Considerations of eating disorder risk during obesity treatment in Australia: current practice, attitudes and barriers

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Abstract

Introduction: People with obesity are vulnerable to eating disorders. It has been suggested that screening for eating disorder risk be part of obesity care. However, it is unclear what current practice entails.

Objective: To explore considerations of eating disorder risk during treatment of obesity, including assessment and intervention strategies used in clinical practice.

Materials and Methods: An online (REDCap) cross-sectional survey was distributed to health professionals working with individuals with obesity in Australia through professional societies and social media. The survey had three sections: 1. Characteristics of Clinician/Practice, 2. Current Practice, 3. Attitudes. Data were summarised using descriptive statistics and free-text comments were independently coded in duplicate to identify themes.

Results: 59 health professionals completed the survey. Most were dietitians (n=29), identified as women (n=45) and worked within a public hospital (n=30) and/or private practice (n=29). Overall, 50 respondents reported assessing for eating disorder risk. Most reported that having a history of, or risk factors of eating disorders should not preclude obesity care but emphasised the importance of treatment modification including using a patient-centred approach involving a multidisciplinary team and promoting healthy eating behaviours, with less emphasis on calorie restriction or bariatric surgery. Management approaches did not differ for those with eating disorder risk factors or a diagnosed eating disorder. Clinicians identified the need for additional training and clear referral pathways.

Conclusion: Individualised care, balancing models of care for eating disorders and obesity and further access to training and services will be important in improving care of patients with obesity.

Keywords

Obesity; Eating Disorders; General Practice; Service Delivery

1. Introduction

In Australia, approximately one in four children and adolescents, and approximately two-thirds of adults have overweight or obesity.[1] Obesity is associated with physiological and psychosocial comorbidity both during childhood and into adulthood including cardiovascular disease, type 2 diabetes, musculoskeletal disorders, low self-esteem, weight stigma, depression, and disordered eating.[2,3] Eating disorders are characterised by severe disturbances in eating behaviours and are associated with distress and psychological comorbidity.[4] Obesity and eating disorders share common psychosocial and behavioural risk factors (e.g., body dissatisfaction, overvaluation of weight and shape), and may co-occur.[5,6] Indeed, the co-occurrence of obesity and binge eating is increasing more quickly than either condition alone.[6] Despite these recognised commonalities, eating disorders may be under-diagnosed, or have a delayed diagnosis, in people with overweight or obesity when weight loss is prioritised during treatment.[7,8]

Behavioural weight management is first-line treatment for overweight or obesity. Interventions aim for change in dietary intake, physical activity and sleep guided by a range of behaviour change strategies. Interventions for adults may be targeted at the individual however, in children and adolescents, interventions are usually family-based.[9] Where these interventions are unable to achieve meaningful improvement in health, treatment may include intensive dietary approaches (e.g. very low energy diets), pharmacotherapy and/ or bariatric surgery.[2,10-13] Clinical obesity management guidelines suggest screening and assessment of eating disorders and disordered eating.[10,14] Approaches for screening and assessment include enquiring about binge eating, purging and night eating or using validated self-report questionnaires, or clinical interviews.[10,15,16] The European Guidelines for Adult Obesity Management in Primary Care recommend considering eating disorders as part of history taking, including as a possible explanation for weight gain or fluctuations, assessing the psychological impact of negative body image and occurrence of disordered eating behaviours including binge eating, bulimic episodes and night eating.[17] However, to our knowledge, assessment practices have not been evaluated and little is known about how clinicians providing obesity care assess for and consider eating disorder risk in practice.[15]

In Australia, first-line care for obesity including assistance with weight loss, preventing weight regain and treating associated complications, is provided in primary care.[18] Patients with severe obesity and complex health needs are referred on to specialised obesity services where possible.[18] In a national survey of medical providers in the United States, self-perceived knowledge, skills, and external barriers (e.g., time constraints) limited eating disorder assessment and treatment.[19] However, little is known about how eating disorders are considered in obesity treatment settings in Australia. Therefore, this study aimed to explore current practice, attitudes and beliefs, and barriers in considering eating disorders among Australian health professionals working in obesity treatment settings.

2. Materials and Methods

2.1 Study design and survey development

An online cross-sectional survey was developed and administered using the Research Electronic Data Capture (REDCap) platform hosted by the authors' institution. Survey items were adapted from previous studies and modified by the authors.[20] The survey was reviewed, and pilot tested by co-investigators and health professionals with experience in obesity management. Reviewers commented on the content and wording of questions and scales in relation to the study aims. The final survey was available in English, anonymous, and included twenty-one multiple choice, free text, and Likert scale questions. Consent was provided electronically.

The survey had three sections (**Supplementary file A**). Part 1: Characteristics of Clinician/Practice, which collected basic demographics (age, gender, discipline, employment sector, postcode of primary practice location) and past and current experience with management of adults, young people and/or children with overweight/obesity and/or eating disorders. Part 2: Practice, explored current assessment (including eating disorder-related and mental health-related medical history, psychosocial health, eating and dieting behaviours) and any considerations of eating disorder risk in obesity treatment (including modification of obesity treatment for individuals with eating disorder risk factors and diagnosed eating disorders). Resources used to inform practice and the need for further training were also explored. Part 3: Attitudes and Beliefs, explored attitudes and beliefs on the consideration

of eating disorder risk during obesity treatment. Participants were required to respond to all questions and had the opportunity to add free text comments.

