and religious leaders in dialogues related to SRH rights and maternal health. Health workers can collaborate with progressive religious leaders and Majhis to promote SRH in the Rohingya refugee camps. They might explain SRH from the perspective of maternal and family wellbeing, and such programs should aim to challenge harmful norms and promote shared decision-making within families and communities.

#### **f. Integrate SRH into Existing Humanitarian Services**

Humanitarian services could integrate SRH counselling and information into food distribution points, WASH programs, and general health consultations. Following these strategies, their

existing stigma related to SRH could be normalised, and it will also become an integral part of broader health and development initiatives.

#### **g. Improve Privacy and Respect in Health Facilities**

SRH service providers need regular training around confidential, respectful, and non-judgmental SRH care, especially of young people and first-time clients. At the same time, the privacy and confidentiality of existing SRH service centres should be optimised in order to mitigate worries regarding the surveillance of the community.

### 9.3.2 Long-term recommendations

#### **a. Reform National and Humanitarian Policy on HIV Testing**

It is important that Bangladesh revises its national HIV testing policy to permit testing within the camps so that young Rohingya refugee women can have access to private and voluntary testing without violating the camp regulations that restrict movement outside the camp. It is further necessary to support the development of SRH service guidelines that include unmarried young women's access to contraceptive information and to HIV/STI services.

#### **b. Institutionalise SRH Education Across the Life Course**

Support both formal and informal education programmes for girls and young Rohingya women to enhance SRH literacy and independence. These programmes should encompass topics such as SRH, gender equality, and health rights. They should be collaboratively developed with young Rohingya women and local facilitators. Integrate SRH initiatives with some vocational training and income-generation activities to enhance their agency.

#### **c. Implement Gender-Transformative Programming**

Implement design strategies that challenge patriarchal norms and encourage shared decision-making in FP, contraception, and HIV/STIs. Involve men and boys in SRH education to create supportive environments for young Rohingya women's SRH health choices.

#### **d. Transition from Emergency to Rights-Based SRH Models**

Shift from emergency-driven, short-term SRH healthcare approaches to sustainable, rights-based health systems within the Rohingya refugee camps in Bangladesh. For this transition, need to ensure adequate investments in the existing health infrastructure and supply chains. It is also important to hire permanent healthcare staff and establish participatory monitoring and

evaluation mechanisms. Rohingya refugee women should have reliable access to contraceptives, STI testing kits, and educational resources as needed.

#### **e. Support Legal Recognition and Health Entitlements for Stateless People**

States must support refugees for legal recognition and safe and dignified returns to their countries and ensure that they are granted full citizenship. To achieve this, national and international organisations must work together to enhance legal protections and health rights for stateless Rohingya refugees, enabling access to national health systems and essential services.

#### **f. Institutionalise Community Leadership and Accountability Mechanisms**

It is essential to develop systems to monitor the usage of SRH services, track improvements in SRH literacy, and observe behavioural changes over time. At the same time, those systems should include Rohingya women and youth in the planning, execution, and review of existing SRH programs through inclusive advisory councils, such as peer educator networks or community groups. By including their perspectives within existing SRH programs, the programmes would be strengthened and made more sustainable.

### **9.4 Future research directions**

The study's findings and limitations will inform several key future research areas aimed at enhancing understanding and improving SRH outcomes for young Rohingya refugee women and other displaced groups across humanitarian settings.

#### **a. Explore the Experiences of Underrepresented Groups**

Future research should investigate SRH needs among subgroups not included in this study, such as unmarried adolescent girls, young men, people in unregistered camps, young Rohingya residing in Bhasan Char (a remote island in Bangladesh), and Rohingya individuals with diverse sexual orientations or gender identities. These cohorts encounter unique challenges that are yet to be comprehensively understood.

#### **b. Conduct Longitudinal and Life-Course Studies**

Longitudinal study designs are essential to monitor the evolution of SRH literacy, knowledge, attitudes, and behaviours, especially during critical life stages such as puberty, marriage, first childbirth, and extended displacement. Utilising life-course methodologies can illuminate the ways in which structural exclusions impact SRH trajectories and intergenerational results.

### **c. Evaluation of Service Delivery Models**

Research is necessary to evaluate the effectiveness of various SRH service delivery methods, including mobile clinics, home-based counselling, designated hours for youth, and digital health technologies. Comprehensive implementation and impact assessments are necessary to evaluate the effectiveness of culturally adapted interventions, including programs promoting male engagement, clinics serving young people and adolescents, and peer-led educational initiatives. These investigations should emphasise participatory methodologies that ensure the active involvement of refugees in both the design and evaluation processes.

### **d. Investigate Community and Religious Leader Engagement**

Considering their impact on SRH norms and behaviours, further research is required to examine how religious and community leaders can be effectively involved in promoting rights-based and health-focused practices. Understanding the processes behind normative change is crucial for developing practical and sustainable community initiatives.

### **e. Integrate Decolonial and Participatory Methodologies**

Future research should transcend extractive methodologies by incorporating decolonial and participatory approaches that emphasise refugee agency, knowledge, and priorities. Collaborative research involving Rohingya women, youth, and health workers can enhance both relevance and impact.

### **f. Examine Structural and Policy Determinants of SRH Access**

Further policy-oriented research is necessary to examine the influence of humanitarian governance structures, legal frameworks, and funding mechanisms on access to SRH. Comparative studies across various refugee contexts may yield valuable insights into how different models either facilitate or hinder service delivery and the realisation of rights.

### **g. Participatory and Community-Led Research**

Including refugee women, particularly adolescents and young individuals, as co-researchers or advisors can improve the relevance, ethics, and effectiveness of SRH research. Participatory methodologies, furthermore, have the capacity to empower communities and encourage shared ownership of health interventions.

## 9.5 References

1. Aibangbee M, Micheal S, Liamputtong P, Pithavadian R, Hossain SZ, Mpofo E, et al. Socioecologies in shaping migrants and refugee youths' sexual and reproductive health and rights: a participatory action research study. *Reprod Health*. 2024;21(1):134. doi:10.1186/s12978-024-01879-x.
2. Zakaria M, Nachrin T, Azad MAK. Evaluating the effectiveness of utilization of health communication interventions on sexual and reproductive health of the Rohingya women living in Cox's Bazar refugee camp. *Heliyon*. 2022;8(12):e12563. doi:10.1016/j.heliyon.2022.e12563.
3. Khan MN, Islam MM, Rahman MM, Rahman MM. Access to female contraceptives by Rohingya refugees, Bangladesh. *Bull World Health Organ*. 2021;99(3):201–8. doi:10.2471/BLT.20.269779.
4. Cherri Z, Gil Cuesta J, Rodriguez-Llanes JM, Guha-Sapir D. Early marriage and barriers to contraception among Syrian refugee women in Lebanon: a qualitative study. *Int J Environ Res Public Health*. 2017;14(8):836. doi:10.3390/ijerph14080836.
5. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci*. 2011;6:42. doi:10.1186/1748-5908-6-42.
6. Logie CH, Okumu M, Loutet M, Coelho M, McAlpine A, MacKenzie F, et al. Contextualizing HIV testing experiences within the HIV prevention cascade: qualitative insights from refugee youth in Bidi Bidi refugee settlement, Uganda. *BMC Public Health*. 2024;24(1):2599. doi:10.1186/s12889-024-20135-2.
7. Desrosiers A, Betancourt T, Kergoat Y, Servilli C, Say L, Kobeissi L. A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and-middle-income country settings. *BMC Public Health*. 2020;20(1):666. doi:10.1186/s12889-020-08818-y.
8. Alhussaini NWZ, Elshaikh U, Abdulrashid K, Elashie S, Hamad NA, Al-Jayyousi GF. Sexual and reproductive health literacy of higher education students: a scoping review of determinants, screening tools, and effective interventions. *Glob Health Action*. 2025;18(1):2480417. doi:10.1080/16549716.2025.2480417.
9. Nutbeam D. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promot Int*. 2000;15(3):259–67. doi:10.1093/heapro/15.3.259.

