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Abstract

Background: One-third of the Bahraini population is classified as obese; however, research on the public perceptions of obesity in the country is limited.

Aim: This study evaluated perceptions of obesity among adults attending public healthcare clinics in Bahrain.

Methods: This cross-sectional, observational study combined questionnaires from 2 previously published obesity surveys to obtain data on the anthropometric measurements of weight and height from 356 participants in Bahrain. The combined questionnaire was administered to adults attending 8 randomly selected, geographically distributed public healthcare centres from the 4 governorates of Bahrain. The data was then analysed using SPSS version 25.

Results: Overall obesity prevalence among the participants was 41.4%. Participants with normal or higher body mass index more often believed that obesity was a lifestyle choice and a risk factor rather than a disease. Conversely, underweight respondents more often perceived obesity as a disease. Of the obese participants, only 49% perceived themselves as obese and 49% perceived themselves as slightly overweight. Sixty-five percent thought that their overall health was good to very good. The older the overweight participants were, the less likely were they to perceive themselves as overweight. Of all the respondents, 45.8% perceived obesity as a disease.

Conclusion: Despite public acknowledgement of obesity as a health risk, many (46.4%) of our study participants did not perceive it as a disease. There is a need for targeted national programmes to educate the older and younger populations in Bahrain about the implications for health of overweight and obesity and how to prevent or control them early.

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Introduction

Obesity [body mass index (BMI) of 30 kg/m2 or greater] is a well-established healthcare issue with widespread prevalence, particularly in the Middle East and North Africa (MENA) (1,2). Globally, obesity prevalence tripled between 1975 and 2016, with over 650 million adults (13% of the world population) having obesity (4). In the Eastern Mediterranean Region, the prevalence of overweight and obesity ranges from 43.8% among men to 50.1% among women (3).

Obesity, a major cause of morbidity, with a mortality rate of 2.8 million annually worldwide, was declared a disease by the American Medical Association in 2013 (2,5). It is associated with the prevalence of multiple co-morbidities in the Eastern Mediterranean Region including diabetes mellitus (4–19%), hypertension (28–41%), cardiovascular disease (causing 54% of deaths due to noncommunicable diseases) and cancer (6-8). Recent studies have attributed over 85% of type 2 diabetes cases, 75% of hypertension cases, and 20% of all cancer cases to obesity (9-11). People with obesity have an increased risk of depression, low self-esteem, motivational problems, eating disorders, and major issues with interpersonal communication (2,12).

Despite the widespread prevalence of, and morbidity due to, obesity, people with obesity rarely seek support for weight-loss at primary healthcare facilities (2,13). Only 11% of individuals with obesity are willing to be supported by a healthcare provider in their weight loss attempts (13), compared to 82% with weight related health risks who wish to lose weight independently (13). Perception bias, with regards to how people with obesity face discrimination from healthcare professionals and society, very likely reduces the willingness of obesity patients to seek treatment, and/or affects the quality of their treatment (12,14-16).

In 2016, the prevalence of obesity in the Gulf Cooperation Council (GCC) countries was: Bahrain 29%, Kuwait 37%, Oman 23%, Qatar 34%, Saudi Arabia 35%, United Arab Emirates 30% (17). The harsh weather, culture of food, lack of sidewalks and sedentary lifestyle in the GCC countries all discourage physical activity (18). Although obesity was once seen as a status association with wealth (19), it is now seen as a major health risk that needs to be mitigated. To design effective obesity prevention strategies and treatments, this study was conducted to provide insight into Bahrain's poorly researched obesity population using a combined questionnaire in a cross-sectional observational study.

Methods

Study design

To capture all the aspects of obesity perceptions among the Bahrain public, a combination of 2 previously designed questionnaires was used for the study: The Chicago obesity survey (20) and the Tanzania obesity, overweight and perceptions about body weight survey (21). We used the Chicago obesity survey to assess perceptions of obesity and the Tanzania weight survey to assess people's intentions to change their body weight. The questionnaire was offered in both English and Arabic, after being translated by an officially certified translation agency and checked with the help of native Arabic speakers (22). The study participants signed a consent form and were assured of confidentiality. Following completion of the survey, anthropometric measurements of weight and height (both measured and reported) were obtained from willing participants by trained members of the study team in the presence of qualified nurses. Weight categories were classified as underweight (BMI 30.0) (23).

