# Community Awareness in Al-Baha Region about the Complications of Obesity

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***Abstract:*** The present study aims to investigate levels of community awareness in al-baha region about the complications of obesity. The population of the study consisted of residents of Al-Baha region; the final sample included (130) residents selected randomly. The study adopted the analytical descriptive research methodology, and a questionnaire was used at the research instrument. The findings of the study reveal that levels of awareness about obesity and its complications in Al-Baha region are high. The study's recommendations include the following: conducting further research on public awareness about obesity and its complications in large metropolitan centers in Saudi Arabia, such as Riyadh and Jeddah; healthcare institutions in Saudi Arabia, including Al-Baha region should launch campaigns for promoting awareness about the nature of obesity, its associated risk factors, and its impacts of on different aspects of physical and mental health.

***Keywords:*** awareness - obesity – complications - Al-Baha region.

***Introduction:*** Obesity is major global health problem. It has become an epidemic spreading across continents, regions, and nations. It is also associated with costly implications for societies and healthcare systems. People with obesity experience various negative outcomes, such as poorer overall health, costly healthcare needs, lower levels of quality of life (Chowbey, 2016).

Arab countries, especially those of the Gulf Cooperation Council (GCC), namely Saudi Arabia, UAE, Kuwait, Qatar, Bahrain, and Oman, have witnessed consistent increases in the prevalence of obesity. This is largely attributable to the economic boom that GCC countries have witnessed as result of the discovery of oil back in the 1960s. As a result, countries of the region have become significantly wealthier. Unfortunately, with economic prosperity transitions associated with elevated risk of obesity have emerged. For instance, GCC societies have become increasingly urbanized, with growing adoption of technology and increased consumption of unhealthy foods. All these factors have

contributed to the increased prevalence of obesity in GCC countries, including Saudi Arabia (DeNicola et al., 2015).

Thus, combating obesity in Saudi Arabia requires not only the adoption of regulations for controlling the quality of food products or encouraging physical activity, but it also requires, arguably more importantly, raising awareness in society on obesity, including education on its nature, risk factors, and potential complications. Thus, it can be stated that adequate awareness is the key to building a healthy society. Inculcating awareness on obesity and its complication can be a valuable strategy for promoting healthy behaviors across Saudi Arabia, including Al-Baha region, allowing for the realization of the aspirations of Saudi Vision 2030, in which a "vibrant society" is considered an essential pillar.

***Statement of the Problem:*** Community awareness on obesity and its complications is an issue that has received growing attention from scholars and practitioners alike. This trend is concurrent with the continuous emergence of obesity is a global public health problem. This status quo of this issue in the Saudi context has been extensively investigated, with studies obtaining varied findings.

One of the studies that investigated the levels of awareness of obesity among the general population is that by Alrashid et al. (2021), which assessed levels of awareness on obesity and bariatric surgery in Tabuk region in Saudi Arabia.

The study indicates moderate levels of awareness among sample members. Alshehri & Alorfi (2023) examined levels of awareness on obesity and weight management across different regions of Saudi Arabia, and findings indicate levels of awareness among sample members were high. The findings of these studies imply that levels of awareness on obesity and its complications tend to range from moderate to high.

However, the findings on levels of awareness on obesity and its complications in the Saudi context are inconsistent, as some studies indicate low levels of awareness. For instance, the study of Almalki et al. (2024), assessed the levels of awareness about obesity and its complications among mothers in the western area of the Kingdom of Saudi Arabia, indicates low levels of awareness among participants on certain topics, such the nature and complications of obesity as well as the minimum amount of fruits and vegetables required to be consumed daily to ensure having a healthy diet. These findings are in line with those obtained by Al Qahtani et al. (2022) , which examined perceptions of the relationship between obesity and cancer in the Saudi society. Although the study reports high levels of awareness on certain topics, it shows that levels of awareness on the connection between obesity and the risk of cancer are significantly low.

The preceding discussion highlights a gap in recent research on awareness on complications of obesity in Al-Baha region in Saudi Arabia. Studies targeting the Saudi have focused on awareness on obesity itself as well as many other things, but rarely directly on complications. Moreover, the specific local context of Al-Baha region has been largely overlooked in studies targeting specific local Saudi contexts. This represents a research gap, which the present study aims to address.