10. Inthavong AB, Pourmarzi D. Characteristics of sexual health programs for migrants, refugees, and asylum seekers: a scoping review. *Int J Environ Res Public Health*. 2024;21(8):961. doi:10.3390/ijerph21080961.
11. Islam M, Habib SE. "I don't want my marriage to end": a qualitative investigation of the sociocultural factors influencing contraceptive use among married Rohingya women residing in refugee camps in Bangladesh. *Reprod Health*. 2024;21(1):32. doi:10.1186/s12978-024-01763-8.
12. Ak EY, Tandoğan Ö, Aslan E. The views of Syrian immigrant women on family planning and unplanned pregnancy: a qualitative study. *Int J Public Health*. 2025;70:1607967.
13. El Arab R, Sagbakken M. Child marriage of female Syrian refugees in Jordan and Lebanon: a literature review. *Glob Health Action*. 2019;12(1):1585709. doi:10.1080/16549716.2019.1585709.
14. Yakıt Ak E, Tandogan O, Aslan E. The views of Syrian immigrant women on family planning and unplanned pregnancy: a qualitative study. *Int J Public Health*. 2025;70:1607967. doi:10.3389/ijph.2025.1607967.
15. Bukenya JN, Ssekamate T, Komuhendo R, Stillman M. Young people's access to sexual and reproductive health services in Uganda: understanding barriers and facilitators. 2025.
16. Okorafor KA, Okeibunor J, Oyinlola FF, Ouedraogo L, Tinuola FR. Exploring sexual and reproductive health needs, barriers, and coping strategies of internally displaced women of reproductive ages in north-central Nigeria: a qualitative analysis. *PLoS One*. 2024;19(12):e0309317. doi:10.1371/journal.pone.0309317.
17. Bakesiima R, Cleeve A, Larsson E, Tumwine JK, Ndeezi G, Danielsson KG, et al. Modern contraceptive use among female refugee adolescents in northern Uganda: prevalence and associated factors. *Reprod Health*. 2020;17(1):67. doi:10.1186/s12978-020-00921-y.
18. Sawadogo PM, Sia D, Onadja Y, Beogo I, Sangli G, Sawadogo N, et al. Barriers and facilitators of access to sexual and reproductive health services among migrant, internally displaced, asylum seeking and refugee women: a scoping review. *PLoS One*. 2023;18(9):e0291486. doi:10.1371/journal.pone.0291486.
19. Fahme SA, Sieverding M, Abdulrahim S. Sexual and reproductive health of adolescent Syrian refugee girls in Lebanon: a qualitative study of healthcare provider and educator perspectives. *Reprod Health*. 2021;18(1):113. doi:10.1186/s12978-021-01170-3.

20. Shumet T, Geda NR, Hassan JA. Barriers to modern contraceptive utilization in Ethiopia. *Contracept Reprod Med*. 2024;9(1):47. doi:10.1186/s40834-024-00311-w.
21. Islam MR, Habib MA. Early marriage and contraceptive use among adolescent Rohingya girls in Cox's Bazar. *BMC Public Health*. 2021;21:509. doi:10.1186/s12889-021-10515-1.
22. Zepro NB, Medhanyie AA, Probst-Hensch N, Chernet A, Tschopp R, Abongomera C, et al. Navigating challenges: a socioecological analysis of sexual and reproductive health barriers among Eritrean refugee women in Ethiopia, using a key informant approach. *BMJ Open*. 2024;14(4):e080654. doi:10.1136/bmjopen-2023-080654.
23. Khan MN, Rahman MM, Rahman MM, Islam MM. HIV transmission knowledge among Rohingya refugee women in Bangladesh: a cross-sectional survey. *BMJ Open*. 2021;11(10):e047516. doi:10.1136/bmjopen-2020-047516.
24. Bedingar E, Ebengho S, Paningar F, Bedingar N, Mbaidoum E, Ngaradoum N, et al. Bridging the gap: enhancing HIV care pathways for young key populations in Chad. *PLoS Glob Public Health*. 2025;5(4):e0003790. doi:10.1371/journal.pgph.0003790.
25. Ferguson A, Shannon K, Butler J, Goldenberg SM. A comprehensive review of HIV/STI prevention and sexual and reproductive health services among sex workers in conflict-affected settings: call for an evidence- and rights-based approach in the humanitarian response. *Confl Health*. 2017;11:25. doi:10.1186/s13031-017-0124-y.
26. Mou MMS, Khan MA, Jahan N, Bulbul A, Rahman H, Ferdous F, et al. Breaking barriers: addressing STI healthcare access challenges among Rohingya refugees in Bangladesh. *IAHS Med J*. 2024;7(1):32–4.
27. Singh NS, Aryasinghe S, Smith J, Khosla R, Say L, Blanchet K. A long way to go: a systematic review to assess the utilisation of sexual and reproductive health services during humanitarian crises. *BMJ Glob Health*. 2018;3(2):e000682. doi:10.1136/bmjgh-2017-000682.
28. Hossain MA, Zablotska-Manos I. The changing dynamics of HIV/AIDS during the COVID-19 pandemic in the Rohingya refugee camps in Bangladesh – a call for action. *Glob Biosecurity*. 2022;4(1). doi:10.31646/gbio.135.
29. Ullah AA. Displacement and disease: HIV risks and healthcare gaps among refugee populations. *Venereology*. 2025;4(2):7. doi:10.3390/venereology4020007.
30. Logie CH, Okumu M, Kibuuka Musoke D, Hakiza R, Mwima S, Kacholia V, et al. The role of context in shaping HIV testing and prevention engagement among urban refugee

- and displaced adolescents and youth in Kampala, Uganda: findings from a qualitative study. *Trop Med Int Health*. 2021;26(5):572–81. doi:10.1111/tmi.13560.
31. Logie CH, Okumu M, Latif M, Parker S, Hakiza R, Kibuuka Musoke D, et al. Relational factors and HIV testing practices: qualitative insights from urban refugee youth in Kampala, Uganda. *AIDS Behav*. 2022;26(7):2191–202. doi:10.1007/s10461-021-03567-4.
  32. Kabakian-Khasholian T, Mourtada R, Bashour H, Kak FE, Zurayk H. Perspectives of displaced Syrian women and service providers on fertility behaviour and available services in West Bekaa, Lebanon. *Reprod Health Matters*. 2017;25(Suppl 1):75–86. doi:10.1080/09688080.2017.1378532.
  33. Ullah AA. Displacement and disease: HIV risks and healthcare gaps among refugee populations. *Venereology* [Internet]. 2025;4(2). Available from: <https://doi.org/10.3390/venereology4020007>.
  34. Koschollek C, Kuehne A, Mullerschön J, Amoah S, Batemona-Abeke H, Dela Bursi T, et al. Knowledge, information needs and behavior regarding HIV and sexually transmitted infections among migrants from sub-Saharan Africa living in Germany: results of a participatory health research survey. *PLoS One*. 2020;15(1):e0227178. doi:10.1371/journal.pone.0227178.
  35. Freedman J. Sexual and gender-based violence against refugee women: a hidden aspect of the refugee "crisis". *Reprod Health Matters*. 2016;24(47):18–26. doi:10.1016/j.rhm.2016.05.003.
  36. Krause S, Williams H, Onyango MA, Sami S, Doedens W, Giga N, et al. Reproductive health services for Syrian refugees in Zaatri Camp and Irbid City, Hashemite Kingdom of Jordan: an evaluation of the Minimum Initial Services Package. *Confl Health*. 2015;9(Suppl 1):S4. doi:10.1186/1752-1505-9-S1-S4.
  37. Gitonga E, Gage AJ. Modern contraceptive prevalence and its predictors among non-refugee and refugee Somali women in Nairobi city, Kenya; a comparative view. *Front Glob Womens Health*. 2024;5:1328612. doi:10.3389/fgwh.2024.1328612.
  38. Warren E, Post N, Hossain M, Blanchet K, Roberts B. Systematic review of the evidence on the effectiveness of sexual and reproductive health interventions in humanitarian crises. *BMJ Open*. 2015;5(12):e008226. doi:10.1136/bmjopen-2015-008226.
  39. Logie CH, MacKenzie F, Malama K, Lorimer N, Lad A, Zhao M, et al. Sexual and reproductive health among forcibly displaced persons in urban environments in low and

