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RESEARCH ARTICLE

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A Survey of Healthcare Professionals' Treatment of Patients with Eating Disorders and Obesity in Saudi Arabia, and the Availability of Specialised Resources

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ABSTRACT

Over the last few decades, the Kingdom of Saudi Arabia (KSA) has experienced rapid socio-cultural changes caused by the accelerating economy of the Arabian Gulf region. This was associated with major changes in food choices and eating habits, which became progressively more "Westernized". Such a "nutritional transition" has been claimed to be responsible for the rising rates of overweight and obesity recently observed among the Saudi population. The prevalence of obesity among adults in Saudi Arabia is 24.7% in 2020. However, the roles of psychology in obesity management and the assessment of metabolic surgery are not clear. This study aims to identify the number of referrals for Eating Disorders (ED) and obesity, the management and level of availability of ED specialists as reported by healthcare staff, and the use of mental health services in treating EDs and obesity. A total of 15 health services in SA were surveyed and 123 questionnaires completed by health professionals. Participants were asked to respond to a written survey that included questions regarding the number of referrals for EDs and obesity and the available treatment, as well as body mass index criteria for metabolic surgery and the number of patients referred for these procedures. Findings revealed that all EDs are equally prevalent in diverse cultures. Although the result showed that the obesity rate is high, there is limited psychological intervention. There is a requirement for specialised ED training, a need to identify a conceptual framework to provide evidence-based management and increase the levels of involvement of psychiatric professionals in the management of obesity.

ARTICLE HISTORY

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Introduction

Early detection of eating disorders (EDs) is uncommon in SA. To date, only few studies have been carried out, one in the small city of Hail and the other in a secondary school [1,2]. Another study in a general cohort, and only one study conducted to assess prevalence of ED among athletes [3,4]. There are no available studies among women in general hospitals or among women in mental health (MH) facilities. Conversely, there has been a growing interest worldwide concerning EDs. For instance, in the UK, Micali, Martini used a community-based sample of 5,658 participants recruited from the Avon longitudinal study, focusing on women in their 40s and 50s who met the criteria for 12-month to lifelong ED [6]. It was found that 15.3% met the criteria for lifetime ED, while the 12-month prevalence of ED was 3.6%. It was noted that childhood sexual abuse was strongly associated with binge/purge disorders. However, better maternal care was a protective factor against Bulimia Nervosa (BN), whereas childhood trauma and interpersonal sensitivity were risk factors for all EDs.

The work of Micali, Martini (6) is relevant to the current study for two main reasons. First, it looked at ED prevalence in a population that had not been screened before, which encourages the investigation of undiscovered cohorts that may contribute to the incidence of EDs in the population. Secondly, the determined risk factors and prevention factors discovered could be used as a template for women in all age groups. Additionally, in India, Srinivasan, Suresh found that although the prevalence of EDs in Asian countries was lower than that in Western countries, it occurred in milder forms with fewer symptoms; they therefore suggested that as the symptoms would be too difficult to track using a Western culture-based questionnaire there was a need to develop a modified ED questionnaire screening less severe cases in Asia [7].

Apart from EDs, obesity is recognised as a worldwide health problem. Whether obesity is technically an ED is debatable; it is a chronic illness that can predispose to EDs, which are clearly medical disorders related to body image. Furthermore, the side effects of various medications related to targeted populations, such as antipsychotics and antidepressants, including Second-Generation Antipsychotics (SGAs), are associated with the risk of developing obesity rapidly in treated patients [8]. Psychiatric professionals play a key role in the treatment of obesity, providing psychotherapy, and psychological assessments and rehabilitation pre- and post-surgery for Bariatric Surgery (BS) candidates. Obesity in KSA is far more prevalent than EDs. EDs affect approximately 3.8% of the population, while obesity affects approximately 24.7% [9,10]. However, there are no available studies showing the prevalence of obesity in MH services.

The perception of weight varies from region to region in KSA; in some areas, being overweight is a symbol of prosperity and

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therefore consuming high-calorie food is the norm. In areas exposed to outside cultural influences, the exact opposite is true. Khalaf, Westergren found that less than one-quarter (23.3%) of the participants had an accurate perception of their actual weight [11]. The presence of obese parents compared to non-obese parents; and females with highly educated fathers were associated with being more likely to diet than those who had a father who only went to primary school. Economic factors showed a positive correlation with the desire to be thinner. This also correlated positively (p value 0.047) with high monthly incomes (>$1300 to $2650), the number of cars in the household (3 or more compared to 2), and the type of residence (traditional house versus apartment). All these socio-economic factors regarding thinness are associated with increases in income and education level. However, Rasheed found that women who overestimated their body weight had higher educational levels, while those with lower education levels underestimated their weight [12]. These perceptions do not meet the criteria of ED diagnoses, but they may predispose an individual towards such a disorder.