***Definition of Terms:*** This section presents definitions of the key terms used in the present research.

**Obesity:** Obesity can be defined as a condition that is chronic, relapsing, and often multifactorial, and it emerges as a result of abdominal or excess disposition of body fat (Saxena et al., 2024, 1).

Another definition of obesity is that it is an excessive or abnormal accumulation of body fat that has negative impacts on one's health (Jayawardena et al., 2020, 498).

According to Lynn and Agrawal (2021, 2), obesity is a state in which the size and number of fat cells increase in comparison to lean body mass.

***Obesity Awareness :***Obesity awareness refers to one's recognition of being obese and having the motivation to modify aspects of lifestyle to avoid obesity and its associated complications (Güneş et al., 2024, 1).

Another definition of obesity awareness is the experiences, attitudes, and perceptions among obese persons on their body and weight (Onay et al., 2024, 5).

The present study adopts a different definition of obesity awareness, defining it as the knowledge of the basic nature of obesity as well as its risk factors and potential consequences.

***Complications:*** Complications can be defined as uncommon courses of development and progression for diseases, accompanied by certain symptoms (Weyhe et al., 2017, 47).

They can also be defined as disorders that develop as a result of other conditions (Shetty & Shetty, 2022, 2546).

Another definition of complications is that they are secondary issues often arising in an unexpected manner, resulting in changing plans currently implemented treating the primary issues (Vedamurthy, 2015, 106).

***Overview of Obesity: Characteristics of Obesity:***

A person is considered obese based on their body mass index (BMI). According to the criteria set by the World Health Organization (WHO), a person is obese if their BMI is greater than 30 $kg/m^2$, which is a more severe case than being overweight, defined by a BMI greater than 25 $kg/m^2$. However, it is important to note that these values are general, as they differ across different racial groups due to biological differences (Saxena et al., 2024).

***Types of Obesity:*** Cases of obesity are not homogenous in terms of body shape. From this perspective, obesity is classified into

two main categories, which are apple- and pear-shaped obesity. The differences between these two types are outlined in Table 1 below.

**Table 1.** Main types of obesity (Prasad et al., 2022)

| Apple Shape Obesity | Pear Shaped Obes |
|---|---|
| 1. Fat deposition occurs above waist line | 1. Fat deposition oc |
| 2. Abdominal girth is bigger than hip circumference | 2. Hip circumferenc |
| 3. Associated with both excess visceral and subcutaneous fat | 3. Associated with s |
| 4. Most commonly associated with metabolic syndrome and related health issues | 4. Less commonly a health issues |