- middle-income countries: scoping review findings. *Reprod Health*. 2024;21(1):51. doi:10.1186/s12978-024-01780-7.
40. Newton-Levinson A, Leichter J, Chandra-Mouli V. STI services for adolescents and youth in low and middle income countries: perceived and experienced barriers to accessing care. *J Adolesc Health*. 2017;59:S7–16. doi:10.1016/j.jadohealth.2016.10.024.
  41. Ninsiima LR, Chiumia IK, Ndejjo R. Factors influencing access to and utilisation of youth-friendly sexual and reproductive health services in sub-Saharan Africa: a systematic review. *Reprod Health*. 2021;18(1):135. doi:10.1186/s12978-021-01183-y.
  42. Amiri M, El-Mowafi IM, Chahien T, Yousef H, Kobeissi LH. An overview of the sexual and reproductive health status and service delivery among Syrian refugees in Jordan, nine years since the crisis: a systematic literature review. *Reprod Health*. 2020;17(1):166. doi:10.1186/s12978-020-01005-7.
  43. Inter-Agency Working Group (IAWG). Women and girls critically underserved in the Rohingya humanitarian response [Internet]. 2018 [cited 2025 Jul 10]. Available from: <https://iawg.net/resources/women-and-girls-critically-underserved-in-the-rohingya-humanitarian-response>.
  44. Ivanova O, Rai M, Kemigisha E. A systematic review of sexual and reproductive health knowledge, experiences and access to services among refugee, migrant and displaced girls and young women in Africa. *Int J Environ Res Public Health*. 2018;15(8):1583. doi:10.3390/ijerph15081583.
  45. Okumu M, Logie CH, Chitwanga AS, Hakiza R, Kyambadde P. A syndemic of inequitable gender norms and intersecting stigmas on condom self-efficacy and practices among displaced youth living in urban slums in Uganda: a community-based cross-sectional study. *Confl Health*. 2023;17(1):38. doi:10.1186/s13031-023-00531-y.
  46. Fahme SA, Khater B, Dagher M, DeJong J, Abdulrahim S. Developing a sexual and reproductive health educational intervention for adolescent Syrian refugee girls: challenges and lessons learned. *Front Reprod Health*. 2022;4:780157. doi:10.3389/frph.2022.780157.
  47. O'Connell KA, Hailegebriel TS, Garfinkel D, Durham J, Yakob B, Kassaw J, et al. Meeting the sexual and reproductive health needs of internally displaced persons in Ethiopia's Somali Region: a qualitative process evaluation. *Glob Health Sci Pract*. 2022;10(5):e00818. doi:10.9745/GHSP-D-21-00818.

48. UNHCR. Jordan: Zaatari refugee camp [Internet]. 2022 [cited 2025 Jun 10]. Available from: <https://www.unhcr.org/jo/wp-content/uploads/sites/60/2022/02/1-Zaatari-Fact-Sheet-January-2022-final.pdf>.
49. Samari G. Syrian refugee women's health in Lebanon, Turkey, and Jordan and recommendations for improved practice. *World Med Health Policy*. 2017;9(2):255–74. doi:10.1002/wmh3.231.
50. Mucic D. Cross-cultural telepsychiatry: an innovative approach to assess and treat ethnic minorities with limited language proficiency. In: Jain LC, Howlett RJ, Chen YW, Tanaka S, editors. *Smart innovation, systems and technologies*. Cham: Springer; 2016. p. 49–58.
51. Aibangbee M, Micheal S, Liamputtong P, Pithavadian R, Hossain SZ, Mpofo E, et al. Barriers to sexual and reproductive health and rights of migrant and refugee youth: an exploratory socioecological qualitative analysis. *Youth*. 2024;4(4):1538–66.
52. Aibangbee J, Rana S. Adolescent sexual and reproductive health in displacement: a global scoping review. *Lancet Glob Health*. 2024;12(3):e334–45.
53. Logie CH, Okumu M, Kibuuka Musoke D, Hakiza R, Mwima S, Kyambadde P, et al. Intersecting stigma and HIV testing practices among urban refugee adolescents and youth in Kampala, Uganda: qualitative findings. *J Int AIDS Soc*. 2021;24(3):e25674. doi:10.1002/jia2.25674.
54. Soeiro RE, de Siqueira Guida JP, da-Costa-Santos J, Costa ML. Sexual and reproductive health (SRH) needs for forcibly displaced adolescent girls and young women (10–24 years old) in humanitarian settings: a mixed-methods systematic review. *Reprod Health*. 2023;20(1):174. doi:10.1186/s12978-023-01715-8.
55. Izugbara C, Esiet A, Kanaahe B. Sexual and reproductive health needs and challenges of adolescent girls and young women in humanitarian settings in Nigeria and Uganda: a quantitative report. 2023.
56. Korri R, Hess S, Froeschl G, Ivanova O. Sexual and reproductive health of Syrian refugee adolescent girls: a qualitative study using focus group discussions in an urban setting in Lebanon. *Reprod Health*. 2021;18(1):130. doi:10.1186/s12978-021-01178-9.
57. Munyuzangabo M, Khalifa DS, Gaffey MF, Kamali M, Siddiqui FJ, Meteke S, et al. Delivery of sexual and reproductive health interventions in conflict settings: a systematic review. *BMJ Glob Health*. 2020;5(Suppl 1):e002206. doi:10.1136/bmjgh-2019-002206.

58. Mourtada R, Melnikas AJ. Syrian refugee women's access to family planning services and modern contraception during overlapping crises in Bekaa, Lebanon. *BMC Womens Health*. 2023;23(1):475. doi:10.1186/s12905-023-02613-8.
59. Abul Kalam Azad M, Zakaria M, Nachrin T, Chandra Das M, Cheng F, Xu J. Family planning knowledge, attitude and practice among Rohingya women living in refugee camps in Bangladesh: a cross-sectional study. *Reprod Health*. 2022;19(1):105. doi:10.1186/s12978-022-01410-0.
60. Hossain MA, Dawson A. A systematic review of sexual and reproductive health needs, experiences, access to services, and interventions among the Rohingya and the Afghan refugee women of reproductive age in Asia. *WHO South East Asia J Public Health*. 2022;11(1):42–53. doi:10.4103/WHO-SEAJPH.WHO-SEAJPH\_144\_21.
61. Chalouhi J, Currow DC, Dumit NY, Sawleshwarkar S, Glass N, Stanfield S, et al. The health and well-being of women and girls who are refugees: a case for action. *Int J Environ Res Public Health*. 2025;22(2):e12345. [Internet].
62. Ngwibete A, Ogunbode OO, Mangalu MA, Omigbodun A. Displaced women and sexual and reproductive health services: exploring challenges women with sexual and reproductive health face in displaced camps of Nigeria. *J Educ Community Health*. 2023;10(3):162–72.
63. Ortiz-Echevarria L, Greeley M, Bawoke T, Zimmerman L, Robinson C, Schlecht J. Understanding the unique experiences, perspectives and sexual and reproductive health needs of very young adolescents: Somali refugees in Ethiopia. *Confl Health*. 2017;11(Suppl 1):26. doi:10.1186/s13031-017-0129-6.
64. Fedha JI. Influence of cultural traditions on the reproductive health of Somali women refugees in Nairobi County, Kenya [thesis]. Nairobi: University of Nairobi; 2013.
65. Ekerin O, Shomuyiwa DO, Lucero-Prisno DE 3rd, Agboola OO, Damilola AS, Onoja SO, et al. Restrictive migration policies and their impact on HIV prevention, care and treatment services. *Health Res Policy Syst*. 2024;22(1):91. doi:10.1186/s12961-024-01172-0.
66. Saad RK, Khader Y, Aqel AJ, Satyanarayana S, Wilson N, Abaza H. HIV-related knowledge, attitude, practices, and stigma among healthcare providers caring for HIV in Jordan: identification of several organizational challenges. *Heliyon*. 2024;10(2):e24423. doi:10.1016/j.heliyon.2024.e24423.

