

**The Management of Comorbid Mental Health and Substance Use  
Problems in Nursing Practice**

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## Author Attribution

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<https://doi.org/10.1111/inm.13043>. The authors of this study are Tammy Tran Merrick (TTM), Eva Louie (EL), Michelle Cleary (MC), Luke Molloy (LM), Andrew Baillie (AB), Paul Haber (PH), and Kirsten Morley (KM). KM, PH, EL, and TTM conceived the study and developed research methods. TTM conducted the literature search. TTM and EL independently screened all articles identified from the search. KM, EL, and TTM conducted analyses and interpretation. Study appraisal was conducted independently by TTM and LM. TTM wrote the manuscript with support of KM, EL, MC, AB, and LM. All authors revised and contributed to editing the final manuscript. For consistency throughout this thesis, 'dual-diagnosis' has been replaced by the term 'comorbidity'.

Chapter 3 presents the needs assessment of the management of comorbid mental health and substance use problems in nursing practice. The authors of this study are TTM, EL, KM, AB, and PH. TTM conceptualized and designed the project. KM, AB, and PH conceptualized, designed and supervised the project. EL provided guidance and support to TTM throughout the stages of the project, which included recruitment, data collection, analysis, interpretation, and manuscript writing. KM and EL proofread the manuscript. All authors revised and contributed to editing the final manuscript.

## **Acknowledgements**

The project that I am presenting here is about the management of comorbid mental health and substance use problems, focusing on nursing practice. My research journey originated when I was employed as a research assistant for a state-wide project between 2019 and 2020. I was in the final year of my Master of Public Health degree, and Professor Kirsten Morley happened to be my subject coordinator for the Mental Health Population study unit. As a registered nurse working in the mental health system, my colleagues and I have encountered numerous challenges when providing care for these vulnerable groups. I reached out to her with a question in mind: To what extent can I better understand this health problem and solve the problem with research methodologies?

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The experiences of working on this project have transformed my clinical practice in many ways. Understanding the complexity of comorbid mental health and substance use problems helped me to comprehend the barriers and facilitators for consumers to access quality care. To make an impact, I have incorporated aspects of integrated care into my day-to-day

practice, especially when caring for comorbid consumers. I initiate opportunities to generate discourses of evidence-based practice with my colleagues, making research dissemination practical at clinician levels. Following this project's completion, I am endeavouring to take advantage of future opportunities to participate in research implementation projects, primarily focusing on transforming the nursing practice workforce, such as implementing evidence-based care protocols, developing and delivering training programs for nursing staff, and advocating for policy changes to support integrated care.

### **Thesis statement of originality**

This is to certify that to the best of my knowledge, the content of this thesis is my own work.

This thesis has not been previously submitted for any degree or other purposes.

The intellectual content of this thesis is my own and I have properly acknowledged any assistance I received in its preparation.

Tammy Tran Merrick | June 18, 2024

As supervisor for the candidature upon which this thesis is based, I can confirm that the authorship attribution statements above are correct.

Kirsten Morley | June 18, 2024

## **Abstract**

**Introduction and Aims:** Comorbid mental health and substance use problems are highly prevalent. Health professionals providing care for mental health and substance use disorders expect to encounter challenges in comorbidity management. Despite the known effectiveness of the integrated model of care, uptake of this evidence informed practice in mental health and drug health services remains at the early stages of implementation. The public health system primarily provides interventions for comorbidities, and nurses represent a significant component of this workforce. Equipping nurses with knowledge and skills can promote positive health outcomes for those affected. This project aimed to explore nurses' perspectives on managing comorbidity and on the implementation of the integrated care approach. Findings from this project can be used to develop a training program for implementing integrated care tailored to the learning needs of the nursing workforce.

**Design and Methods:** The project's first aim required a comprehensive understanding of the attitudes and perceptions of nurses regarding the management of comorbidities. A systematic review was conducted in accordance with the reporting guidelines of the Preferred Reporting Items for Systemic Review and Meta-Analyses Protocols (PRISMA-P) statement. Three research questions guiding the search process included: (i) What are mental health nurses' perceptions and attitudes towards drug and alcohol use within the mental health population? (ii) How do mental health nurses perceive their role in managing comorbidity? and (iii) What factors influence mental health nurses' attitudes towards alcohol and other drug problems? The second aim of the thesis was a needs assessment study to capture the gaps between current nursing practice in the management of comorbid mental and substance use disorders within mental health and drug health services in tertiary care settings. A mixed methods approach was used to obtain both qualitative and quantitative data. The Consolidated

Framework for Implementation Research (CFIR) was used to examine the barriers and facilitators of the implementation of integrated care.

**Results:** The systematic review found a mix of positive and negative attitudes across four themes, including (i) attitudes towards alcohol and other drug use among mental health consumers, (ii) attitudes towards caring for comorbid consumers, (iii) role perception, and (iv) treatment optimism. Mental health nurses held more negative beliefs regarding personal choice for alcohol and other drug use among mental health consumers and displayed an overall lack of willingness to take part in providing care. Interestingly, the needs assessment study also revealed a mix of barriers and facilitators for the implementing integrated care. Some of the negative attitudes in the systematic review were echoed in the needs assessment. In addition, nurses suggested that the existing barriers to research implementation attributed to system-related constructs rather than individual characteristics. Nurses were receptive to comorbidity training while emphasizing the need for organizational support and leadership commitment to ensure implementation.

**Discussion and Conclusion:** The thesis illustrates the complicated processes of evidence-based practice implementation. Clinicians' attitudes towards care potentially impact how care is delivered at the point of care. Training programs do not only enhance clinicians' competency but also improve their role perceptions and treatment optimism. The multi-modal Pathways to Comorbidity Care (PCC) package in drug and alcohol settings, has demonstrated highly encouraging results in improving the identification and management of comorbidity, significantly boosting clinicians' self-efficacy (Eva Louie et al., 2021). Mental health services could adopt this program using the CFIR to mitigate potential barriers and strengthen facilitators for optimism in research implementation effectiveness.

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# CHAPTER 1

## General Introduction

### Prevalence of Comorbidity

Comorbid mental and substance use disorders (SUDs) are a challenge for service providers. The prevalence of comorbid mental disorders and SUDs tends to increase among people who seek treatment for either of the conditions. Of those who accessed healthcare services for treatment of SUDs, a large proportion (47-100%) of this population reported concurrent mental illnesses in the past twelve months (Kingston et al., 2017). Depression is a common comorbidity among health service users seeking treatment for SUDs, with up to 85% current prevalence and 55% 12-month prevalence. The prevalence of anxiety among this population was even higher than depression, with up to 91% current prevalence and 68% 12-month prevalence. A systematic review of this prevalence data concluded that most of the selected studies found that more than 50% of people seeking treatment for substance use-related disorders also experienced concurrent symptoms of mental illnesses in the past year (Kingston et al., 2017). At the population level, significant associations have been found between alcohol use disorder (AUD) and anxiety disorders (Odd Ratio (OR) = 2.6) and obsessive-compulsive disorder (OR = 2.2), and a 12-month OR was even more significant for cannabis use disorder (OR = 20.7) and other drug use disorders (OR = 15.1) (Teesson et al., 2010).

Within the mental health population, there is also a strong association between SUDs and mood and anxiety disorders (Lai et al., 2015). Several studies have reported high prevalence of SUDs among mental disorders such as depression, bipolar, and schizophrenia

spectrum disorders across clinical settings (Hunt et al., 2018; Hunt, Malhi, Cleary, Lai, et al., 2016; Hunt, Malhi, Cleary, Xiong Lai, et al., 2016; Hunt et al., 2020). In major depression, the lifetime prevalence of an SUD has been reported to be as high as 25%, 20.8% for AUD, 11.8% for illicit drug use disorder (DUD), 11.7% for cannabis use disorder (CUD), and 4.8% for any stimulant use disorder respectively (Hunt et al., 2020). With regard to bipolar disorder, the lifetime prevalence of any SUD was 33%, 24% for any AUD, and 17% for any DUD. When compared to non-bipolar groups, those with bipolar were almost five times more likely to use illicit drugs and four times more likely to have comorbid AUD (Hunt, Malhi, Cleary, Xiong Lai, et al., 2016). These rates were higher still across inpatient and community-based clinical settings with an estimate of just over 40% for SUD, nearly 30% for AUD, and around 16% for any DUD (Hunt, Malhi, Cleary, Lai, et al., 2016). Finally, for individuals with schizophrenia, the lifetime prevalence of SUD is 41.7%, DUD was 27.5%, CUD was 26.2%, AUD 24.3%, and stimulant use disorder was 7.3% (Hunt et al., 2018).

Overall, a high prevalence of comorbid SUDs has been found in individuals with mental disorders and a high prevalence of mental disorders has been reported in the SUD community. It is interesting to note that gender differences have been found in the prevalence of comorbid SUDs among people with major depressive disorder and schizophrenia whereby 36% of men with depressive disorder also had AUD, compared to only 19% for women (Hunt et al., 2020), and almost one in two men (48%) with schizophrenia also had a SUD, compared to 22.1% for women (Hunt et al., 2018).

### **Relationship between Mental Health and Substance Use**

Contemporary literature indicates that mental health consumers use alcohol and other drugs (AOD) for a range of different reasons (Christina Marel et al., 2016). Firstly, the direct causal hypothesis suggests mental health consumers use AOD to mitigate symptoms of their

disorder, also known as the 'self-medication hypothesis'(Khantzian, 1997; Khantzian, 2003). AOD use can also induce or exacerbate symptoms of mental illness, including depression, anxiety, mania, and psychosis (Bramness & Franck, 2015; Murrie et al., 2020; Starzer et al., 2018). Even though, in most cases, mental illness symptoms are likely to subside following abstinence from AODs (McKetin et al., 2013; Sapkota et al., 2022), for some individuals, symptoms persist long after they have stopped AOD use (McHugh & Weiss, 2019). Secondly, indirect causal hypothesis suggests that having one condition might be a mediator that increases the risks of developing the other condition (Christina Marel et al., 2016). For instance, AOD use in young people predicts a reduction in school performance and a reduced likelihood of pursuing tertiary education, which minimizes employment potential (Grant et al., 2012; Silins et al., 2015). Social disadvantages of unemployment place the person at greater risk of mental health concerns like depression (Compton & Shim, 2015; Milner et al., 2018). Conversely, the experience of depression may make it difficult for young people to participate in school and keep work commitments (Conway et al., 2016; Mojtabai et al., 2015; Slade et al., 2009). Thirdly, it is hypothesized that both mental health and AOD use problems share similar risk factors, which make them likely to co-occur (Christina Marel et al., 2016). These factors include genetic vulnerability, social disparities, and the presence of conduct disorder and antisocial personality disorder in the early years (Gómez-Coronado et al., 2018; Gurriarán et al., 2019; Lee et al., 2018; Stoychev et al., 2021).

Previous research has identified five main factors driving substance use in consumers with psychotic disorders including intoxication effects, socialization, 'alleviation of dysphoria', self-medicating psychotic symptoms, and managing medication side effects (Gregg et al., 2007). This suggests that shared risks factors of AOD use and psychosis are likely the reason for their co-occurrence, although associated factors included younger age, male gender, low socioeconomic status, and having a family history of substance use (Gregg

et al., 2007). When consumers, clinicians, and researchers have been asked to provide a reason for substance use the most common reason is 'self-medicating' symptoms of mental illness. These symptoms could be the inner afflictions associating with anxiety, depression, low self-esteem, or positive and negative psychotic symptoms (Frances, 2009). However, the perception of mental health consumers using AOD as a self-inflicted lifestyle behavior (Ryrie & McGowan, 1998a; Kelwyn Williams, 1999) or a matter of choice (Jesús Molina-Mula et al., 2018; Catriona Ralley et al., 2009) has not been supported by the evidence. This is illustrated by a respondent in the qualitative research conducted by Hipolito et al. (2011): *"For a long time I always thought recovery was about the drugs. I had all these things that I had to recover from. You know, like the loss of my mother, she been going a long time. My baby got lost, that baby like 37 years old. So I am recovering from that, accepting that I was young when I had the child and I messed it up trying to hide the pregnancy through drugs and alcohol and stuff. So I am recovering from a lot of things, the drug is just another pawn"*(Hipolito et al., 2011, p. 145). As opposed to a personal choice or self-inflicted behaviour, reasons for AOD use seem to reflect a broader array of biological, psychosocial, and social problems.

### **Comorbidity and Burden of Disease**

At a population level, the Australian burden of disease study conducted in 2015 found that mental and substance use disorders are the most significant contributing factor to the non-fatal burden of disease or years of living with disability (YLD) and the second leading cause of disability-adjusted life years (DALY), or the total healthy years of life lost due to either dying prematurely or years lived with disability (Ciobanu et al., 2018). This burden of disease translates to enormous economic costs not only due to health and welfare system expenditure but also workforce absenteeism and presenteeism because people with lived experience of mental and substance use disorders participate in the workforce throughout their illnesses

(França et al., 2022). The Global Economic Burden of Non-communicable Disease study estimated that the global cost of common mental health conditions, including SUDs, in 2010 was US\$ 2.5 trillion. This cost is predicted to inflate to over US\$ 6.0 trillion by 2030 and mental and SUDs accounted for 35% of the lost economic output (Bloom et al., 2012). This proportion is higher than for cardiovascular diseases (33%) and higher than diabetes, cancer, and chronic respiratory diseases combined (32%).

### **Comorbidity and Treatment Outcomes**

Comorbid mental disorders and SUDs are linked to many health-related problems, including increased demand for health service utilization, greater symptom severity, decreased functional capacity, and reduced likelihood of treatment effectiveness (De Graaf et al., 2003). People with bipolar and schizophrenia spectrum disorders who also experience AOD use problems are likely to have an onset of symptoms at a younger age and to require more hospital admissions to manage their conditions (Hunt et al., 2018; Hunt, Malhi, Cleary, Lai, et al., 2016). From a treatment point of view, service users with schizophrenia and SUDs tend towards non-adherence with proposed treatments and disengage from services. They are also more likely to experience severe psychotic symptoms but are less likely to sustain their quality of life and psychosocial well-being compared to those without comorbidity (Carrà et al., 2016). Likewise, people with a diagnosis of bipolar affective disorder, especially those with rapid cycling mood fluctuation and comorbid SUDs, are twice as likely to be non-adherent to their medication (95% CI 1.26–4.06). Similar treatment outcomes were noted among people with a lifetime history of SUDs, with an OR of 3.3 (95% CI 1.08–9.74) (Gao et al., 2010). Despite the need for management in alternate clinical settings, people with comorbidities are highly likely to use the Emergency Department, with a fifty percent chance of 90-day re-presentation following emergency care (Hughes et al., 2018). Although these patients are likely to have shorter hospital admission durations, the higher rate of hospital

visits and re-admission means their course of treatment is often short and frequent. Moreover, they are likely to acquire more diagnostic labels of psychiatric disorders than mental illness-only groups (Billings & Raven, 2013). These treatment outcomes may be attributable to an increased rate of discharge against medical advice and a consumer-related lack of interest in step-down care follow-up (Brems et al., 2002; Carrà et al., 2016).

### **Evidence-based Practice for Comorbidity Management**

In Australia, many initiatives, policies, and plans have been introduced to tackle this significant public health concern, including the Better Access Initiative, Primary Health Networks, digital mental health support, psychosocial support programs, the National Disability Insurance Scheme, and more (Australian Government, 2022). However, despite initiatives promoting implementation at multiple levels, from population-based to targeted groups, the significant impact of mental illness and SUDs has not changed over the past 20 years (Australian Institute of Health and Welfare, 2024; Ciobanu et al., 2018). An important research question is therefore: what intervention is most effective for individuals with both mental health conditions and problematic AOD use?

The traditional approach to providing care for individuals with mental disorders and SUDs often involves treating each condition separately, with limited or no collaboration between the services. This means that individuals may receive incomplete treatment for both conditions or may not receive treatment at all if they don't meet specific referral criteria (Donald et al., 2005). For example, their substance use might not be considered severe enough to warrant treatment (Donald et al., 2005; Drake et al., 2008). During the 1980s, people presenting with comorbidity predominantly received treatment based on single disorders only (Ridgely et al., 1986). The integrated care approach to comorbidity management discourse has gained momentum since that time. A recent systematic review of

best practice guidelines for comorbidity found twenty-one documents internationally (Alsuhaibani et al., 2021). Of these, only three guidelines (14%) customized the content to address the management of comorbidity, while others (86%) made treatment recommendations for single disorders such as mental disorders or SUDs with the additional screening component of the others. Guidelines were primarily developed by research-based stakeholders with the limited involvement of consumers and public representatives, limiting the applicability of such guidelines. Despite the substantial evidence regarding social and situational factors associated with the development of comorbidities, the guidelines did not provide directives for managing such social aspects. The review suggested that the current fragmented care model between mental health and drug health systems is attributed to the lack of clinical practice guidelines that are applicable, practical, and assessable.

### **Implementation of Integrated Care**

Even though there is no coherent guideline for integrated care, implementing the integrated model of care with fidelity produces promising outcomes. For instance, Foster and colleagues conducted an implementation research study by introducing the Dual Diagnosis Clinician Shared Care Model (DDCSCM) into an existing mental health service in Victoria, Australia (Foster et al., 2022). The care model focused on integrated care approaches for comorbidity and assertive community treatment, which incorporated a comprehensive, team-based approach to provide personalized support for individuals with severe and persistent mental illnesses. DDCSCM clinicians were required to have clinical experience in mental health and drug health services. They provided direct consultation to consumers, such as harm reduction advice, motivational interviewing, counselling, assistance with linking to withdrawal or rehabilitation programs, and follow-up while assisting with capacity building for mental health clinicians by role modelling at the point of care. The study found that 75% of all referrals received intervention for their AOD use problems embedded in their existing

mental health treatment. The remaining 25% of the referrals required interventions from external agencies, such as withdrawal admissions, with 90% completing the withdrawal programs. These findings suggest that consumers and mental health clinicians accepted this model of care well.

A controlled before-and-after study by Louie and colleagues also found positive outcomes from the integrated care model (Louie, 2021). Thirty-five clinicians working in drug and alcohol services across six study sites were involved in the study. They received a training program (the *Pathways to Comorbidity Care (PCC)* program), which equipped participants with knowledge and skills in utilizing an integrated care approach for the management of comorbid mental disorders and SUDs in drug and alcohol settings. The PCC comprised seminar presentations, workshops conducted by “clinical champions,” clinical supervision, and access to training material via an online platform. The study found that clinicians who received PCC training showed significant improvement in identifying comorbidities and initiating treatment. They also reported a higher self-efficacy and enhanced knowledge and attitudes towards comorbidity.

Furthermore, in a review of the integrated care literature, Karapareddy (2019) suggested that consumers who received care from an integrated model showed a significant reduction in substance use and an improvement in their symptoms of mental illness. They reported a higher rate of care satisfaction while relying less on services than their controlled counterparts, who had a much higher service utilization rate without any symptoms of improvement (Karapareddy, 2019). The early stages of implementation research into integrated care for comorbidity management have also drawn attention to the implementation process of interventions designed to promote this approach to service delivery.

## **Implementation Research and Mental Health Nursing**

Investments in health research disproportionately focus on developing evidence-based therapies to prevent or treat illnesses compared to focusing on understanding barriers and facilitators for successfully disseminating such findings (Tabak et al., 2012). There is a distinction between passively spreading information and actively facilitating changes in clinical practices (Molloy et al., 2021). Efforts to produce information about evidence-informed treatment do not guarantee their use in routine clinical practices (Proctor et al., 2009). Fortunately, implementation research has gained much interest from relevant stakeholders in recent years (Curtis et al., 2017; Hanney et al., 2015; Proctor et al., 2009; Smith & Johnson, 2023). With a particular focus on mental healthcare services, one of the critical healthcare gaps is what is known to be an effective treatment and what consumers experience in clinical settings (Proctor et al., 2009).