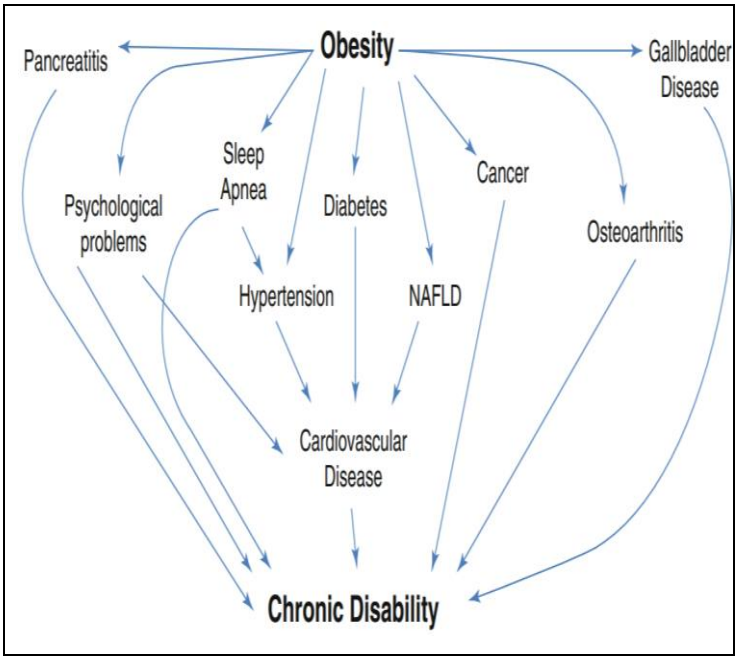


**Figure 1.** Relationships between obesity and a number of medical conditions (Emmanuel & Coppack, 2016).

***Impacts and Complications of Obesity:***

***Health Complications:***

Obesity is associated with elevated risk of developing a variety of other serious medical conditions, which are, in turn, associated with the risk of having chronic disability and even mortality (Emmanuel & Coppack, 2016). Figure 1 below illustrates the relationships between obesity and a number of medical conditions, followed by Figure 2, which illustrates co-morbidities of obesity by site in body.

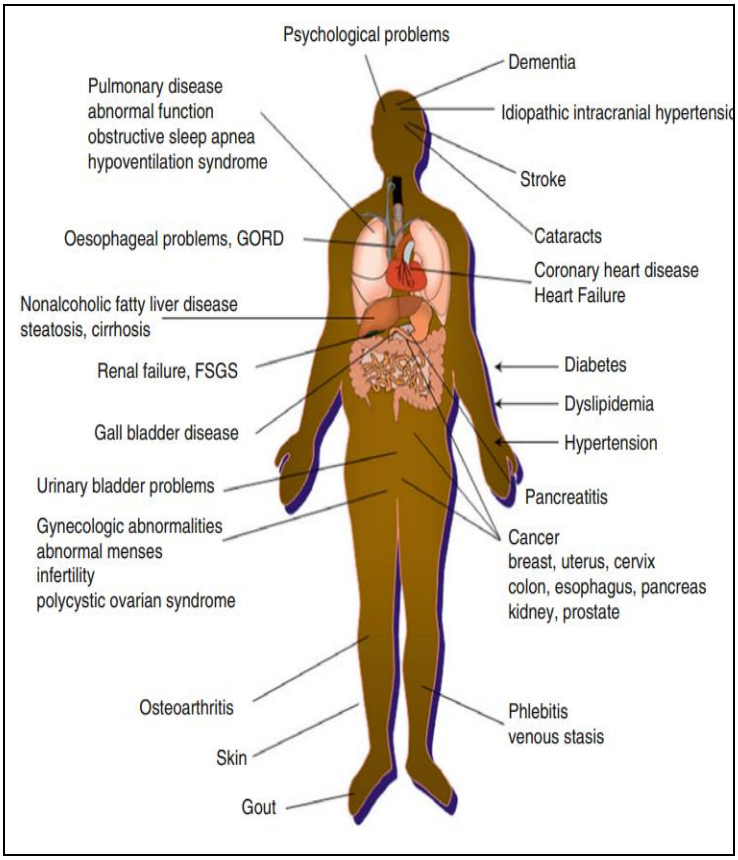


**Figure 2.** Co-morbidities of obesity by site in body (Emmanuel & Coppack, 2016).

***Social Problems :*** People with obesity are likely to encounter forms of discrimination in society. However, this problem often receives poor attention, when compared to other forms of discrimination, such as those based on color, race, gender, or religion. As a result, obese people often encounter stressful situations and find themselves victims of bias in a variety of contexts, such as employment. Obese children are also likely to experience bias, which can be either explicit or implicit. Explicit bias is expressed in tangible and evident forms, such as negative remarks, bullying, and teasing, while implicit forms include automatic responses and reactions. Obese children who repeatedly have frequent stressful experiences may develop increased appetite (i.e., emotional eating), leading to the exacerbation of their condition (Saxena et al., 2024).

***Economic Problems:*** Obesity can have both direct and indirect economic costs (Lynn & Agrawal 2021):

- Direct costs: They include the direct financial needs of dealing with the daily challenges associated with obesity, such as diseases.
- Indirect costs: These costs include lower levels of productivity at work, increased sick days, and elevated risk of unemployment.

***Risk Factors for Obesity:*** When assessing cases of obesity patients, it is important to identify factors that are normally associated with elevated risk of emergence and/or exacerbation of complications. Below is a brief discussion of some of the most prominent of these risk factors.