67. Hossain MA, Huda MN, Ullah A, Renzaho A. Risk factors, contemporary challenges and psychological well-being of the Rohingya refugees in Bangladesh: policy implications. *Int J Health Plann Manage*. 2022;37(4):1912–7. doi:10.1002/hpm.3472.
68. Hossain MA, Sawleshwarkar S, Zablotska-Manos I. Sexual and reproductive health of Rohingya refugees in Bangladesh: a systematic review. *Women Midwives Midwifery*. 2025;5(2):1–24. doi:10.36749/wmm.5.2.1-24.2025.
69. Fahme SA, Chehab S, Logie CH, Mumtaz G, Fitzgerald D, Downs JA, et al. Intersecting social-ecological vulnerabilities to and lived experiences of sexually transmitted infections among Syrian refugee women in Lebanon: a qualitative study. *PLoS Glob Public Health*. 2024;4(8):e0003507. doi:10.1371/journal.pgph.0003507.
70. Stark C, Tapia-Fuselier JL Jr, Bunch K. The trauma-informed ethical decision-making model: an integrative framework. *J Trauma Stud Educ*. 2022;1(1):86–103.
71. Marian M, Perez RL, McClain AC, Hurst S, Reed E, Barker KM, et al. Nutritional knowledge and practices of low-income women during pregnancy: a qualitative study in two Oaxacan cities. *J Health Popul Nutr*. 2025;44(1):33. doi:10.1186/s41043-025-00776-8.
72. Block K, Hourani J, Sullivan C, Vaughan C. “It’s about building a network of support”: Australian service provider experiences supporting refugee survivors of sexual and gender-based violence. *J Immigr Refugee Stud*. 2021;20(3):383–97. doi:10.1080/15562948.2021.1930321.
73. UNHCR. Sexual and reproductive health [Internet]. 2025 [cited 2025 Jul 14]. Available from: <https://www.unhcr.org/what-we-do/protect-human-rights/public-health/sexual-and-reproductive-health>.
74. Singh N, DeJong J, Popple K, Undie CC, El Masri R, Bakesiima R, et al. The forgotten population? A call to invest in adolescent well-being in humanitarian and fragile settings. [Internet]. 2021 [cited 2025 Jun 11]. Available from: [https://knowledgecommons.popcouncil.org/focus\\_adolescents/16/](https://knowledgecommons.popcouncil.org/focus_adolescents/16/).
75. World Health Organization. World report on knowledge for better health: strengthening health systems: World Health Organization; 2004.
76. Pablos-Mendez A, Shademani R. Knowledge translation in global health. *Journal of continuing education in the health professions*. 2006;26(1):81-6.

## APPENDICES

### APPENDIX A: Participant information and consent forms

#### PARTICIPANT INFORMATION AND CONSENT FORM

**Project Title:** INVESTIGATION OF FACTORS IMPACTING SEXUAL AND REPRODUCTIVE HEALTH LITERACY AND ACCESS TO SERVICES AMONG YOUNG ROHINGYA REFUGEE WOMEN IN BANGLADESH

Interviewer ID#:

Date: \_\_\_/\_\_\_/2023

Time interview started\_(hh:mm \_\_\_\_\_) finished\_(hh:mm \_\_\_\_\_)

Camp name/police station			
Camp number	Block number	Sub-block number	Participant number (consecutive within the sub-block)
—	—	—	—
Name of <i>Majahi</i> :			

#### Invitation

You are invited to participate in a research project exploring sexual and reproductive health literacy and access to services among young Rohingya refugee women in Bangladesh. The purpose of this study is to develop a better understanding of the sexual and reproductive health issues among refugees in Bangladesh.

#### What is the study about and its purpose?

Bangladesh is home to around 1.2 million Rohingya, 52% of whom are women, girls, and children. This severely oppressed community is experiencing poor SRH outcomes compared to the mainstream Bangladeshi population, and contraception use is very low. The needs, knowledge, and experiences of SRH among young Rohingya refugee women in Bangladesh remain unexplored. The study will investigate the factors impacting SRH literacy and access to services related to family planning and HIV/STIs among young Rohingya refugee women in Bangladesh. The research findings will provide a better understanding of SRH literacy, knowledge, SRH-seeking behaviour, needs, and access to appropriate care. This study is expected to provide information about how to enhance access to SRH care and service

experiences for this population group by generating evidence as well as providing policymakers with guidance on harmonising and standardising SRH services in humanitarian settings in order to achieve the SDGs.

### **Who is conducting the study?**

This study is being conducted by Muhammad Anwar Hossain as part of his practice research project for a Doctor of Philosophy in Medicine and Health at the University of Sydney under the supervision of Associate Professor Iryna Zablotska-Manos, Associate Professor Shailendra Sawleshwarkar, and Prof. Shah Ehsan Habib.

### **What does the study involve?**

This study involves being interviewed by a trained research investigator who will also fill out a questionnaire based on your responses during the interview. You will be asked sensitive and personal questions, including questions on your sexual and reproductive health.

The study activities will be conducted at a place and time you are comfortable with, which also ensures privacy.

### **How much time will the study take?**

It is anticipated that the interview will take approximately 30 minutes of your time.

### **Can I withdraw from the study?**

Being in this study is completely voluntary, as you are not obliged to consent. If you consent, you are allowed to withdraw from the study at any time without affecting your relationship with the interviewer. You may stop the interview at any time, and any information, including audio recording (if any), will be erased and not included in the study.

### **Will anyone know what I say?**

No. Your name will not be written on the form or connected to your answers. Everything you say will be kept private. Your responses will be given a code so no one can identify you. The results will be used for research and publication, but no names or personal details will be included. Only the research team will have secure, password-protected access to the data.

### **Will the interview be recorded?**

We ask your permission to audio record the interview so we can remember your words exactly. However, **recording is optional**. If you prefer **not** to be recorded, the interviewer will take written notes instead. Whether recorded or not, your answers will be treated confidentially.

### **Will the study benefit me?**

Participation in this study is completely voluntary, and you will not receive any economic benefit for participating in the study. However, the information you provide us may lead to the formulation of better management guidelines from which you could benefit.

### **Can I tell other people about the study?**

Yes, you are welcome to invite other people.

### **What if I require further information about the study or my involvement in it?**

When you have read this information sheet, the investigator will discuss it with you and respond to any questions you may have. If you would like to know more, feel free to contact Muhammad Anwar Hossain at +8801815583933.