The study was approved by the Human Research Ethics Committee of the authors' institution and implemented according to the *National Statement on Ethical Conduct in Human Research (2007).*

2.2 Participant recruitment

The target respondents were health professionals within Australia who were providing treatment for obesity. Participants were recruited via advertisement through professional societies including the Australian New Zealand Obesity Society, Dietitians Australia, Nutrition Society of Australia, Australian Psychological Society, The Obesity Collective, Australian and New Zealand Metabolic and Obesity Surgery Society, and National Association of Clinical Obesity Services. Each organisation was contacted via email to invite members to participate in the survey as well as to advertise the survey through newsletters, interest groups, website and/or social media. The survey was also forwarded to clinicians that were known through the authors' professional networks and advertised on Twitter by study investigators. Participants were asked to share the survey with colleagues.

2.3 Data collection and analysis

Data collection occurred between 4th of April 2022 and 22nd of June 2022. Statistical analysis was undertaken using SPSS version 27 (IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY: IBM Corp). Demographic data and frequency of responses for multiple choice and Likert scale questions was described. The socio-economic status of primary obesity service locations was determined using the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) component of the national Socio-Economic Index for Areas (SEIFA) 2016[21]. By cross-referencing postcode data with the SEIFA database, SEIFA IRSAD scores were grouped into quintiles where a higher quintile (5) equated to the most advantage and a lower quintile (1) equated to greater disadvantage. Free text responses were collated in Microsoft Excel and thematic analysis was used. Two reviewers independently coded responses to identify common themes that were further grouped into categories. Consensus was achieved through discussion.

3. Results

Of the 81 respondents who commenced the survey, 9 provided consent but did not complete any questions and 13 completed all or some demographic questions only. These 22 respondents were excluded, leaving 59 responses included in analysis. There were no demographic differences between included and excluded participants when examining profession, practice location, age, or gender. Seven respondents partially responded to Parts 2 and 3 of the survey; where n<59, this has been noted in the results. The survey response rate was unable to be determined as it was unclear how many prospective participants received the survey.

3.1 Characteristics of obesity clinician/practice

Characteristics of included respondents are provided in **Table 1**. Most were dietitians (n=29, 49%), resided in New South Wales (n=25, 42%), aged between 35 and 49 years (n=29, 49%) and identified as women (n=45, 76%). Most respondents reported having dietetic (n=54, 92%) and psychological (n=36, 61%) services at their practices. Of 58 responses, most (n= 46, 79%) indicated that their practices were located in areas of relative socio-economic advantage (SEIFA IRSAD quintiles ≥ 4).

Half of the respondents worked with multiple age groups (**see Table 1**). **Table 2** provides a comparison of consultations and treatment approaches by treatment age group. Across all age groups, most saw patients for 3 to 6 consultations, with the initial consultation typically 46 to 60 minutes and review consultations typically <30 minutes.

There was a range in the number of new patients seen each year for obesity treatment, with 25 respondents (42%) seeing between 0 to 50 patients each year, 10 (17%) seeing between 51 to 100 patients each year and 13 (22%) seeing over 200 patients each year. Experience in treatment of overweight and obesity ranged from <1 year to 40 years, though most (n=24, 41%) had between 11 to 20 years of experience and provided treatment for 15 hours per week (*Mdn*= 15.00, IQR= 16.5) (**Table 2**).

More than half of the respondents (n=33, 56%) reported having experience in the treatment of eating disorders, among which 28 had experience in treatment of anorexia nervosa, 18 in atypical anorexia

nervosa, 22 in bulimia nervosa, 27 in binge eating disorder and 7 in other eating disorders (including avoidant restrictive food intake disorder, other specified feeding and eating disorders, and disordered eating). Experience ranged from 2 to 40 years, though most had 5 to 10 years (n=10) or 11-20 years of experience (n=11) and were involved in the treatment of eating disorders for 3 hours/week (*Mdn*= 3.00, IQR= 7.0)

3.2 Current practice

3.2.1 Assessment of eating disorder risk

Fifty respondents (85%) reported assessing for eating disorders as part of obesity treatment, of which 30 reported prior experience in the treatment of eating disorders. Assessment predominantly occurred by screening at the initial visit using unstructured open-ended questions (n=35, 59%) and self-report questionnaires (n=14, 24%) including the Eating Disorder Examination Questionnaire (n=5)[22], Binge Eating Disorder Screener (n=5)[23], Binge Eating Scale (n=2)[24] or other assessment (e.g., Yale Food Addiction Scale;[25] Diabetes Eating Problem Survey- Revised).[26] Of 9 respondents who reported not assessing for eating disorders, most (n=6) did not report prior experience treating eating disorders. Key reasons for not assessing for eating disorders were that it was not the presenting problem (n=4), lack of confidence in treatment/management (n=4) and a tendency to refer to relevant health professionals (n=3).

As part of patient assessment, respondents reported assessment for some aspects of mental health. As shown in **Figure 1**, most respondents assessed for sleep, social support and previous dieting attempts often or always (all n=55, 93%), Respondents less frequently (never or rarely) assessed for family history of eating disorders (n=25, 42%), cognitive rigidity (n=23, 39%) and personality traits (n=16, 27%).

3.2.2 Modifications to practice

Fifty-seven respondents completed questions about modifications to practice. Most (n=48, 84%) reported modifying the treatment approach for individuals with eating disorder risk factors. Treatment modification was more likely to occur if the patient had family or medical history of an eating disorder

or an active eating disorder, mental health related comorbidity, impaired psychosocial health or disordered eating behaviours or eating patterns (**Table 3**).

Treatment modifications were reported by 47 respondents to be based on an individualised approach negotiated with the patient and could include: (1) multidisciplinary team involvement; (2) focus on normalising eating patterns using less restrictive dietary approaches; (3) using a weight-neutral or Health At Every Size (HAES)® approach; (4) considering risk with bariatric surgery and the need to delay or refuse this approach; and (5) providing additional support (more frequent review appointments, family involvement, social support) (**Table 4**). In patients with eating disorder risk factors, respondents reported most frequently referring to psychologists or clinical psychologists (n=44), an eating disorder service (n=28), and psychiatrists (n=25).

