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Original Research Paper

Obesity and Mental Health among University Students in Saudi Arabia

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ABSTRACT

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. People are generally considered obese when their body mass index (BMI), a measurement obtained by dividing a person's weight by the square of the person's height, is over 30 kg/m2, with the range 25–30 kg/m2 defined as overweight. Obesity increases the risk of many physical and mental conditions. During the last few decades, the Kingdom of Saudi Arabia (KSA) experienced rapid socio-cultural changes caused by the accelerating economy in the Arabian Gulf region. That was associated with major changes in the food choices and eating habits, which, progressively, became more and more "Westernized". Such "a nutritional transition" has been claimed for the rising rates of overweight and obesity, which were recently observed among Saudi population. Therefore, the objective of the current work was to identify the effect of obesity on mental health among university students in Saudi Arabia.

Keywords: *Obesity, Mental Health, University Students, Saudi Arabia*

In Saudi Arabia, obesity is one of the most common chronic health problems (World Federation for Mental Health, 2010).There is presently dearth of psychological research on obesity and mental health conducted on University student population, especially in Saudi Arabia. Till date, many studies have been conducted independently on obesity and mental health problems in Saudi Arabia. Obesity is associated with an increased risk of mental illness; however, evidence linking body mass index (BMI) to mental health disorder is lacking.

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Obesity is defined as a condition of abnormal or excessive fat accumulation in adipose tissue, to the extent that mental health may be impaired. The most common measure used to determine relative body weight is body mass index (BMI) which is calculated as bodyweight in kilograms divided by the square of body height in metres (kg/m2). Categorization of individuals into groups of underweight, normal weight, overweight, and obese is commonly done using the cut-off values provided by the World Health Organization (2010). For adults 18 years or older, underweight is defined as BMI below 18.5, normal weight between18.5 and 24.9, overweight between 25 and 29.9, and obesity as BMI of 30 or higher. The cutoff value for obesity (BMI≥30kg/m2) was based primarily on the reported associations between BMI and mortality. For individuals younger than 18 years, age- and sex-specific cut-off values for overweight and obesity are used.

WHO reports prevalence of excessive weight and obesity in males and females aged between 18 and 21 in the Kingdom of Saudi Arabia (KSA) is 23% and 30% respectively(Al-Othaimeenetet al., 2007). According to a study, incidence of excess of weight and obesity reached 64.5% in the Eastern region, which is considered the highest in KSA (Norah M. 2010). The foremost curable cause of obesity is the dysregulation of energy consumption and expenditure, related to inappropriate dietary habits and lack of exercise (Al-Rethaiaan et al., 2010). Recent studies revealed westernization of Saudi livelihood being the main culprit in this regard. The Saudi population prefers sedentary over dynamic life style and desires burgers and pizza rather vegetables and fruits. These changes are considered to be the main reasons for the increase in the prevalence of both overweight and obesity among Saudi children, adolescents and adults in the last few decades (Mahfouz A. et al., 2007).

Many college students experience changes in their life patterns and a weakening of dietary habits during their college years. Numerous studies reported that college students have inappropriate eating habits such as skipping meals, taking high-energy intake with high fat and sodium but low calcium and iron. (Fernandes J, et al., 2013; Al-Othaimeenet al., 2007; Iannotti R & Wang, J, 2013; Yaguchi-Tanaka Y, et al., 2013). According to a WHO report, there is a correlation between low Physical Activity (PA) on the onehand, and improper diet, excessive weight and obesity on the other (WHO, 2010). Al-Hazzaa et al. (2011) reported in their study on Saudi youth that 91.2% of females and 84% of males included intheir study population spent more than 2hrs daily on the computer or watching TV. Almost 75% of females and 50%of the males did not do recommended daily physical activity. (Al-Hazzaa H. at al., 2011) Women in KSA are traditionally more inactive then men. It was reported that female public schools in KSA do not provide physical education to their students.(Al-Hazzaa H. at al., 2011; Khalaf A at al., 2013) The lifestyles of young adult females including their dietary patterns established during college years have a significant influence on the health of their prospective family.