As the largest workforce in public mental health services, nurses are frontline clinicians who play a critical role in promoting the culture of compliance with providing care that is supported by research evidence. Mental health nurses (MHNs) work alongside service users and their carers to support recovery by attending assessments, coordinating with other professions to deliver individualized treatment, and monitoring health outcomes (NSW Health, 2023). A large proportion of MHNs' care duties and responsibilities involve direct patient care and contact. Building evidence-based practice (EBP) competencies will enhance the likelihood of MHNs engaging in EBP in their routine practice, increasing the availability of EBP-oriented services, and improving the quality of care (Saunders et al., 2019).

However, there are numerous challenges MHNs might encounter when they endeavor to implement EBP. Knowledge of EBP among MHNs is mostly acquired during their university education, before workforce commencement. Beyond graduation, time constraints,

competing demands of clinical responsibilities, and lack of EBP education opportunities make it less likely for MHNs to implement EBP (Ezeruigbo, 2023). MHNs utilize their clinical experience and locally developed guidelines to inform their clinical decision-making rather than employing research-based information (Newman et al., 2020). Even when MHNs have access to EBP, interpreting the findings, critically appraising research articles, and strategically applying the new knowledge to enhance clinical practice requires specific research knowledge and competencies (Duncombe, 2018). Furthermore, MHNs' professional practices are guided by the regulations of government agencies and clinical directives by the local mental health service executives (Fisher & Happell, 2009; Wand et al., 2022). As a result, implementing research knowledge in the MHN profession requires EBP competencies at the staff level, organizational support and strong leadership commitment.

### **Implementation Science Framework**

A range of frameworks have been developed to facilitate the design and evaluation of strategies to implement EBP in public health services such as mental health nursing. These frameworks provide an approach to assess determinants and mechanisms and identify relevant measurements (e.g. (Moullin et al., 2019),(Becan et al., 2017)). The Consolidated Framework for Implementation Research (Damschroder et al., 2009) has commonly been utilised in the context of mental health and SUD research (Damschroder & Hagedorn, 2011a). The CFIR has five domains including: (1) intervention characteristics (e.g. evidence strength and quality, adaptability), (2) outer setting (e.g. patient needs and resources, external policies and incentives), (3) inner setting (e.g. implementation climate, readiness for implementation), (4) individuals involved (e.g. self-efficacy, knowledge and beliefs about the intervention), and (5) the implementation process (e.g. engaging members of the organisation, executing the innovation). The CFIR provides a comprehensive approach to synthesising implementation research and has many strengths including: i) differentiating core and adaptive components of

the implementation intervention (Fixsen et al., 2005; Garner, 2009); ii) providing a platform for evaluation of EBP implementation, and iii) allowing for the development and evaluation of predictors of the determinants of implementation outcomes and sustainability in a given context (Damschroder & Hagedorn, 2011a). The incorporation of inner and outer setting domains in addition to clinician characteristics is of particular importance for MHNs given mental health nursing operates within these contexts.

### **Thesis Statement of Purpose**

The National Study of Mental Health and Wellbeing 2020-2022 in Australia revealed substantial proportions of mental health problems at the population level, with a lifetime prevalence of mental disorders estimated at 43% and 12-month at 22% in 2020-2022 (Australian Institute of Health and Welfare, 2024). Symptoms of mental disorder significantly impact cognition, emotion, or behaviour, hence impacting overall well-being and functioning (World Health Organisation, 2022), including the tendency to engage in health-risk behaviour such as problematic use of AOD (Kingston et al., 2017; Lai et al., 2015; Teesson et al., 2010). The presence of comorbid mental disorders and SUDs worsens the health disturbances of the individual compared to each health condition alone (Carrà et al., 2016; Gao et al., 2010; Hughes et al., 2018). The integrated care model has shown promise as an EBP that addresses comorbid mental disorders and SUDs (Donald et al., 2005; Foster et al., 2022; Karapareddy, 2019; Louie, Morley, et al., 2021).

In response to bridging the gap in the research implementation of comorbidity management, this project utilizes implementation science methods to examine factors that enable or hinder the adoption of an integrated care model in clinical practice within the nursing profession. Chapter 1 presents a systematic review of MHN's perceptions and attitudes of MHNs toward AOD use in mental health consumers. In Chapter 2, findings of a

mixed-method study, using the CFIR, are presented, including contextual barriers and facilitators of implementing an integrated care approach to addressing comorbid mental disorders and SUDs from the perspective of both MHNs and DHNs. Finally, Chapter 3 synthesizes thesis findings and provides a discussion of practice implications and recommendations for future development of implementation research projects.

# CHAPTER 2

## **A systematic review of the perceptions and attitudes of mental health nurses towards alcohol and other drug use in mental health clients**

### **ABSTRACT:**

Background: Mental and substance use disorders are leading contributing factors for the Australian non-fatal burden of disease. These disorders frequently co-occur in the mental health population, and mental health nurses are the largest group of professionals treating comorbidity. A comprehensive understanding of mental health nurses' attitudes and perceptions is required to inform future implementation of comorbidity training programs.

Methods: A systematic literature review of sources derived from electronic databases including Medline, CINAHL, SCOPUS review, and PsychINFO, along with Connected Papers. Selection criteria included a focus on mental health nurses' attitudes towards dual diagnosis of mental illness and substance use. Extracted data was qualitatively synthesized.

Results: Of the 5232 articles retrieved initially, 12 were included in the review. Four themes emerged from the synthesis: drug and alcohol use among mental health consumers (seven studies), caring for comorbid consumers (eight studies), role perception (six studies), and treatment optimism (five studies). Salient beliefs included substance use as a self-inflicted choice (71%) or a form of 'self-medication' (29%); a lack of willingness to provide care (75%), or a strong commitment to care (25%); greater comfort with screening and acute medical management rather than ongoing management (83%); and pessimism about treatment effectiveness (100%).

Conclusion: Mental health nurses' beliefs and attitudes towards comorbidity were often negative, which is likely to result in poor quality care and treatment outcomes. However, the lack of recent studies in this research area indicates the need for up-to-date knowledge that can inform the development of training programs.

## INTRODUCTION

Mental and substance use disorders (SUDs) are leading contributing factors for Australian non-fatal 'burden of disease' (measured by years living with disability) according to the Global Burden of Disease Study 2015 (Ciobanu et al., 2018). There is a high prevalence of comorbid mental disorders and SUDs. Up to 90% of people accessing substance use treatment also experience comorbid mental health problems (Kingston et al., 2017). Indeed, the harmful use of alcohol has been found to cause mental disorders (World Health Organisation, 2018). Conversely, individuals with mental health conditions are more likely to engage in the harmful use of alcohol than individuals without mental health conditions (lifetime risky drinking levels of 21% compared to 17.1%) (Australian Institute of Health and Welfare, 2021). It has been reported that up to 77% of people with major mental disorders like schizophrenia spectrum disorders, borderline personality disorder, antisocial personality disorder, and bipolar disorder may also have SUDs or alcohol use disorders (AUDs) in their lifetime (Guy et al., 2018; Hunt et al., 2018; Hunt, Malhi, Cleary, Lai, et al., 2016).

Problematic alcohol and other drug use among individuals with mental disorders is also related to poor outcomes (Kingston et al., 2017). Comorbidity is associated with greater symptom severity, reduced quality of life, and increased reliance on treatment services compared to SUD alone (Curran et al., 2008; Mark, 2003). Despite the high prevalence of comorbidity, it is underestimated and under-diagnosed, and treatments are often unsatisfactory (Jane-Llopis & Matytsina, 2006). There is therefore an urgent need to improve integration between mental health and substance use services, which can be achieved through networking, integrated models of service, and a recognition of the varying treatment needs of each individual (Fantuzzi & Mezzina, 2020).

Historically, mental health and alcohol and other drug (AOD) services in Australia have operated separately with regard to the delivery of care in many jurisdictions, which can present challenges for those intending to access appropriate services (Teesson et al., 2009). This segregated approach to care has limited treatment resource capacity, including clinical skills, practice competencies, and a lack of clinician-related willingness to manage comorbid conditions. Siloed health services have contributed to a lack of understanding of substance use among mental health clinicians and a lack of understanding of mental disorders among drug and alcohol clinicians (Sterling et al., 2011). An integrated intervention approach often focuses on screening and assessment of mental health or SUD problems rather than the management of both disorders (Alsuhaibani et al., 2021). At the provider level, clinicians can provide integrated care by learning specialized skills to simultaneously assess and treat both conditions. Furthermore, integrated care can also occur at the service level, whereby separate services collaborate, and consultancy capacity between specialized services is facilitated.

As the largest group in the mental health workforce, nurses provide care service coverage 24/7 across healthcare settings, and a significant proportion of their duties involve consumer interactions (Australian Institute of Health and Welfare, 2023). *Mental health nursing* is a unique profession that facilitates therapeutic effects via interpersonal nurse-patient relationships. Mental health nurses promote mental health and well-being by generating human connection in a trauma-informed way, espousing kindness, and demonstrating respect for the person's lived experience of mental health problems (Anandan et al., 2021). When mental health professionals display negative or discriminatory attitudes towards consumers who present with drug and alcohol problems, these attitudes can become barriers to effective care (van Boekel et al., 2013). Social psychologists define *attitude* as the reflection of the person's underlying values, which predict behaviour in reference to these

values. Properties of attitude evolved from past experiences, feelings, and associated beliefs about an object (Haddock & Maio, 2004). Indeed, positive attitudes are a prerequisite for therapeutic engagement and enhancement of mental health nurses' AOD knowledge and treatment skills and can optimize integrated care capacity. In contrast, when displaying negative attitudes towards clients with comorbid mental disorders and SUDs, nurses can impede consumers' recovery due to service disengagement and treatment non-compliance (Anandan et al., 2020).

A comprehensive understanding of attitudes and perceptions in nurses is required to inform future implementation training programs aimed at improving the management of comorbidity by mental health nurses. This study thus aimed to explore the perceptions and attitudes of mental health nurses towards alcohol and other drug use in mental health consumers with a comprehensive systematic synthesis of the literature. Three research questions guiding this process included: (1) What are mental health nurses' perceptions and attitudes towards drug and alcohol use within the mental health population? (2) How do mental health nurses perceive their role perception in the management of comorbidity? And (3) What factors influence mental health nurses' attitudes toward the problems of alcohol and other drugs?

## **METHODS**

The present systematic review was conducted in accordance with the reporting guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) statement (D. Moher et al., 2009), and is being reported in line with the enhancing transparency in reporting the synthesis of the qualitative research (ENTREQ) statement (Tong et al., 2012).

### *Synthesis methodology*

A narrative synthesis was performed given that the outcome variables were a heterogeneous collection of quantitative and qualitative data. The main methods of synthesis involved tabulation using 'meta-matrices' (Miles & Huberman, 1994), textual descriptions and a qualitative synthesis of themes (Popay et al., 2006).

### *Inclusion criteria*

Criteria for considering studies for this review were classified by:

### *Population and setting*

In order to meet inclusion criteria, studies had to involve participants who were mental health nurses employed by mental health services. However, the mental health team often involves clinicians from a range of disciplines such as medical officers, allied health professionals, and nurses providing comprehensive care for the mental health population. Therefore, studies were included that comprised at least fifty percent of mental health nurses in the respondent groups.

### *Study design*

Quantitative, qualitative, and mixed methods studies were included.

### *Year limit*

The search did not limit the year of year publication to maximise the finding of original papers on the research topic.

### *Outcomes*

The review focused on mental health nurses' attitudes towards comorbidity of mental disorders and illicit substance use and harmful alcohol consumption. Studies including outcome variables measuring the participants' attitudes towards problematic drug and alcohol use in mental health service users were included. Studies of clinician attitudes toward tobacco smoking were excluded because the culture of smoking is socially accepted as a stress management tool for consumers (Sheals et al., 2016). Studies about forensic mental health nursing were also excluded given the highly secure drug-free environment in this setting.

### *Data Sources*

The following electronic databases were searched by TTM (from November to August 2021): Medline, CINAHL, SCOPUS review, and PsychINFO. Reference searches of relevant reviews and articles were also conducted. Similarly, a grey literature search was done with help of Google and the Grey Matters tool which is a checklist of health-related sites organized by topic. The tool is produced by the Canadian Agency for Drugs and Technologies in Health (CADTH) (CADTH, 2018 (cited 2019 Feb 22)).

### *Search strategy*

The search included all relevant peer-reviewed studies. Appendix Table 1 lists the search terms used. An additional, connectedpapers.com was used to identify the papers connected to the selected articles. *Connected Papers* is a web-based research tool that helps to explore other linking papers in similar research fields (<https://www.connectedpapers.com/?s=09>).

### *Study screening methods*

First, titles and abstracts of articles returned from initial searches were screened based on the eligibility criteria outlined above. Second, full texts were examined in detail and screened for eligibility. Third, references of all considered articles were hand-searched to identify any relevant report missed in the search strategy by the same two reviewers independently. Any disagreement between reviewers was resolved by discussion until a consensus was reached. EndNote version X9 (Clarivate Analytics), was used to manage all records.

### Quality assessment

This study used the mixed methods appraisal tool (MMAT) version 2018 to assess bias at the individual study level (Hong et al., 2018). MMAT is developed to critically appraise the quality of empirical studies using qualitative, quantitative, and mixed-method research. Instead of calculating the overall score, MMAT provides more criterion details to better inform quality assessment.

## RESULTS

### Search results

As displayed in the flowchart (Fig. 1), the initial search resulted in 5232 articles derived from health science databases including Medline (n=977), CINHAL (n=1243), PsychINFO (n=926), and Scopus (n=2086). The first screening of the titles and abstracts yielded 60 relevant articles that met the inclusion criteria covering mental health nurses' attitudes towards drug and alcohol use within mental health settings. Finally, full-text of these studies were assessed for eligibility and 12 were included in the review. Studies were excluded that did not explore attitudes (n=15), recruited less than 50% mental health nurses (n=13), did not include attitudes about the adult drug and alcohol and mental health population (n=12), described measurement of attitudes linked to pre and post training (n = 4), or were review articles (n=2) and non-research articles (n=2). Twelves articles were selected for the pooled analysis, including eleven from the database search and one from the web-based search tool.

Table 1 summarises the characteristics and findings of the included studies on mental health nurses' perceptions and attitudes towards alcohol and other drug use in mental health clients.

### Participant characteristics of included studies

Although five studies involved participants other than nurses, including medical staff and allied health professionals, the majority of participants included mental health nurses (50-77%) (Deans & Soar, 2005; Howard & Holmshaw, 2010; Siegfried et al., 1999; Williams, 1999). The remaining studies recruited only mental health nurses (Coombes & Wratten, 2007; Happell et al., 2002; Johansson & Wiklund-Gustin, 2016; Lundahl et al., 2014; Ralley et al., 2009; Rylie & McGowan, 1998b; Wadell & Skrster, 2007). The clinical settings of these studies involved inpatient (Howard & Holmshaw, 2010; Jackman et al., 2020; Johansson & Wiklund-Gustin, 2016; Lundahl et al., 2014; Pinderup, 2016, 2018b; Ralley et al., 2009;

Ryrie & McGowan, 1998b; Wadell & Skrster, 2007), community (Coombes & Wratten, 2007; Deans & Soar, 2005; Happell et al., 2002), and multiple mental healthcare facilities (Molina-Mula et al., 2018; Siegfried et al., 1999; Williams, 1999).

### Study characteristics

Overall findings identified considerable heterogeneity in research methodologies and inconsistent study outcomes. Various data collection strategies were used across the selected studies, including quantitative, qualitative, and mixed-methods. Seven studies obtained qualitative data (Coombes & Wratten, 2007; Deans & Soar, 2005; Johansson & Wiklund-Gustin, 2016; Lundahl et al., 2014; Ralley et al., 2009; Ryrie & McGowan, 1998b; Wadell & Skrster, 2007), another four studies used questionnaires and surveys (Happell et al., 2002; Molina-Mula et al., 2018; Siegfried et al., 1999; Williams, 1999), and one study used the mixed research methods (Howard & Holmshaw, 2010). A diverse range of assessment scales were employed across the studies including Likert scales 1 to 5 (Molina-Mula et al., 2018; Williams, 1999) and 1 to 7 (McKenna et al., 2010), and binary variables (Happell et al., 2002).

### Quality assessment of studies

Two independent reviewers (TTM, LM) appraised the selected studies using the MMAT tool. For each study type, an appropriate category is used to assess the quality of selected studies critically. Difference opinions on the appraisal components were managed by discussion. Twelves studies were selected for the review. Table 2 presents details of the quality assessment of the selected studies.

### Summary of four main attitude themes

Mental health nurses' attitudes towards comorbidity management could be placed into the following themes, reflecting the complicated relationships among factors that drive their

perception of care for comorbid consumers.

### *Attitudes towards AOD use among mental health consumers*

Of the selected papers, six examined the participants' belief about the intention of drug and alcohol use within the mental health population using both qualitative and quantitative measures (Deans & Soar, 2005; Johansson & Wiklund-Gustin, 2016; Ralley et al., 2009; Ryrie & McGowan, 1998b; Williams, 1999). Two studies observed that alcohol and drug use among mental health consumers was generally not considered part of their illness but, rather, a self-inflicted lifestyle behaviour (Ryrie & McGowan, 1998b; Williams, 1999). Ralley et al. (2009) reported that many mental health professionals construed consumer-related substance misuse as problematic compared to non-consumer-related substance misuse, which was deemed habitual. In this study, it was speculated that the consumer was consciously using drugs despite knowing the predictable adverse health outcomes. Moreover, negative attitudes towards consumer's drug use behaviour were expressed, with the underlining assumption that the consumers purposefully negate the attempts made by the treatment team to assist them with their recovery (Ralley et al., 2009). Molina-Mula and colleagues used a discrete quantitative assessment tool, the Seaman-Mannello scale, to examine nurses' perceptions and attitudes toward alcohol problems (Molina-Mula et al., 2018). An unfavourable disposition towards consumers with alcohol use problems was observed. The majority of nurses (80.1%) agreed or totally agreed that the 'life of alcoholics was not pleasant,' and many (61.9%) agreed that 'alcoholic patients had poor physical health'. The nurses predominantly displayed negative attitudes towards individuals who drink moderately, they believed it was unhealthy and harmful and made the person 'weak'.

In contrast, one qualitative study of nurses working in remote areas of Victoria, Australia, expressed sympathy towards consumers with comorbidity and demonstrated an understanding with regard to self-medication of psychotic symptoms or enhancement of

social activities (Deans & Soar, 2005). A smaller-scale study also demonstrated that nurses generally agreed that consumers use substances to alleviate their symptoms and cope with their life struggles (Johansson & Wiklund-Gustin, 2016).

#### *Attitudes towards caring for mental health consumers with concurrent AOD problems*

Eight studies explored mental health nurses' willingness to care for consumers with concurrent problematic drug and alcohol use (Coombes & Wratten, 2007; Deans & Soar, 2005; Happell et al., 2002; Howard & Holmshaw, 2010; Johansson & Wiklund-Gustin, 2016; Lundahl et al., 2014; Molina-Mula et al., 2018; Ryrie & McGowan, 1998b; Wadell & Skrster, 2007). A general lack of willingness to care for consumers with comorbidities within the mental health services was observed in several studies. Mental health professionals reported experiencing feeling of 'unsafe' when caring for comorbid consumers. Reluctance of mental health nurses to engage with comorbid consumers was observed and underlined by a perception that they are violent and unpredictable, and therefore unsafe (Coombes & Wratten, 2007). Further reasons for distance in therapeutic engagement included additional drug-related problems in clinical care units such as supplying drugs to other patients, increased aggression due to substance withdrawal, and ward safety (Howard & Holmshaw, 2010).