The present study area is heterogenous, seeking to provide recommendations that can be generalisable. The study has many objectives. First is detecting the number of referrals for EDs and obesity among women referred to mental health facilities. The second is assessing the levels of availability of specialised ED personnel and services to establish national recommendations. And third, this study aims to increase awareness of management procedures for these disorders. According to recent statistics by the Saudi Ministry of Health (2015), women aged 15-65 make up 67.95% of the total female population and includes the age range of women in this study. This high proportion of adult women, combined with the high rate of EDs and obesity as in Western countries, points to the need to direct specialised resources to manage these disorders. KSA is recognised for its unique cultural conservatism and social segregation by gender. Consequently, conducting such research is challenging. Additionally, the continuing desire to mimic actors and fashion models leads to risk-factors, including EDs, that need to be addressed with a holistic approach to treatment and prevention.

Material and Methods

Design

This study was designed as a cross-sectional survey for the number of referrals for EDs and obesity reported by professionals working with these disorders

Setting

The study was conducted in Taif MH Hospital, Jeddah MH Hospital, King Abdul-Aziz MH Department, King Abdul-Aziz Hospital in Makkah, King Faisal Hospital, Heraa General Hospital, King Fahad Hospital, King Abdul-Aziz Hospital in Jeddah, Al-Noor Specialist Hospital, King Abdul-Aziz Specialist Hospital in Taif, King Abdullah Medical City, Aleskan, Alrusaifah, and Alawali General Practitioners (GPs). Data concerning bariatric surgery were obtained from the records in three hospitals: King Abdullah Medical City Complex, King Fahad General Hospital and Al Noor Specialist Hospital. The author contacted the head of the department in a private sector hospital providing treatment for ED patients because of the likelihood that a section of the general population may utilise private sector treatment because of the associated stigma. Unfortunately, the department declined to participate in the study. The researcher then contacted a private sector dietetic centre in Riyadh City (Mayiez Medical Centre) to obtain related information concerning the number of referrals for the disorders under study. Family medical consultants meet weekly; hence, the chief family medical consultant was contacted to obtain approval to meet all family consultants working in Makkah province primary care who gather in weekly meetings.

Sample

The inclusion criteria of the study were healthcare professionals (psychiatrists, psychologists, physicians, family medicine physicians, Registered Dieticians (RDs), Dental Practitioners (DPs), and nurses working in mental health services and GHs; information about the frequency of referred adult women aged 18-65 from General Hospitals (GHs) to Psychiatric Services (PSs) and the number of received referrals in three Mental Health Services (MHSs) was obtained for the same age groups.

Procedures

A written survey was conducted among healthcare professionals. The survey was translated into Arabic in addition to the English language version for staff who had limited English language fluency. The researcher approached the medical directors in each service, then the head of the department for RD recruitment, psychologists and dental practitioners, the nursing director in each service, and the director of GPs, and requested to meet targeted staff to introduce the study and describe the written survey. Additionally, the researcher used an online version of the survey to recruit as many participants as possible, created for distribution to an online sample obtained from a social media software database (Twitter) for professionals working in SA, and by posting and follow-up with non-respondents after three days. The proper procedures for evaluating participants' understanding of survey elements were taken into consideration. The author personally interacted with participants either face-to-face for the surveyed hospitals or via phone calls and e-mails for online professionals to clarify and answer any related questions, especially for participants from general healthcare services, where a lack of specific information was possible.

Outcome Measures

The outcome measure has four parts. The first covers socio-demographic data of the study participants: the healthcare professional name, profession, professional grade, hospital or service name, name of ward or unit (to avoid replicating the same cases), type of service (e.g., outpatient, day-patient, inpatient or community service) and work experience in years.

The second part clarifies information regarding the referred cases. Respondents were asked whether they had referred any patients with EDs/obesity to PS or received any referrals for patients with EDs/obesity in PS during their practice, and if so, approximately how many cases on average. Participants were also asked to classify referred patients according to their ED diagnosis and the number of cases in each category. The sub-type diagnoses for EDs included Anorexia Nervosa, Bulimia Nervosa and Binge Eating Disorder.

The third part of the questionnaire was dedicated to questions regarding the use of different treatments for these disorders and

obesity, namely, individual psychotherapy, group therapy, family therapy, dietary advice, day-patient care. There was an additional category, "other", which asked the respondent to specify any other treatment that had been used for treating these disorders.

The fourth part of the scale is related to the care available, whether delivered by ED specialist staff or generally trained staff regarding obesity. Participants were asked about the number of obesity cases referred for BS (within the participant's period of practice) and for psychiatric assessment and rehabilitation pre- and post-surgery, as well as the Body Mass Index (BMI) levels at which patients are referred for BS. Participants were also asked about any policies or specific guidelines that are followed in the treatment and management of EDs.