The combined questionnaire (English and Arabic) was pretested among 25 participants to assess its validity. Medical professionals from the Royal College of Surgeons in Ireland – Bahrain, specialized in endocrinology, validated and supported the development of the questionnaire.

Patient sample

This cross-sectional observational study included adult participants aged 18 years and above, resident and attending primary healthcare clinics in Bahrain. Eight randomly selected, geographically distributed public healthcare centres were identified from the 4 governorates of Bahrain (2 health centres per governorate), which treated 21% of the country's population in 2020 (24). The participant pool was taken from health centres in all 4 of Bahrain's governorates, with equal number of participants from each governorate, to ensure national epidemiologic representativeness. It also ensured inclusiveness of most of the country's cultures, which may differ by geographical location rather than demographic characteristics. Individuals with communication impairment and those in vulnerable groups, including cognitive impairment, blindness and deafness were excluded.

A sample size of 358 participants was determined using the cross-sectional study sample size equation n=Z2p(1-p)/d2 (25), where Z is the level of confidence, p the expected prevalence of obesity among adult population from previous studies, and d the precision of experiment by absolute error. To reject the Null hypothesis, type 1 errors (false positive results) must be as low as possible, generally P **Participant recruitment**

Upon arrival at each health centre, adults in the waiting area were informed about the study and requested to participate if they fit the inclusion criteria stated in the section on patient sample. The interview lasted about 10 minutes including weight measurements in a private room.

Study population

The study included 356 participants, with mean age (±SD) of 38±13 years and 52.8% male. All the respondents reported an estimate of their weight and height but only 64% consented to the measurement of their weight and height. Of this 64%, 52% (119) were males. The mean measured BMI was 29.8±6.1 kg/m2: 41.4% (94) of the participants were classified as obese, 41.0% (93) as overweight, 13.7% (31) as normal weight, and 4.0% (9) as underweight.

Data access and confidentiality

Data collected contained no personal health identifier. All investigators had received the Health Insurance Portability and Accountability Act training to aid security and privacy. All the participants were reassured of their anonymity and any questions they had regarding the study were answered. The anonymized data were stored on only one encrypted password-protected official computer.

Statistical analysis

SPSS version 25 software was used for data analysis with the significance level set at a P **Re**

sults

Perception of obesity as a disease

Of the total respondents, 45.8% considered obesity a disease while 46.4% considered obesity a predisposing ‘risk factor for other diseases but not a disease’ (20), and the remaining 7.8% were unsure. Respondents with normal weight, according to their measured BMI, were more likely to believe that obesity is a lifestyle choice and a risk factor for other diseases and not a disease (Figure 1). On the other hand, underweight respondents were more likely to believe the opposite: that obesity is a disease and may be caused by various factors. Fifty-five of overweight or obese respondents stated that obesity is a lifestyle choice and 37% thought it was a disease caused by genetic, environmental or social factors; 8% were undecided.

Fifty-six percent of respondents who wanted to lose weight (249 participants) and have actively tried to lose weight during the past year (164) said ‘obesity is a lifestyle choice resulting from a person’s eating and exercising habits’; only 38% expressed it as a ‘disease caused by many different genetic, environmental and social factors' (20). The majority (68%) of these respondents thought that people who lost weight through medical interventions should feel ‘very proud’ or ‘proud’ regarding their weight loss.

Perceived vs actual body weight and overall health

The participants were asked how they perceived their own weight (as obese, slightly overweight, normal weight, or underweight) to compare their weight perception with their actual BMI. Among those who perceived their weight as obese, 91.8% had obesity according to their BMI. Only 49% of all respondents who had obesity, both males and females, acknowledged it and perceived their weight as such, while another 49% regarded themselves to be slightly overweight. Some 44.4% and 33.7% of underweight and overweight participants, respectively, believed that their weight was normal for their age (Figure 2). Ninety-five percent of participants with obesity, 67% of overweight, 43% of normal weight, and 0% of underweight desired to lose weight.