Johansson et al (2016) examined the attitudes of mental health nurses in a psychiatric inpatient ward. These authors observed that nurses reported being vigilant of manipulative behaviour but reported trying to understand underlying reasons for behaviour. Nurses also reported emotional burden when caring for consumers with drug and alcohol problems and attempts to desensitise to relapses (Johansson & Wiklund-Gustin, 2016). Finally, in a large-scale study involving two hundred seventy-five mental health nurses working across settings, Molina-Mula and colleagues used the Seaman-Mannello Scale to examine nurses' attitudes when working with alcohol-related consumers. Under subscale two measuring job satisfaction, most of the items in this subscale scored less than three out of five, indicating dissatisfaction when providing care for consumers with alcohol problems (Molina-Mula et al., 2018).

In contrast, a small-scale study exploring mental health nurses' experience when caring for major depressive disorder and alcohol problems observed a greater willingness to care (Wadell & Skrster, 2007). Nurses expressed commitment for providing care for dually diagnosed depression and alcohol problems, supporting trust-based collaborative relationships as a prerequisite for therapeutic engagement. They would use a variety of engagement approaches when working with comorbid consumers according to what they perceived as the most appropriate in the context, such as paternalism, confrontation, and compassion styles. Similarly, a qualitative study by Lundahl et al. investigated mental health nurses' views and experiences providing care for consumers using Gamma-hydroxybutyric acid (GHB), an illicit substance in many countries (Lundahl et al., 2014). This study revealed positive clinical care attitudes including 'striving for a good relationship' and 'striving to optimize and develop nursing care.' It was observed that these mental health nurses demonstrated understanding of a good therapeutic relationship by showing respect, being present, listening, and caring towards the consumers and a desire to foster a calming and comfortable atmosphere so that consumers can feel psychologically safe during their hospital admission.

#### *Attitudes towards role perception*

Six studies examined the perceived professional role of comorbidity management in mental healthcare (Happell et al., 2002; Johansson & Wiklund-Gustin, 2016; Ryrie & McGowan, 1998b; Siegfried et al., 1999; Wadell & Skrster, 2007; Williams, 1999). Generally, mental health nurses' role perception of clinical care for comorbid consumers included screening, assessment, consumer education, and acute medical management rather than responsibility for specific interventions for drug and alcohol use, namely motivational interventions (Watson et al., 2013) or psychosocial treatment of comorbidities (Cleary et al., 2009). Four studies reported that mental health nurses believed that drug and alcohol assessment,

consumer education, and exploring referral pathways are part of their professional role (Happell et al., 2002; Siegfried et al., 1999; Wadell & Skrster, 2007). Additionally, one study also reported the need to enhance clinical assessment skills, consumer education and counselling skills, knowledge of substance interaction with prescribed medications, and intoxication management (Ryrie & McGowan, 1998b). However, several studies indicated that mental health nurses did not perceive the clinical care or ongoing management of these consumers as part of their role. For example, one study reported that nurses assumed that it should be the doctor's responsibility to talk about alcohol use to mental health consumers (Wadell & Skrster, 2007), while another study observed that they believed a dedicated specialist should provide care for drug and alcohol consumers in the ward setting (Williams, 1999), or that referring comorbid consumers on to drug and alcohol services is preferable (Happell et al., 2002). By comparison, nurses in one study by Johansson and Wiklund-Gustin (2016) recognized that their duty was to provide care beyond symptom management for consumers with substance use disorders and to discuss health-associated problems self-care strategies, social skills, personal strengths, and resources following withdrawal.

#### *Attitudes towards treatment optimism*

Five studies mentioned the nurses' attitudes towards treatment optimism (Coombes & Wratten, 2007; Deans & Soar, 2005; Johansson & Wiklund-Gustin, 2016; Lundahl et al., 2014; Wadell & Skrster, 2007). Four studies consistently reported negative attitudes towards treatment optimism. Deans and colleagues (2005) found that nurses commonly expressed frustration in caring for comorbid consumers, claiming that treating mental disorders for this group tended to be ineffective, resulting in prolonged discharge plans. Their prominent negative feelings towards treatment outcomes included frustration, resentment, helplessness, and hopelessness, with a description of treatment ineffectiveness attributable to individual

responsibilities rather than situational circumstances (Deans & Soar, 2005). Findings from a study of community-based mental health services where care often requires long-term commitment revealed that community mental health nurses perceived the SUD as untreatable and time-consuming (Coombes & Wratten, 2007). Regarding specific substances like GHB, Lundahl et al. discovered that nurses' negative feelings were derived from many treatment-related factors such as an absence of step-down community-based services to promote continuum care following discharge from the hospital and a delay in responding to social services referrals upon discharge, leaving mental health nurses concerned about patients' risk of relapse (Lundahl et al., 2014).

One study reported treatment optimism towards management of depression and alcohol problems whereby nurses believed that informing patients about the harmful effects of alcohol can motivate consumers to abstain from alcohol consumption (Wadell & Skrster, 2007). Finally, Johansson and Wiklund-Gustin (2016) demonstrated that nurses perceived that addressing substance use alone is likely to be ineffective and that intervention should be integrated with mental health care (Johansson & Wiklund-Gustin, 2016).

## **DISCUSSION**

This review provides a synthesis of the literature that has examined mental health nurses' attitudes and perceptions of mental health consumers with concurrent drug and alcohol problems. Four themes emerged including drug and alcohol use among mental health consumers, caring for comorbid consumers, role perception, and treatment optimism. Overall, there was a mix of positive and negative attitudes across all four themes.

There were predominant beliefs held by mental health nurses regarding personal choice for drug and alcohol use among mental health consumers. Many nurses in the selected studies shared beliefs that consumers with comorbidities make an informed choice leading to the subsequent treatment ineffectiveness and ill-health. However, the neurobiological theories

of drug addiction indicate that relapse to substance use is driven by neuroadaptation and impact on brain function and decision making (Kalivas & Volkow, 2005). Environmental factors such as employment and societal instability are also strongly associated with and drive patterns of substance use within these communities (Hellman et al., 2015). Importantly, early trauma is also key factor associated with later substance use problems (Lin et al., 2020). Sadly, misconceptions of addiction and addictive behaviour can lead to stereotyping and prejudicial attitudes that are then likely to result in discriminatory clinical care practices against mental health consumers with a history of drug and alcohol use, hence depriving their access to quality care (Yang et al., 2017). Thus, mental health nurses' attitudes towards mental health consumer-related drug and alcohol use may have flow on effects with regard to effective management comorbidities.

Several studies observed that mental health nurses were somewhat hesitant to be involved in the care of comorbid consumers. One small-scale qualitative study of eleven Swedish nurses explored mental health nurses' experience when caring for individuals with major depressive disorder and alcohol use problems and reported a willingness to be involved in care that was not observed in other studies that explored illicit drug use (Wadell & Skrster, 2007). It is possible that the perception of alcohol use among consumers with major depressive disorder is more acceptable than illegal substance use. Furthermore, mental health nurses across settings expressed open-mindedness about receiving additional training in the drug and alcohol field including assessment and referral capacity despite predominantly holding the belief that clinical intervention for addiction is beyond their role and the responsibility of the medical team or specialized services (Happell et al., 2002; Wadell & Skrster, 2007; Williams, 1999). One evidence-based model for managing comorbidity is integrated care (Louie et al., 2018). Integrated care aims to provide coordinated, efficient and

effective *care* that responds to all of the needs of the consumer, requiring both assessment of drug and alcohol and the mental health conditions, along with a comprehensive management plan for treating both problems (Marel et al., 2016) Interestingly, none of the participants considered the responsibility of managing drug and alcohol issues in comorbid consumers to be part of their role. This ambivalence in role perception demonstrates a lack of awareness regarding integrated comorbidity management in the mental health care system, possibly reflecting a somewhat incomplete implementation of contemporary evidence-based practice to improve quality of care.

### *Limitations*

There was heterogeneity across the selected studies such as the diverse study methods, assessment tools, and attitudes measured. The study population targeted mental health nurses working at specific mental health settings which may not be generalizable for the broader mental health nursing community in other healthcare systems and countries. Moreover, it is possible that small-scale studies with a highly selective population may be biased towards yielding more optimistic attitudes compared with what might be observed in larger representative sample studies (Lundahl et al., 2014; Wadell & Skrster, 2007). For example, Lundahl et al. (2014), selectively recruited senior experienced professionals who worked at psychiatric wards dedicated to drug and alcohol consumers and their perceived drug and alcohol knowledge was moderate to very knowledgeable (86%). These factors are likely to be driving the positive clinical care attitudes that were reported by the nurses, such as striving for optimum care and the therapeutic relationship (Lundahl et al., 2014). It is also important to note that there were few studies included in the review that were conducted recently, and these findings may not represent contemporary attitudes.

### *Clinical and practice implications*

Our findings highlight the existence of attitudes towards drug and alcohol use in mental health consumers that may need to be addressed in order to improve care. Training in drug and alcohol related problems can alter pre-existing negative attitudes and improve mental health professionals' attitudes toward therapeutic care. Educational interventions could be implemented to improve mental health nurses' attitudes towards management of comorbidities and should cater to specific nursing groups to optimize the desired outcomes (Jackman et al., 2020). For example, nurses who received training in drug and alcohol were less likely to hold negative attitudes toward drug and alcohol problems (Howard & Holmshaw, 2010). Several of the studies in this review suggest that many mental health nurses are open to training opportunities to enhance their knowledge and skills in assessing and treating comorbidities. Indeed, mental health staff identified training as essential for increasing knowledge and enhancing clinical practice, such as understanding drug awareness, legality matters, and appropriate therapeutic consumer engagement (Howard & Holmshaw, 2010). Nurses also suggested that skills might include different engagement approaches depending on the context, building a therapeutic relationship (Lundahl et al., 2014). The lack of treatment optimism could also be addressed by education regarding evidence-based care. Addressing team attitudes is also likely to be important. Team attitudes have previously been recognised at handovers or multidisciplinary team meetings in which clinicians reported a mix of positive and negative perceptions from team members regarding care for comorbid consumers (Howard & Holmshaw, 2010). Structured training programs could incorporate these factors accordingly. Finally, with regard to management approaches such as integrated care (Louie et al., 2018), training packages could be developed (Louie, Morley, et al., 2021) including the development of clinical practice guidelines along with ongoing clinical supervision (Giannopoulos et al., 2021), clinical champions (Wood et al., 2020) and sufficient time allocation for training (Louie, Giannopoulos, et al., 2021) to facilitate individual and

team attitudes and clinical practice change in management of comorbidities(Lundahl et al., 2014).

## **CONCLUSION**

We conducted a synthesis of the existing literature regarding mental health nurses' attitudes and perceptions regarding drug and alcohol use in mental health consumers. There were mixed attitudes regarding the four emergent themes drug and alcohol use among mental health consumers, working with these consumers, role perception, and treatment optimism. Fewer recent studies in this research area indicate the need for up-to-date knowledge of mental health nurses' perception of care in comorbid management, and the changes of this perception in the context of modern society. Nonetheless, attitudes that may need to be addressed in future training programs to enhance comorbidity management include the perception of decision-making regarding addictive behaviours, safety issues, confidence in and knowledge of effective treatment options, and engagement and management approach. In addition, the extent of training and clinical support for nurses to develop positive attitudes towards providing care for mental health consumers with concurrent drug and alcohol problems remains a contemporary research gap.

### Relevance for clinical practice

The review broadened our understanding of mental health nurses' perceptions and attitudes towards alcohol and other drug use among mental health consumers. We also found that effective therapeutic care for this population does not only require clinicians to have adequate knowledge about the health problems but also a non-moralistic approach and positive attitudes towards care. Finally, research-informed training programs can enhance clinical practice in caring for comorbid consumers by upskilling staff's drug health knowledge and shifting their skewed perceptions towards more optimum care.

Table 1 Findings from the included studies on mental health nurses' perceptions and attitudes towards alcohol and other drug use in mental health clients

Author	Study design	Population and sample size	Settings	Outcome measures	Results and Comments
<b>Ryrie and McGowan, 1998 (UK)</b>	Qualitative	N=20 (mostly mental health nurses)	Acute mental health inpatient	Semi-structured staff questionnaire with 16 items covering demographic and professional data, previous drug health training and work experience, perception of dual diagnosis and clinical management, training and support.	Drug and alcohol use was perceived as problematic, associated with symptoms exacerbation, prolonged recovery, and provoking other social and legal issues. The nurses felt ill-prepared to provide appropriate care for mental health consumers with concurrent drug and alcohol use problems. They expressed discontent with the scarcity of policy and protocol to guide clinical practice to manage substance use in acute mental health facilities.
<b>Williams,</b>	Quantitative	N=127, 40%	Mental health	Attitudes to Substance Use	Nurses were more likely to ascribe the causation

<p><b>1999 (UK)</b></p>	<p>with written comments</p>	<p>were nurses</p>	<p>clinicians working at United Bristol Healthcare Trust – across settings</p>	<p>Questionnaire covering demographic and professional data, perception of substance use in causing of mental health issues, role perception regarding assessment and referral, opinions on drug screen assessment and treatment optimism.</p>	<p>of mental illness due to substance use and valued the importance of drug screen assessment than psychologists, occupational therapists, social workers, and physiotherapists. Nurses perceived that recreational substance use is common and does not necessarily lead to mental illness. They believed that there should be a specialist dedicated ward to provide care for drug-related consumers.</p>
<p><b>Happell et al., 2002 (Australia)</b></p>	<p>Quantitative</p>	<p>N=134 mental health nurses</p>	<p>Metropolitan community</p>	<p>Developed questionnaire from Evans (1997) and Substance Abuse Attitude Survey (Chapel et al., 1987) covering knowledge, attitudes, beliefs, and skills in drug health.</p>	<p>The nurses felt confident in their clinical competence of alcohol and substance screening assessment among mental health consumers but not the clinical interventions. They perceived making referral pathways part of their role, while only half of them considered role responsibility for comorbid management.</p>

<b>Deans and Soar, 2005 (Australia)</b>	Qualitative	N=13 with 10 were mental health nurses (77%)	Rural community	In-depth interviews conducted to capture feelings and experiences when caring for dual diagnosis consumers.	Mental health professionals commonly experience the feeling of frustration in caring for dual diagnosis consumers. They believed mental health consumers use drugs and alcohol to self-medicate psychotic symptoms. Believed that treatment tends to be ineffective, resulting in prolonged discharge plans.
<b>Coombes and Wratten, 2007 (UK)</b>	Qualitative	N=7 mental health nurses	Community	Semi-structured interviews conducted face-to-face using audio tape-recorded and transcribed for the data analysis stage.	Believed that they are not adequately equipped with regard to dual diagnosis knowledge and skills. They also tended to believe that all dual diagnosis clients are violent and unpredictable.
<b>Wadell and Skarsater, 2007 (Sweden)</b>	Qualitative	N=11 mental health nurses	Acute mental health inpatient	Participants were asked to describe a caring encounter where they were involved in managing patients with depression and alcohol use problems. During the interviews, further	The importance of therapeutic engagement and transparency in patient communication regarding alcohol-related harmful effects was highlighted. Believed talking about alcohol use is a part of their job, but primarily assumed this task should

				prompted questions were asked to elaborate on the participants' choice of words and their intended meaning.	be the doctor's responsibility.
<b>Ralley et al., 2009 (UK)</b>	Statistical analysis using repertory grids data	N=12 mental health nurses	Long stay low-secure mental health units	Repertory grid technique to understand how mental health nurses construe dual diagnosis consumers in their workplace.	Consumer-related drug and alcohol misuse were more likely to be construed as problematic by the nurses compared to drug and alcohol use by acquaintances.
<b>Howard and Holmshaw, 2010 (UK)</b>	Descriptive mixed methods – quantitative and qualitative	Quantitative: N=84 with 41 were mental health nurses and 11 other (e.g. environment co-ordinator, welfare rights	Mental health inpatient for assessment, treatment and residential rehabilitation units	Co-occurring Mental Health and Illicit Substance User Perception Questionnaire measured attitude and professional role in perceived knowledge and personalised perceptions. Interview questions explored the participants' experiences working with mental health consumers with co-occurring drug	Mental health staff with clinical experience in both acute inpatient and residential rehabilitation were less likely to have negative attitudes compared to those who only have worked in just one of these settings.  Additional drug-related problems the consumer brings into clinical care units (such as supplying drugs to other patients or increased aggression

		<p>worker, nurse specialist) (50-62%)</p> <p>Qualitative:</p> <p>N=10</p> <p>multidisciplinary staff with 2 were nurses</p>		<p>and alcohol problems in the inpatient setting, multidisciplinary accountability, training and support, and enabling factors and barriers to effective care for this population.</p>	<p>due to substance withdraw) were highlighted as the main reasons for staff unwillingness to provide care. Experiences of distress working with consumers with a substance use history were reported.</p>
<p><b>Lundahl et al., 2014 (Sweden)</b></p>	<p>Qualitative</p>	<p>N=15 Registered nurses working at three psychiatric wards dedicating for patients with substance</p>	<p>Acute inpatient mental health unit dedicated for substance dependent consumers in urgent need of</p>	<p>Themes of discussion covered withdrawal symptoms, medications, medicine distribution, knowledge, and communication.</p>	<p>Attitudes related to GHB/GBL consumers included vigilance around early warning signs of aggressive behavior. Despite the negative feelings derived from treatment-related challenges, nurses continued to nurture therapeutic alliance when providing care for mental health consumers with comorbid</p>

		dependence particularly patients with a history of GHB/GBL abuse.	mental health care		GHB/GBL problems. They used a range of strategies to establish consumer engagement including open communication, promotion of psychological safety, and respect.
<b>Johansson and Wiklund-Gustin, 2016 (Sweden)</b>	Participatory research approach	N=6 mental health nurses	Unspecified inpatient mental health	Four reflective dialogues were conducted to shared experiences of caring for substance use disorder patients.	Four themes included the balance between understanding and frustration, being supportive or a guardian of order, safeguarding the healthy while being observant of problems, and protecting oneself while engaging in a caring relationship. Overall, it was believed that the caring encounter can be balanced out with other regulatory requirements in the psychiatric care environment, but it requires the nurses to remain multifaceted and vigilant in all aspects of care.

<p><b>Molina-Mula et al., 2018 (Spain)</b></p>	<p>Quantitative</p>	<p>N=167 mental health nurses</p>	<p>Emergency, short-stay units, and mental health</p>	<p>Seaman-Mannello scale including behaviour towards alcohol problems, the dichotomy between therapy and treatment, personal/ professional satisfaction when working with patients with alcohol problems, tendency to identify oneself with the ability to help patients with alcohol problem, perceptions towards personal characteristics of those with alcohol problems and nurses' attitudes towards alcohol consumption.</p>	<p>Nurses believed that consumers with alcohol problems should be offered medical treatment for their alcohol-related health problems. Even so, they often expressed dissatisfaction when providing care for alcohol-related consumers. They disclosed disapproval about alcohol consumption even moderate consumption. Mental health nurses in this study exhibited negative attitudes and were unmotivated about providing care for consumers with alcohol problems. The nurses often preferred to provide care for other groups of consumers over consumers with alcohol problems because they did not provide job satisfaction.</p>
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<b>Siegfried et al., 1999 (Sydney, Australia)</b>	Cross-sectional	N=338 with 210 were mental health nurses (62%)	Inpatient, community, and child and adolescent unit	A 47 item questionnaire was developed which measured the role of the mental health professional in the management of drug and alcohol problems and their willingness to upskill in the area of clinical care for alcohol and other drug use.	The majority of respondents regarded working with dual diagnosis consumers to be challenging with regard to treatment effectiveness. They believed their role when caring for these consumers includes assessment and referral to specialised services, but does not include consumer education, and management of comorbidity.