Data Analysis

Information about the work experience of each professional, targeted BMI for BS referral and the number of referred cases for BS was compiled on a spreadsheet for descriptive statistical analysis using Excel 2016 for Windows, means ± (SD).

Ethical Considerations

The study obtained ethical approval from the Ministry of Health in the Kingdom of Saudi Arabia and the selected hospitals. Participants were also asked to sign a consent form before enrolment in the study. Confidentiality of the participants was assured by giving them pseudonyms.

Results

A total of 15 services in the western region of SA were surveyed, of which 3 were MH services, 5 were general hospitals, 2 were specialised hospitals, 1 was a medical complex serving as one of the major referral and tertiary care centres for BS cases, and 3 were Primary Care (PC) service centres included to survey family medicine, a private dietetic centre and GPs. A total of 3,293 referrals were reported from all services. Of these, 2,409 (79.3%) were from GHs, while PSs sections included only 884 (20.7%) of the total. Questions were limited to women aged between 18 and 65 years with EDs or obesity who were referred to psychiatric services. Regarding medical records, no ED cases were documented between 21 June 2017and 20 July 2017 in all the researched services. Table 1 shows information about the participants and their work experience, represented as means ± (SD). All healthcare participants were surveyed regarding patients with EDs and obesity who received referrals to HCP in PSs within their practising period as well as the availability of ED-specialised healthcare staff in these services. However, 4 MH nurses, 4 RDs and 1 GP did not report their experience.

Table 1: Information about participants' services.

Professions	Number of professionals	Working experience (years)Mean ± (SD)
Psychiatrists	20	12.05± (7.4)
Psychologists	7	1.6± (1.8)
Family medicine consultants/GP	16	10.1± (10.2)
Physicians	8	3.25± (193.03)
Dental practitioners	7	4.5± (3)
Dieticians	35	2.8± (1.6)
Nurses (psychiatric services)	21	7.6± (7.3)
Nurses (other services)	9	3± (2.8)
Total	123	

Determinants for referral and referral numbers by profession with bed numbers for all served hospitals (3 MH and 7 general hospitals), excluding GPs that did not include inpatient services, and the total referral numbers in each category for each profession are shown in Table 2. A total of 56.3% of the referrals were reported by RDs, 27% by psychiatrists (of which one case was for a member of the MHS staff), >14.8% by GPs and family medicine consultants, 8.5% by DPs, 6.7% by physicians, 2.1% by nurses in PSs and 0.5% by nurses in GHs; only one referral was reported by a psychologist. The total referrals for each disorder were as follows: simple obesity comprised 79%, obesity with EDs 13%, AN 6.6%, BED 5.3% and BN 4.5% of the cases. One obstetrics and gynaecology consultant reported that 5% of the females she worked with were diagnosed with pica, which is one of the EDNOS categories, and a dietetic consultant reported receiving referrals in percentages. These numbers were indicated in the total referral with >, as there is no specific number to add to the sum. Additional analysis indicated that in PS, DSM-5 was used as a manual for diagnostic purposes and several tests were administered to patients, one of which was an assessment of suicide risk. However, most ED patients are managed as inpatients for a short period (2-5 days), after which they are treated in outpatient clinics after being stabilised or upon their request. Regarding referring patients who are candidates for BS, there was no referral for assessment or rehabilitation reported either pre- or post-surgery. The total hospital bed numbers include hospital capacity for male patients, of which the proportion of female wards is approximately one-quarter of the total.

Table 2: Referral frequency for each profession

Source of referral: Number of consultation		Determinant of received referral: Number of cases						
		Anorexia Nervosa	Bulimia Nervosa	Binge Eating	Simple Obesity	Obesity with ED	Other	Total Cases By profession
Psychiatrists	(psychiatric services)	77	81	73	475	113		819
Psychologists	(psychiatric services)	1						1
Physicians		1	2		200			203
	Family medicine consultants/ GP	35	6	19	368	23	Pica 5%	>451
	Dental practitioners	6	2	2	9	7		26
Dieticians		66	10	61	1327	246		1710
	Nurses (psychiatric services)	9	35	6	10	4		64
	Nurses (other services)	5			9	5		19
	Total cases by diagnosis	200	136	161	2398	398	5%	Total >3293
Period of investigation		From 21 June 2017 to 20 July 2017						
Number of all hospitals bed		Psychiatric services			General hospitals*			
Source: MOH.gov. 2015		1005			3247			
Total Number of referral for ED's and obesity in the services		884			>2409			

*General hospitals encompass services other than psychiatric services; general hospitals, specialised hospitals, medical complex and primary care.