Seventy percent (110) of female participants who consented to the measurement of their BMI, underestimated their BMI according to previously reported weight/height, 27% overestimated it, and 4% estimated their true BMI. Fifty-five percent (119) of the male respondents underestimated their BMI, 43% overestimated it, and only 2% reported their true BMI.

Sixty-eight percent of all overweight participants aged between 18 and 42 years acknowledged

their weight as overweight (Figure 3). More (46%) of the older overweight participants aged 43 years and above perceived their weight to be normal for their age than those aged 18–42 (23%). Fifty percent of overweight respondents aged 43–55 years correctly perceived their actual BMI while only 31% of those aged 55 and above did.

Sixty-seven percent of underweight respondents perceived their current overall health as ‘very good’. The majority (65%) of respondents who had obesity said they thought their overall health was ‘good’ or ‘very good’. Respondents who perceived their weight to be obese had a worse perception of their overall health than those who had obesity (Figure 4). The majority (91.6%) of all participants reported obesity as a moderate-to-extremely high risk to a person’s overall health.

Discussion

Research has shown that there is a global fundamental difference between the perceived and actual BMI of respondents (28,29). Two studies conducted on BMI perception of adults in Italy, Netherlands and North America reported that it was more likely for females to underestimate their BMI than males (28). In our study, 70% of females had underestimated their BMI, compared to 55% of males, thus agreeing with these studies. This sheds light on the differences in weight-based stigma experienced by each gender in the Middle East and probably clarifies the misalignment between perception and actual BMI.

This gap between perceived weight and actual weight based on BMI may play a role in the high prevalence of obesity; those who do not perceive overweight and obesity as a problem will not take action (30). Of the overweight participants, 33.7% believed their weight to be normal, and 49% of participants with obesity thought they were ‘slightly overweight’. Underestimating their weight may influence an indivdual’s desire and willingness to attempt to lose weight. A qualitative study of 78 participants in South Africa agreed with our data, suggesting that participants with a higher BMI desire to lose weight but their perception that obesity is not a disease and that they are not overweight hinders them from implementing weight loss (31). An ancillary study of 920 participants in South Africa showed that willingness to lose weight was 7 times more likely among participants with a negative perception of their body image than a discordance in weight as a cause (32).

In our study, those who perceived their weight as obese were identified as obese 91.8% of the time. The older population of overweight individuals in Bahrain were more likely to believe that they were of normal weight (46%) than overweight younger people who believed they were of normal weight (23%). Today’s younger population less prevalently perceives being overweight as normal than the older population partly due to modern global interactions on social media

with people from all backgrounds, research highlighting the risks of being overweight, and because exercise and dieting are becoming more mainstream on the internet. In the United Kingdom, 94% of adults with obesity in 2007 perceived themselves as only ‘overweight’ compared to the 49% reported in our study (33).

In a study conducted in the United States among 1118 respondents, 48.9% believed that obesity should be classified as a disease (34), compared to 45.8% in our study. Although the difference is not very significant, due to cultural norms in the Middle East, with eating so embedded in everyday social life, alongside the sedentary lifestyle due to hot climates, fewer people will perceive obesity as a disease because it is common (18). Forty-six percent of our participants believed that obesity is a predisposing factor to other diseases. Majority of normal weight (55.2%) and overweight or obese (55%) participants believed that obesity is not a disease but a result of habits in an individual’s lifestyle choices. On the contrary, 75% of underweight participants thought that obesity is a disease caused by genetic and environmental factors. Perhaps because underweight people are far from the obese category they may not be able to relate to the causes of their weight gain; instead they see it as some form of disorder or disease. These perceptions of obesity as a mere risk factor rather than a disease may hinder efforts to lose weight and, therefore, could delay seeking intervention.