For individuals with a diagnosed eating disorder, 48 (86%) of 56 respondents reported modifying the treatment approach. In addition to providing individualised care and providing additional support as occurs for patients with eating disorder risk factors, respondents reported delaying treatment of obesity until eating disorder treatment has occurred (Table 4). Referrals to psychologists or clinical psychologists (n=44), an eating disorder service (n=35) or dietitians (n=29) were most frequently reported.

3.2.3 Resources to inform practice and further training

The assessment and management of eating disorders in clinical practice was most frequently informed by discussion with colleagues, particularly a clinical psychologist (n=53, 95%), webinars and own clinical expertise/experience (both n=38, 68%). Respondents indicated that future training and resources could be provided by continued professional development via telehealth conferences (n=43, 77%), discussion and support from colleagues (n=35, 63%) and access to eating disorder referral options (n=35, 63%).

3.3 Attitudes and beliefs on managing obesity and eating disorders

Fifty-two respondents completed the attitudes and beliefs section of the survey. In general, attitudes and beliefs of respondents indicated that eating disorder risk (n= 42, 81%) or history of an eating

disorder (n= 43, 83%) should not preclude a person from receiving obesity treatment. Respondents indicated that obesity and eating disorders can be treated simultaneously, with some treatment modification, as obesity treatment is likely to have a positive impact on psychological wellbeing and eating behaviours. Losing weight was not seen as being more important than eating disorder risk and responses were varied for the statement "Preventing someone developing an eating disorder risk is more important than obesity treatment" (**see Supplementary File B**).

3.4 Additional comments

Thirty-one respondents provided a free-text response to the final question of the survey. In considering eating disorders during obesity treatment, respondents raised several broad themes.

3.4.1 Balancing obesity and eating disorders

The first theme related to the 'false dichotomy' between obesity and eating disorders that exists between the fields, i.e., there is limited/no overlap between models of care and service delivery despite the co-occurrence of the two conditions – *"Current models separate eating disorders from obesity service…minimal interaction between two ends of same spectrum"* (Nurse, woman, 35-49y) and *"The two issues of obesity and eating disorders should be considered on spectrum of the same problem and treated accordingly (rather than siloed as two separate issues)"* (Dietitian 1, woman, 35-49y). It was suggested that better communication and coordination between fields is needed as part of patient care and that discussions about weight/obesity treatment may not necessarily present a risk for the development of eating disorders.

3.4.2 Access to training, services, and expertise to manage co-occurring obesity and eating disorders

The second theme related to the challenge in accessing affordable, appropriate, and timely eating disorder care for people with obesity. It was noted that there are barriers with accessing psychological support for people with obesity and clinicians working in obesity need more training and resources to allow for the appropriate identification and management of eating disorders and disordered eating – *"I do not think there is enough awareness among health professionals working in this area. I think that obesity treatments have potential to cause harm if not delivered well but I do believe that to achieve*

reduction of physical and emotional harm of morbid obesity if appropriately designed, supported and risks managed, positive outcomes are possible" (Dietitian 2, woman, 35-49y) and "*The risk at the moment is that very few obesity treatment health professionals have the skills to assess/treat eating disorders well"* (Dietitian 1, woman, 35-49y). A multidisciplinary approach and access to psychological support for mental health and eating disorder screening prior to and following bariatric surgery was also identified as important.

3.4.3 Need for an individualised approach

The final theme that emerged was the need to consider and balance risks and benefits of obesity and eating disorders at the individual level with no 'one size fits all' approach available – *"Working with eating disorders during obesity treatment is very individualised and dependent on the patient and the eating disorder"* (Dietitian, woman, 35-49y). Some suggested that eating disorders or disordered eating should be managed separately from obesity, with disordered eating/eating disorders taking priority over obesity management. Others suggested that when multiple obesity related comorbidities are present it is important to consider the holistic health of the patient and the balance between risk and benefit – *"Eating disorders and obesity often co-exist, and the treatment is not mutually exclusive, but needs to be modified to fit the individual's needs as well as based on the significance of obesity related complications vs degree of eating disorder and its effect on quality of life/psychological health"* (Endocrinologist, man, 35-49y) and "*There are cases where the physical health risks of obesity significantly outweigh the psychological risk of exacerbating an eating disorder and in that case, good decision making may still end up with treatment of obesity (even bariatric surgery) being prioritized but never in isolation of the eating disorder risk monitoring and management.*" (Dietitian 1, woman, 35-49y) and *"…Initially I was completely against bariatric surgery for people with eating disorder. Now, I have a more moderate, formulation-driven, integrated approach rather than set rules for everyone."* (Clinical Psychologist, man, 35-49y)

4. Discussion

This study was the first to explore considerations of eating disorder risk by Australian health professionals working in obesity treatment. Respondents across a range of settings and treatment age groups reported assessing for eating disorder risk and diagnosed eating disorders. Many

indicated that treatment would be modified for patients with disordered eating and eating disorders including involving a multidisciplinary team, using a patient-centred approach and referral to eating disorder services where appropriate. Gaps in service delivery, including the lack of referral pathways between services, the need for personalisation of care that considers both obesity and eating disorders and the need for additional training were identified as limitations with current care.

Most respondents reported assessing for eating disorder risk and a broad range of related risk factors (e.g., body image, mental health comorbidity) as part of routine obesity care. This is in line with recommendations within obesity management guidelines and the Australian National Eating Disorders Collaboration (NEDC) 2022 Clinical Practice Guideline for the management of eating disorders for people with higher weight.[10,15,16] Assessments included unstructured open-ended questions and self-report questionnaires which may reflect the need to consider behavioural and cognitive risk factors for eating disorders. Given the limited validation of self-report eating disorder assessments to identify eating disorder symptomology in adolescents and adults with overweight or obesity,[27] it has been suggested that open-ended questions may more accurately assess these behaviours.[15,28-30] Future research is needed to guide how best to assess and monitor for eating disorders within obesity treatment settings.