***Researcher Contact Details:** Muhammad Anwar Hossain, PhD Candidate, University of Sydney, Assistant Professor of Sociology (Currently on leave), Begum Rokeya University, Rangpur, Bangladesh. Mobile: +8801815583933.*

*Email: mhos0687@uni.sydney.edu.au / anwarsoc@brur.ac.bd*

***Primary Supervisor Contact Details:** Dr IRYNA ZABLITSKA-MANOS, PhD, MD, MPH – ASSOCIATE PROFESSOR – SEXUAL & REPRODUCTIVE HEALTH, Faculty of Medicine and Health, The University of Sydney, Australia*

*Email: Iryna.Zablotska@sydney.edu.au*

## Consent Statement

I ..... agree to participate in the research project titled INVESTIGATION OF FACTORS IMPACTING SEXUAL AND REPRODUCTIVE HEALTH LITERACY AND ACCESS TO SERVICES AMONG YOUNG ROHINGYA REFUGEE WOMEN IN BANGLADESH

In giving my consent, I agree to the following:

1. The procedures required for the project and the time involved have been explained to me, including any inconveniences or discomforts, and any questions about this research have been answered to my satisfaction.
2. I have read the participant information statement and have been given the opportunity to discuss the information and my involvement in the project with the researchers.
3. I acknowledge that my participation is completely voluntary and that I am not under obligation to consent.
4. I understand that my involvement is strictly confidential. I acknowledge that research data from this study may be published. However, no identifiable information about me will be published
5. I understand that I can withdraw from the study at any time, without compromising my relationship with the researchers involved.
6. I understand that I can stop the interview at any point, and any audio-video recording will be deleted, and the information provided will not be included in the study.

**Name:** \_\_\_\_\_

**Signature/Thumbprint** \_\_\_\_\_

Date: \_\_\_\_\_ / \_\_\_\_\_ / 2023

### INFORMED CONSENT FORM OF THE PARENT / LEGAL GUARDIAN

**Project Title:** INVESTIGATION OF FACTORS IMPACTING SEXUAL AND REPRODUCTIVE HEALTH LITERACY AND ACCESS TO SERVICES AMONG YOUNG ROHINGYA REFUGEE WOMEN IN BANGLADESH

Interviewer ID#:

Date: \_\_\_\_ / \_\_\_\_ / 2023

Time interview started \_ (hh:mm \_\_\_\_\_) finished \_ (hh:mm \_\_\_\_\_)

Camp name/police station			
Camp number	Block number	Sub-block number	Participant number (consecutive within the sub-block)
—	—	—	—
Name of <i>Majahi</i> :			

#### Why is my child being invited?

Your daughter (aged 15–17) is invited to take part in a research study about sexual and reproductive health (SRH) among young Rohingya refugee women. She is invited because she is part of a group whose experiences we want to understand better, to improve access to health services in the camps.

#### What is the study about and its purpose?

Bangladesh is home to around 1.2 million Rohingya, 52% of whom are women, girls, and children. This severely oppressed community is experiencing poor SRH outcomes compared to the mainstream Bangladeshi population, and contraception use is very low. The needs, knowledge, and experiences of SRH among young Rohingya refugee women in Bangladesh remain unexplored. The study will investigate the factors impacting SRH literacy and access to services related to family planning and HIV/STIs among young Rohingya refugee women in Bangladesh. The research findings will provide a better understanding of SRH literacy, knowledge, SRH-seeking behaviour, needs, and access to appropriate care. This study is expected to provide information about how to enhance access to SRH care and service experiences for this population group by generating evidence as well as providing

policymakers with guidance on harmonising and standardising SRH services in humanitarian settings in order to achieve the SDGs.

**Who is conducting the study?**

This study is being conducted by Muhammad Anwar Hossain as part of his practice research project for a Doctor of Philosophy in Medicine and Health at the University of Sydney under the supervision of Associate Professor Iryna Zablotska-Manos, Associate Professor Shailendra Sawleshwarkar, and Prof. Shah Ehsan Habib.

**What will my daughter be asked to do?**

Your daughter will be interviewed in private by a trained female interviewer who speaks her language and understands the culture. She will be asked questions about her knowledge and experiences with family planning and SRH. The study activities will be conducted at a place and time which ensures privacy and confidentiality.

**How much time will the study take?**

It is anticipated that the interview will take approximately 30 minutes of your time.

**Does my daughter have to take part?**

No. Participation is voluntary. You and your daughter both need to agree. She can refuse to participate or stop the interview at any time. This will not affect her access to services or support.

**Will the interview be recorded?**

With your and your daughter's permission, the interview may be audio-recorded. If either of you prefers not to record, the interviewer will take written notes instead.

**How will privacy be protected?**

All information will be kept private. Your daughter's name or any personal details will not be shared. Only the research team will have access to the interview data, and it will be stored securely. Reports or publications will not include any identifying information.

**Are there any risks or benefits?**

The interview may include sensitive questions. Your daughter can skip any questions and stop at any time. If she feels upset, the research team can refer her to local support services. While she will not receive money or gifts, her participation may help improve health services in the camps.

**What if I require further information about the study or my involvement in it?**

When you have read this information sheet, the investigator will discuss it with you and respond to any questions you may have. If you would like to know more, feel free to contact Muhammad Anwar Hossain at +8801815583933.

***Researcher Contact Details:** Muhammad Anwar Hossain, PhD Candidate, University of Sydney, Assistant Professor of Sociology (Currently on leave), Begum Rokeya University, Rangpur, Bangladesh. Mobile: +8801815583933 / +610413959615.*

*Email: mhos0687@uni.sydney.edu.au / anwarsoc@brur.ac.bd*

***Primary Supervisor Contact Details:** Dr IRYNA ZABLITSKA-MANOS, PhD, MD, MPH – ASSOCIATE PROFESSOR – SEXUAL & REPRODUCTIVE HEALTH, Faculty of Medicine and Health, The University of Sydney, Australia*

*Email: Iryna.Zablotska@sydney.edu.au*

### Consent Statement (for Parent / Legal Guardian)

I ..... agree to participate in the research project titled INVESTIGATION OF FACTORS IMPACTING SEXUAL AND REPRODUCTIVE HEALTH LITERACY AND ACCESS TO SERVICES AMONG YOUNG ROHINGYA REFUGEE WOMEN IN BANGLADESH

In giving my consent, I agree to the following:

1. The procedures required for the project and the time involved have been explained to me, including any inconveniences or discomforts, and any questions about this research have been answered to my satisfaction.
2. I have read the participant information statement and have been given the opportunity to discuss the information and my daughter's involvement in the project with the researchers.
3. I acknowledge that participation is completely voluntary, and my daughter can stop at any time.
4. I understand that my daughter's involvement is strictly confidential. I acknowledge that research data from this study may be published. However, no identifiable information about my daughter will be published
5. I understand that my daughter can withdraw from the study at any time, without compromising my relationship with the researchers involved.
6. I understand that my daughter can stop the interview at any point, and any audio-video recording will be deleted, and the information provided will not be included in the study.

Name: \_\_\_\_\_

Signature/Thumbprint of the Parent /Legal guardian. \_\_\_\_\_

Date: \_\_\_\_\_ / \_\_\_\_\_ / 2023

APPENDIX B: Survey instruments

*Questionnaire*

*on*

**Investigation of factors impacting sexual and reproductive health literacy and access to services among young Rohingya refugee women in Bangladesh**

Date \_\_\_\_\_ time interview started \_\_\_\_\_ finished \_\_\_\_\_

Interviewer:

Camp number	Block number	Sub-block number	Participant number (consecutive within the sub-block)
Name of <i>Majahi</i> :			

Section A: Socio-demographic information

No	Questions and filters	Coding categories	skip
01	Age	In years.....	
02	Birth year	Year..... DON'T KNOW .....8	
03	Family size	In number.....	
04	Level of education	Illiterate.....01 Primary.....02 Secondary.....03 College or higher .....04 Other 96 (specify)..... .....	