Table 2: Quality assessment of the selected studies using MMAT tool

MMAT Checklist/ Selected studies	Ryrie and McGowan, 1998	Williams, 1999	Happell et al., 2002	Deans and Soar, 2005	Coombes and Wratten, 2007	Wadell and Skarsater, 2007	Ralley et al., 2009	Howard and Holmshaw, 2010	Lundahl et al., 2014	Johansson and Wiklund- Gustin, 2016	Molina- Mula et al., 2018	Siegfried et al., 1999
Screening questions (for all types)												
S1. Are there clear research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S2. Do the collected data allow to address the research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.</i>												
1. Qualitative												

1.1 Is the qualitative approach appropriate to answer the research question?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.2 Are the qualitative data collection methods adequate to address the research questions?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.3 Are the findings adequately derived from the data?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.4 Is the interpretation of results sufficiently substantiated by data?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.5 Is there coherence												

between qualitative data sources, collection, analysis and interpretation?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
2. Quantitative randomized controlled trials												
2.1 . Is randomization appropriately performed?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.2 Are the groups comparable at baseline?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.3 Are complete outcome data?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.4 Are outcome												

assessors blinded to the intervention provided?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2.5 Did the participants adhere to the assigned intervention?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3. Quantitative non-randomized												
3.1 Are the participants representative of the target population?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

3.3 Are there complete outcome data?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3.4 Are there confounders accounted for in the design analysis?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4. Quantitative descriptive													
4.1 Is the sampling strategy relevant to	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes

address the research question?												
4.2 Is the sample representative of the target population?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
4.3 Are the measurements appropriate?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
4.4 Is the risk of nonresponse bias low?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Can't tell
4.5 Is the statistical analysis appropriate to answer the research question?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
5. Mixed methods												
5.1 Is there an												

adequate rationale for using a mixed methods design to address the research question?	No	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
5.2 Are the different components of the study effectively integrated to answer the research question?	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
5.3 Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
5.4 Are divergences												

and inconsistencies between quantitative and qualitative results adequately addressed?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5.5 Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	No	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A

**PRISMA 2009 Flow Diagram**

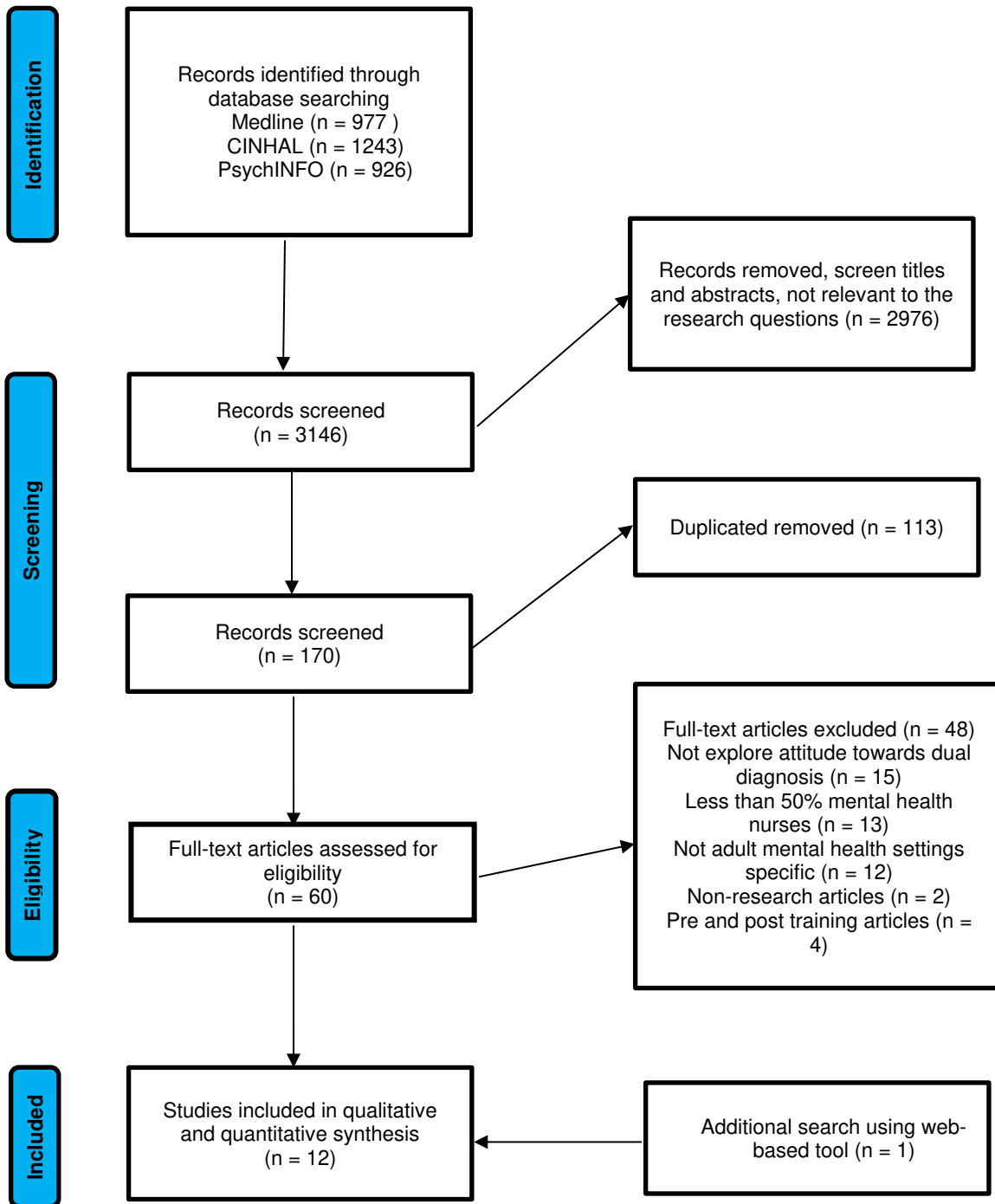


Figure 1: Systematic review flowchart

Table 3: Search terms using PICO

Population	Exposure	Comparision	Outcome
Mental Health OR Psychiatr* AND Nurs*	Dual diagnosis OR Comorbidity OR Drug and Alcohol OR Substance abuse OR Alcoholism OR Alcoholics OR Alcohol dependence OR alcohol OR Drug dependence OR coexisting OR concurrent OR comorbid OR addiction OR methamphetamine OR opioid OR heroin OR cannabis OR stimulant	not applicable	Perception OR Attitud* OR view* OR belie* OR viewpoint* OR experience* OR approach* OR opinion* OR thought* OR Stigma*

# CHAPTER 3

## Evaluating the Management of Comorbid Mental and Substance Use Disorders amongst Nurses

### Abstract

**Introduction:** A high proportion of people with mental disorders meet the criteria for substance use disorders (SUDs). Treating both conditions is challenging, and the current siloed system seems to be an essential barrier to addressing the complex healthcare needs of comorbid mental disorders and SUDs. Current evidence suggests that integrated care is the most effective evidence-based practice for comorbidity. Implementation of integrated care in real-world settings requires multifaceted approaches. Upskilling the nursing workforce can potentially transform practice considerably. This study aims to explore nurses' experiences of caring for consumers with comorbid mental disorders and SUDs in tertiary mental health (MH) and drug health (DH) settings along with their attitudes toward integrated care.

**Method:** Quantitative surveys captured information about nurses' attitudes toward evidence-based practice, attitudes toward the identification and treatment of comorbidity, self-efficacy in counselling consumers with comorbidity, organizational readiness to change, and burnout. Qualitative data was captured through interviews guided by the Consolidated Framework for Implementation Research (CFIR), which was also used to guide systemic data analysis and understand barriers and facilitators to integrated care implementation.

**Results:** Quantitative findings revealed that nurses were receptive to evidence-based

practice and trusted in the knowledge and expertise of researchers, although their current practices were informed by past clinical experiences and advice from peers. Many nurses were not aware of the integrated care approach for comorbidity management but were open to educational opportunities. However, there were significant barriers to their pursuit of these opportunities including a need for more organizational support and leadership commitment. Findings from the qualitative interviews revealed a mix of barriers and facilitators, with more negative evaluations derived from system-related constructs than nurses' individual characteristics.

**Conclusion:** Nurses working in MH and DH services represented in this study were receptive to the implementation of comorbidity management. For nurses working in settings with a high prevalence of comorbidities, a high-quality integrated care training program such as Pathways to Comorbidity Care (PCC), with proven success for drug and alcohol counsellors, could be equally effective in this population. Implementation will require a systemic approach with an emphasis on organizational support and leadership commitment.

## INTRODUCTION

There is a high prevalence of comorbidity between mental disorders and substance use disorders (SUDs). Up to 74% of people with severe mental disorders also meet the diagnostic criteria for an SUD, and 60% of people with SUDs also meet the diagnostic criteria for at least one severe mental disorder (Temmingh et al., 2018). Comorbid mental disorders and SUDs are associated with more health complications than single morbidities including increased risk of self-harm (Challis et al., 2013) and suicidal behaviours (Østergaard et al., 2017), and an increased likelihood of developing comorbid physical health problems (Dickey et al., 2002). When compared to their counterparts, individuals with comorbid disorders are less likely to adhere to their treatment plan, present with higher rates of relapse of both mental health and substance use symptoms, and are more reliant on health services (Fantuzzi & Mezzina, 2020; Horsfall et al., 2009). Broader societal impacts for individuals with comorbid mental disorders and SUD include significant associations with criminal offending, increased risks of violent behaviour, and higher rates of homelessness (Eggink et al., 2019; Schütz et al., 2019).

Addressing the complex healthcare needs of individuals with comorbid mental disorders and SUDs can be a significant challenge for health professionals in both mental health (MH) and drug health (DH) services (Li et al., 2019; Merrick et al., 2022; Pinderup, 2018a). Challenges have been identified at the systemic and provider levels. At the provider level, a lack of knowledge about and skills for managing comorbid mental disorders and SUD are associated with negative attitudes towards caring for this consumer group (Foster, 2020). Systemic challenges include a lack of formal treatment programs and guidelines, which make it difficult for providers to assess and identify comorbidities and develop and implement care plans (Pettrakis et al., 2018). As a result, regardless of the comorbid health problems, consumers tend to receive similar care as those with either mental illness or SUD diagnoses (Pinderup,

2018a). In addition, consumer-related factors including non-adherence to treatment, missed appointments and problems with treatment retention amongst the SUD population impede treatment outcomes (Pinderup, 2018a).

There is inconclusive evidence regarding the efficacy of treatment models for comorbid mental disorders and SUDs (including parallel, consequential, or integrated approaches), and current treatment strategies tend to rely on the existing established treatment programs for each disorder alone (Chetty et al., 2023; Cleary et al., 2009; Fantuzzi & Mezzina, 2020; Ries, 1992; Schulte et al., 2011). A systematic review of evidence-based practice implementation in drug and alcohol settings revealed a scarcity of implementation research in this area of health, with only two out of twenty eligible studies using an implementation framework and none attending to the management of comorbid mental disorders and SUD (Louie, Barrett, et al., 2021). Traditionally, health research predominantly focused on the development of evidence-based intervention, with little attention to the dissemination, translation and implementation of the research findings (Damschroder & Hagedorn, 2011b). This creates a gap in what is known to be effective and what treatment consumers receive. The science of implementation addresses this gap through consideration of systemic contextual factors, from inner settings within the system to outer settings extending to the external influential factors, that create barriers or facilitators to the uptake of evidence-based practices (EBP) into routine clinical care (Damschroder & Hagedorn, 2011b; Lengnick-Hall et al., 2020).

Barriers and facilitators of EBP implementation arise at multiple levels, from frontline staff characteristics to implementation model fidelity, leadership, clinical supervision, executive-level leadership commitment to clinical innovation, the interventions themselves, and financial resources (Brunette et al., 2008). At the provider level, health professionals are generally interested in innovative EBP because it helps improve the quality of care and job

satisfaction (Cleary, 2014). However, a lack of knowledge and skills remains a common barrier to implementing EBP, especially when the workload is heavy and time is limited (Li et al., 2019). Moreover, providers have been found to hold negative attitudes, such as social discrimination and stigma about problematic drug and alcohol use, which hinder their ability to provide the best quality of care (Anandan et al., 2021).

Nurses remain the single largest health professional workforce in Australia's health care system, working across settings such as acute care, aged care, critical care and emergency, mental health, drug health, and other nursing specialties (Health Workforce Australia, 2014). Investment in understanding the extent to which EBPs are endorsed and practiced by nurses may have a particularly strong impact on implementation efforts. As mentioned above, an increased prevalence of comorbidities occurs in both MH and DH services. Therefore, nurses who work in these services encounter consumers with comorbidities more often than not. Examining nurses' experiences of implementing EBP in their workplace will help to identify barriers and facilitators to accomplishing the desired care outcomes.

This study adds to the literature on provider attitudes by examining MH and DH nurses' experience of treating comorbid mental disorders and SUDs in tertiary healthcare settings and exploring the barriers and facilitators of implementing an integrated care approach at provider and systemic contextual levels. Previous studies on MHNs' attitudes towards substance use among mental health consumers found considerable heterogeneity in research methodologies (Merrick et al., 2022). This study used the Consolidated Framework for Implementation Research (CFIR) to examine influential constructs to ensure data was captured comprehensively while strengthening the study validity and reliability (Damschroder & Hagedorn, 2011b).

## **METHODS**

### *Study Design*

This study used both qualitative and quantitative data about nurses' attitudes toward working with patients with comorbid mental disorders and SUDs and implementing an integrated care approach. Ethical approval was obtained from the Research Ethics and Governance Office of the Sydney Local Health District (X16-0440 & 2022/STE01947).

### *Participants and Procedures*

Recruitment took place sporadically between May 2022 to July 2023. Participants included nurses who worked at the emergency/acute care mental health services and drug health services. Surveys were promoted via three main avenues: (1) group emails, (2) in-person study sites visit and (3) project flyers distribution. All nurses who completed the survey online were invited to take part in a follow-up interview which was recorded.

### *Data Collection*

All survey data was entered into a secure web application, REDCap. The audio data was transcribed by researchers (TTM) using both methods of manual and software transcription ([www.descript.com](http://www.descript.com)).

### *Outcome Measures*

The questionnaire package was adopted from the Pathways to Comorbidity Care project (PCC), which assessed drug and alcohol clinician attitudes, knowledge, and counselling self-efficacy with regard to integrated care for comorbidity management (Louie, Morley, et al., 2021). This questionnaire included Evidence-Based Practice Attitude Scales (EBPAS), Addiction Counselling Self-efficacy Scale (ACSES), the Organization Readiness to Change Assessment Tool (ORCAT) and the Comorbidity Guidelines Survey. In addition, the

Maslach Burnout Inventory-General (MBIG) survey was administered given that burnout may adversely impact clinicians' capacity to address complex healthcare needs (Hughes et al., 2008; Schutte et al., 2000).

The semi-structured interview included interview questions aligned with the CFIR (Damschroder & Hagedorn, 2011b) which explored participants' perceived challenges with providing care for consumers with comorbid mental disorders and SUDs, as well as their views and experiences of the integrated care treatment approach.

### *Coding*

The transcribed files were imported into NVivo for coding and data analysis. A CFIR codebook was used to guide development of themes and concepts. The codebook was initially developed for use in the Pathways to Comorbidity Care project, where they captured information about the systemic and contextual influences, the process of implementation, and outcome evaluation, guided by the CFIR (Louie, Morley, et al., 2021). During the process of coding, regular meetings were held with researchers (TTM and EL) to revise and refine the codes. Additional codes were also created during this phase whenever participant responses were not consistent with the CFIR domains and constructs.

### *Analysis*

Demographic characteristics of the participants (e.g. gender, age, country of origin, highest degree, and years since graduation) were collected and presented as descriptive analysis. Survey data pertaining to EBPAS, ACSES, ORCAT, and MBIG was obtained using Likert scales. With regard to the qualitative data, codes were analysed for the current barriers and facilitators of implementing integrated care and evidence-based practice (EBP) for management of co-occurring mental disorders and SUDs in the context of the clinical settings of the selected study sites. Throughout the analysis phase, the revision of additional codes,

such as 'siloe practices', 'medical model', 'Mental Health Nurse (MHN) perception of drug and alcohol interventions', and 'Drug Health Nurse (DHN) perception of mental health interventions', were reallocated to appropriate subdomains of the CFIR framework. Two researchers (TM, EL) independently rated whether the codes revealed responses indicating either a positive (facilitator) or a negative (barrier) rating for implementation of integrated care. Regular meetings between TM and EL were held to discuss any disparities in scores. Given differences apparent in the interviews, scores were presented separately between nurses working in ED alone versus nurses from ED plus community settings.

## RESULTS

### *Participant characteristics*

Fourteen participants completed the surveys in full, characteristics of the sample and MBIG results are depicted in Table 1. The majority of participants were female (93%, n=13) and Caucasian (64%, n=7), with 27% (n=3) South-East Asian and 9% (n=1) North-West European descent. Participant age ranged from 28 to 56 years (M=40, SD=10), with a median age of 38 years. Fifty percent of the participants (n=7) had a university degree, 43% (n=6) had a Masters degree and 7% (n=1) had a Doctorate degree. With regard to frequencies of comorbidity management, the respondents reported that the type of clinical interventions in their settings focused more on assessment (16%, n=8), crisis management (14%, n=7), screening (10%, n=5) and early intervention (10%, n=5). Over three quarters of the nurses (78.6%, n=14) rated their current job difficulty as *somewhat* or *very much*. Interestingly, half of the respondents (50%, n=7) found their work *very much* and *completely* rewarding, whilst a great portion of the remaining group (42.9%, n=6) still found their job *somewhat* satisfying.

### Quantitative Data

Survey data relating to EBPAS, ACSES, and ORCAT are depicted in Table 2. Findings of the

EBPAS showed relatively high scores of combined items *agree* and *strongly agree* for subscales Appeal (100% for MHN and 87% for DHN) and Requirement (83% for MHN and 100% for DHN) and slightly lower scorers for the Openness subscale (60% for MHN and 69% for DHN). Divergence was very minimal (6% for MHN and 0% for DHN).

The ACSES showed highest scores for both MHNs and DHNs in basic counselling skills (100% either rated *agree* or *strongly agree*). Findings from other subscales showed noticeable differences between MHNs and DHNs. For instance, DHNs generally demonstrated greater confidence in their clinical competencies, particularly in specific addiction counseling. In contrast, MHNs perceived themselves as more proficient in identifying co-occurring disorders.

The ORCAT revealed that 57% of MHNs and 19% of DHNs either *agree* or *strongly agree* that their organizational culture promotes innovation, suggesting a more positive perception of innovation among MHNs. Within the leadership domains, 18% of MHNs and 7% of DHNs *agree* on the formal leadership capacity of the organization, which is the ability of individuals in official leadership roles to guide and support change initiatives, indicating limited confidence in the organization's formal leaders to drive innovation or change effectively. Interestingly, higher percentages of agreement were obtained for the informal leadership subscale (25% for MHNs and 31% for DHNs respectively), which refers to the influence and support provided by staff members who lead through their relationships and peer influence rather than authority.

Findings of the Comorbidity Guideline Survey are displayed separately for DHN and MHN in Table 3. For the items relating to routine screening for comorbid mental disorders and AOD use problems, 75% DHNs rated *strongly agree* and 89% MHNs rated *agree* or *strongly agree*, whereas none agreed that clients with comorbid conditions should be excluded from either service. MHNs (80%) reported greater confidence in treating

comorbidity than DHNs (50%). In contrast, fewer MHNs (30%) knew where to access screening and assessment tools for the identification of AOD problems in comparison to DHNs, who all (100%) expressed confidence in screening and assessing MH conditions. While all DHNs disagreed or were unsure of the cause and effect between AOD use and MH conditions, 40% of MHNs agreed that MH conditions may resolve once the client has stopped using alcohol or drugs

#### Qualitative data

Nine nurses working in MH and DH services participated in the semi-structured interviews. Ratings of all barriers and facilitators within the CFIR framework are reported in Table 4. Nurses' experiences are described as positive (facilitators) or negative (barriers) factors impacting the implementation of integrated care for treating comorbid mental and SUDs within the participants' current workplace. Since there had not been a formal implementation of the integrated care approach to comorbidity management to evaluate, the *Process* domain of the CFIR and several constructs of the *Intervention Characteristics* domain were not utilised in the interviews, leaving four domains (Intervention Characteristics, Outer Settings, Inner Settings, and Characteristics of Individuals) and 21 relevant subdomains outlining factors that either enabled or hindered the implementation of an integrated care approach.