Management approaches for patients with eating disorder risk factors or a diagnosed eating disorder were similar. For patients with eating disorder risk factors, modifications involved engaging in a multidisciplinary team, normalising eating patterns and using weight-neutral and/or less restrictive dietary approaches, as those are beneficial to address disordered eating.[16,31,32] For patients with a diagnosed eating disorder, treatment of the eating disorder was likely to be prioritised over obesity treatment. In these patients, additional psychological support and referral to eating disorder services as key modifications to practice were suggested. This is in line with the Royal Australian and New Zealand College of Psychiatrists (RANZCP) Clinical Practice Guidelines for treatment of DSM-5 feeding and eating disorders and the 2022 Clinical Practice Guidelines on managing eating disorders in people of a higher weight.[16,33]

The lack of coordinated care between obesity and eating disorder services and difficulty with accessing eating disorder support for people with obesity emerged as a key barrier. This is concerning considering that people with eating disorders and higher weight are more likely to present for weight-loss than for eating disorder treatment.[34] Additionally, binge eating disorder is the most prevalent eating disorder in adults, and is more likely to be experienced by people with obesity,[35] yet few publicly funded treatment services in Australia are available.[36] It is imperative that support for both obesity and eating disorders is available with clear referral pathways between services. It was suggested that additional training is required to support assessment and treatment of disordered eating and eating disorders within obesity services. Providing this increased capacity within an obesity treatment setting within areas of socio-economic disadvantage may facilitate better continuity of care and balancing competing health priorities.

4.1 Limitations

The results of this study should be interpreted considering its limitations. First, although broad recruitment was used to capture a range of responses, this study was subject to significant selection and response biases. It is likely that health professionals with an interest in eating disorders and/ or those already engaged with the assessment of eating disorder risk within tertiary services were more likely to participate, although most obesity care is provided in primary care settings[18]. Respondents were mostly dietitians, which may have been reflective of the networks of the authors and/ or those who are likely to be reviewing eating disorder risk during dietary interventions. This made it difficult to ascertain whether assessment of eating disorder risks differed across type of health professional (e.g., dietitian, clinical psychologist). Second, though challenges raised are likely to be experienced across obesity treatment services, most respondents reported having access to dietetic and psychological services at their primary place of employment. Due to this, this survey was unable to examine whether eating disorder risks were considered differently by health professionals working within solo practice vs those with multidisciplinary support. Future research could explore how considerations of eating disorder risks may differ in generalist settings by recruiting specifically within primary care.

5. Conclusion

This study highlights that eating disorder risk is considered as part of obesity treatment in tertiary hospital and private practice settings by some health professionals. To better improve identification and management of eating disorders in obesity treatment settings, coordinated care between obesity and eating disorder services, an individualised approach and further access to resources, services and training is critical.

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Declarations of Interest

LAB is on the Steering Committee of ACTION Teens, a multi-country study sponsored by Novo Nordisk. LAB is on the speakers' bureau for Novo Nordisk. Honoraria received from Novo Nordisk have been directed to LAB's hospital research cost centre.

Ethical Statement

The authors have read and have abided by the statement of ethical standards for manuscripts submitted to the Obesity Research & Clinical Practice. The authors also certify that formal approval to conduct the study described has been obtained from the Human Research Ethics Committee of the local institution and can be provided upon request.

CRediT authorship contribution statement

CK: Methodology, Investigation, Formal analysis, Visualisation, Writing – original draft, Supervision. VF: Investigation, Writing – review & editing. NBL: Conceptualisation, Methodology, Writing – review & editing. SPG: Methodology, Writing – review & editing. LAB: Writing – review & editing. HJ: Conceptualisation, Methodology, Formal analysis, Writing – original draft, Writing – review & editing, Supervision.

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Table 1 Characteristics of overall study sample (n= 59)

Participant characteristics	**N (%)**
Discipline	
General Practitioner/ Primary care Physician	5 (8)
Endocrinologist	2 (3)
Paediatrician	5 (8)
Adolescent Physician	1 (2)
Surgeon	6 (10)
Other Specialist (Respiratory, Sleep, Obesity)	1 (2)
Nurse	3 (5)
Dietitian	29 (49)
(Clinical) Psychologist	4 (7)
Exercise Physiologist	1 (2)
Other (Psychotherapist, Obesity/Feeding Research Scientist)	2 (3)
State/ Territory	
New South Wales	25 (42)
Victoria	10 (17)
Queensland	9 (15)
South Australia	4 (7)
Western Australia	7 (12)
Australian Capital Territory	4 (7)
Age	
18-25 years	3 (5)
26-34 years	6 (10)
35-49 years	29 (49)
50-64 years	18 (31)
65+ years	3 (5)
Gender	
Man	13 (22)
Woman	45 (76)
Prefer not to say	1 (2)
Primary Place of Employment	
Primary/Secondary Hospital	3 (5)
Tertiary Hospital	22 (37)
Medical Centre	3 (5)
Shared Specialist Office	1 (2)
Bariatric Surgery Practice	4 (7)
GP Clinic	3 (5)
Private Practice	18 (31)

University	1 (2)
SEIFA IRSAD of primary practice location*	
5th quintile (most advantaged)	26 (45)
4th	20 (34)
3rd	4 (7)
2nd	5 (9)
1st quintile (most disadvantaged)	3 (5)
Treatment age group	
Multiple age groups	28 (47)
Children and adolescents	11 (19)
Adolescents and adults	6 (10)
All age groups	11 (19)
Single age group	31 (53)
Adults	30 (51)
Adolescents	1 (2)