***Genetic Causes:*** Genetic factors are strong predictors of persistent obesity problems. Genetic issues associated with chronic obesity problems include early onset of obesity, developmental delays, and having a family history of obesity. One of the most frequently reported genetic factors associated with obesity is the Prader-Willi syndrome (PWS), which is characterized by various symptoms and problems, including hyperphagia, elevating the risk of obesity in childhood (Andrews, 2016). A list of genetic conditions associated with elevated risk of obesity is presented in Table 2 below.

**Table 2.** A list of genetic conditions associated with elevated risk of obesity (Rajeev & Wilding, 2016)

| Condition | Clinical features |
|---|---|
| Prader-Willi syndrome | Short stature, small hands and feet, almond-shaped eyes, learning difficulties, hypogonadism |
| Bardet-Beidl syndrome | Mental retardation, renal dysplasia, polydactyly, hypogonadism |
| Leptin deficiency | Severe hyperphagia, hypogonadism |
| Leptin receptor mutations | Severe hyperphagia, hypogonadism |
| Pro-opiomelanocortin (POMC) defects | Moderate obesity, red hair |
| Melanocortin-4 receptor defects | Severe early onset obesity |
| Pro-hormone convertase 1 deficiency | Failure to process insulin and POMC |
| Neurotropin receptor (TrkB) deficiency | Hyperphagia, impaired speech and nociception |

***Sedentary Lifestyles :***Physical activity has been declining in contemporary societies. This is attributable to a variety of factors, such as the invention of devices that help in saving physical energy, improvement of transportation facilities, and emergence of sedentary ways to spend leisure time, such as playing computer games and watching television. This gradually growing pervasiveness of sedentary lifestyle has been linked to the risk of obesity and other health problems, such as diabetes (Rajeev & Wilding, 2016).

***Eating Disorders:*** Eating disorders are strongly correlated with obesity. However, they are often overlooked and ignored by families and healthcare workers. Not only do eating disorders elevate the risk of obesity problems, but they also can reduce the effectiveness of interventions implemented for controlling these problems. Two particular eating disorders are noticed to be commonly associated with obesity problems, and they are the Nighttime Eating Disorder and Binge Eating Disorder (Andrews, 2016).

***Medical Conditions:*** Some rare medical conditions, such as hypogonadism, hypothyroidism, and Cushing's disease are associated with more challenging treatment of obesity, as they are caused by impaired thyroid functioning, which is linked to obesity. Moreover, medical conditions that are normally associated with obesity, such as osteoarthritis, respiratory disorders, sleep apnoea, and diabetes, contribute, in turn, to the exacerbation of obesity problems; addressing these issues can be beneficial in improving the outcomes of obesity treatments (Andrews, 2016).

***Psychiatric Disorders :*** Obesity can result in emotional issues associated with disorders such as anxiety, depression, and low self-esteem. Having such issues can negatively affect how an individual follows a plan for managing obesity. Therefore,

treating obesity problems should take into careful consideration the necessity of addressing these disorders (Andrews, 2016).

***Medications:*** Certain types of medications can result in stimulating appetite or weakening metabolic activity, which are factors resulting in challenges in losing weight. Whenever, possible, it is recommended to replace such medications with alternatives that at least do not affect weight loss (Andrews, 2016). A list of classes of drugs linked to elevated risk of obesity is presented in Table 3 below.

**Table 3.** A list of classes of drugs linked to elevated risk of obesity (Rajeev & Wilding, 2016)

| Class of drugs | Examples |
|---|---|
| Anticonvulsants | Sodium valproate, carbamazepine, gabapentin |
| Antidepressants | Citalopram, mirtazepine, amitriptyline, clomipramine, doxepin, imipramine |
| Antipsychotics | Clozapine, olanzapine, risperidone, lithium, chlorpromazine |
| Beta blockers | Atenolol |
| Corticosteroids | Prednisolone, dexamethasone |
| Insulin | All formulations |
| Migraine relieving drugs | Pizotifen |
| Oral hypoglycemic agents | Glibenclamide, Gliclazide, Repaglinide, Pioglitazone |
| Protease inhibitors | Indinavir, ritonavir |
| Sex steroids | Medroxyprogesterone acetate, combined oral contraceptives |

***Efforts by the Saudi Government for Promoting Awareness on Obesity :***

One of the Saudi government's major efforts for promoting awareness on obesity and its complications was the launch of the National Strategy for Diet and Physical Activity (2018-2022), which was launched by the Ministry of Health. This initiative focused on education for promoting physical activity and healthy dietary habits in schools, organizational environments, and local communities.