#### *Intervention characteristics*

Nurses discussed the need for change within current practice in comorbidity management by sharing their perception of the suboptimal therapeutic outcomes of the existing programs compared to integrated care. The only subdomain captured in the interview responses was the *Relative Advantage* construct and nurses' responses revealed a positive attitude toward integrated care as an option for comorbidity management.

One of the nurses stated: *"it will complement in a way that we can, you know, better*

*approach patients. You know, we're not just one sided like, oh, we're just dealing with drug and alcohol problems, but it's more holistic approach than just one sided."*

Another nurse added *"...you not gonna replace that, but I think it just adds more skills to the individual clinicians and I think we can do things a little bit differently."*

#### *Outer settings*

Nurses who only work in the ED had a neutral response toward the notion that current practices are meeting the needs of consumers who have both mental disorders and SUDs, mild barriers were identified by other MHNs and DHNs. The following statements capture these barriers.

*"The thing is that both [mental health] services said... we can't deal with mental health if they're continually intoxicated the whole time. And then drug and alcohol said we can't, if their mental health is not good, we can't treat their addiction problem because the stage of their mind is not up to a hundred percent."*

*"I think the most challenging aspect for someone entering care is that although we talk about no wrong doors, it's very easy for people to feel like the door's closing or only slightly ajar. And so, I think for many people accessing healthcare at a time of crisis, it's less about whether it's a primary diagnosis of substance use or... of a mental health disorder and more about what the patient perceives as their presenting concern and for us to meet them where they want us to meet them."*

#### *Inner settings*

MHNs working in the ED were the only group to describe their inner setting as a strong facilitator of integrated care. Specifically, they described effective networks and communication, positive workplace culture and implementation climate, compatibility of integrated care with the existing system, and the relative priority of integrated care.

Particularly strong facilitators described by MHNs working in the ED included the strong understanding of the needs for change of practice, clear communication of goals and feedback, and a learning climate that would facilitate change.

*"I think the culture of the ED is pretty good. Obviously I think there could be improvements, but I think given the environment and given the stress that clinicians are under, I think people genuinely try to provide patient centred care, um, and to treat each person as an individual regardless of who they are."*

Whilst tension for change was very strongly indicated for all participants, other constructs of inner settings revealed significant barriers for nurses working in community or outpatient settings. For instance, barriers were identified with regard to structural characteristics, implementation climate and organisational culture.

*"It's always welcome, don't get me wrong [pause] but there is a level of, how should I say this, pessimism [sarcastic laugh]. I don't want to put it negatively. There is a certain level of pessimism in the sense that, you know, I guess there is part of like barrier to change. There always gonna be resistant. There always gonna be like oh it's not gonna work. And there's always sort of like, you know, you do get to that honeymoon state, everyone is doing it but it's like of window down after a while as well."*

*"Hard to say, but at the moment we need to be mindful that a lot of people are fairly fatigued, depleted, and um, have come through a really challenging time through health, through the Covid era. So I think at the moment, asking people to adapt and change. If they don't see a value in it, um, can be really an obstacle because people have adapted and changed to so much and I think people are wanting a time of settling and a time of restoration rather than a time of change."*

Other constructs identified as barriers were associated with support from the organizational level such as leadership engagement, available resources, and access to knowledge and information. For example, when asking about leadership support for practice improvement in management of comorbid mental disorders and SUD, one nurses stated:

*“Very little, I don't feel like it's even discussed really”* and another remarked *“Not much, no [laughing]. Don't really talk about that actually.”*

### *Characteristics of individuals*

Participants' individual characteristics related to innovation implementation, such as their perceived knowledge and beliefs about EBP, individual stage of change, and other personal attributes, were a strength. At the same time, their identification with the organization was a barrier. Nurses also reported that they did not have strong self-efficacy with regard to implementing integrated care.

Some examples of facilitators include:

*“So, I mean, I, I guess I know what integrated care is, um, generally, but in terms of dual diagnosis, I. You know, I don't know specifically, but I guess generally integrated care is around, um, communicating with the patient, the family services involved, so that everyone's kind of on the same page, I guess, about what's going on, um, and what the plan is, what the patient wants.”*

*“I do work in a unit or place that I do assessment myself. In term of like how, it's like doing any assessment, I would have to, I guess, ask patients about their substance use, alcohol use, secret or not. Specially here in the emergency depending how they present and what do they present sort of, how deep I can go in assessing substance use. I do ask them what do they use, what have they used before, how much, how often. Essentially, I guess their view on it. what do they think. Do they think they need help. Do they think they wanna talk to*

*someone. That's how I assess them I guess. I might not be describing it formally but I guess it comes naturally when you talk to someone or assessing someone."*

*"if I have enough, you know, the knowledge and the skills around it, I think I would be quite confident to use the approach, if I have the knowledge."*

Some examples of barriers include:

*"Sometimes it's almost like, um, I feel it's a bit like two parents getting divorced with the child in the middle. And it's like, no, no, no. That's your issue. You have to deal with that. No, no, that's a drug issue. You have to deal with that as a mental health. It would be lovely if we could work in a dual diagnosis way where it doesn't particularly matter, um, who the lead clinician is."*

*"I think it's pretty hard for me because like, I don't know what would constitute like a substance use disorder. Yeah. So I could assess how much they use and, and how often they're using, but then I don't know how to, make that into like ... this use equals dual diagnosis, or ... addiction or what, whatever it is. Yeah. I, I'm not confident at all."*

## **DISCUSSION**

This study aimed to explore Nurses' attitudes toward managing comorbidity and to identify facilitators and barriers to implementation of integrated care for the management of comorbid mental disorders and SUDs amongst nurses (in the context of current real clinical settings), using quantitative data and qualitative methods, including the application of the CFIR (Damschroder & Hagedorn, 2011b). Qualitative findings revealed a mix of barriers and facilitators for each construct of the CFIR. Notably, more negative evaluations were derived from system-related constructs compared to individual characteristics of nurses. Specifically, negative scores were obtained for structural characteristics, culture, implementation climate, goals and feedback, access to knowledge and information,

leadership engagement, and individual identification with organization, whilst positive scores were obtained for individual characteristics such as knowledge and beliefs about the intervention, individual stage of change, and other personal attributes.

Quantitative data revealed that participants were receptive to EBP and trusted in the knowledge and expertise of researchers. Still, a sizable proportion of them (30-40%) were not open to trying new therapies developed by researchers. Since a EBP education amongst study participants largely occurred before workforce commencement, the lack of EBP endorsement observed in this sample of nurses might be attributable to the lack of dedicated time and educational resources. This finding is consistent with a previous study examining attitudes of psychiatric nurses, which revealed a tendency to use ones' previous clinical experiences and lessons learned from colleagues to form opinions of best practice, rather than obtaining the information from reliable sources (Ezeruigbo, 2023).

Regarding the management of comorbid mental disorders and SUDs, nurses in this study displayed high self-efficacy in identifying common mental health conditions among individuals with substance use problems and vice versa. They also consistently upheld the importance of addressing biopsychosocial needs in comorbidity treatment, which is consistent with current best practice (Buckner et al., 2021; Cleary et al., 2009; Elison-Davies et al., 2021). Both groups placed a strong emphasis on routine screening for comorbid mental disorders and AOD use problems. Whilst MHNs reported greater confidence in treating comorbidity than DHN, they reported that standardized practices were not in place (mainly evidence-based screening and assessment tools). Ideally, caring for comorbid consumers should not end with identifying the co-existence of the health conditions but should include comprehensive understanding of clinical presentations of comorbidities such as current symptoms, severity, treatment response, and prognosis (Cosci & Fava, 2011).

A specific barrier of effective care amongst study participants was the mismatch

between the care needs of comorbid consumers and nurses' perception of their capacity to meet these needs. Nurses identified that current management of comorbidity as ineffective (particularly in community acute MH services and DH services) and expressed a need for innovation. Only a small number of nurses working solely in Emergency Department settings (n=2) had positive experiences of change management regarding inner setting constructs such as culture, implementation climate, goals and feedback, or learning climate. On the other hand, several nurses (n=7) who work in ED and across other settings reported more negative experiences in those domains. Tension for change was a strong facilitator identified by all nurses, who saw a need for implementing EBP. However, they recognised that change would be necessary in many aspects within the organization to facilitate effective EBP implementation, including practical resources such as staffing, time, access to knowledge, and cultural elements regarding the management of change within the organisation.

Findings from this study reflect broader trends in staff perceptions of implementing organisational change. For instance, a mixed-method observational study by Glogowaka and Stepney (Glogowska et al., 2022) explored staff experiences of implementing health service change in the UK healthcare system. Three themes emerged from this research: the rationale, implementation, and maintenance of the transformation. While staff perceptions of the transformation were very encouraging, they were not involved in communication about implementation and maintenance processes, which resulted in staff experiencing the transformation with "unpreparedness" and "destabilization". In another study from New Zealand mental health and addiction services, a significant proportion of staff (78%) reported quality-of-care for service users as *Good* and *Excellent*, which showed their strong dedication to high-quality care. Again, contextual factors such as inadequate staffing, inappropriate infrastructure and timeliness, inefficient leadership capacity, and challenges derived from the integration of different aspects of the healthcare system were identified (Craig et al., 2023). A common theme expressed by the participants included siloed practices, which they

believed to be a fundamental system-related barrier to effective care for comorbidity. The siloed practices of DH and MH services have been prevalent since the early identification of the comorbid mental and SUDs (Brown et al., 1989; Ridgely et al., 1990), and may be due to differences in system administration, funding model, and care philosophies (Brown et al., 1989; Ries, 1992). The participants echoed one of these differences, explaining their parallel clinical practices as *“we do our own things and they do their own things”*. DHNs explained that a consumer-related voluntary basis guides their practice, whilst, for MHNs, assertive clinical care to mitigate risks (with or without consumer consent) seems to be their common practice. In contrast, integrated care can be performed by the same clinician or treating team, with knowledge about both conditions and the necessary skills to assess and treat both health problems at the same time (Chetty et al., 2023). Implementing integrated care for comorbidity management within MH and DH services requires a systemic approach considering all contextual factors at multiple levels, including consumers, clinicians, organizations, and external agencies (Louie, Barrett, et al., 2021). While participants in this study expressed positive attitudes towards integrated care, the shortage of resources (staffing, education, time) and management support were highlighted as primary barriers for participants to progress with practice change.

## **Limitations and strengths**

Limitations include the small sample size which does not allow for robust comparisons across groups in addition to the lack of potential generalizability that arises from qualitative data. Strengths include the use of the CIFR framework to systematically identify barriers and facilitators of implementation of integrated care for comorbidity management in mental health and drug health services. Moreover, most studies used CFIR during or post implementation of innovations to evaluate outcomes of the constructs (Kirk et al., 2016). This approach likely will miss opportunities to utilize the findings to refine the implementation

programs. This study prospectively applied the CFIR to examine influential factors for the implementation of integrated care in the management of comorbid mental and SUDs in real clinical settings. Findings of facilitators and barriers to implementation processes will help to inform the development of targeted programs and increase the likelihood of implementation success.

## **CONCLUSION**

A high proportion of people with mental disorders meet the criteria of SUDs. Addressing both conditions is indeed a challenge, and the current fragmentation between MH and DH services fails to meet the complex healthcare needs of individuals with comorbidities. Existing evidence indicates that integrated care is the most effective EBP for managing comorbidity. This study provided insights into nurses attitudes toward comorbidity and delved into the barriers and facilitators to implementing integrated care in tertiary mental health and drug health services. While the nursing staff in this study were open to enhancing their skills through training programs, the findings strongly suggest that successful research implementation will necessitate sufficient resources and unwavering leadership commitment.

Table 4: Demographic characteristic of participants

Characteristics		Percentages
Gender, %	Male	7.1
	Female	92.9
	Other	0.0
Mean age, years		40
Ethnicity	Oceanian	50.0
	South East Asia	21.4
	North West Europe	7.1
Highest Degree, %	High School Grad	0.0
	TAFE	0.0
	University Degree	50.0
	Masters	42.9
	Doctorate	7.1
Mean years since graduating	8	
<b><u>Maslach Burnout Inventory General Scale</u></b>		Total (range)
Emotional Exhaustion		31.94 (0-54)
Depersonalization		11.29 (0-30)
Personal accomplishment		44.36 (0-48)

Table 5: Survey of EBPAS, ACSES, ORCAT

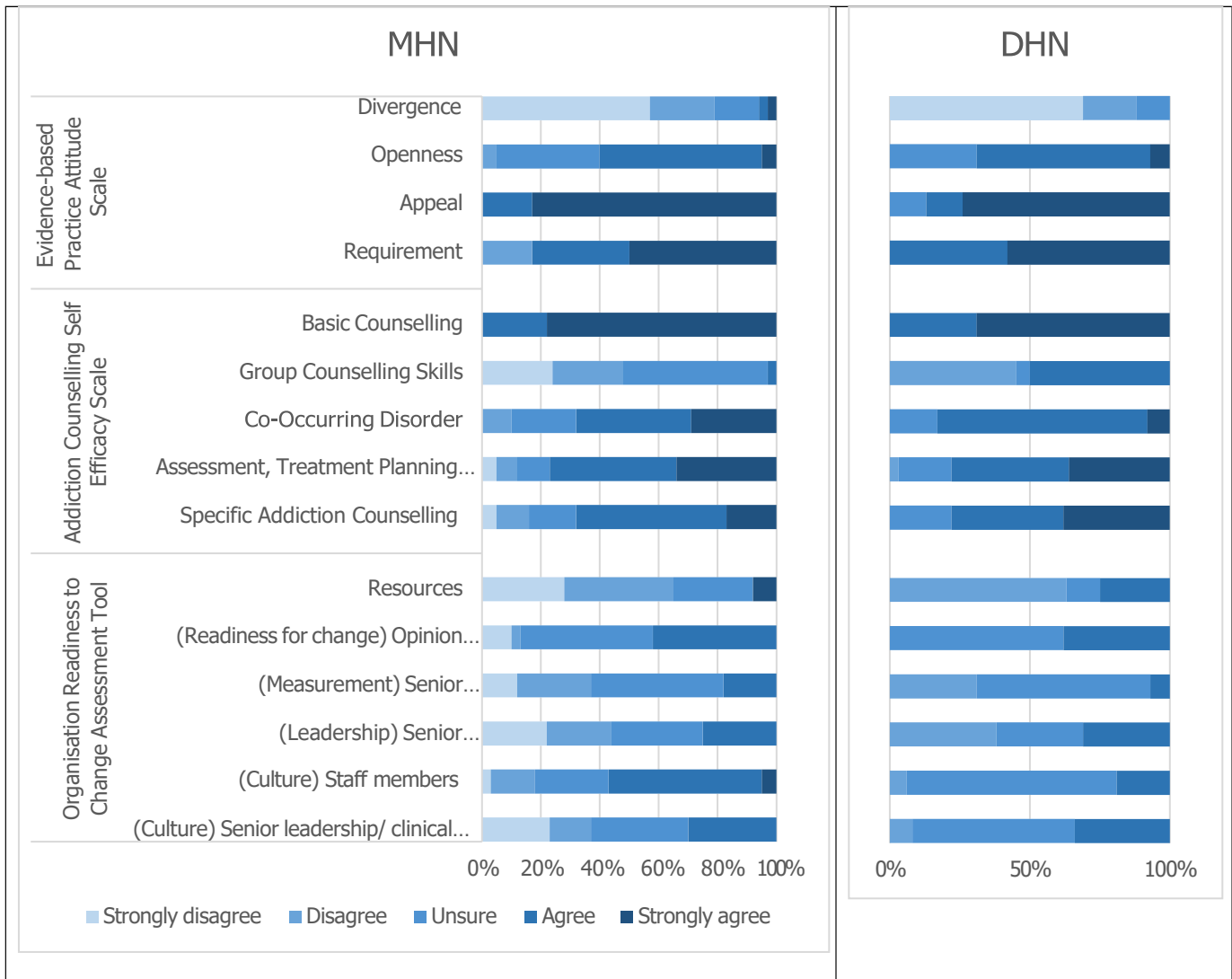


Table 6: Comorbidity Guidelines Survey

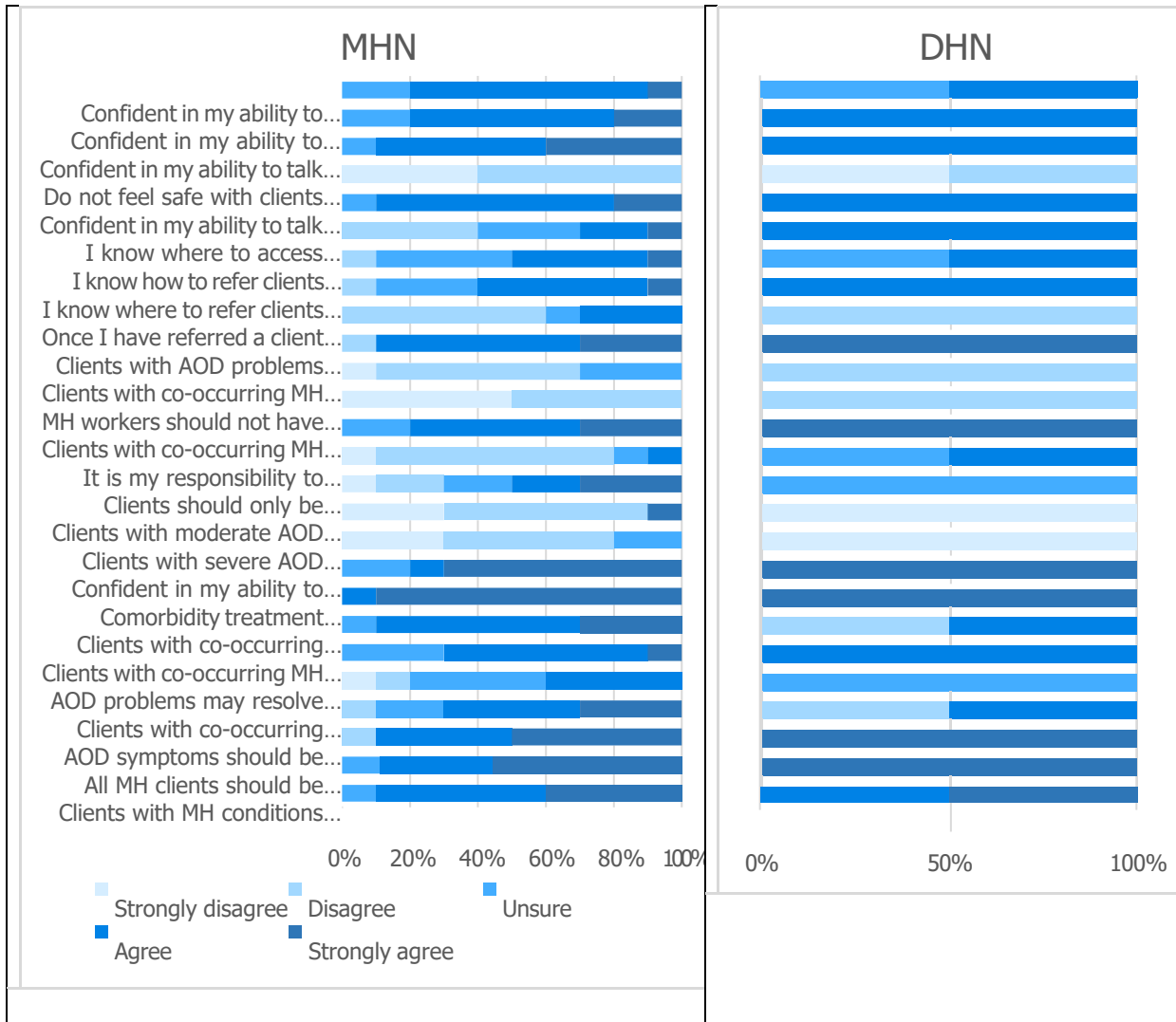


Table 7: Ratings assigned to CFIR framework

	MHN (ED only)	MHN	DHN
<b>Intervention characteristics</b>			
Relative advantage	M	+2	+1
<b>Outer setting</b>			
Patient needs and resources	0	-1	-1
Cosmopolitanism	-1	M	M
Peer pressure	M	M	-1
<b>Inner setting</b>			
Structure characteristics	M	-1	-2
Networks and communications	+1	-2	+1
Culture	+1	-1	-1
Implementation climate	+1	-1	-1
Tension for change	+2	+2	+2
Compatibility	+1	-1	+1
Relative priority	+1	0	0
Goals and feedback	+2	-1	-1
Learning climate	+2	0	+1
Leadership engagement	-2	-1	0
Available resources	-2	-1	+1
Access to knowledge and information	-1	-1	-2
<b>Characteristic of individuals</b>			
Knowledge and beliefs about the	+1	0	+1

intervention			
Self-efficacy	+1	-1	0
Individual state of change	M	+1	+1
Individual identification with organization	-1	-2	-1
Other personal attributes	+1	+2	+2