*Note: n=48

Table 2 Comparing aspects of consultations and different treatment approaches used during obesity treatment for children, adolescents, and adults

	Children (<10 years)	**Adolescents (10 – 17 years)**	**Adults (18 + years)**
	n = 22 (37%)	*n = 29 (49%)*	*n = 47 (80%)*
Number of consultations per patient			
1-2	7 (32)	8 (28)	5 (11)
3-6	10 (46)	11 (38)	23 (49)
7 +	5 (23)	10 (35)	19 (40)
Length of consultation (initial)			
0 – 30 minutes	3 (14)	3 (10)	4 (9)
31 – 45 minutes	2 (9)	1 (3)	12 (26)
46 – 60 minutes	17 (77)	24 (83)	29 (62)
Other		1 (3)[1]	2 (4)[1,2]
Length of consultation (review)			
0 – 30 minutes	11 (51)	14 (48)	24 (51)
31 – 45 minutes	4 (18)	8 (28)	15 (32)
46 – 60 minutes	6 (27)	6 (21)	8 (17)
Other	1 (5)[3]	1 (3)[3]	0 (0)
Frequency of consultation			
Weekly	1 (45)	1 (3)	0 (0)

Fortnightly	3 (14)	3 (10)	7 (15)
Monthly	7 (32)	11 (38)	13 (28)
Other (Varies)	4 (18)	8 (28)	13 (28)
Other (3-6 Monthly)	2 (9)	1 (3)	4 (9)
Other (Once)	2 (9)	2 (7)	0 (0)
Other (Varies pre-op and post-op)	0 (0)	1 (3)	8 (17)
Other (Misc)	3 (14)	2 (7)	2 (4)
Treatment approaches			
Behavioural weight management	19 (86)	27 (93)	37 (79)
Pharmacotherapy	5 (23)	11 (38)	25 (53)
Bariatric surgery	1 (5)	7 (24)	35 (75)
Very low energy diets (VLED)	2 (9)	11 (38)	32 (68)
None of the above	1 (5)	1 (3)	1 (2)
Other[4]	6 (27)	7 (24)	10 (21)

[1] Min 60 minutes (Surgeon), [2] 90 minutes (Surgeon), [3] Varies (Paediatrician), [4] Includes general dietary management (Dietitian), 4 pillars of weight loss as directed by the Obesity Medical Association (Nurse), a Health At Every Size (HAES)® approach (Dietitian), a multidisciplinary team approach (Surgeon)

Table 3 Eating disorder risk factors likely to result in modifications to obesity treatment

Theme	Examples/ descriptor
Eating disorder related history	Medical history of ED
	Family history of ED
	Active ED
Mental health related history	Anxiety
	Depression/ low Mood
	Trauma
	Neurodevelopmental conditions (ADHD, ASD)
	Obsessive thinking, OCD
	Personality disorders
	Cognitive rigidity
	History of non-suicidal self-injury and suicidal ideation
Psychosocial health	Perfectionism
	Stress (including financial stress)
	Low self-esteem/ self-doubt
	Weight-related bullying
	Social issues (not further described)
	Poor sleep
	Disordered eating cognitions
Eating and dieting behaviours	Excessive/Rapid Weight Loss
	Bingeing/ loss of control/ compensatory Behaviours (e.g., laxative use, excessive exercise)
	Secret eating

	Restrictive practices, excess calorie counting
	Irregular eating patterns, meal skipping
	Superb knowledge of nutrition
	Emotional eating
	Food avoidance
Body image concerns	Overvaluation of weight and shape (and related guilt)
	Unrealistic expectations (e.g. about weight)
	Body dysmorphia

Note: Themes were identified from 47 responses.

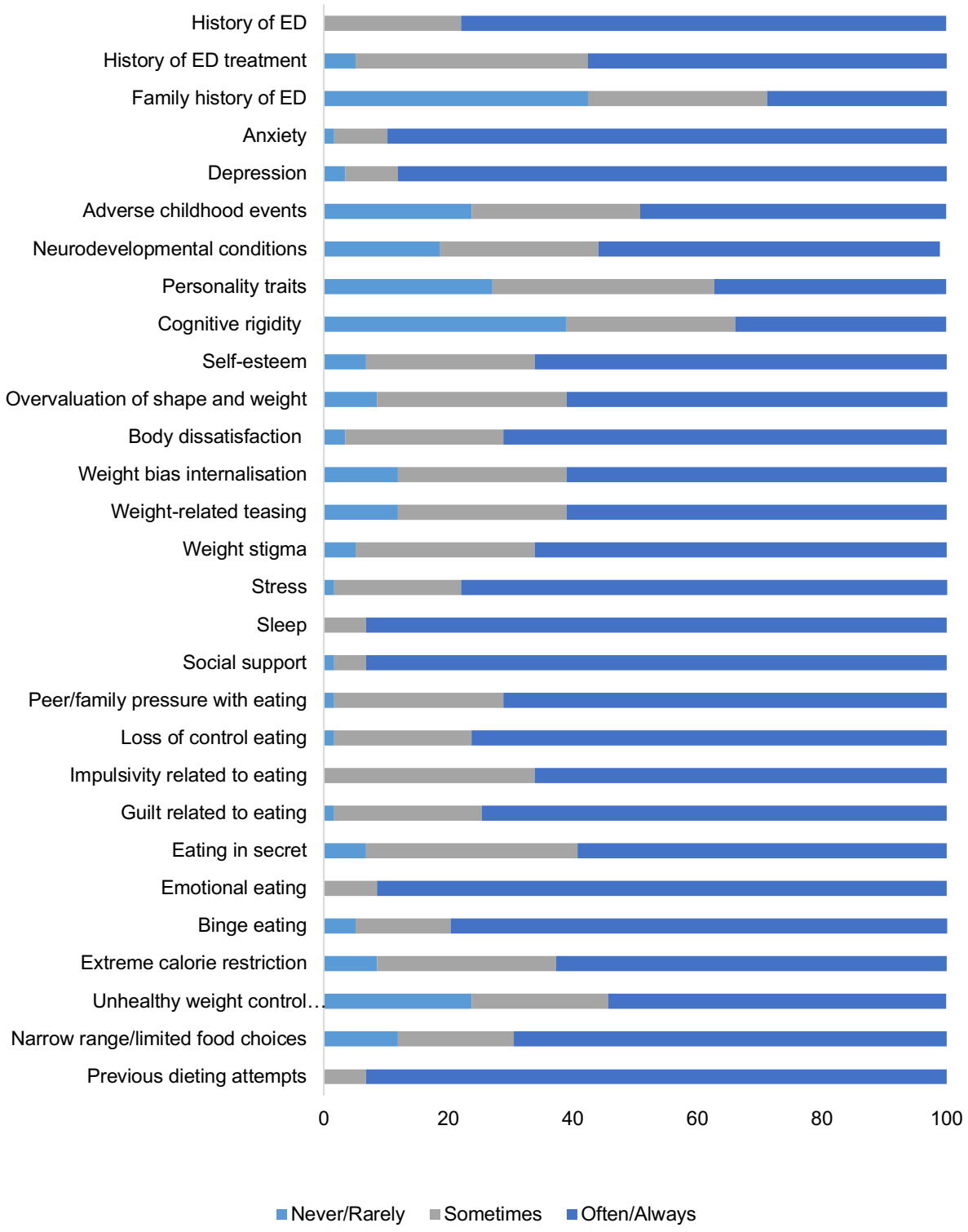
Table 4 Modifications to obesity treatment based on the presence of eating disorder risk factors or a diagnosed eating disorder