05	Aside from your own housework, have you done any work in the last 12 months?	YES.....1 NO.....2 DON'T KNOW .....8	
06	What is your occupation? That is, what kind of work do you mainly do?	Housewife .....01 Work outside of the home 02	
07	Marital status	Married.....01 Divorced/widowed/others..02	
08	Age at marriage		
09	Did your husband ever attend school?	YES.....1 NO.....2 DON'T KNOW.....8	
10	What was the highest level of school he attended?	Illiterate.....01 Primary.....02 Secondary.....03 College or higher .....04 Other 96 (specify)..... .....	
11	What is your husband's occupation? That is, what kind of work does he mainly do?	Unemployed.....01 Worker/labour/job.....02 Work with NGOs.....03 Other 96 (specify)..... .....	
12	How long have you lived in this camp?	1-2 years.....01 More than 2 years.....02	

13	Current number of children	In number.....	
14	What is the number of children you think a family should have?	Number .....	
15	Would you like to have another child, or would you prefer not to have any more children?	Have another child.....1 No more.....2	

### Family planning and contraception

	<b>Family planning and contraception</b>		
	Now I would like to talk about family life and family planning - the various ways or methods that a couple can use to delay or avoid pregnancy.		
16	Have you heard about family planning?	YES.....1 NO.....2	
17	Have you ever used anything or tried in any way to delay or avoid getting pregnant?	YES.....1 NO.....2	
18	Which methods have you used? (Tick all that apply)	Condom.....1 Pill.....2 Injectables (depo)..... 3 Implants.....4 Emergency contraception pill.....5 Lactational Amenorrhea meth ....6 Female sterilisation.....7 Safe period.....8 Withdrawal .....9 Other 96 (specify).....	

		.....	
19	Which contraceptive method would you prefer to use?	Condom.....1 Pill.....2 Injectables (depo)..... 3 Implants.....4 Emergency contraception pill.....5 Lactational Amenorrhea meth.....6 Female sterilization .....7 Safe period.....8 Withdrawal .....9 Other ..... .....	
20	Have you heard about EMERGENCY CONTRACEPTION PILLS (ECP)? As an emergency measure after unprotected sexual intercourse, women can take special pills at any time within three days to prevent pregnancy?	YES.....1 NO.....2	
21	Have you ever used Emergency contraception pill?	YES.....1 NO.....2	
22	Have you heard about LACTATIONAL AMENORRHEA METHOD (LAM)? Up to 6 months after childbirth, a woman can use a method that requires she breastfeeds frequently, day and night, and that her menstrual period has not returned.	YES.....1 NO.....2	

23	Have you ever used Lactational Amenorrhea Method?	YES.....1 NO.....2	
24	Are you or your husband currently doing something or using any method to delay or avoid getting	YES.....1 NO.....2	
25	Which method are you using?  RECORD ALL MENTIONED.	Condom.....1 Pill.....2 Injectables (depo)..... 3 Implants.....4 Emergency contraception pill...5 Lactational Amenorrhea meth ...6 Female sterilisation.....7 Safe period.....8 Withdrawal .....9 Other 96 (specify)..... .....	
26	What is the brand name of the injections/pills/condoms you are using? (tick all that apply)	Depo-Provera .....01 Femicon.....02 Minicon.....03 Femipil.....04 Noret-28.....05 Shuk.....06 Ovostat.....07 Desolon.....08 Bridicon.....09	

		Lynes.....10 Marvelon .....11 Combination 3.....12 Menorest.....13 Rosen.....14 Giance 35.....15 Apan.....16 Raja .....17 Panthe ..... 18 Hero.....19 Sensation. ....20 U & me .....21 Other 96 (specify)..... ..... Don't know.....98	
27	Can you say no to your husband if you do not want to have sexual intercourse?	YES.....1 NO.....2	
28	Has your husband ever used condoms?	YES.....1 NO.....2	
29	Do you know of a place where you can obtain a method of family planning?	YES.....1 NO.....2	
30	Where is that? Any other place? (tick all that apply)	Community clinic (Health Post)...01 NGO static clinic/Primary Health Centre (PHC)... .....02	

		Women-Friendly Spaces (WFS/ Shanti Khana).....03  NGO field worker/ Community Health Workers/ volunteers.....04  Private clinic.....05 Qualified doctor's chamber .....06  Non-qualified doctor's chamber...07  Pharmacy/drug store .....08  Other 96 (specify)..... .....	
31	Did you visit such a health clinic/facility in the past six months?	YES.....1 NO.....2	
32	What services did you receive? (tick all that apply)	Family planning methods....01 Immunizations.....02 Child growth monitoring...03 Tetanus injection.....04 Antenatal car.....05 Vitamin a for children.....06 HIV/STIs.....07 General health problem.....08 Other 96 (specify)..... ..... Don't know .....	
33	In the last 6 months, were you visited by a fieldworker who talked to you about	Talked.....01 Gave family planning method..2	

	family planning or gave you a family planning method?	Talked and gave method.....3 No.....4	
34	During the last six months, how many times did a health worker or workers visit you to talk about family planning or to give you family planning	Number of times..... Don't know.....98	
35	In your opinion, is contraception or family planning beneficial to women?	YES.....1 NO.....2 DON'T KNOW.....8	
36	Would you say that not using contraception is mainly your decision, mainly your husband's decision, or did you both decide together?	Mainly respondent.....1 Mainly husband.....2 Joint decision.....3 Other 96 (specify)..... .....	
37	Does your husband want the same number of children that you want, or does he want more or fewer than you want?	Same number.....1 More children.....2 Fewer children.....3 Don't know.....8	

Section C: HIV/STIs

38	How is your health in general now?	HEALTHY ..... 1 ILL ..... 2 DON'T KNOW ..... 8	
39	Have you ever heard about HIV/AIDS?	YES.....1 NO.....2 DON'T KNOW.....8	

40	Have you ever been tested for HIV/AIDS?	YES.....1 NO.....2 DON'T KNOW.....8	
41	Have you ever been told you had HIV/AIDS by a health worker?	YES.....1 NO.....2 DON'T KNOW.....8	
42	Do you have any concerns about becoming infected with HIV/AIDS?	Worried a lot.....1 Worried a little.....2 Not worried at all.....3	
43	Do you personally know anyone who has HIV/AIDS or who has died from HIV/AIDS?	YES.....1 NO.....2 DON'T KNOW.....8	
44	Do you believe that HIV/AIDS is the punishment of Allah for bad behaviour?	YES.....1 NO.....2 DON'T KNOW.....8	
45	Would you keep it a secret if a family member or your husband had HIV/AIDS?	YES.....1 NO.....2 DON'T KNOW.....8	
46	Do you know how HIV/AIDS is transmitted?	YES.....1 NO.....2 DON'T KNOW.....8	
47	How HIV/AIDS can be transmitted?		
A	Sexual intercourse with HIV patients	Yes	No Don't know

B	Mosquito bites can spread HIV	Yes	No	Don't know
C	Sharing injecting equipment of HIV patients	Yes	No	Don't know
D	Shaving with a blade already used by HIV patients	Yes	No	Don't know
E	Transmitted during pregnancy or at birth	Yes	No	Don't know
F	Transmitted through breast milk	Yes	No	Don't know
G	Touching/hugging HIV patients	Yes	No	Don't know
H	Sharing meals with HIV patients	Yes	No	Don't know
I	Get HIV through supernatural means	Yes	No	Don't know
48	Have you ever heard about STTs?	YES.....1	NO.....2	DON'T KNOW.....8
49	Have you ever sought to test STIs or asked to be tested?	YES.....1	NO.....2	DON'T KNOW.....8
50	Have you ever gone to doctor/nurse/health worker because you had itch or other STI symptoms?	YES.....1	NO.....2	DON'T KNOW.....8
51	Have you ever been tested when pregnant?	YES.....1	NO.....2	DON'T KNOW.....8
52	Have you ever been told you had STIs by a health worker?	YES.....1	NO.....2	