Another innovative initiative launched by the government for promoting awareness on obesity and its complications is the introduction of sugar taxes on certain products, starting from 2017.

Examples of these taxes include a 100% tax on energy drinks and 50% tax on sugar-sweetened beverages (Althumiri et al., 2024).

***Additionally, the Saudi Food and Drug Authority (SFDA) has introduced strict labeling regulations, requiring that packaging of food products includes labeling indicating nutritional facts such as sugar, fat, and calorie content in order to help consumers make better informed decisions regarding dietary selections. The regulations also include certain restrictions against the marketing of unhealthy food products, especially to children. The Ministry of Health has also launched several education and health promotion programs, including school-based initiatives and public awareness campaigns, with the aim of raising awareness on obesity and promoting healthy behaviors. Moreover, the Saudi government has been strongly keen on investing in healthcare infrastructure to meet the needs of obesity patients, with examples of such developments including establishing specialized units for obesity management and providing bariatric surgical treatments to patients requiring such interventions (Althumiri et al., 2024).***

***Studies That Investigated Community Awareness about the Complications of Obesity in International Contexts :***

Recent research has directed increased attention to the investigation of awareness on obesity in a variety of contexts. Below is a brief presentation of a number studies on obesity and its complications that focus on diverse international contexts, with each study representing a different region of the world.

***Americas:*** The study by Okezie-Okeh et al. (2015) evaluated the understanding and knowledge of the risks and complications of maternal obesity during pregnancy. The population of the study consisted of pregnant patients visiting a prenatal health clinic at an academic healthcare center located in the city of Macon, Georgia, United States; the final sample included (102) respondents. The study adopted a descriptive research design, and data were collected using questionnaires.

The findings of the study include the following: most sample members had moderate levels of knowledge on maternal obesity risk; only 40.2% of the sample knew what the term "BMI" means; 51% were aware that obesity can increase the risk of stillbirth; obese sample members had higher levels of knowledge, compared to those who were overweight and those who had normal weight, of the risk of pregnancy complications associated with obesity; only 29.7% of obese sample members identified themselves correctly as such; daily exercise, level of education, and maternal weight were associated with knowledge of maternal risks associated with obesity.

***Europe :***The study by Shut et al. (2020) investigated public awareness of obesity and overweight as risk factors associated with cardiovascular diseases. The population of the study consisted of people aged 20-82 and living in Ukraine; the sample included (280) individuals. The study adopted a descriptive research design, and data were collected using questionnaire. Two surveys were administered, an initial one and another one after sample members' participation in a six-month health education program aiming to help participants address weight problems thus reduce the risk of cardiovascular diseases. The

main findings of the study include the following: in the initial survey, obesity and overweight were moderately common among sample members, as 33.22% of men and 20.71% of women were obese, and 11.79% of men and 16.78% of women were overweight; after the second survey, the prevalence of obesity and overweight among sample member was found to be reduced, as 23.21% of men and 14.22% of women were obese, while 7.5% of men and 13.57% of women were overweight; the levels of awareness of the association between weight problems and cardiovascular diseases was found to be low among sample members.

***Asia:*** The study by Badgujar et al. (2016) assessed the depth of knowledge, awareness, and behaviors concerning obesity and its complications among a sample of obese people in Malaysia. The population of the study consisted of obese persons residing in the states of Pahang, Penang, Selangor, and Perak in Malaysia; the final sample included (429) individuals. The study adopted a cross-sectional research design, and data were collected using questionnaire.

The main findings of the study include the following: levels of awareness of obesity and its complications among samples members were high; however, their personal behaviors were generally incongruent with their awareness.