Theme	Examples/ descriptor
Presence of eating disorder risk factors[1]	
Individualised and negotiated treatment with patient to modify treatment approach	Normalise eating patterns
	Less (rigid) restriction, reduced focus on calorie counting especially VLED (prioritise nutritional adequacy)
	Health behaviour change
	Discuss ED risks e.g. prior to bariatric surgery
	Consider appropriateness of group therapy
	Surgery not recommended/delayed/refused
	Cautious use of pharmacotherapy
	HAES/weight-neutral approach
Provision of additional support	Multidisciplinary team involvement (dietitian, physio, social work) especially psychologist review/ involvement
	Using a CBT-E approach
	ED referral/ connect with ED team
	Psychologist assessment prior to treatment
	Family involvement
	Social support
	Increased review appointments, support
	Motivational interviewing
Presence of diagnosed eating disorder (in addition to the above)[2]	
Provision of psychological support	Additional psychological support in the context of multidisciplinary care
Delay or modify obesity treatment	Delay obesity intervention until eating disorder has resolved
	Reduce focus on weight (but not deny obesity care)
	Provide ongoing management for chronic disease e.g., T1 or T2 diabetes
Referral to eating disorder service	Refer to eating disorder team or specialist for treatment

[1] Themes were identified from 47 responses, [2] Themes were identified from 48 responses.

Figure Headings

Figure 1 Frequency of clinicians' examining eating disorder risk factors and behaviours


History of ED
History of ED treatment
Family history of ED
Anxiety
Depression
Adverse childhood events
Neurodevelopmental conditions
Personality traits
Cognitive rigidity
Self-esteem
Overvaluation of shape and weight
Body dissatisfaction
Weight bias internalisation
Weight-related teasing
Weight stigma
Stress
Sleep
Social support
Peer/family pressure with eating
Loss of control eating
Impulsivity related to eating
Guilt related to eating
Eating in secret
Emotional eating
Binge eating
Extreme calorie restriction
Unhealthy weight control…
Narrow range/limited food choices
Previous dieting attempts
0
20
40
60
80
100
Never/Rarely
Sometimes
Often/Always

Supplementary File A

Current considerations of eating disorder risk during obesity treatment in children, adolescents, and adults

Obesity and eating disorders may co-occur and have similar underlying risk factors. Thus, people with obesity may be vulnerable to the development of eating disorders.

We are undertaking a survey with the key aims to:

- Explore clinicians' considerations of eating disorder risk during obesity treatment
- Explore assessment and intervention strategies used by clinicians when considering eating disorder risk during obesity treatment

This survey has three parts:

Part 1: Characteristics of Obesity Clinician/Practice

Part 1 aims to identify your experience (e.g. what discipline you belong to, your experience in treatment of overweight/obesity), characteristics of your current employment and demographic information.

Part 2: Current Practice

Part 2 aims to explore your current assessment and treatment approaches in obesity treatment and current considerations of eating disorder risk.

Part 3: Attitudes/Beliefs

Part 3 aims to identify your attitude and beliefs regarding the consideration of eating disorder risk during obesity treatment.

Participation in the study is voluntary. Completion of the survey will take approximately 10-**15 minutes.** You can save your responses and return to complete the survey later if you need to. Your responses to the survey are anonymous.

Submitting a completed or partially completed survey is an indication of your consent to participate in the study. You can withdraw at any time prior to submitting your survey without consequence. However, once you have submitted your survey, your responses cannot be withdrawn.