LITERATURE REVIEW

The effects of obesity on mental health have been examined by different researchers and they found different results (Frisco, Houle, & Lippert, 2013; Frisco, Houle, & Martin, 2009;

Needham, B. et al., 2010, Kivimäki, M. at el., 2009; Rhew et al., 2008; Richardson, Garrison, Drangsholt, Mancl, & LeResche, 2006; Sjöberg, Nilsson, & Leppert, 2005). A meta-analysis pooling the results of 17 cross-sectional studies concluded that the association between obesity and depression was highly statistically significant and possibly varied by gender (de Wit, L. et al., 2010). Sjöberg, Nilsson, and Leppert (2005) investigated the relationship between obesity and depression among 4,703 adolescents in the ages of 15 to17. Their results showed that there was a significant relationship between obesity and depression, where obese participants reported more symptoms of depression than their peers. Frisco and his associates (2013) used data from US-Based National Longitudinal study of Adolescent Health to examine what effects changes in weight during adolescence could have on depression. Their results showed that participants who became obese during adolescence had double the odds of suffering from depression during early adulthood. The results from a study conducted by Richardson and his associates were similar. They examined the association between obesity and depression during puberty among 3,101 adolescents who were 11-17 years old. Their results showed that participants who had high levels of depression were twice as likely to be obese. There is evidence that overweight and obesity are not associated with depression (Erermis et al., 2004; Mustillo et al., 2003; Swallen, Reither, Haas, & Meier, 2005; Wardle, Williamson, Johnson, & Edwards, 2006). Swallen and his associates (2005) did not find a significant relationship between overweight and obesity among 4,734 adolescents in grades 7 through 12. Neither did Wardle and his associates (2006), who twice examined the relationship between adolescent obesity and depression. Participants in the first study were 4,320 7th graders and the second study had 1,824 participants, also in the 7th grade. Results of these studies showed that there was no significant relationship between obesity and depression among participants in both samples. Needham and Crosnoe (2005) examined the association between overweight and depression among 18,924 adolescents between the ages 11 and 21 and found association between overweight and depression, but only among females. Rhew and associates (2008) also found a significant association between overweight and depression among 446 6th graders, their results showed that depressed adolescent females were more likely to be overweight and obese than non-depressed adolescent females. There is no apparent reason for the different results between researches on the association between overweight and obesity among adolescents and their symptoms of depression. The effects of overweight and obesity on symptoms of anxiety among adolescents have also been examined (Anderson, Cohen, Naumova, Jacques, & Must, 2007; Erermis et al., 2004; Eschenbeck, Kohlmann, Dudey, &Schurholz, 2009; Lanza, Echols, & Graham, 2012). Erermis and his colleagues (2004) examined the frequency of psychiatric disorders, including anxiety disorder, among obese adolescents. Participants (N=90, 12-16 years of age) were divided evenly into three groups; clinically obese, non-clinically obese and those of normal weight. The results of the study showed that participants who were obese had higher levels of anxiety compared with participants who were of normal weight. The results of a study conducted by Anderson and his associates (2007) showed that obesity could be linked to the development of anxiety disorder, but only among adolescent females. Eschenbeck and his associates (2009) also found an association between overweight or obesity and anxiety among adolescent females. It has also been shown that overweight and

obese adolescent females report more symptoms of anxiety than their peers (Lanza et al., 2012). Another recent systematic review and meta-analysis found a weak but positive association between obesity and anxiety disorders. (Gariepy G, 2010)

Because of the different results between researches regarding the relationship between obesity and mental health it is important to explore this further. More longitudinal studies need to conduct to see the long-term effects of obesity on symptoms of depression, especially in university students. Therefore, the objective of this study is to examine the relationship between obesity and metal health among university students in Al-Hasa, Saudi Arabia.

In view of the above the following hypotheses will be tested in the present study.

1. Obesity will be significantly related to the student's mental health.
2. Obesity and mental health of male and female students will be significantly different.
3. Demographic characteristics of participants will significantly explain variance in obesity and mental health of the participants

METHOD

Sample

A sample of 128 university students (60 male and 66 female) will be randomly selected from different colleges of King Faisal University located in Al-Hasa, Saudi Arabia. The age of these participants will be ranging from 18 to 30 years.

Measures

The following measurement instruments will be used in the present study.

1. Demographic questionnaire: The information about demographic profile of the participants will be collected with the help of questions related to their age, height, weight, sex, marital status, course of study, and academic year. In addition, information about their family which includes area of residence, family structure, education level of parents, family occupation, income, housing status etc.