Table 3 shows proportions of professionals reporting available treatment for all disorders in psychiatric and general services, including a category named "other" that identifies other specific treatments for all disorders. All psychiatrists in the three MHSs reported that CBT was the type of individual therapy used most often in the treatment of these disorders because certain cognitive behaviours are the centre of the disease aetiology and this therapy has proven effective. Consequently, they limited their responses to ticking the box for individual therapy as a sign of availability. In GP centres, family medical consultants and GPs provided individual therapy and family therapy as part of psychoeducation for obese patients and their families, while they referred ED patients to psychiatric services. Whereas medical physicians in hospitals request consultations with the psychiatry service in the city for psychiatric input within medical wards, all referrals from medical doctors to psychiatrists are made by formal request of the attending physicians at the bedside from the medical wards, and the consultations are performed at the bedside. Inpatient services were more common in the management of AN and BN but less common with regards to obesity.

Table 3: Proportions of professionals reported available treatment for all disorders in the services in %

Service Type	Professionals in Psychiatric services				Professionals inGeneral health care services*			
Proportion In % for	**Anorexia**	**Bulimia**	**Bingeeating**	**Simple Obesity**	**Anorexia**	**Bulimia**	**Bingeeating**	**Simple Obesity**
Management								
Individual Psychotherapy								
Group Psychotherapy								
Family Therapy								
Dietary Advice								
In-Patient care								
Day-Patient care								
Other	Referral	Anti-depressant.	Referral	Physical Exercise				Physical exercise, socialworkers
	2	1	1					1
		Referral		1				
		2						
Care provision byEating disordersspecialists Or by generally trained staff	By Eating disorders specialists	By generally trained staff	Not answered	Not specialised norgenerally trained		Specialised ED's staff & generally trained staff		Total
	5	89	28	7		1		123

In PSs, psychoeducation for family members was the means of providing family therapy and was more prevalent in treating AN and BN, whereas group therapy was less common and mostly used in the management of BN. Dietary advice was more common in treating obesity; however, it was also common as an input for ED management. RDs were available in Taif and Jeddah MH hospitals, while in King Abdelaziz MH Hospital, referrals were made requesting dietary advice from clinical nutritionists in King Abdelaziz general hospitals. In GHs, the reported proportions for all psychotherapies were less common than in psychiatric services. However, dietary advice and inpatient services were most commonly used in GHs. BN was the disorder with the highest cause of referral for dietary advice, and obesity was the highest reason for admission to inpatient services in GHs. Surprisingly, reported AN referral numbers by RD sections were higher in GHs, with more than one-quarter of the total referrals (25.8%), compared to PSs, which had only 22%. Regarding day-care, all respondents in both settings reported the use of home visits to provide this method in patients' homes, but no separate services were reported within all three psychiatric services. However, during the study period, referrals for the day-care method was less usual. For the category "other", 4 participants reported other types of treatment. Physical exercise was reported by 2 respondents, one in GH in concert with social work and one in a PS, while antidepressants were reported as a treatment for BN by one participant from a PS. Two GPs reported referrals as another method for treating EDs and obesity. ED management was provided by specialised ED professionals, generally trained professionals, not specialised staff or generally trained staff and those who did not answer the question. Regarding the level of staffing, no ED-specialised dieticians were reported from all studied services and no referrals for psychiatric assessment or rehabilitation pre-or post-bariatric surgery were reported in all services. Instead, referrals for BS candidates were made directly by dieticians or medical physicians to surgical clinics in BS centres in the three hospitals noted above.

Table 4 shows the number of patients referred for bariatric surgery as well as BMI cut-off values (means ± SD). Most of the participants reported BMI as the main criterion for referring obese individuals for BS. However, only three participants reported BMI cut-offs for referral for BS as unknown, and one item was not answered. One was a GP with 2 years of experience, the second a psychiatrist with 18 years of experience, and the third a DPs with one year of experience. However, they reported referring 100, 120, and 2 patients, respectively, for bariatric surgery according to weight only (i.e. >140 kg), not according to BMI criteria. Hence, the author did not include these data in calculating the average number of referred patients for bariatric surgery, as there were no definitive BMI criteria. One DP reported BMI criteria for referral for BS as unknown.

Table 4: The number of patients referred for bariatric surgery and BMI cut-offs

Obesity cases referred for bariatric surgery	No. of cases Median	BMI cut offs Median
	4	4>40

Discussion

This is the only study that has been conducted with the aim of assessing referrals received for EDs and obesity in psychiatric and GH and availability of specialised resources in KSA. Despite a substantial body of research worldwide, there is no available data regarding the prevalence of EDs, treatment strategies and treatment professionals in KSA, which was the driving force that motivated the researcher to conduct this survey.