***Africa:*** The study of Okop et al. (2016) explored the awareness of obesity risks, perceptions of body size, and willingness to lose weight among adults in an urban community in South Africa. The population of the study consisted of adults aged 35-70 residing in the Langa township, located in Cape Town, South Africa; the final sample included (78) individuals. The study adopted a descriptive qualitative research design, and data were collected through focus groups; sample members were classified, based on the body mass index (BMI), into obese, overweight, and optimal weight. Findings of the study include the following: sample members had general awareness that obesity could lead to complications such as hypertension, diabetes, stroke, and heart attack; study groups varied in their perceptions of severity of obesity (both males in all groups and females in the optimal weight and obese groups perceived obesity as a significant public health threat, while females in the overweight group did not); members of the obese group who had history of chronic disease had significantly stronger perceptions of obesity as associated with health risks, such as cardiovascular disease; members of the obese group, particularly males, expressed significantly higher levels of willingness to lose weight, when compared to members of the overweight group; lastly, the willingness to lose weight was negatively influenced by inaccessibility to physical activity facilities, subjective norms, and the belief that being overweight is normal and not problematic.

***Studies That Investigated Community Awareness about the Complications of Obesity in the Saudi Context:*** Awareness on obesity has become a research topic of growing interest in Saudi Arabia in recent years. This is reflected in the growing number of studies on the topic. Below is a discussion of a number of relevant studies that focused on various regions across Saudi Arabia.

The study by Alrashid et al. (2021) assessed levels of awareness on obesity and bariatric surgery in Tabuk region in Saudi Arabia. The population of the study included residents of Tabuk region aged above 18; however, the study implemented exclusion criteria, including being a healthcare worker and having a mental disability. The final sample included (274) individuals. The study adopted a descriptive cross-sectional research design, and questionnaire was used as the research instrument. The main findings of the study include the following: 47% of sample members reported experiencing being obese; 86% reported having bariatric surgery in the past; 58% reported having a family history of obesity; 48% considered their own weight unhealthy; lastly, 38% expressed their care about physical appearance.

Some studies obtained similar findings even with focusing on different regions across Saudi Arabia. An example of such studies is that by Alshehri & Alorfi (2023), which investigated the views and understanding of obesity and weight management practices among Saudi adults. The population of the study consisted of people aged over 18 and residing in Saudi Arabia; the final sample included (1,066) individuals. This cross-sectional study involved administering a questionnaire. The findings of the study included the following: 77.3% of sample members engaged in physical activity on a regular basis, indicating a high level of awareness on obesity and its complications; levels of awareness of obesity were high among sample member; levels of awareness of the relationship between diets that are high in sugars, fats, and carbohydrates and the risk of obesity; statistically significant differences were found among sample members' level of awareness of obesity prevention, as regards the variables of income, educational level, and physical activity, as those with higher levels in these variables had higher levels of awareness; females had higher levels of awareness than males; employed individuals had higher levels of awareness, when compared to the unemployed; the majority of sample members were aware of both the potential benefit and side effects of weight reduction products; lastly, sample members perceived changes in diet and increasing in physical activity as the most effective methods for obesity prevention.

Another study with congruent findings is that by Almughais et al. (2023). This study investigated perceptions of anti-obesity drugs among the general population in Hail, Riyadh, and Al-Ahsaa in Saudi Arabia. The population of the study consisted of adults aged 18-60 and residing in the cities of Hail, Riyadh, and Al-Ahsaa; the final sample included (1,073) individuals. This cross-sectional study involved collecting data from sample members using questionnaires.

The study obtained the following findings: 55.6% of sample members had good knowledge of anti-obesity drugs; 77.6% believed that such drugs should be used at a certain BMI; 31.4% reporting having a BMI greater than 40; most sample members believed that such drugs can help in losing a weight of

3-8 kg within a year; 64.5% and 69.3% of sample members believed that such drugs elevate the risk of thyroid tumors and pancreatitis, respectively; lastly, certain factors were associated with higher levels of awareness on anti-obesity drugs, and these factors include having a postgraduate degree, residing in Riyadh city, being female, and working in the healthcare sector.