Note. CFIR = Consolidated Framework for Implementation Research; MHN = Mental Health Nurses; DHN = Drug Health Nurses; -2 or +2 = participants described the extent of negative or positive evaluations of the specific examples of how the construct influenced the implementation; -1 or +1 = participants described the extent of negative or positive evaluations of general statements about the construct influenced implementation; 0 = neutral statement; M = missing

# CHAPTER 4

## GENERAL DISCUSSION

Integration has become an increasing priority for many governments and healthcare systems (Ahgren & Axelsson, 2011; Humphries, 2015), and several countries have acknowledged the shortfalls of fragmented and discontinued care (Ahgren & Axelsson, 2011). With greater complexity comes an increased need for integration of care (Kuluski et al., 2017), and comorbid mental and substance use disorders (SUDs) are a prime example of such complexity. Nurses have long assumed the role of filling gaps in health service provision and seem particularly well placed to provide integrated care. Their skills allow them to work across multiple settings and to coordinate patient care in various capacities, including mental health (MH) and drug health (DH) settings. Nurses also comprise the largest group of health professionals, and their clinical competencies and capacities can translate into large-scale outcomes. The aim of this thesis was to ascertain the gaps between current practices and the integrated care approach to the management of comorbid mental and SUDs, with a particular focus on the nursing workforce. A systematic review of the existing literature on MH nurses' perceptions and attitudes towards alcohol and other drug (AOD) use among MH consumers (Chapter 2) was conducted to consolidate available research on nurses' attitudes towards working with these consumers. The needs assessment study (Chapter 3) provided an understanding of nurses' perceptions and attitudes by examining their experiences of providing care for comorbid consumers and the extent to which they practice integrated care. The Consolidated Framework for Implementation Research (CFIR) (Damschroder & Hagedorn, 2011b) was used to systematically explore influential factors as enablers or

barriers to implementing an integrated care approach for the management of comorbid mental and SUDs in tertiary healthcare settings.

### **Summary of research findings in relation to thesis aims**

The systematic review (Chapter 2) found that a considerable proportion of MH nurses did not believe in the clinical implications of comorbidities and were uninterested in providing care for this group. Even if they were to be involved in caring for this consumer group, the provision of care was comprised of screening and crisis response rather than attention to interventions addressing both health conditions in longer-term care provision. In addition to a lack of involvement in treatment, MH nurses tended to think of comorbidity as *untreatable*. A predominant view from nurses across the literature was that substance use amongst MH consumers was self-inflicted, habitual, and a conscious decision. These views implied that comorbid consumers have total control over their health-risk behaviours. Although a smaller portion of the studies revealed that nurses also expressed sympathy towards comorbid consumers with the notion that AOD use was to self-medicate mental disorder symptoms, the overarching view was that AOD use is not a part of the illness. There was a general lack of willingness amongst MH nurses to provide care for MH consumers with additional SUD problems, with the exception of particular substances such as alcohol and Gamma-hydroxybutyric.

This negative attitude toward care appeared to be underpinned by the assumption that comorbid consumers are violent, unpredictable, and manipulative, which resulted in nurses feeling unsafe and having lower job satisfaction. MH nurses viewed their role in managing comorbid mental disorders and SUDs as providers of screening strategies involving assessment, consumer education, and clinical care for acute medical issues, rather than targeted intervention approaches like motivational interviewing or psychotherapy. They

tended to believe that targeted interventions for SUDs were the responsibility of dedicated specialists. There was very little treatment optimism among MH nurses, who speculated that treatment for comorbidities is ineffective and time-consuming. On the contrary, prominent feelings expressed about treatment included frustration, resentment, helplessness, and hopelessness.

Both the scope of this thesis and the lack of available evidence on DHN's attitudes toward working with mental health consumers did not allow for a parallel systematic review of the literature from the perspective of DHNs.

### **Overall findings from the needs assessment**

Findings from the needs assessment (Chapter 3) echoed some of the perceptions and attitudes identified in the systematic review, although nurses who participated in the needs assessment study reported additional information about the challenges to implementing an integrated care approach. For instance, in the needs assessment study, nurses' negative attitudes about their role perception, role accountability, and treatment optimism reflected those found in the systematic review. Similarly, many nurses reported that their main clinical roles in comorbidity management were assessment, crisis management, screening, and early intervention. They also reported higher self-efficacy in identifying comorbidities by routine screening and assessment. When performing such assessments, the MH nurses reported that they predominantly rely on clinical experience, because they have no access to validated drug and alcohol assessment tools and limited educational opportunities within the organization. Regarding evidence-based practice, nurses reportedly valued empirical knowledge developed by researchers but tended to rely on their past clinical experience and advice from colleagues to form their clinical judgment of best practice.

## **Application of Consolidated Framework for Implementation Research (CFIR)**

The needs assessment study utilised the CFIR to assess facilitators and barriers to the implementation of integrated care for comorbidity management at tertiary MH and DH services. There were more facilitative constructs identified at the clinician level compared to the organisational level. For instance, nurses recognised current practice has limited therapeutic effects for the management of comorbidity due to the differences between what consumers believe their care needs to be and the service's understanding of those needs. Nurses displayed a *tension for change*, *individual state of change*, and *other personal attributes* that endorsed the implementation of integrated care for comorbidities. They strongly believed that evidence-based practice (EBP) implementation requires adequate resources such as staff time, access to EBP knowledge, change management, and a conducive culture of the organization. However, they reported that current organisation-related constructs such as available resources, access to knowledge and information, leadership engagement, and individual identification with organization impeded opportunities for staff to implement an integrated model of care.

### **Facilitators**

In general, nurses indicated that integrated care is more effective and efficient than existing clinical practices and were motivated to implement practice change. Their perceptions reflected observations of the adverse effects of the current clinical care approach for the management of comorbidities such as relapse of symptoms, frequent hospital presentations, reliance on acute care services, and disengagement from services beyond hospital discharge. At the clinician level, nurses' recognition of their clinical competency in integrated care varied largely. While some nurses, especially those who were new to the profession, had limited experience with integrated care, other more senior nurses claimed they always try to

promote such practice despite the challenges of silos between MH and DH services. Even so, most nurses were open to educational opportunities and motivated to upskill themselves to improve their clinical practices.

Findings also highlighted the positive workplace culture within the Emergency Department (ED), which contributed to many facilitators within the inner setting. Notably, while comments made by nurses who work in the ED attracted positive ratings for inner setting constructs, this was not the case in other service settings. Specific facilitators reported amongst ED nurses included effective networks and communication, a strong understanding of the need for practice change, clear communication of goals and feedback, and a learning climate, all of which powerfully drive continuous integrated care innovation.

## **Barriers**

### *Clinical presentations of comorbidities*

The interviews revealed that nurses commonly viewed comorbid presentations as episodic and crisis-driven help-seeking behaviours. As such, nurses reported that consumers presenting with comorbid mental and SUDs heavily rely on acute care services such as the ED, and tend to disengage from services and are non-adherent to recommended treatment following discharge from the ED. Furthermore, MHNs tended to believe that these consumers *chose* to continue using substances rather than engaging in treatment to address the substance use. Although the notion that consumers with comorbid mental and SUDs often present to the ED is consistent with the research (e.g. a quantitative descriptive study by Hughes and colleagues found that the presence of substance misuse often precipitates frequent mental health-related presentations (Hughes et al., 2018)), integrated care for mental and SUDs such as screening, brief interventions, and referral pathways, all have beneficial effects on substance use reduction and mental health promotion (Hughes et al., 2018).

It is important to recognise that clinical presentations of comorbidities can have a wide range of symptom severity (Di Lorenzo et al., 2014). SUDs could be the problem of single or polysubstance abuse. In contrast, mental disorders could range from high-prevalence illnesses such as anxiety and depression or low prevalence to severe and persistent conditions like schizophrenia and bipolar disorder. Comorbidity consumers often present with greater symptom severity compared to their counterparts with either mental disorder or SUD alone (De Graaf et al., 2003; Gao et al., 2010; Hunt, Malhi, Cleary, Xiong Lai, et al., 2016). Consequently, comorbidity is often accompanied by many social disadvantages, such as unstable accommodation, domestic violence, poverty, and unemployment (Elison-Davies et al., 2021; Schütz et al., 2019). When experiencing a social crisis, it is understandable that consumers prioritize their engagement with support services for social problems, such as homelessness, as compared to attending clinical appointments. Nurses who work in services with a high prevalence of comorbid mental disorders and SUDs should be provided with educational opportunities for maintaining relevant knowledge and clinical skills.

The prevalence of social disadvantages among comorbid consumers was only acknowledged by one participant, working in the DH service setting. This participant recommended that clinicians should learn how to engage with consumers before proposing treatment. The lack of discussion around social disadvantages associated with comorbidity underscores the need for potential education opportunities for nurses, such as programs that provide information on the associations between comorbidities and social functioning, and details on available social support services. There may be a need for education on therapeutic engagement strategies with this vulnerable population as well as practical support for their social needs while treating their comorbidities.

### *Contemporary practice of comorbidity*

Many nurses reported that they need to be made aware of integrated care for managing comorbidity and that there was no formal or informal education program exclusively targeting comorbidity management or integrated care available within the organization. Rather, nurses in this study reported that knowledge of identification, assessment, and management of comorbid mental and SUDs was derived anecdotally from their past clinical experiences or education outside of the health organization. Nevertheless, nurses were receptive to educational opportunities for upskilling. Current barriers to staff education mentioned by the participants included the lack of established education programs for staff within the organization, significant time and financial commitments, and a lack of clinical supervision opportunities. These notable barriers to staff education were highlighted as attributable to time restraints due to heavy workloads.

### *Organizational support*

In addition to the perceived lack of resources, most nurses felt that their organization's culture did not support the change in practice. A strong resistance to integrated practice was identified for numerous reasons. Nurses reported feeling 'burned out' by changes after the unprecedented time of the COVID-19 pandemic, and they felt that having support from their managers is paramount for them to pursue pathways to become competent with comorbidity management.

Support at the organization level and leadership commitment were also identified as paramount to implementing integrated care because of their executive-level decision-making capacity for the whole organization. These decisions are often associated with treatment costs, funding allocation, staffing resources, staff competency measurement, performance evaluation, and patient safety (Cleary et al., 2019). Whilst leaders are not necessarily

involved in patient care, the decisions they make directly impact the staff behaviour and clinical practices, hence explicitly influencing patient care (Wand et al., 2022). Although the nurses' motivation for the change in practice was an encouraging facilitator for potential uptake of implementation, it can stagnate without organizational support, adequate resources, and leadership commitment (Cleary et al., 2019).

### **Research limitations and strengths**

This thesis had some limitations related to the meta-synthesis in the systematic review and sampling in the qualitative needs assessment. Significant heterogeneity was identified across the selected studies of the systematic review due to differences in methodologies and measurement tools. Of the total twelve selected studies in the systematic review, five studies (41%) used qualitative research, two studies (17%) selected data from questionnaires and surveys, three studies (25%) used mixed method, and two studies (17%) developed their own data collection strategies. The most recent included study was published in 2018, which points to the limited availability of research on nurses' perceptions and attitudes towards comorbidity, and the findings may not represent contemporary attitudes. Concerning the needs assessment study, the small sample size from qualitative data inhibited the capacity for generalizability and comparisons across groups.

Despite these limitations, the thesis encompasses several notable strengths. The systematic review adopted rigorous research methods to guide meta-synthesis, which are the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) statement (David Moher et al., 2009) and the Enhancing Transparency in Reporting the Synthesis of the Qualitative research (ENTREQ) statement (Tong et al., 2012). Adopting the CFIR framework provided an assessment tool for thoroughly examining all potential factors enabling or hindering research implementation opportunities. With the prospective approach

in the needs assessment study, identifiable barriers and facilitators help refine implementation strategies before project commencement, hence improving chances for desired outcomes.

## **Practice implications**

Taken together, findings from this thesis indicate a need for practice change regarding improving nurses' perceptions and attitudes toward comorbid mental and SUDs and equipping them with proficient knowledge and skills in the identification, assessment, and treatment of comorbidities. Along with a research-informed training program, many internal and external contextual factors, such as organization structure, culture, leadership, or consumer care requirements, can significantly impact the uptake of an integrated care approach to the management of comorbidity. Employing the CFIR framework to guide the development of multifaceted strategies can optimize implementation efforts. For instance, outcomes from the needs assessment identified distinct differences in impressions of the inner setting between nurses working in ED only and nurses working in other practice settings, highlighting the significant impact that positive workplace culture can have on practice innovation.

Regarding staff education, a previous study by Louie and colleagues involved the development of a multimodal training program aiming to improve care for comorbid management of mental disorders and SUDs among drug and alcohol clinicians (Louie, Morley, et al., 2021). The PCC package included access to an online portal containing resources about comorbidity management using an integrated care framework, a face-to-face full-day training providing seminars about comorbid substance use in five common groups of mental disorders, group workshops run by a local clinical champion, and regular access to clinical supervision. Clinical practices were enhanced following the training at the clinician

level, whereby clinicians demonstrated improvements in the identification and management of comorbidity, and more affirmative attitudes toward comorbidity screening and assessment.

## **Future directions**

The lesson learned from this thesis is that the management of comorbid mental disorders and SUDs is more about implementation challenges rather than an intervention concerns. There is a need for a high-quality training program that can effectively upskill nurses working in services that have a high prevalence of comorbid mental disorders and SUDs. The PCC training program, a proven success in DH settings, has demonstrated its effectiveness in improving the identification and management of comorbidity, significantly boosting clinicians' self-efficacy (Louie, Morley, et al., 2021). Adapting this successful program for nurses working in MH and DH services can transform the services considerably, providing a solid foundation for the uptake of the integrated care approach.

Furthermore, the findings of this needs assessment shed light on specific facilitators and barriers to innovation dissemination and implementation among nurses providing care for consumers with comorbid mental disorders and SUDs. These insights can guide implementation and aid in the development of strategies to overcome barriers specific to nurses in MH and DH settings. A recurring theme in this thesis is the crucial role of organizational support and leadership commitment in promoting the adoption of practice change and ensuring its sustainability. Nursing staff highly value practical support such as access to evidence-based information, dedicated time for education, and adequate staffing, all of which were identified as pivotal factors in fostering innovation implementation.

For the future implementation of the PCC program, which will focus on nurses in MH and DH services, it is essential to engage in discussions with managerial personnel to secure

their support at the organizational level. These discussions will enlighten leaders about the benefits of an integrated care approach to comorbidity. With their support, negotiations for allocated education time and appropriate staffing can be facilitated, ensuring nurses are adequately equipped with practical resources for upskilling opportunities. It is also crucial to tailor the program to the specific needs of nurses in MH and DH services. For instance, MH nurses may benefit from information on AOD use problems, their potential impacts on mental disorders, and evidence-based practices for identifying and managing these conditions. Additional training program details should include therapeutic engagement strategies to equip nurses with skills to promote service engagement and treatment adherence. Providing nurses with access to information about social support services is also vital to enhance their capacity to optimize person-centred and holistic care approaches.

One possible way of engaging leadership throughout the MH and DH services of New South Wales Local Health Districts might be to hold focus groups in which findings from the needs assessment study can be presented and discussed. This forum could also be used to identify further organisational, structural and policy level barriers and facilitators of integrated care for comorbidity.

## **CONCLUSION**

Research implementation processes are not a linear pathway. Imparting innovation knowledge to inform change in clinical practice is enabled or constricted by many contextual factors at multifaceted levels, including clinicians' perceptions and attitudes, team culture, leadership, available resources, and organizational support. Managing comorbid mental and SUDs has been among the persistent challenges for health services and clinicians working in settings with a high prevalence of comorbidities. Integrated care has been recommended as an effective model for this area of health. The multi-modal PCC training program for drug and

alcohol counsellors, which has shown significant improvement in practice change, serves as a tangible example of successful innovation. This success story underscores the need for a systemic approach to research implementation, as it demonstrates the potential for positive change in clinical practice. Such programs can be adopted in other clinical settings targeting different professional groups, such as the nursing workforce in MH and additional DH services. The findings of this thesis can support a systemic approach to research implementation to ensure the project's success. Utilization of the CFIR framework can prospectively capture influential factors for implementation, inform strategies to optimize outcomes and provide a means of outcome evaluation.

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Appendix A: publication:




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REVIEW ARTICLE

# A systematic review of the perceptions and attitudes of mental health nurses towards alcohol and other drug use in mental health clients

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**ABSTRACT:** *Mental and substance use disorders are leading contributing factors for the Australian non-fatal burden of disease. These disorders frequently co-occur in the mental health population, and mental health nurses are the largest group of professionals treating dual diagnosis. A comprehensive understanding of mental health nurses' attitudes and perceptions is required to inform future implementation of dual diagnosis training programs. A systematic literature review of sources derived from electronic databases including Medline, CINAHL, SCOPUS review, and PsychINFO, along with Connected Papers. Selection criteria included a focus on mental health nurses' attitudes towards dual diagnosis of mental illness and substance use. Extracted data was qualitatively synthesized. Of the 5232 articles retrieved initially, 12 were included in the review. Four themes emerged from the synthesis: drug and alcohol use among mental health consumers (seven studies), caring for dual diagnosis consumers (eight studies), role perception (six studies), and treatment optimism (five studies). Salient beliefs included substance use as a self-inflicted choice (71%) or a form of 'self-medication' (29%); a lack of willingness to provide care (75%), or a strong commitment to care (25%); greater comfort with screening and acute medical management rather than ongoing management (83%); and pessimism about treatment effectiveness (100%). Mental health nurses' beliefs and attitudes towards dual diagnosis were often negative, which is likely to result in poor quality care and treatment outcomes. However, the lack of recent studies in this research area indicates the need for up-to-date knowledge that can inform the development of training programs.*

**KEY WORDS:** *attitudes, drug and alcohol, mental health, nursing, perceptions, substance use.*

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## INTRODUCTION

Mental and substance use disorders (SUDs) are leading contributing factors for Australian non-fatal 'burden of disease' (measured by years living with disability) according to the Global Burden of Disease Study 2015 (Ciobanu *et al.* 2018). There is a high prevalence of dual diagnosis between mental disorders and SUDs. Up to 90% of people accessing substance use treatment also experience comorbid mental health problems (Kingston *et al.* 2017). Indeed, harmful use of alcohol has been found to cause mental disorders (Alcohol 2018). Conversely, individuals with mental health conditions are more likely to engage in harmful use of alcohol than individuals without mental health conditions (lifetime risky drinking levels of 21% compared to 17.1%) (Alcohol, Tobacco and Other Drugs in Australia 2021). It has been reported that up to 77% of people with major mental illness like schizophrenia spectrum disorders, borderline personality disorder, antisocial personality disorder, and bipolar disorder may also have SUDs or alcohol use disorders (AUDs) in their lifetime (Guy *et al.* 2018; Hunt *et al.* 2016, 2018).