The most important finding in this study is that in contrast to what was reported in previous studies, the result shows a considerable proportion of referrals for all EDs and reflects a worldwide prevalence of these disorders. However, obesity was the most common cause of referrals (78.9%). Reported referrals received for various ED cases included 6.6% for AN, 5.3% for BED and 4.5% for BN, while one obstetric gynaecology consultant reported that 5% of patients suffered from pica. It is worth noting that not all cases in the community seek medical help for EDs due to the nature of the illness and the associated stigma, which may indicate that these cases are under-reported. The researcher approached a private health facility for dietetic advice in Riyadh City, where the dietetic consultants reported that approximately 5% of the total referrals were diagnosed with AN, 10% with BN, 30% with BED, 55% with obesity, and 55% with a combination of obesity and EDs. These figures add to other findings of this study.

The total number of referrals for GHs and MHS equated to 29% of the total bed capacity in PSs and 71% of the total bed capacity in GHs. If all these cases were admitted for inpatient services, there is a strong need to treat this group of disorders by using services that are meant to provide treatment for a wide range of health complications. The average bed turnover rate in the GHs was 53.2% while in PSs, it was 5.2% [13]. Therefore, having SEDUs that can provide psychiatric management in a less stigmatising manner may be the best solution. Previous studies indicate that EDs are more prevalent in Western cultures. Additionally, EDs are far more common among women than men, reflecting cross-cultural differences in the quest for thinness for women [14]. The results from the current study are broadly consistent with other studies in non-Westernised countries, demonstrating that the incidence of EDs is rising in these countries, and perspectives need to change to prioritise targeting these disorders in terms of research and resources [1,15].

Referrals for EDs and Obesity from HCP

Findings from this study similarly showed that in PSs, more than one-quarter of the total referrals were reported by psychiatrists whilst nurses reported 2% of the cases. Notably, all surveyed GHs, physicians and nurses reported nearly 7% and 0.5% of the total referrals, respectively; nonetheless the availability of psychiatrists and psychologists was not presented. In GP, where 14.8% of the total referrals were reported, family medical consultants provided psychoeducation for minor cases before referral to psychiatric services. Requests for a psychiatric opinion in general hospitals for these patients shows an awareness of the psychiatrist's role in providing treatment, which could be regarded as good clinical practice. However, there is a dichotomy in treating ED patients, as these patients have a psychiatric typology.

This classification makes it important to manage these disorders with a great emphasis on MH. Nevertheless, the medical input is not compulsory but is required, depending on the severity of the case. Hence, it must be emphasised that treating these patients in PSs or Specialised Eating Disorder Units (SEDUs) is more beneficial when psychiatric input is appropriate for disorders of this nature. Another motive that supports treating ED patients in SEDUs relates to the need to maintain social development for patients and minimise isolation. In this regard, SEDUs can provide day-care programmes or community care that is deemed more beneficial, as it does not involve separating patients from their social environment.

However, this step could be achieved at a later stage, as currently, the emphasis on training current staff would be more realistic. Another finding from this study demonstrated the scarcity of the availability of psychologists; like the psychiatrists in GHs, they were only available in PSs. Psychologists reported only one case of ED; this number is paltry for a profession that plays a crucial role in the management of EDs and obesity. Providing psychoeducation and psychotherapy for patients and their caregivers to help them cope is one of the primary responsibilities of psychiatrists and psychologists. This minute referral number may be due to the short experience of participants in this category compared to other professions (Table 1) or because of limited awareness of the role of these professionals. However, this scant involvement needs to be addressed when the framework for EDs and obesity management is planned. In this survey, more than 891 referrals were received by PSs, with a collective hospital bed capacity of 1,005, and as expected by several professionals in GHs in SA, more than 2,402 referrals were received in GHs, where the collective bed capacity is 3,247.

This considerable difference in patient preferences may be attributable to several factors. Of primary importance is the stigma attached to seeking help from PSs, which are widely associated with treating individuals with mental illness. Therefore, eliminating the stigma that is often associated with mental disorders is of utmost importance and was discussed in the 2005 WHO European Ministerial Conference on MH in Helsinki. Unexpectedly, MH professionals who fight stigma could inadvertently be contributing to the stigma through the language they use. Thus, MH professionals should not only be cautious when engaging with ED patients, but they should also be aware of what the researcher terms "negative stigma", which refers to an under-emphasis of the seriousness of ED that can affect continuity of care by patients and their families. A third factor that may affect ED treatment generally is their nature as ego-syntonic disorders [16].

The behaviours, values and goals of ED individuals feed into their ego, making it difficult to separate from their personality, which

leads to minimising or denial of symptoms by the afflicted. This condition emphasises the need for psychologists and psychiatrists to apply the CBT model when treating patients.