		DON'T KNOW.....8			
53	Do you have any concerns about becoming infected with STIs?	Worried a lot.....1 Worried a little.....2 Not worried at all.....3			
54	Do you personally know anyone who has STIs?	YES.....1 NO.....2 DON'T KNOW.....8			
55	Do you believe that STI is the punishment of Allah for bad behaviour?	YES.....1 NO.....2 DON'T KNOW.....8			
56	Would you keep it a secret if a family member or your husband had STI?	YES.....1 NO.....2 DON'T KNOW.....8			
57	In the last month/have you seen/heard/read/received any information about family planning and HIV/STIs from any of the following sources?	<b>Family planning</b>	<b>HIV/STIs</b>		
	Source of information	Yes	No	Yes	No
	a) Radio	Yes	No	Yes	No
	b) Television	Yes	No	Yes	No
	c) Newspaper or magazine	Yes	No	Yes	No
	d) Poster, billboard, or leaflet	Yes	No	Yes	No
	e) Community event				

f) Received a voice or text message on a mobile phone	Yes	No	Yes	No
g) Social media, (Facebook, tiktok, Twitter, etc.), website or on the Internet	Yes	No	Yes	No
h) Health workers	Yes	No	Yes	No
i) Religious leaders	Yes	No	Yes	No
j) family member/ relatives/ elderly	Yes	No	Yes	No
k) husband	Yes	No	Yes	No
l) school/teacher	Yes	No	Yes	No

Thank you

## APPENDIX C: IDI and FGD Guides

### Tool 1: IDI guide for young Rohingya women

Interviewer ID:

Participant number:

Date: \_\_\_\_/\_\_\_\_/2023\_ time interview started \_\_\_\_\_ finished \_\_\_\_\_

#### Section A: Socio-demographic information

- How old are you (in years)?
- What was the highest level of school you attended?
- What is your occupation? That is, what kind of work do you mainly do?
- What is your current marital status? At what age were you married?
- How old is your husband now?
- How long have you lived in this camp?
- How many children do you have now?
- What is the number of children you think a family should have?
- Would you like to have another child, or would you prefer not to have any more children?
- What are some of the common health concerns including SRH for young girls in this community?
- What are some of the services that young girls from the Rohingya community typically seek from healthcare providers?

#### Section B: Understanding and perspective

- What is your view of sexual and reproductive health, family planning, and contraception, how do you get information about them, and what services do you know about?
- What do you know about HIV & STIs, how HIV/STIs are transmitted and prevented, and what are some services available to you?
- What is the perception of community members and leaders about family planning, contraception, and HIV/STI issues?

#### Section C: Use and experiences of services

- Could you tell us what types of family planning and contraception services are available in the camps and considered most important, and what family planning services are most accessible to you?

- Did you ever use the family planning or contraception services offered by healthcare providers? If so, where did you find out information about the services?
- Could you please tell us about your experiences with healthcare professionals regarding family planning and contraception?
- Did you ever visit a health facility for HIV/STI services? If so, where did you find out information about the services?
- Could you please tell me about your experiences with healthcare professionals regarding HIV/STI services?

#### **Section D: Facilitators and barriers**

- Are there any factors that encourage or discourage young girls from receiving SRH services at their local health centers?
- In your opinion, what are some of the myths and beliefs that influence young women's use of family planning and HIV/STI services?
- What are some of the socio-cultural and religious taboos that hinder young women from accessing services on family planning and contraception?
- Can you tell us about the main barriers and challenges that prevent young Rohingya women from using family planning, contraception, HIV/STI testing and services?
- How do you make decisions on family planning and contraception issues?
- Could you imagine the most suitable location for young women to receive sexual and reproductive health services? What are your recommendations for strengthening SRH services for young women in this camp?

#### **Tool 2: IDI guide for men**

Interviewer ID:

Participant number:

Date: \_\_\_\_/\_\_\_\_/2023\_ time interview started \_\_\_\_\_ finished \_\_\_\_\_

#### **Section A: Socio-demographic information**

- How old are you?
- What was the highest level of school you attended?
- What is your occupation? That is, what kind of work do you mainly do?
- What is your current marital status? At what age were you married?
- How long have you lived in this camp?

- How many children do you have now?
- What is the number of children you think a family should have?
- Would you like to have another child, or would you prefer not to have any more children?
- What are some of the common health concerns including SRH for young girls in this community?
- What are some of the services that young girls from the Rohingya community typically seek from healthcare providers?

### **Section B: Understanding and perspective**

- What is your view of sexual and reproductive health, family planning, and contraception, how do young Rohingya women get information about them, and what services do you know about?
- What do you know about HIV & STIs, how HIV/STIs are transmitted and prevented, and what are some services available to young Rohingya women?
- What are the SRH services, including family planning and contraception and HIV/STI, available in the health facility within camps for young women, and are there any SRH services that you feel should not be provided to young women?
- What is the perception of community members and leaders about family planning, contraception, and HIV/STI issues?

### **Section C: Use and experiences of services**

- Could you tell us what types of family planning and contraception services are available in the camps and considered most important, and what family planning services are most accessible to young Rohingya women?
- In your opinion, How and from whom do young women get information about family planning, contraception and HIV/STI, and from whom can they seek support when they need it?
- Could you please tell me about the experiences of your wife/ daughter/ daughter-in-law/ younger female member of your family with healthcare professionals regarding family planning, contraception, and HIV/STI services?
- What information and services would be useful to your wife/ younger daughters/daughters-in-law/younger female family members regarding family planning, contraception, and HIV/STIs?

## **Section D: Facilitators and barriers**

- Are there any factors that encourage or discourage young girls from receiving SRH services at their local health centers?
- In your opinion, what are some of the myths and beliefs that influence young women's use of family planning and HIV/STI services?
- What are some of the sociocultural and religious taboos that hinder young women from accessing services on family planning and contraception?
- Can you tell me about the main barriers and challenges that prevent young Rohingya women from using family planning and HIV/STI services?
- Is there anything you could do to overcome those challenges?
- How do young Rohingya women make decisions on family planning and contraception issues?
- Could you imagine the most suitable location for young women to receive sexual and reproductive health services? What are your recommendations for strengthening SRH services for young women?

## **Tool 3: IDI guide for community leader**

Interviewer ID:

Participant number:

Date: \_\_\_\_ / \_\_\_\_ / 2023\_ time interview started \_\_\_\_\_ finished \_\_\_\_\_

## **Section A: Socio-demographic information**

- How old are you?
- What was the highest level of school you attended?
- What is your occupation? That is, what kind of work do you mainly do?
- What is your current marital status? At what age were you married?
- How long have you lived in this camp?
- How many children do you have now?
- What is the number of children you think a family should have?
- Would you like to have another child, or would you prefer not to have any more children?
- What are some of the common health concerns including SRH for young girls in this community?
- What are some of the services that young girls from the Rohingya community typically seek from healthcare providers?

## **Section B: Understanding and perspective**

- What is your view of sexual and reproductive health, family planning, and contraception, how do young Rohingya women get information about them, and what services do you know about?
- What do you know about HIV & STIs, how HIV/STIs are transmitted and prevented, and what are some services available to young Rohingya women?
- What are the SRH services, including family planning and contraception and HIV/STI, available in the health facility within camps for young women, and are there any SRH services that you feel should not be provided to young women?
- What is the perception of community members about family planning, contraception, and HIV/STI issues?

## **Section C: Use and experiences of services**

- Could you tell us what types of family planning and contraception services are available in the camps and considered most important, and what family planning services are most accessible to young Rohingya women?
- In your opinion, How and from whom do young women get information about family planning, contraception and HIV/STI, and from whom can they seek support when they need it?
- Could you please tell me about the experiences of your wife/ daughter/ daughter-in-law/ younger female member of your family with healthcare professionals regarding family planning, contraception, and HIV/STI services?
- What information and services would be useful to your wife/ younger daughters/daughters-in-law/younger female family members regarding family planning, contraception, and HIV/STIs?