Problematic alcohol and other drug use among individuals with mental disorders is also related to poor outcome (Kingston *et al.* 2017). Dual diagnosis is associated with greater symptom severity, reduced quality of life, and increased reliance on treatment services compared to SUD alone (Curran *et al.* 2008; Mark 2003). Despite the high prevalence of dual diagnosis, it is underestimated, under-diagnosed, and treatments are often unsatisfactory (Jane-Llopis & Matytsina 2006). There is therefore an urgent need to improve integration between mental health and substance use services, which can be achieved through networking, integrated models of service, and a recognition of the varying treatment needs of each individual (Fantuzzi & Mezzina 2020).

Historically, mental health and alcohol and other drug (AOD) services have operated separately with regard to the delivery of care in many jurisdictions, which can present challenges for those intending to access appropriate services (Teesson *et al.* 2009). This segregated approach to care has limited treatment resource capacity, including clinical skills, practice competencies, and a lack of clinician-related willingness to manage comorbid conditions. Siloed health services have contributed to a lack of understanding of substance use among mental health clinicians, and a lack

of understanding of mental disorders among drug and alcohol clinicians (Sterling *et al.* 2011). An integrated intervention approach often focuses on screening and assessment of mental health or SUD problems rather than management of both disorders (Alsuhaibani *et al.* 2021). At the provider level, clinicians can provide integrated care by learning specialized skills to assess and treat both conditions simultaneously. Furthermore, integrated care can also occur at the service level whereby separate services collaborate and consultancy capacity between specialized services is facilitated.

As the largest group in the mental health workforce, nurses provide care service coverage 24/7 across the healthcare settings, and a significant proportion of their duties involve consumer interactions (Australian Institute of Health and Welfare 2021). *Mental health nursing* is a unique profession that facilitates therapeutic effects via interpersonal nurse–patient relationships. Mental health nurses promote mental health and well-being by generating human connection in a trauma-informed way, espousing kindness, and demonstrating respect for the persons' lived experience of mental health problems (Anandan *et al.* 2020). When mental health professionals display negative or discriminatory attitudes towards consumers who present with drug and alcohol problems, these attitudes can become barriers to effective care (van Boekel *et al.* 2013). Social psychologists defined attitude as the reflection of the person's underlying values, which predict behaviour in reference to these values. Properties of attitude evolved from past experiences, feelings, and associated beliefs about an object (Haddock & Maio 2004). Indeed, positive attitudes are a prerequisite for therapeutic engagement and enhancement of AOD knowledge and treatment skills for mental health nurses and can optimize integrated care capacity. In contrast, when displaying negative attitudes towards clients with dual diagnosis, nurses can impede consumers' recovery due to service disengagement and treatment non-compliance (Anandan *et al.* 2020).

A comprehensive understanding of attitudes and perceptions in nurses is required to inform future implementation of training programs aimed to improve the management of dual diagnosis by mental health nurses. This study thus aimed to explore the perceptions and attitudes of mental health nurses towards alcohol and other drug use in mental health consumers with a comprehensive systematic synthesis of the literature. Three research questions guiding this process

included: (i) What are mental health nurses' perceptions and attitudes towards drug and alcohol use within the mental health population? (ii) How do mental health nurses perceive their role perception in the management of dual diagnosis? And (iii) What factors influence mental health nurses' attitudes towards the problems of alcohol and other drugs?

## METHODS

The present systematic review was conducted in accordance with the reporting guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) statement (Moher *et al.* 2009), and is being reported in line with the enhancing transparency in reporting the synthesis of the qualitative research (ENTREQ) statement (Tong *et al.* 2012).

### Synthesis methodology

A narrative synthesis was performed given that the outcome variables were a heterogeneous collection of qualitative data. The main methods of synthesis involved tabulation using 'meta-matrices' (Miles & Huberman 1994), textual descriptions, and a qualitative synthesis of themes (Popay *et al.* 2006).

### Inclusion criteria

Criteria for considering studies for this review were classified by:

#### *Population and setting*

In order to meet inclusion criteria, studies had to involve participants that were mental health nurses employed by mental health services. However, the mental health team often involves clinicians from a range of disciplines such as medical officers, allied health professionals, and nurses providing comprehensive care for the mental health population. Therefore, studies were included that comprised at least 50 % of mental health nurses in the respondent groups.

#### *Study design*

Quantitative, qualitative, and mixed methods studies were included.

#### *Outcomes*

The review focused on mental health nurses' attitudes towards dual diagnosis of mental illness, illicit

substance use, and harmful alcohol consumption. Studies including outcome variables measuring the participants' attitudes towards problematic drug and alcohol use in mental health service users were included. Studies of clinician attitudes towards tobacco smoking were excluded because the culture of smoking is socially accepted as a stress management tool for consumers (Sheals *et al.* 2016). Studies about forensic mental health nursing were also excluded given the highly secure drug-free environment in this setting.

### Data sources

The following electronic databases were searched: Medline, CINAHL, SCOPUS review, and PsychINFO. Reference searches of relevant reviews and articles were also conducted. Similarly, a grey literature search was done with help of Google and the Grey Matters tool which is a checklist of health-related sites organized by topic. The tool is produced by the Canadian Agency for Drugs and Technologies in Health (CADTH 2018 (cited 2019 Feb 22)).

### Search strategy

The search included all relevant peer-reviewed studies with no year limit. Table S1 lists the search terms used. An additional, [connectedpapers.com](https://www.connectedpapers.com) was used to identify the papers connected to the selected articles. *Connected Papers* is a web-based research tool that helps to explore other linking papers in similar research fields (<https://www.connectedpapers.com/?s=09>).

### Study screening methods

First, titles and abstracts of articles returned from initial searches were screened based on the eligibility criteria outlined above. Second, full texts were examined in detail and screened for eligibility. Third, references of all considered articles were hand-searched to identify any relevant report missed in the search strategy by the same two reviewers independently. Any disagreement between reviewers was resolved by discussion until a consensus was reached. EndNote version X9 (Clarivate Analytics), was used to manage all records.

### Quality assessment

This study used the mixed methods appraisal tool (MMAT) version 2018 to assess bias at the individual

study level (Hong *et al.* 2018). MMAT is developed to critically appraise the quality of empirical studies using qualitative, quantitative, and mixed-method research. Instead of calculating the overall score, MMAT provides more criterion details to better inform quality assessment.

## RESULTS

### Search results

As displayed in the flowchart (Fig. 1), the initial search resulted in 5232 articles derived from health science databases including Medline ( $n = 977$ ), CINAHL ( $n = 1243$ ), PsychINFO ( $n = 926$ ), and Scopus ( $n = 2086$ ). The first screening of the titles and abstracts yielded 60 relevant articles that met the inclusion criteria covering mental health nurses' attitudes towards drug and alcohol use within mental health settings. Finally, full-text of these studies were assessed for eligibility and 12 were included in the review. Studies were excluded that did not explore attitudes ( $n = 15$ ), recruited less than 50% mental health nurses ( $n = 13$ ), did not include attitudes about the adult drug and alcohol and mental health population ( $n = 12$ ), described measurement of attitudes linked to pre and post training ( $n = 4$ ), or were review articles ( $n = 2$ ) and non-research articles ( $n = 2$ ). Twelve articles were selected for the pooled analysis, including 11 from the database search and one from the web-based search tool.

Table 1 summarizes the characteristics and findings of the included studies on mental health nurses' perceptions and attitudes towards alcohol and other drug use in mental health clients.

### Participant characteristics of included studies

Although five studies involved participants other than nurses, including medical staff and allied health professionals, the majority of participants included mental health nurses (50–77%) (Deans & Soar 2005; Howard & Holmshaw 2010; Siegfried *et al.* 1999; Williams 1999). The remaining studies recruited only mental health nurses (Coombes & Wratten 2007; Happell *et al.* 2002; Johansson & Wiklund-Gustin 2016; Lundahl *et al.* 2014; Ralley *et al.* 2009; Ryrie & McGowan 1998; Wadell & Skrster 2007). The clinical settings of these studies involved inpatient (Howard & Holmshaw 2010; Jackman *et al.* 2020; Johansson & Wiklund-Gustin 2016; Lundahl *et al.* 2014; Pinderup 2016, 2018; Ralley *et al.* 2009; Ryrie & McGowan 1998; Wadell & Skrster 2007),

community (Coombes & Wratten 2007; Deans & Soar 2005; Happell *et al.* 2002), and multiple mental healthcare facilities (Molina-Mula *et al.* 2018; Siegfried *et al.* 1999; Williams 1999).

### Study characteristics

Overall findings identified considerable heterogeneity in research methodologies and inconsistent study outcomes. Various data collection strategies were used across the selected studies, including quantitative, qualitative, and mixed-methods. Seven studies obtained qualitative data (Coombes & Wratten 2007; Deans & Soar 2005; Johansson & Wiklund-Gustin 2016; Lundahl *et al.* 2014; Ralley *et al.* 2009; Ryrie & McGowan 1998; Wadell & Skrster 2007), another four studies used questionnaires and surveys (Happell *et al.* 2002; Molina-Mula *et al.* 2018; Siegfried *et al.* 1999; Williams 1999), and one study used the mixed research methods (Howard & Holmshaw 2010). A diverse range of assessment scales were employed across the studies including Likert scales 1–5 (Molina-Mula *et al.* 2018; Williams 1999) and 1–7 (McKenna *et al.* 2010), and binary variables (Happell *et al.* 2002).

### Quality assessment of studies

Two independent reviewers appraised the selected studies using the MMAT tool. For each study type, an appropriate category is used to assess the quality of selected studies critically. Difference opinions on the appraisal components were managed by discussion. Twelve studies were selected for the review. Table 2 presents details of the quality assessment of the selected studies.

### Summary of four main attitude themes

Mental health nurses' attitudes towards dual diagnosis management could be placed into the following themes, reflecting the complicated relationships among factors that drive their perception of care for dual diagnosis consumers.

#### *Attitudes towards AOD use among mental health consumers*

Of the selected papers, six examined the participants' belief about the intention of drug and alcohol use within the mental health population using both qualitative and quantitative measures (Deans & Soar 2005; Johansson & Wiklund-Gustin 2016; Ralley *et al.* 2009; Ryrie & McGowan 1998; Williams 1999). Two studies

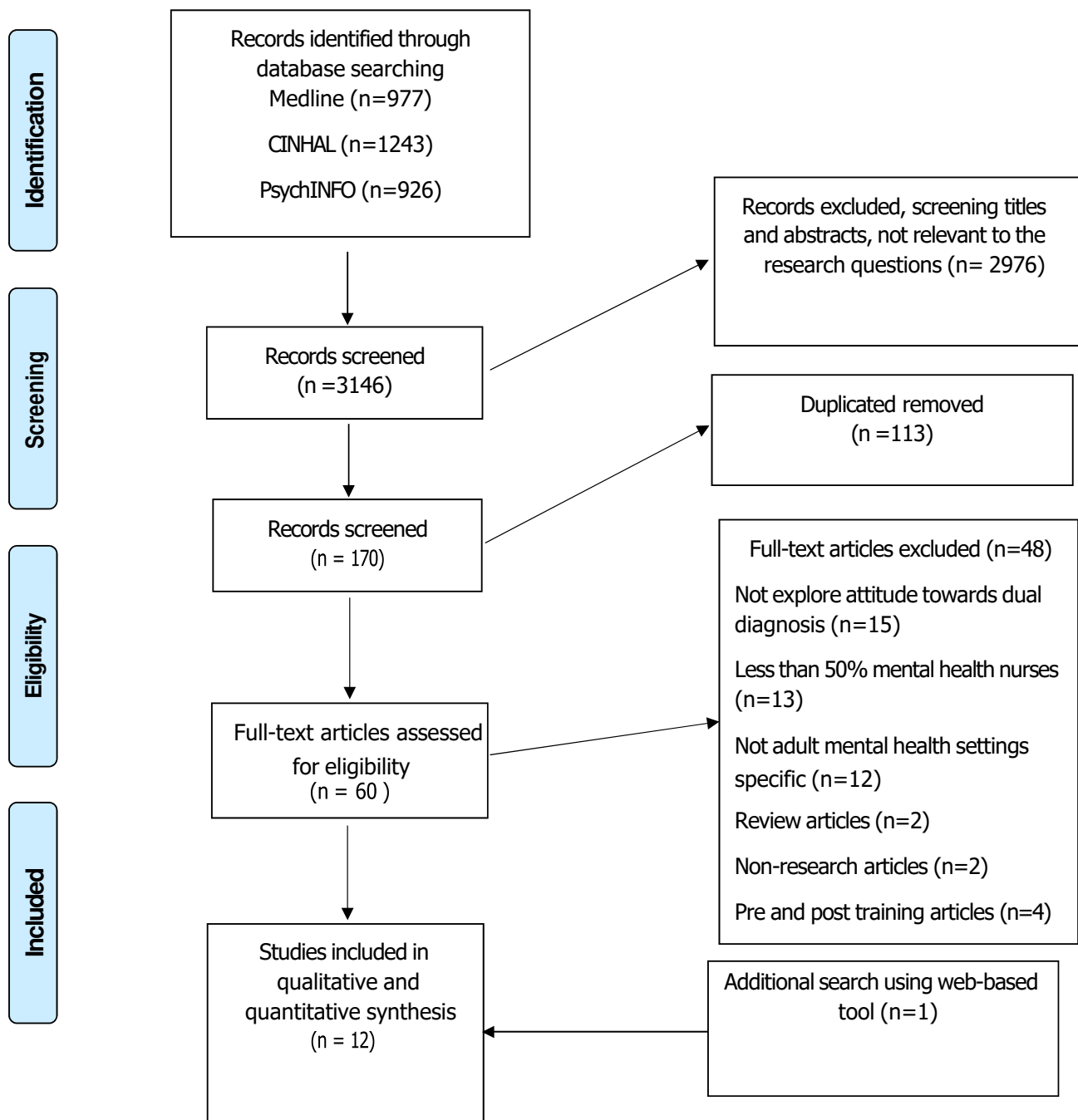


FIG. 1 Systematic review flowchart.

observed that alcohol and drug use among mental health consumers was generally not considered part of their illness but, rather, a self-inflicted lifestyle behaviour (Ryrie & McGowan 1998; Williams 1999). Ralley *et al.* (2009) reported that many mental health professionals construed consumer-related substance misuse as problematic compared to non-consumer-related substance misuse, which was deemed habitual. In this

study, it was speculated that the consumer was consciously using drugs despite knowing the predictable adverse health outcomes. Moreover, negative attitudes towards consumer's drug use behaviour were expressed, with the underlining assumption that the consumers purposefully negate the attempts made by the treatment team to assist them with their recovery (Ralley *et al.* 2009). Molina-Mula *et al.* (2018) used a

TABLE 1 Findings from the included studies on mental health nurses' perceptions and attitudes towards alcohol and other drug use in mental health clients

Author	Study design	Population and sample size	Settings	Outcome measures	Results and comments
Ryrie and McGowan (1998) (UK)	Qualitative	N = 20 (mostly mental health nurses)	Acute mental health inpatient	Semi-structured staff questionnaire with 16 items covering demographic and professional data, previous drug health training and work experience, perception of dual diagnosis and clinical management, training and support	Drug and alcohol use was perceived as problematic, associated with symptoms exacerbation, prolonged recovery, and provoking other social and legal issues. The nurses felt ill-prepared to provide appropriate care for mental health consumers with concurrent drug and alcohol use problems. They expressed discontent with the scarcity of policy and protocol to guide clinical practice to manage substance use in acute mental health facilities.
Williams 1999 (UK)	Quantitative with written comments	N = 127, 40% were nurses	Mental health clinicians working at United Bristol Healthcare Trust – across settings	Attitudes to Substance Use Questionnaire covering demographic and professional data, perception of substance use in causing of mental health issues, role perception regarding assessment and referral, opinions on drug screen assessment and treatment optimism	Nurses were more likely to ascribe the causation of mental illness due to substance use and valued the importance of drug screen assessment than psychologists, occupational therapists, social workers, and physiotherapists Nurses perceived that recreational substance use is common and does not necessarily lead to mental illness. They believed that there should be a specialist dedicated ward to provide care for drug-related consumers
Happell <i>et al.</i> (2002) (Australia)	Quantitative	N = 134 mental health nurses	Metropolitan community	Developed questionnaire Substance Abuse Attitude Survey covering knowledge, attitudes, beliefs, and skills in drug health	The nurses felt confident in their clinical competence of alcohol and substance screening assessment among mental health consumers but not the clinical interventions. They perceived making referral pathways part of their role, while only half of them considered role responsibility for comorbid management
Deans and Soar (2005) (Australia)	Qualitative	N = 13 with 10 were mental health nurses (77%)	Rural community	In-depth interviews conducted to capture feelings and experiences when caring for dual diagnosis consumers	Mental health professionals commonly experience the feeling of frustration in caring for dual diagnosis consumers. They believed mental health consumers use drugs and alcohol to self-medicate psychotic symptoms. Believed that treatment tends to be ineffective, resulting in prolonged discharge plans
Coombes and Wratten (2007) (UK)	Qualitative	N = 7 mental health nurses	Community	Semi-structured interviews conducted face-to-face using audio tape-recorded and transcribed for the data analysis stage	Believed that they are not adequately equipped with regards to dual diagnosis knowledge and skills. They also tended to believe that all dual diagnosis clients are violent and unpredictable

(Continued)

TABLE 1 (Continued)

Author	Study design	Population and sample size	Settings	Outcome measures	Results and comments
Wadell and Skrster (2007) (Sweden)	Qualitative	<i>N</i> = 11 mental health nurses	Acute mental health inpatient	Participants were asked to describe a caring encounter where they were involved in managing patients with depression and alcohol use problems. During the interviews, further prompted questions were asked to elaborate on the participants' choice of words and their intended meaning	The importance of therapeutic engagement and transparency in patient communication regarding alcohol-related harmful effects was highlighted. Believed talking about alcohol use is a part of their job, but primarily assumed this task should be the doctor's responsibility
Ralley <i>et al.</i> (2009) (UK)	Statistical analysis using repertory grids data	<i>N</i> = 12 mental health nurses	Long stay low-secure mental health units	Repertory grid technique to understand how mental health nurses construe dual diagnosis consumers in their workplace	Consumer-related drug and alcohol misuse were more likely to be construed as problematic by the nurses compared to drug and alcohol use by acquaintances
Howard and Holmshaw (2010) (UK)	Descriptive mixed methods – quantitative and qualitative	Quantitative: <i>N</i> = 84 with 41 were mental health nurses and 11 other (e.g. environment co-ordinator, welfare rights worker, nurse specialist) (50–62%) Qualitative: <i>N</i> = 10 multi disciplinary staff with 2 were nurses	Mental health inpatient for assessment, treatment and residential rehabilitation units	Co-occurring Mental Health and Illicit Substance User Perception Questionnaire measured attitude and professional role in perceived knowledge and personalized perceptions. Interview questions explored the participants' experiences working with mental health consumers with co-occurring drug and alcohol problems in the inpatient setting, multidisciplinary accountability, training and support, and enabling factors and barriers to effective care for this population	Mental health staff with clinical experience in both acute inpatient and residential rehabilitation were less likely to have negative attitudes compared to those who only have worked in just one of these settings Additional drug-related problems the consumer brings into clinical care units (such as supplying drugs to other patients or increased aggression due to substance withdraw) were highlighted as the main reasons for staff unwillingness to provide care. Experiences of distress working with consumers with a substance use history were reported