Sixty-five percent of respondents with obesity in our study said their overall health was ‘good’ to ‘very good’, however, 91.6% of all participants categorized obesity as a moderate to extremely high-risk to overall health. A cross-sectional survey in Lithuania found that the majority of participants knew the risk factors associated with obesity, which include heart disease (83%), hypertension (74%), stroke (55%), and type 2 diabetes mellitus (75%) (35). Perception of health worsens among individuals who perceive their weight as obese compared to those who are obese but do not perceive their weight as such. This shows that those who acknowledge their obesity will more likely also acknowledge their deteriorating overall health.

Study limitations

Potential sources of bias or limitations of this study include the researcher’s gender, making them more likely to approach participants of the same gender. Mixed gender interactions can sometimes cause discomfort when answering sensitive questions and can make an individual give false answers because of the fear of being judged. Therefore, it would be worth considering same gender assessors in the future. Another limitation was the multiple variable factors from the responses received because of the undifferentiated responses from the distinct cultures and religions in Bahrain. Future research should include qualitative studies diving deeper into context and differences in the perceptions of participants of different backgrounds. Participants who answer questions in a rush may provide inaccurate responses. To address these biases we continued to remind participants of their anonymity and confidentiality all through the interview, as investigators had been well-trained and the survey was translated into

Arabic for the benefit of the Arabic speakers.

Conclusion

Managing and controlling obesity starts with recognizing it as a health risk and a disease. Despite public acknowledgement of obesity as a health risk, many (46.4%) of our study participants did not perceive it as a disease. Majority (56%) of the respondents who had tried to lose weight in the past year perceived obesity as a lifestyle choice rather than a disease and the older overweight participants were more likely to identify themselves as having normal weight. With a 41.4% obesity prevalence in Bahrain, there is a need for targeted national programmes to educate the older and younger populations about the implications for health of overweight and obesity and how to prevent or control them early. However, further research is required to better understand the reasons behind the findings of this study and design appropriate and effective programmes for the population.

Acknowledgement

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Perceptions du poids corporel et de l'obésité chez les adultes à Bahreïn

Résumé

Contexte : Un tiers de la population de Bahreïn est considérée comme obèse. Cependant, la recherche sur la perception de l'obésité par le public dans le pays est limitée.

Objectif : La présente étude a évalué la perception de cette maladie chez les adultes fréquentant les établissements de soins de santé publics à Bahreïn.

Méthodes : Cette étude transversale et observationnelle a combiné des questionnaires provenant de deux enquêtes sur l'obésité publiées précédemment afin d'obtenir des données sur les mesures anthropométriques du poids et de la taille obtenues auprès de 356 participants à Bahreïn. Le questionnaire ainsi obtenu a été administré à des adultes fréquentant huit centres de soins de santé publics sélectionnés aléatoirement et répartis géographiquement dans les quatre gouvernorats du pays. Les données ont ensuite été analysées à l'aide du logiciel SPSS version 25.

Résultats : La prévalence globale de cette pathologie parmi les participants était de 41,4 %. Ceux dont l'indice de masse corporelle était normal ou supérieur croyaient plus souvent que l'obésité était un choix de mode de vie et un facteur de risque plutôt qu'une maladie. Inversement, les répondants présentant un déficit pondéral la percevaient plus souvent comme une maladie. Parmi les participants obèses, seuls 49 % se percevaient comme tels et 49 % se considéraient comme légèrement en surpoids. Soixante-cinq pour cent des participants estimaient leur état de santé général comme bon ou très bon. Plus les participants en surpoids étaient âgés, moins ils étaient susceptibles de se considérer comme étant en surpoids. Sur l'ensemble des répondants, 45,8 % percevaient l'obésité comme une maladie.

Conclusion : Bien que cette dernière soit reconnue par le public comme représentant un risque pour la santé, de nombreux participants à notre étude (46,4 %) ne la percevaient pas comme une maladie. Il est nécessaire de mettre en place des programmes nationaux ciblés afin de sensibiliser les populations plus âgées et plus jeunes de Bahreïn aux conséquences de l'obésité et du surpoids pour la santé et à la manière de les prévenir à un stade précoce.

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