Results from Obesity and BS Survey

Regarding BS, this study's findings showed that BMI was the main criterion for referring obese individuals for BS, which is the norm. The median for reported BMI cut-off values for BS referral was >40, with a median referral of four patients for each participant (Table 4), which agrees with the UK's NICE guidelines. Several participants did not report the BMI cut-off or responded to the item as "unknown". In the private dietetic units, only five patients were referred for BS. Referral for BS in the private dietetic centre had two criteria: either a BMI>50 or if nutritional therapy was not successful. The increase in movement towards modernised lifestyles that alter the way food is consumed, in combination with sedentary behaviours, are the most likely explanations of the high rate of obesity in SA. The high income of Saudi citizens allows many families to employee housemaids and nannies, decreasing energy expenditure for Saudi women.

Dinsa, Goryakin, in their systematic review, concluded that in low-income countries or in countries with a low human development index, the association between socio-economic status and obesity appears to be positive; the more affluent and/or those with higher educational attainment are more likely to be obese [17]. This correlation supports attributing the increase in obesity and overweight in certain societies in SA to a sign of prosperity. All these factors add to the aetiological factors for obesity. These factors were of importance for the Saudi government in efforts to control obesity, such as establishing female sports participation in girls' schools. Further legislation by the Saudi government has recently added a tax on sweetened drinks to reduce their consumption and consequently reduce obesity [18]. 79% of the reported referrals were due to obesity, while obesity in combination with EDs comprised 13% of the total cases. These statistics are like those quoted in the media of studies conducted by King Saud Obesity Research Centre, chaired by Dr AL Qahtani, a BS consultant.

Dr Al Qahtani was quoted as finding that 70% of Saudi women are obese, and in 80% of cases, this obesity was the main cause of type 2 diabetes. Dr AL Qahtani was further quoted as reporting that obese individuals cost Saudi healthcare services more than $133 million annually because of obesity-related health consequences, of which diabetes is the costliest. This increase in obesity has prompted a rise in the popularity of MS to reduce weight, as surgery has been more effective than lifestyle modification, which requires strict commitment and more time to achieve desirable results. Dr AL Qahtani was again quoted in 2015 in the media as suggesting that Saudi surgeons performed more than 20,000 bariatric surgery operations in that year, double the number in the previous year. This exceeds the number in the UK, which recorded only 8,000 operations in 2011; between 2010 and 2013, only 18,000 BS operations were reported in the UK, even though the UK population is double that of SA [19].

Unfortunately, the Saudi numbers do not accurately reflect the actual prevalence of obesity, as many affected individuals were not able to wait for surgery to be performed but opted to travel outside SA to have the surgery, usually in Jordan. The director of the private hospital society in Jordan, Fawzi AL Hammori, was quoted in the media as suggesting that in 2016, Saudi citizens comprised 50% of total patients who underwent BS in Jordan. These statistics motivated the Saudi MOH to take drastic measures and established the Obesity Control Programme in 2016. The programme offers guidelines that cover several aspects of preventive and curative care for overweight and obesity management and can be implemented at primary, secondary and tertiary care levels.

Management Strategies for EDs and Obesity

Further analysis of the number of referrals for different professions is shown in Table 2. Other findings from this study showed that all three sub-diagnostic categories of ED are based on psychiatric management, which is the norm, while obesity and obesity with EDs were mostly managed by giving dietary advice. Furthermore, the survey results demonstrate the limited use of psychotherapies, such as Behavioural Therapy (BT) or Cognitive Behaviour Therapy (CBT), as a management strategy for obesity, as they were not popular in the surveyed services. CBT was reported as the most preferred intervention for obesity and BED [20]. Thus, this approach may be beneficial when obesity occurs in combination with other EDs. Behavioural modification is important whatever the management of obesity. This was also suggested by Shah, Borlaug, who recommended that any treatment for obesity should be in combination with a structured behavioural modification programme [21]. Furthermore, psychotherapy such as BT is crucial in providing obese individuals with necessary management for the dysfunctional eating behaviours that are mostly associated with obesity and contribute to weight gain. Inpatient care for EDs and obesity management was prevalent in PSs, as reported by respondents in PSs (50%) reported availability of inpatient care for EDs and 9.8% for obesity. In contrast, half the total rate was reported in GHs (17%) reported availability for inpatient care for ED management and 30.75% for obesity.

The Availability of ED Specialists

Regarding the availability of ED specialists in psychiatric services, as indicated in Figure 1, the results from this study showed that over two-thirds of respondents (68%) reported that ED treatment was provided by HCP who had general training in ED management; 4% reported that it was provided by ED specialists, and 22% gave no response. These results support the hypothesis that ED specialists are scarce in the region and there is a need for qualified professionals to provide specialised treatment for this population. Additionally, the fact that nearly one-quarter did not respond to the enquiry may be attributed to a lack of awareness about the nature of staff who treat these patients, which can affect referrals. Moreover, no ED dieticians were reported in any hospital, which highlights the need to recruit ED specialist dieticians to provide proper dietary input for this population. In the private dietetic advice service, there were no ED specialists or generally trained staff to provide specific services for ED patients.