(Continued)

TABLE 1 (Continued)

Author	Study design	Population and sample size	Settings	Outcome measures	Results and comments
Lundahl <i>et al.</i> (2014) (Sweden)	Qualitative	<i>N</i> = 15  Registered nurses working at three psychiatric wards dedicating for patients with substance dependence particularly patients with a history of GHB/GBL abuse	Acute inpatient  mental health unit dedicated for substance-dependent consumers in urgent need of mental health care	Themes of discussion covered  withdrawal symptoms, medications, medicine distribution, knowledge, and communication	Attitudes related to GHB/GBL consumers included  vigilance around early warning signs of aggressive behaviour. Despite the negative feelings derived from treatment-related challenges, nurses continued to nurture therapeutic alliance when providing care for mental health consumers with comorbid GHB/GBL problems. They used a range of strategies to establish consumer engagement including open communication, promotion of psychological safety, and respect
Johansson and Wiklund-Gustin (2016) (Sweden)	Participatory research approach	<i>N</i> = 6 mental health nurses	Unspecified inpatient mental health	Four reflective dialogues were conducted to shared experiences of caring for substance use disorder patients	Four themes included the balance between understanding and frustration, being supportive or a guardian of order, safeguarding the healthy while being observant of problems, and protecting oneself while engaging in a caring relationship. Overall, it was believed that the caring encounter can be balanced out with other regulatory requirements in the psychiatric care environment, but it requires the nurses to remain multifaceted and vigilant in all aspects of care

(Continued)

TABLE 1 (Continued)

Author	Study design	Population and sample size	Settings	Outcome measures	Results and comments
Molina-Mula <i>et al.</i> (2018) (Spain)	Quantitative	<i>N</i> = 167 mental health nurses	Emergency, short-stay units, and mental health	Seaman-Mannello scale including behaviour towards alcohol problems, the dichotomy between therapy and treatment, personal/professional satisfaction when working with patients with alcohol problems, tendency to identify oneself with the ability to help patients with alcohol problem, perceptions towards personal characteristics of those with alcohol problems and nurses' attitudes towards alcohol consumption	Nurses believed that consumers with alcohol problems should be offered medical treatment for their alcohol-related health problems. Even so, they often expressed dissatisfaction when providing care for alcohol-related consumers. They disclosed disapproval about alcohol consumption even moderate consumption. Mental health nurses in this study exhibited negative attitudes and were unmotivated about providing care for consumers with alcohol problems. The nurses often preferred to provide care for other groups of consumers over consumers with alcohol problems because they did not provide job satisfaction
Siegfried <i>et al.</i> (1999) (Sydney, Australia)	Cross-sectional	<i>N</i> = 338 with 210 were mental health nurses (62%)	Inpatient, community, and child and adolescent unit	A 47-item questionnaire was developed which measured the role of the mental health professional in the management of drug and alcohol problems and their willingness to upskill in the area of clinical care for alcohol and other drug use	The majority of respondents regarded working with dual diagnosis consumers to be challenging with regards to treatment effectiveness. They believed their role when caring for these consumers includes assessment and referral to specialized services, but does not include consumer education, and management of comorbidity

TABLE 2 Quality assessment of the selected studies using MMAT tool (including items relevant to qualitative studies)

MMAT Checklist/Selected studies	Ryrie and McGowan (1998)	Williams (1999)	Happell <i>et al.</i> (2002)	Deans and Soar (2005)	Coombes and Wratten (2007)	Wadell and Skrster (2007)	Ralley <i>et al.</i> (2009)	Howard and Holmshaw (2010)	Lundahl <i>et al.</i> (2014)	Johansson and Wiklund-Gustin (2016)	Molina-Mula <i>et al.</i> (2018)	Siegfried <i>et al.</i> (1999)
Screening questions (for all types)												
S1. Are there clear research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S2. Do the collected data allow to address the research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Cannot tell' to one or both screening questions.												
1. Qualitative												
1.1 Is the qualitative approach appropriate to answer the research question?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.2 Are the qualitative data collection methods adequate to address the research questions?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.3 Are the findings adequately derived from the data?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.4 Is the interpretation of results sufficiently substantiated by data?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
1.5 Is there coherence between qualitative data sources, collection, analysis and interpretation?	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A
2. Quantitative descriptive												
2.1 Is the sampling strategy relevant to address the research question?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
2.2 Is the sample representative of the target population?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
2.3 Are the measurements appropriate?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
2.4 Is the risk of nonresponse bias low?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Cannot tell

(Continued)

TABLE 2 (Continued)

MMAT Checklist/Selected studies	Ryrie and McGowan (1998)	Williams (1999)	Happell <i>et al.</i> (2002)	Deans and Soar (2005)	Coombes and Wratten (2007)	Wadell and Skrster (2007)	Ralley <i>et al.</i> (2009)	Howard and Holmshaw (2010)	Lundahl <i>et al.</i> (2014)	Johansson and Wiklund-Gustin (2016)	Molina-Mula <i>et al.</i> (2018)	Siegfried <i>et al.</i> (1999)
2.5 Is the statistical analysis appropriate to answer the research question?	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
3. Mixed methods												
3.1 Is there an adequate rationale for using a mixed methods design to address the research question?	No	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
3.2 Are the different components of the study effectively integrated to answer the research question?	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
3.3 Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
3.4 Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3.5 Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	No	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A

discrete quantitative assessment tool, the Seaman-Mannello scale, to examine nurses' perceptions and attitudes towards alcohol problems. An unfavourable disposition towards consumers with alcohol use problems was observed. The majority of nurses (80.1%) agreed or totally agreed that the 'life of alcoholics was not pleasant,' and many (61.9%) agreed that 'alcoholic patients had poor physical health'. The nurses predominantly displayed negative attitudes towards individuals who drink moderately, they believed it was unhealthy and harmful and made the person 'weak'.

In contrast, one qualitative study of nurses working in remote areas of Victoria, Australia, expressed sympathy towards consumers with dual diagnosis and demonstrated an understanding with regards to self-medication of psychotic symptoms or enhancement of social activities (Deans & Soar 2005). A smaller-scale study also demonstrated that nurses generally agreed that consumers use substances to alleviate their symptoms and cope with their life struggles (Johansson & Wiklund-Gustin 2016).

#### *Attitudes towards caring for mental health consumers with concurrent AOD problems*

Eight studies explored mental health nurses' willingness to care for consumers with concurrent problematic drug and alcohol use (Coombes & Wratten 2007; Deans & Soar 2005; Happell *et al.* 2002; Howard & Holmshaw 2010; Johansson & Wiklund-Gustin 2016; Lundahl *et al.* 2014; Molina-Mula *et al.* 2018; Ryrie & McGowan 1998; Wadell & Skrster 2007). A general lack of willingness to care for consumers with dual diagnosis within the mental health services was observed in several studies. Mental health professionals reported feeling of 'unsafe' when caring for dual diagnosis consumers. Reluctance of mental health nurses to engage with dual diagnosis consumers was observed and underlined by a perception that they are violent and unpredictable, and therefore unsafe (Coombes & Wratten 2007). Further reasons for distance in therapeutic engagement included additional drug-related problems in clinical care units such as supplying drugs to other patients, increased aggression due to substance withdrawal, and ward safety (Howard & Holmshaw 2010). Johansson & Wiklund-Gustin, (2016) examined the attitudes of mental health nurses in a psychiatric inpatient ward. These authors observed that nurses reported being vigilant of manipulative behaviour but reported trying to understand underlying reasons for behaviour. Nurses also reported emotional burden when caring for consumers with drug and alcohol problems and attempts to desensitize to

relapses (Johansson & Wiklund-Gustin 2016). Finally, in a large-scale study involving 275 mental health nurses working across settings, Molina-Mula and colleagues used the Seaman-Mannello Scale to examine nurses' attitudes when working with alcohol-related consumers. Under subscale two measuring job satisfaction, most of the items in this subscale scored less than three out of five, indicating dissatisfaction when providing care for consumers with alcohol problems (Molina-Mula *et al.* 2018).

In contrast, a small-scale study exploring mental health nurses' experience when caring for major depressive disorder and alcohol problems observed a greater willingness to care (Wadell & Skrster 2007). Nurses expressed commitment for providing care for dually diagnosed depression and alcohol problems, supporting trust-based collaborative relationships as a prerequisite for therapeutic engagement. They would use a variety of engagement approaches when working with dual diagnosis consumers according to what they perceived as the most appropriate in the context, such as paternalism, confrontation, and compassion styles. Similarly, a qualitative study by Lundahl *et al.* (2014) investigated mental health nurses' views and experiences providing care for consumers using Gamma-hydroxybutyric acid (GHB), an illicit substance in many countries. This study revealed positive clinical care attitudes including 'striving for a good relationship' and 'striving to optimize and develop nursing care'. It was observed that these mental health nurses demonstrated understanding of a good therapeutic relationship by showing respect, being present, listening, and caring towards the consumers and a desire to foster a calming and comfortable atmosphere so that consumers can feel psychologically safe during their hospital admission.

#### *Attitudes towards role perception*

Six studies examined the perceived professional role of dual diagnosis management in mental healthcare (Happell *et al.* 2002; Johansson & Wiklund-Gustin 2016; Ryrie & McGowan 1998; Siegfried *et al.* 1999; Wadell & Skrster 2007; Williams 1999). Generally, mental health nurses' role perception of clinical care for dual diagnosis consumers included screening, assessment, consumer education, and acute medical management rather than responsibility for specific interventions for drug and alcohol use, namely motivational interventions (Watson *et al.* 2013) or psychosocial treatment of dual diagnosis (Cleary *et al.* 2009). Four studies reported that mental health nurses believed that drug and alcohol assessment, consumer education, and exploring referral pathways are part of their professional role

(Happell *et al.* 2002; Siegfried *et al.* 1999; Wadell & Skrster 2007). Additionally, one study also reported the need to enhance clinical assessment skills, consumer education and counselling skills, knowledge of substance interaction with prescribed medications, and intoxication management (Ryrie & McGowan 1998).

However, several studies indicated that mental health nurses did not perceive the clinical care or ongoing management of these consumers as part of their role. For example, one study reported that nurses assumed that it should be the doctor's responsibility to talk about alcohol use to mental health consumers (Wadell & Skrster 2007), while another study observed that they believed a dedicated specialist should provide care for drug and alcohol consumers in the ward setting (Williams 1999), or that referring dual diagnosis consumers on to drug and alcohol services is preferable (Happell *et al.* 2002). By comparison, nurses in one study by Johansson and Wiklund-Gustin (2016) recognized that their duty was to provide care beyond symptom management for consumers with substance use disorders and to discuss health-associated problems self-care strategies, social skills, personal strengths, and resources following withdrawal.

#### *Attitudes towards treatment optimism*

Five studies mentioned the nurses' attitudes towards treatment optimism (Coombes & Wratten 2007; Deans & Soar 2005; Johansson & Wiklund-Gustin 2016; Lundahl *et al.* 2014; Wadell & Skrster 2007). Four studies consistently reported negative attitudes towards treatment optimism. Deans & Soar (2005) found that nurses commonly expressed frustration in caring for dual diagnosis consumers, claiming that treating mental disorders for this group tended to be ineffective, resulting in prolonged discharge plans. Their prominent negative feelings towards treatment outcomes included frustration, resentment, helplessness, and hopelessness, with a description of treatment ineffectiveness attributable to individual responsibilities rather than situational circumstances (Deans & Soar 2005). Findings from a study of community-based mental health services where care often requires long-term commitment revealed that community mental health nurses perceived the SUD as untreatable and time-consuming (Coombes & Wratten 2007). Regarding specific substances like GHB, Lundahl *et al.* (2014) discovered that nurses' negative feelings were derived from many treatment-related factors such as an absence of step-down community-based services to promote continuum care following discharge from the hospital and a delay

in responding to social services referrals upon discharge, leaving mental health nurses concerned about patients' risk of relapse.

One study reported treatment optimism towards management of depression and alcohol problems whereby nurses believed that informing patients about the harmful effects of alcohol can motivate consumers to abstain from alcohol consumption (Wadell & Skrster 2007). Finally, Johansson and Wiklund-Gustin (2016) demonstrated that nurses perceived that addressing substance use alone is likely to be ineffective and that intervention should be integrated with mental health care.

## DISCUSSION

This review provides a synthesis of the literature that has examined mental health nurses' attitudes and perceptions of mental health consumers with concurrent drug and alcohol problems. Four themes emerged including drug and alcohol use among mental health consumers, caring for dual diagnosis consumers, role perception, and treatment optimism. Overall, there was a mix of positive and negative attitudes across all four themes.

There were predominant beliefs held by mental health nurses regarding personal choice for drug and alcohol use among mental health consumers. Many nurses in the selected studies shared beliefs that consumers with a dual diagnosis make an informed choice leading to the subsequent treatment ineffectiveness and ill-health. However, the neurobiological theories of drug addiction indicate that relapse to substance use is driven by neuroadaptation and impact on brain function and decision-making (Kalivas & Volkow 2005). Environmental factors such as employment and societal instability are also strongly associated with and drive patterns of substance use within these communities (Hellman *et al.* 2015). Importantly, early trauma is also key factor associated with later substance use problems (Lin *et al.* 2020). Sadly, misconceptions of addiction and addictive behaviour can lead to stereotyping and prejudicial attitudes that are then likely to result in discriminatory clinical care practices against mental health consumers with a history of drug and alcohol use, hence depriving their access to quality care (Yang *et al.* 2017). Thus, mental health nurses' attitudes towards mental health consumer-related drug and alcohol use may have flow on effects with regards to effective management of dual diagnosis.

Several studies observed that mental health nurses were somewhat hesitant to be involved in the care of dual diagnosis consumers. One small-scale qualitative study of 11 Swedish nurses explored mental health nurses' experience when caring for individuals with major depressive disorder and alcohol use problems and reported a willingness to be involved in care that was not observed in other studies that explored illicit drug use (Wadell & Skrster 2007). It is possible that the perception of alcohol use among consumers with major depressive disorder is more acceptable than illegal substance use. Furthermore, mental health nurses across settings expressed open-mindedness about receiving additional training in the drug and alcohol field including assessment and referral capacity despite predominantly holding the belief that clinical intervention for addiction is beyond their role and the responsibility of the medical team or specialized services (Happell *et al.* 2002; Wadell & Skrster 2007; Williams 1999). One evidence-based model for managing dual diagnosis is integrated care (Louie *et al.* 2018). Integrated care aims to provide coordinated, efficient and effective *care* that responds to all of the needs of the consumer, requiring both assessment of drug and alcohol and the mental health conditions, along with a comprehensive management plan for treating both problems (Marel *et al.* 2016). Interestingly, none of the participants considered the responsibility of managing drug and alcohol issues in dual diagnosis consumers to be part of their role. This ambivalence in role perception demonstrates a lack of awareness regarding integrated comorbidity management in the mental health care system, possibly reflecting a somewhat incomplete implementation of contemporary evidence-based practice to improve quality of care.

#### *Limitations*

There was heterogeneity across the selected studies such as the diverse study methods, assessment tools, and attitudes measured. The study population targeted mental health nurses working at specific mental health settings which may not be generalizable for the broader mental health nursing community in other healthcare systems and countries. Moreover, it is possible that small-scale studies with a highly selective population may be biased towards yielding more optimistic attitudes compared with what might be observed in larger representative sample studies (Lundahl *et al.* 2014; Wadell & Skrster 2007). For example, Lundahl *et al.* (2014) selectively recruited senior experienced professionals who worked at psychiatric wards

dedicated to drug and alcohol consumers and their perceived drug and alcohol knowledge was moderate to very knowledgeable (86%). These factors are likely to be driving the positive clinical care attitudes that were reported by the nurses, such as striving for optimum care and the therapeutic relationship (Lundahl *et al.* 2014). It is also important to note that there were few studies included in the review that were conducted recently, and these findings may not represent contemporary attitudes.

#### *Clinical and practice implications*

Our findings highlight the existence of attitudes towards drug and alcohol use in mental health consumers that may need to be addressed in order to improve care. Training in drug and alcohol-related problems can alter pre-existing negative attitudes and improve mental health professionals' attitudes towards therapeutic care. Educational interventions could be implemented to improve mental health nurses' attitudes towards dual diagnosis management and should cater to specific nursing groups to optimize the desired outcomes (Jackman *et al.* 2020). For example, nurses who received training in drug and alcohol were less likely to hold negative attitudes towards drug and alcohol problems (Howard & Holmshaw 2010). Several of the studies in this review suggest that many mental health nurses are open to training opportunities to enhance their knowledge and skills in assessing and treating dual diagnosis. Indeed, mental health staff identified training as essential for increasing knowledge and enhancing clinical practice, such as understanding drug awareness, legality matters, and appropriate therapeutic consumer engagement (Howard & Holmshaw 2010). Nurses also suggested that skills might include different engagement approaches depending on the context, building a therapeutic relationship (Lundahl *et al.* 2014). The lack of treatment optimism could also be addressed by education regarding evidence-based care. Addressing team attitudes is also likely to be important. Team attitudes have previously been recognized at handovers or multidisciplinary team meetings in which clinicians reported a mix of positive and negative perceptions from team members regarding care for dual diagnosis consumers (Howard & Holmshaw 2010). Structured training programs could incorporate these factors accordingly. Finally, with regards to management approaches such as integrated care (Louie *et al.* 2018), training packages could be developed (Louie *et al.* 2021) including the development of clinical practice guidelines along with ongoing

clinical supervision (Giannopoulos *et al.* 2021), clinical champions (Wood *et al.* 2020) and sufficient time allocation for training (Louie *et al.* 2021) to facilitate individual and team attitudes and clinical practice change in dual diagnosis management (Lundahl *et al.* 2014).

## CONCLUSION

We conducted a synthesis of the existing literature regarding mental health nurses' attitudes and perceptions regarding drug and alcohol use in mental health consumers. There were mixed attitudes regarding the four emergent themes of drug and alcohol use among mental health consumers, working with these consumers, role perception, and treatment optimism. Fewer recent studies in this research area indicate the need for up-to-date knowledge of mental health nurses' perception of care in comorbid management, and the changes of this perception in the context of modern society. Nonetheless, attitudes that may need to be addressed in future training programs to enhance dual diagnosis management include the perception of decision-making regarding addictive behaviours, safety issues, confidence in and knowledge of effective treatment options, and engagement and management approach. In addition, the extent of training and clinical support for nurses to develop positive attitudes towards providing care for mental health consumers with concurrent drug and alcohol problems remains a contemporary research gap.

## RELEVANCE FOR CLINICAL PRACTICE

The review broadened our understanding of mental health nurses' perceptions and attitudes towards alcohol and other drug use among mental health consumers. We also found that effective therapeutic care for this population does not only require clinicians to have adequate knowledge about the health problems but also a non-moralistic approach and positive attitudes towards care. Finally, research-informed training programs can enhance clinical practice in caring for dual diagnosis consumers by upskilling staff's drug health knowledge and shifting their skewed perceptions towards more optimum care.

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## AUTHOR CONTRIBUTION

KM, PH, EL, and TTM conceived the study and developed research methods. TTM conducted the literature search. TTM and EL independently screened all articles identified from the search. KM, EL, and TTM conveyed finding analysis and interpretation. Studies' appraisal was conducted independently by TTM and LM. TTM wrote the manuscript with the support of KM, EL, MC, AB, and LM. All authors revised and contributed to editing the final manuscript.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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## SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article at the publisher's web- site:

Table S1. Search terms using PICO.