## **Section D: Facilitators and barriers**

- Are there any factors that encourage or discourage young girls from receiving SRH services at their local health centers?
- In your opinion, what are some of the myths and beliefs that influence young women's use of family planning and HIV/STI services?
- What are some of the sociocultural and religious taboos that hinder young women from accessing services on family planning and contraception?

- Can you tell me about the main barrier and challenges that prevent young Rohingya women from using family planning and HIV/STI services?
- Is there anything you could do as a community leader to overcome those challenges?
- How do young Rohingya women make decisions on family planning and contraception issues, and do the boys and girls receive the same treatment when they access services in this community?
- Could you imagine the most suitable location for young women to receive sexual and reproductive health services? What are your recommendations for strengthening SRH services for young women?

#### **Tool 4: IDI guide for healthcare provider**

Interviewer ID:

Participant number:

Date: \_\_\_\_/\_\_\_\_/2023\_ time interview started \_\_\_\_\_ finished \_\_\_\_\_

#### **Section A: Socio-demographic information**

- How old are you?
- What was the highest level of school you attended?
- How long have you been working in this camp?
- What is the number of children you think a family should have?
- What are some of the common health concerns including SRH for young girls in this community?
- What are some of the services that young girls from the Rohingya community typically seek from healthcare providers?

#### **Section B: Understanding and perspective**

- What is your view of sexual and reproductive health, family planning, and contraception, how do young Rohingya women get information about them?
- What are the SRH services, including family planning and contraception and HIV/STI, available in the health facility within camps for young women, and are there any SRH services that you feel should not be provided to young women?
- What is the perception of community members and leaders about family planning, contraception, and HIV/STI issues?

- What are your views and perceptions about local facilities providing family planning and contraception services?

### **Section C: Use and experiences of services**

- Could you tell us what types of family planning and contraception services are available in the camps and considered most important, and what family planning services are most accessible to young Rohingya women?
- In your opinion, How and from whom do young women get information about family planning, contraception and HIV/STI, and from whom can they seek support when they need it?
- What is the current uptake of family planning and contraception and HIV/STI services by young Rohingya women in the camps?
- What are some of the opportunities to increase access to and use of sexual reproductive health services by young Rohingya women?
- Could you please tell us what are your experiences in providing family planning and contraception services?
- Could you please tell us what are your experiences in providing HIV/STI services?

### **Section D: Facilitators and barriers**

- Are there any factors that encourage or discourage young girls from receiving SRH services at their local health centers?
- In your opinion, what are some of the myths and beliefs that influence young women's use of family planning and HIV/STI services?
- What are some of the sociocultural and religious taboos that hinder young women from accessing services on family planning and contraception?
- Can you tell me about the main barriers and challenges that prevent young Rohingya women from using family planning and HIV/STI services?
- Is there anything you could do as a community leader to overcome those challenges?
- How do young Rohingya women make decisions on family planning and contraception issues?
- Could you imagine the most suitable location for young women to receive sexual and reproductive health services? What are your recommendations for strengthening SRH services for young women?

## **Tool 5: FGD Guide for young Rohingya women and girls**

Interviewer (name of team leader):

Number of participants:

Date: \_\_\_\_ / \_\_\_\_ / 2023\_ time interview started \_\_\_\_\_ finished \_\_\_\_\_

### **Section A: Socio-demographic information**

- Age
- Level of education
- Occupation
- Marital status
- Age at marriage
- Current husband age
- Number of children
- What is the number of children you think a family should have?
- Would you like to have another child, or would you prefer not to have any more children?
- What are some of the common health concerns including SRH for young girls in this community?
- What are some of the services that young girls from the Rohingya community typically seek from healthcare providers?

### **Section B: Understanding and perspective**

- What is your view of sexual and reproductive health, family planning, and contraception, how do you get information about them, and what services do you know about?
- What do you know about HIV & STIs, how HIV/STIs are transmitted and prevented, and what are some services available to you?
- What is the perception of community members and leaders about family planning, contraception, and HIV/STI issues?

### **Section C: Use and experiences of services**

- Could you tell us what types of family planning and contraception services are available in the camps and considered most important, and what family planning services are most accessible to you?
- Did you ever use the family planning or contraception services offered by healthcare providers? If so, where did you find out information about the services?

- Could you please tell us about your experiences with healthcare professionals regarding family planning and contraception?
- Did you ever visit a health facility for HIV/STI services? If so, where did you find out information about the services?
- Could you please tell me about your experiences with healthcare professionals regarding HIV/STI services?

**Section D: Facilitators and barriers**

- Are there any factors that encourage or discourage young girls from receiving SRH services at their local health centers?
- In your opinion, what are some of the myths and beliefs that influence young women's use of family planning and HIV/STI services?
- What are some of the socio-cultural and religious taboos that hinder young women from accessing services on family planning and contraception?
- Can you tell us about the main barriers and challenges that prevent young Rohingya women from using family planning, contraception, HIV/STI testing and services?
- How do you make decisions on family planning and contraception issues?
- Could you imagine the most suitable location for young women to receive sexual and reproductive health services? What are your recommendations for strengthening SRH services for young women in this camp?

**Tool 6: FGD guide for men, women, and community leaders**

Interviewer (name of team leader):

Number of participants:

Date: \_\_\_\_/\_\_\_\_/2023\_ time interview started \_\_\_\_\_ finished \_\_\_\_\_

**Section A: Socio-demographic information**

- Age
- Level of education
- Occupation
- Marital status
- Age at marriage
- How long have you lived in this camp?
- Number of children

- What is the number of children you think a family should have?
- Would you like to have another child, or would you prefer not to have any more children?
- What are some of the common health concerns including SRH for young girls in the Rohingya community?
- What are some of the services that young girls from the Rohingya community typically seek from healthcare providers?

### **Section B: Understanding and perspective**

- What is your view of sexual and reproductive health, family planning, and contraception, how do young Rohingya women get information about them, and what services do you know about?
- What do you know about HIV & STIs, how HIV/STIs are transmitted and prevented, and what are some services available to young Rohingya women?
- What are the SRH services, including family planning and contraception and HIV/STI, available in the health facility within camps for young women, and are there any SRH services that you feel should not be provided to young women?
- What is the perception of community members and leaders about family planning, contraception, and HIV/STI issues?

### **Section C: Use and experiences of services**

- Could you tell us what types of family planning and contraception services are available in the camps and considered most important, and what family planning services are most accessible to young Rohingya women?
- In your opinion, How and from whom do young women get information about family planning, contraception and HIV/STI, and from whom can they seek support when they need it?
- Could you please tell me about the experiences of your wife/ daughter/ daughter-in-law/ younger female member of your family with healthcare professionals regarding family planning, contraception, and HIV/STI services?
- What information and services would be useful to your wife/ younger daughters/daughters-in-law/younger female family members regarding family planning, contraception, and HIV/STIs?

#### **Section D: Facilitators and barriers**

- Are there any factors that encourage or discourage young girls from receiving SRH services at their local health centers?
- In your opinion, what are some of the myths and beliefs that influence young women's use of family planning and HIV/STI services?
- What are some of the sociocultural and religious taboos that hinder young women from accessing services on family planning and contraception?
- Can you tell me about the main barriers and challenges that prevent young Rohingya women from using family planning and HIV/STI services?
- Is there anything you could do to overcome those challenges?
- How do young Rohingya women make decisions on family planning and contraception issues?
- Could you imagine the most suitable location for young women to receive sexual and reproductive health services? What are your recommendations for strengthening SRH services for young women?