2. DASS: The DASS (Lovibond, S. & Lovibond, P. 1995; Short version) is a 21 item self report questionnaire designed to measure the severity of a range of symptoms common to both Depression and Anxiety. Each item is scored from 0 (did not apply to me at all over the last week) to 3 (applied to me very much or most of the time over the past week). The essential function of the DASS is to assess the severity of the core symptoms of Depression, Anxiety and Stress. Accordingly, the DASS allows not only a way to measure the severity of a patient's symptoms but a means by which a patient's response to treatment can also be measured. The scale to which each item belongs is indicated by the letters D (Depression), A (Anxiety) and S (Stress). For each scale (D, A & S) sum the scores for identified items. Because the DASS 21 is a short form version of the DASS (the Long Form has 42 items), the final score of each item groups (Depression, Anxiety and Stress) needs to be multiplied by two (x2).

Procedure

The data of the present study will be collected by the investigator through personal contact with the participants at their colleges. Before administering the questionnaire, the purpose of study will be explained and participants will be assured that their responses will be kept confidential and is used for research purpose only. The investigator established the rapport; the participants will be requested to provide the true responses on the test booklet. The participants will be required to follow the instructions given in the questionnaire which will help the participants to understand how he/she has to give responses in an appropriate manner. After completing the booklet were collected from the respondents for scoring.

Analysis of data

Data of present study will be analyzed using suitable statistical techniques. This include descriptive (mean, median, mode, standard deviation, percentage etc) and correlation and multivariate statistical method such as correlation and other methods relevant to the data of the present study

RESULT AND INTERPRETATION

The result of the study will be interpreted in the light of the findings of the study. The obtained result would then be discussed in the light of the hypothesis framed for the study and available literature. Conclusion will be drawn and suggestions as well recommendations will be proposed accordingly.

Table 1: Coefficient of Correlation of Scores on body Mass Index and different dimensions of Psychological well-being

Variables	Mean SD	BMI	Anxiety	Depression	Stress	Overall
Body Mass Index	.86 1.04	1.00				
Depression	6.06 4.14	.54**	1.00			
Anxiety	6.60 4.28	.75**	.79**	1.00		
Stress	5.70 3.97	.63**	.84**	.87**	1.00	
Overall	18.40 11.71	.68**	.93**	.94**	.96**	1.00

** Correlation is significant at the 0.01 level

Correlational Analysis

Pearson's coefficient of correlation was used to examine the relationship between scores on body Mass Index and different dimensions of Psychological well-being. Results presented in

Table 1 indicate significant positive relationship between body mass index and depression aspect of psychological wellbeing ($r = .54$, $p < .01$). This indicates that participants who are having high body mass index reported more depression. Body mass index was found significantly and positively correlated with anxiety aspect of psychological wellbeing ($r = .75$, $p < .01$). This means that participants who are having high body mass index reported more anxiety. Also, body mass index was significantly and positively correlated with stress aspect of psychological wellbeing ($r = .68$, $p < .01$). This indicates that participants who are having high body mass index reported poor psychological wellbeing.

Body mass index was found significantly and positively correlated with overall score of psychological wellbeing ($r = .75$, $p < .01$). This means that participants who are having high body mass index reported more anxiety.

IMPLICATIONS OF THE STUDY

Despite the fact that many investigations confirm the importance of psychological factors in the development of obesity; these findings are frequently underestimated in prevention and treatment of obesity. Considering the high prevalence and increasing incidence of obesity in Saudi Arabia, which affect all age groups, it is necessary to implement adequate health promotion programs. Colleges provide a good setting to develop such interventions, which should comprise evaluation of students' health status, including mental health and nutritional aspects. It is also important to take into account that unhealthy behavior could affect self-esteem and educational achievement. This research will also provide an overview of current evidence on the relationship between obesity and mental health for university students in Saudi Arabia. It will draw particular attention to the risk factors associated with obesity and mental health. This will also addresses issues around inequalities, the implications of psychological distress caused by weigh related stigma and discrimination. It also highlights specific issues relating to University students obesity and summarizes current knowledge on the effectiveness of interventions, best practice and scope for services for those at risk.

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