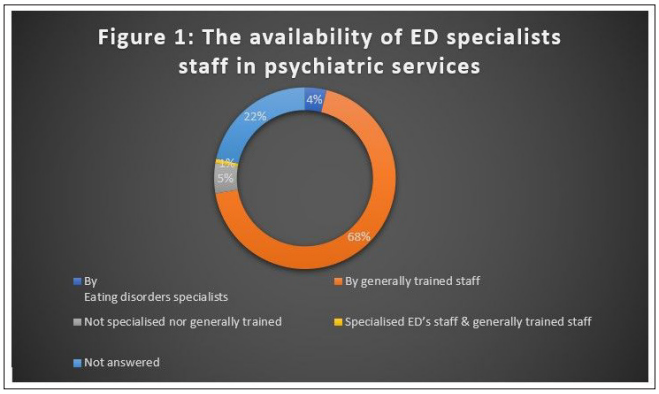

Figure 1: The availability of EDs specialists staff in psychiatric services

Findings from Clinical Nutritionists

RDs received more than half of the referrals , which is considered a good indicator of the level of dietician engagement in treating these disorders. However, of the total number of surveyed RDs, only one was a member of staff in a psychiatric hospital, which is considered a limited staffing position for this profession. This lack of personnel may be the cause of the higher proportion of referrals received by dieticians in GHs than by dieticians in PSs, which indicates a need for more dieticians in PSs. RD are essential members in the MDT for ED management. Dietary restraints and abnormal eating behaviours constitute a basis for ED aetiology in combination with cognitive impairment. The role of dietitians in normalising harmful eating habits and trying to compensate for loss of nutrients and subsequent malnutrition is well recognised among HCP. Addressing dietary abnormalities can be accomplished through applying skills and knowledge with the aid of psychological and behaviour-changing techniques; such an approach can help affected individuals recognise their own impaired eating habits and socio-cultural norms. The recent trend towards healthy living has prompted other professionals to advise the public nutritionally; however, these professionals might not be as qualified as fitness trainers, chefs, psychotherapists, or nurses. However, an RD is qualified to provide this knowledge at various levels of care [22].

Findings from Primary Care and GPs

There is a need to focus on current HCP training and on how general health professionals, especially GPs and PC staff, can identify EDs, manage these patients and refer them in a more efficient way. Patients with EDs are typically first seen by their family physician. Ogg, Millar suggested that patients with EDs consult their family physician more frequently than the control subjects in the study [23]. Additionally, adequate knowledge of PC professionals is crucial in managing these patients. Patients perceived PCs as accessible and less stigmatising and psychiatrists in clinics reported that they can provide better quality of clinical care because of improved liaison with referring GPs [24,25]. However, this survey's findings showed that GPs and GHs do not include psychiatrists and psychologists and the role of providing psychiatric input is performed by the family medicine consultant before referral or through psychiatric counselling requests in medical words in GHs. Therefore, there is a requirement for a service that can provide more comprehensive psychiatric care. However, family medical consultants and GPs are often the first professionals to identify a patient with early signs. Abnormal eating behaviours, such as purging, unexplained rapid weight loss, or other manifestations, could be noted as first signs by PC professionals. Additionally, different ED screening tools can be used reliably in PC settings, such as SCOFF and EDE-Q, even though the latter was reported to perform better [26,27]. Studies have shown that early detection of EDs improves prognosis, which is an important target for these relapsing disorders. Thus, early identification and referral by GPs is important. Consequently, collaborative efforts regarding increasing awareness and identifying affected persons will increase the number of referrals and the provision of proper management.

Findings from Dental Practitioners

Compensatory behaviours, such as self-induced vomiting in some bulimic patients and oral hygiene in obese patients, affect dental health. Thus, dental practitioners such as dentists and oral hygiene specialists were interviewed regarding EDs and obesity referrals. As shown in Table 2, dental practitioners received 8.5% of the cases. The results of this study showed that most DPs receive patients diagnosed with EDs in their facilities. These patients are aware of the disorder but prefer not to seek assistance from PSs. Patients were advised to apply oral hygiene measures, such as rinsing the mouth with water after vomiting and avoiding tooth brushing after vomiting. However, this study's findings showed that few referrals were received by DPs, especially when considering that the DPs interviewed were linked with MH care professionals, who reported receiving a considerably higher number of ED referrals. These findings suggest that more involvement by DPs and collaboration with MH professionals regarding referrals is crucial, as some patients may make only regular visits to the dentist and do not seek medical help otherwise. Consequently, including oral manifestations of EDs in the education curricula of DPs can help to prepare students and provide them with essential knowledge to manage ED patients.