Prior to starting the survey, please read the Participant Information Statement carefully (link to PDF)

Part 1: Characteristics of Obesity Clinician/Practice

1. **What discipline do you belong to?** (please select all that apply)
    a. General practitioner/primary care physician
    b. Endocrinologist
    c. Paediatrician
    d. Adolescent Physician
    e. Psychiatrist
    f. Surgeon
    g. Other Staff Specialist (please specify)
    h. Nurse
    i. Dietitian
    j. Psychologist/Clinical Psychologist
    k. Physiotherapist
    l. Occupational Therapist
    m. Social Worker
    n. Exercise Physiologist
    o. Other – please specify

2. **In what state or territory do you live?**
    a. New South Wales
    b. Victoria
    c. Queensland
    d. South Australia
    e. Western Australia
    f. Tasmania
    g. Northern Territory
    h. Australian Capital Territory

3. **What is your age?**
    a. 18 – 25 years
    b. 26 – 34 years
    c. 35 – 49 years
    d. 50 – 64 years
    e. 65+ years

4. **What gender do you identify with?**
    a. Male
    b. Female
    c. Non-binary

d. Other (free text)
e. Prefer not to say

For Questions 5 to 8, please answer based on your place of primary employment.

5. **In which suburb is your obesity service situated?** (please provide name and postcode)

6. **Which employment sector do you fall under?** (please select all that apply)
   a. Public hospital
   b. Private hospital
   c. Community health
   d. Private practice
   e. Research
   f. Other

7. **Where is your obesity service situated?**
   a. Primary/Secondary hospital
   b. Tertiary hospital
   c. Medical centre
   d. Community centre
   e. Specialist offices (please specify – e.g. paediatrician, psychiatrist, adolescent physician, endocrinologist office)
   f. GP clinic
   g. Private practice
   h. Other (please specify)

8. **What services are offered at your obesity service?** (please select all that apply)
   a. General practitioner/primary care physician
   b. Endocrinologist
   c. Paediatrician
   d. Adolescent Physician
   e. Psychiatrist
   f. Surgeon
   g. Other Staff Specialist (please specify)
   h. Nurse
   i. Dietitian
   j. Psychologist/Clinical Psychologist
   k. Physiotherapist
   l. Occupational Therapist
   m. Social Worker

n. Exercise Physiologist

o. Other – please specify

For Questions 9 to 13, please answer regarding your clinical practice.

9. What age group/s do you work with? (select all that apply)

a. Children (<10 years)

If selected,

i. **On average, how many consultations do you provide to a child with overweight/obesity during their treatment with you?**

a. 1 – 2

b. 3 – 6

c. 7+

ii. **Length of consultation (initial)**

a. 0-30 minutes

b. 31-45 minutes

c. 46-60 minutes

d. Other (please specify)

iii. **If applicable, length of consultation (review)**

a. 0-30 minutes

b. 31-45 minutes

c. 46-60 minutes

d. Other (please specify)

iv. **Frequency of consultation**

a. Weekly

b. Fortnightly

c. Monthly

d. Other (please specify)

v. **What treatment approaches do you utilise?**

a. Behavioural weight management

b. Pharmacotherapy

c. Bariatric surgery

d. Very low energy diets (VLEDs)

e. None of the above

f. Other (please specify)

b. Adolescents (10 – 17 years)

If selected,

i. **On average, how many consultations do you provide to an adolescent with overweight/obesity during their treatment with you?**
    a. 1 – 2
    b. 3 – 6
    c. 7+
ii. **Length of consultation (initial)**
    a. 0-30 minutes
    b. 31-45 minutes
    c. 46-60 minutes
    d. Other (please specify)
iii. **If applicable, length of consultation (review)**
    a. 0-30 minutes
    b. 31-45 minutes
    c. 46-60 minutes
    d. Other (please specify)
iv. **Frequency of consultation**
    a. Weekly
    b. Fortnightly
    c. Monthly
    d. Other
v. **What treatment approaches do you utilise?**
    a. Behavioural weight management
    b. Pharmacotherapy
    c. Bariatric surgery
    d. Very low energy diets (VLEDs)
    e. None of the above
    f. Other (please specify)

c. Adults (≥ 18 years)

If selected,

i. **On average, how many consultations do you provide to an adult with overweight/obesity during their treatment with you?**
    a. 1 – 2
    b. 3 – 6
    c. 7+
ii. **Length of consultation (initial)**
    a. 0-30 minutes
    b. 31-45 minutes
    c. 46-60 minutes

d. Other (please specify)

iii. **If applicable, length of consultation (review)**

a. 0-30 minutes

b. 31-45 minutes

c. 46-60 minutes

d. Other (please specify)

iv. **Frequency of consultation**

a. Weekly

b. Fortnightly

c. Monthly

d. Other

v. **What treatment approaches do you utilise?**

a. Behavioural weight management

b. Pharmacotherapy

c. Bariatric surgery

d. Very low energy diets (VLEDs)

e. None of the above

f. Other (please specify)

10. Approximately how many new patients do you see each year for obesity treatment? (free text)

11. How many years have you been involved in the treatment of overweight/obesity? (free text)

12. How many hours per week are you involved in the treatment of overweight/obesity? (free text)

13. Do you have clinical experience or expertise in treating eating disorders?

a. Yes (go to question 13a)

b. No (go to question 14)

13a. If yes, please select the areas below in which you have clinical experience and/or expertise. (select all that apply)

a. Anorexia nervosa

b. Atypical anorexia nervosa

c. Bulimia nervosa

d. Binge eating disorder

e. Other (specify)

13b. If yes, how many years have you been involved in the treatment of eating disorders? (free text)

13c. If yes, how many hours per week are you involved in the treatment of eating disorders? (free text)

Part 2: Current Practice

The following questions relate to your CURRENT PRACTICE.