Recommendations

After highlighting the current state and prevalence of EDs and obesity among Saudi women, the author offers the following recommendations and possible implications of the findings:

- As there is a general perspective that EDs are scarce in non-Westernised countries, there is a need to increase awareness of EDs among HCP and provide recommended guidelines, such as the NICE.UK and DSM-5, that aid in the management and prevention of these disorders.
- ED manifestations should be included in different healthcare education curricula and scholarship.
- Resource allocation to establish SEDU services in major cities.
- Establishing SEDUs and recruiting specialised ED staff involves several processes that need time to consider; hence, it is recommended that authorities invest in training current healthcare staff in different sectors to manage these disorders as well as liaise with other services in providing evidence-based treatment.
- Efforts should focus on minimising stigmatisation among healthcare professionals and the public, which would encourage early seeking of help by the afflicted patients and their families.
- BS is the first choice for most obese individuals. However,

certain barriers render some ineligible for this procedure. A pre-intervention assessment is the best way to triage patients who are considering this option. Furthermore, post-surgery assessment is important in patients' rehabilitation to enhance surgery outcomes.

- Encourage the use of psychotherapy as a recommended evidence-based management strategy for obesity solely or in combination with other interventions, such as lifestyle interventions, which hold potential benefits and would help to reduce the escalating numbers of MS in the country.
- Failure in all less invasive obesity management strategies such as lifestyle interventions and psychotherapy should be a condition before considering patients for BS by all general health providers and private sector providers.
- Obesity management should be an MDT task that involves different professionals who target different aetiological factors, such as dieticians, physicians, psychiatrists and physiotherapists.

Limitations and Strengths of the Study

Several limitations of the present study are acknowledged. As expected, the first involved the posting and online surveying, as the response rate was low; unfortunately, only 4 respondents answered and returned the survey questionnaire. Indeed, many other methods could have been used to recruit participants for the study. However, due to time constraints, the author used only these methods. The second limitation was access to available staff. The time at which the study was conducted was a holiday season in SA; therefore, most staff were on vacation, which may have affected the participant recruitment.

The third limitation concerned the detailed information about the referred patients. Unfortunately, the information available was limited to statistical information about patient counts in each category, and no detailed demographic information was available. Hence, it was not possible to address different demographic variables for referred patients. The fourth limitation was attributed to reliance on memory in obtaining information from staff, which can affect the specificity of the data. Finally, this study focused more on EDs than obesity, as there is little information on the latter; the author therefore focused on the areas where limited research was found or where there is a need for providing recommendations, such as BS and the use of psychotherapy in obesity management.

Regarding strengths, personal interaction ensured truthful and high response rates in answering survey elements. Moreover, surveying staff from different professions (psychiatrists, psychologists, physicians, DPs, RDs, nurses) in all types of healthcare service provides a broader picture of the level of referrals as well as the level of awareness of these disorders and their available management. In addition, information from specific groups, such as professionals in PSs who received referrals for EDs and GH staff who might be the first HCP to encounter such cases, was very helpful. The researcher was available to address any enquiries that needed clarification, which helped professionals to provide detailed responses. This was a trade-off with recruiting a larger sample size with a less detailed response. It is noteworthy that questioning medical health professionals regarding disorders that are regarded as rare will strengthen awareness, highlighting the need for keeping in line with worldwide efforts to address these disorders. The inspection of referral numbers and available resources for interventions could provide a novel and rich understanding of the status of eating disorders and obesity in a non-Western country, which may aid in establishing a responsive framework.

Conclusion

The level of prevalence of any health problem has a major effect in determining and allocating human and monetary resources to address the problem. Moreover, many health problems such as EDs have received wide interest in the West due to their high incidence, while non-Western countries in the Middle East, particularly SA, have conducted limited research. This lack of research inspired the author to survey the status in the country, screen management strategies, and identify resources used in order to develop recommendations to mimic pioneering efforts in Western countries such as the UK to provide the most up-to-date management.

Highlights

- The study demonstrated that all EDs are found in SA.
- Although individual therapy was given for AN, BN and BED by psychiatrists and not given by psychologists as is usually the case in countries where there is advanced care for EDs such as the UK.
- The study has shown that there is lack of sufficient ED trained staff in SA and as a result little specialist care was available.
- The term "mental health literacy" and its effect.
- The survey results demonstrate the limited use of psychotherapies, such as BT or CBT, as a management strategy for obesity, as they were not popular in the surveyed services.
- There should be more emphasis on integrating training and knowledge of EDs in dental education curricula.

Conflict of Interest

The author reports no conflict of interest.

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