14. **Do you assess for eating disorders in your obesity treatment?**
    a. Yes (go to question 14a)
    b. No (go to question 14b)

14a. If yes, how do you assess for eating disorders? (Select all that apply)
a. Screening with a structured clinical diagnostic interview
b. Screening with unstructured open-ended questions
c. Screening using self-report questionnaires (e.g. EDEQ) (please specify the self-report questionnaires used)
d. Other (please specify)

14b. If no, what are some reasons why you do not assess for eating disorders? (Select all that apply)
a. Time constraints
b. It is not the presenting problem
c. I do not know the questions to ask
d. It is not relevant to weight management practice
e. I do not feel confident knowing what to do if I identify that someone may have an eating disorder
f. No access to additional support services to refer someone with an eating disorder
g. Self-report questionnaires aren't appropriate for my patients
h. Other (please specify)

15. **Please indicate how often you consider the following in your patient assessment.** (5-point Likert scale of never, rarely, sometimes, often, always for each item)
    a. **Examining eating disorder-related medical history**
        i. History of an eating disorder
        ii. History of eating disorder treatment
        iii. Family history of eating disorders

b. **Examining mental health-related medical history**
   i. Anxiety
   ii. Depression
   iii. Adverse childhood events/trauma
   iv. Neurodevelopmental conditions (e.g. ADHD, autism)
   v. Personality traits (e.g. perfectionism, impulsivity, unrelenting standards)
   vi. Cognitive rigidity

c. **Examining psychosocial health**
   i. Self-esteem
   ii. Overvaluation of shape and weight
   iii. Body dissatisfaction
   iv. Weight bias internalisation (i.e. belief that negative stereotypes about weight apply to self)
   v. Weight-related teasing/discrimination
   vi. Weight stigma
   vii. Stress
   viii. Sleep
   ix. Social support
   x. Peer/family pressure towards eating

d. **Examining eating and dieting behaviours**
   i. Loss of control eating
   ii. Impulsivity related to eating
   iii. Guilt related to eating
   iv. Eating in secret
   v. Emotional eating
   vi. Binge eating with or without loss of control
   vii. Extreme calorie restriction
   viii. Unhealthy weight control behaviours (e.g. vomiting, laxative use)
   ix. Narrow range/limited food choices or acceptability (e.g. limited access to foods, fussy eating)
   x. Previous dieting attempts (under professional guidance or self-directed)

e. Other (please specify)

16. Do you modify obesity treatment for <u>individuals with eating disorder risk factors</u>?

a. Yes (go to question 16a)
b. No (go to question 17)

16a. If yes, please describe the type of risk factors, if identified, that would result in treatment modification (free text)

16b. b. If yes, please describe how you may modify treatment for individuals with eating disorder risk factors? (free text)

16c. If yes, would you refer to any of the following services for in-depth assessments, treatment and/or supports? (select all that apply)

a. Psychiatrist
b. Clinical psychologist/psychologist
c. Dietitian
d. Other specialist (e.g. paediatrician, adolescent physician, endocrinologist) – please specify
e. GP
f. Eating disorder service
g. Other (please specify)
h. I do not refer to services

17. Do you modify obesity treatment for <u>individuals with diagnosed eating disorders</u>?

a. Yes (if yes, go to Q17a)
b. No (if no, go to Q18)

17a. If yes, please describe how you may modify treatment for individuals with diagnosed eating disorders? (free text)

17b. Do you refer to any of the following services to support the individual? (select all that apply)

i. Psychiatrist
j. Clinical psychologist/psychologist
k. Dietitian
l. Other specialist (e.g. paediatrician, adolescent physician, endocrinologist) – please specify
m. GP
n. Eating disorder service
o. Other (please specify)
p. I do not refer to other services

18. What sources of professional development/evidence do you use to inform clinical practice on assessing for and managing eating disorders in the context of obesity treatment? (please select all that apply)

a. Literature search (e.g. journal articles)
b. Discussion with colleagues

c. Email (e.g. alerts and newsletters)
d. Internet search
e. Webinars
f. Professional associations
g. Blogs
h. Social media
i. Own clinical expertise/experience
j. Other
k. I do not currently receive or search for information regarding managing eating disorders in the context of weight management

19. What resources/training do you think will assist you in feeling more confident in managing eating disorders in the context of obesity treatment?

a. CPD via face-to-face conferences
b. CPD via telehealth conferences
c. Discussion with colleagues
d. Referral to colleagues with expertise
e. Supervision
f. Other (please specify)
g. I don't require further resources/training

Part 3: Attitudes/Beliefs

These questions relate to your ATTITUDES and BELIEFS.

20. Please rate how strongly you agree or disagree with the following statements (Strongly disagree, disagree, unsure, agree, strongly agree) - *items presented randomly*

- Obesity treatment has a positive impact on psychological wellbeing
- Supervised diet interventions exacerbate disordered eating
- Losing weight is more important than eating disorder risk for individuals with overweight or obesity
- For some, treatment of obesity needs to be modified for consideration of eating disorder risk
- Preventing someone developing an eating disorder is more important than obesity treatment
- If someone has risk factors for an eating disorder, they should not undergo obesity treatment
- Dietary interventions used during obesity treatment help to normalise eating behaviours
- If someone has a history of an eating disorder, they should not undergo obesity treatment

- Obesity and eating disorders can be treated simultaneously
- Weight loss should not be recommended for children and adolescents as this is when eating disorders often develop
- Treatment of obesity has a negative impact on psychological wellbeing
- Dietary interventions used during obesity treatment would help to normalise eating behaviours

21. Is there anything else you would like to mention about considering eating disorders during obesity treatment? (free text)

End of Survey

If completing the survey causes you distress or raises any concerns for you, you can seek support by contacting:

- Lifeline – 13 11 14, 24 hours a day
- The Butterfly Foundation National Helpline – 1800 ED HOPE (1800 33 4673) between 8am to midnight (AEST), 7 days a week (except national public holidays)

If you would like to receive a summary of the study results, please provide your email address. This field is OPTIONAL and your email will not be used for any other purpose than to disseminate study results.

Optional Email Address (free text)

By submitting this survey, you are agreeing to participate in this study.

Supplementary File B

Figure Headings

Figure 1 Attitudes regarding eating disorders and obesity