Another study that obtained similar findings is that by Almalki et al. (2024) assessed the levels of awareness about obesity and its complications among mothers in the western area of the Kingdom of Saudi Arabia. The population of the study consisted of mothers residing in the western area of Saudi Arabia; the final sample included (256) mothers. The study adopted a cross-sectional research design, and data were collected via questionnaire. The main findings of the study include the following: only 35.5% of sample members had good levels of knowledge on obesity and its complications; only 11.3% of sample members were aware that a child should eat five types of fruits and vegetables every day in order to have a healthy diet; 85% of sample members were aware that a child should not have more than two hours of screen time a day; lastly, 75.4% of sample members were aware of the necessity of engaging children in physical activities for at least one hour a day.

The study by Al Qahtani et al. (2022) also indicates low levels of awareness on obesity and its complications in the Saudi context. It examined perceptions of the relationship between obesity and cancer in the Saudi society.

The population of the study consisted of people with obesity aged 18 and above from different regions across Saudi Arabia; the final sample included (512) individuals. The study adopted a descriptive cross-sectional research design, and data were collection via questionnaire. The main findings of the study include the following: about 70% of sample members did not consider themselves obese; most sample members expressed willingness to seek treatment for obesity, with 47.1% of the sample taking the option of undergoing surgery into consideration; lastly, only 11% of the sample believed that obesity is a risk factor for cancer.

***Methodology:***

***Overview:*** The present study aims to investigate the level of community awareness in Al-Baha region about the complications of obesity.

***Approach :*** The study adopts the analytical descriptive methodology. This methodology is concerned with collecting classifying data and facts, with the purpose of drawing significant conclusions then arriving at generalizations on the phenomenon under study.

***Population and Sample:***

***Size and Context :***The present study's population consists of all residents of Al-Baha region; a random sample of (130) individuals was selected from among the population.

***Characteristics:*** Frequencies and percentages of characteristics of the sample were calculated as regards the variables of (gender - educational qualification – age).

***By Gender:***

**Table 4.** Characteristics of the sample, based on the gender variable.

| | Gender | Frequencies | Percentages |
|---|---|---|---|
| 1 | Male | 81 | 67.5% |
| 2 | Female | 39 | 32.5% |
| Total | | 130 | 100.0% |

***By Educational Qualification :***

**Table 5.** Characteristics of the sample, based on the educational qualification variable.

| | Educational Qualification | Frequencies | Percentages |
|---|---|---|---|
| 1 | Secondary school diploma (or lower) | 17 | 13.1% |
| 2 | Collage degree | 86 | 66.2% |
| 3 | Postgraduate degree | 27 | 20.8% |
| **Total** | | 130 | 100.0% |

***By Age :***

**Table 6.** Characteristics of the sample, based on the age variable.

| | Age | Frequencies | Percentages |
|---|---|---|---|
| **1** | **Below 30** | **11** | **8.5%** |
| **2** | **30-40** | **81** | **62.3%** |
| **3** | **Above 40** | **38** | **29.2%** |
| **Total** | | **130** | **100.0%** |

***Research Instrument:***

***Overview:***

Based on findings obtained by relevant studies, the researcher developed a questionnaire form designed for investigating levels of community awareness about the complications of obesity in Al-Baha region. The questionnaire consists of two parts:

-First: basic (demographic) data (gender - educational qualification – age).
-Second: the questionnaire's axes. The questionnaire includes 10 statements.

***Validity of the Questionnaire:***

Internal consistency was calculated based on sample members' responses, using the Pearson correlation coefficient between each item and the total score for the axis to which the item belongs, as outlined in Table 7 below.

**Table 7.** Pearson correlation coefficients between the scores of each item and the total score for the axis to which the item belongs.

| Item No. | Correlation Coefficient | Item No. | Correlation Coefficient | Item No. | Correlation Coefficient |
|---|---|---|---|---|---|
| 1 | .723** | 5 | .643** | 9 | .712** |
| 2 | .680** | 6 | .812** | 10 | .719** |
| 3 | .796** | 7 | .800** | | |
| 4 | .763** | 8 | .870** | | |

****Statistically significant at (0.01)**

***Statistically significant at (0.05)**

Table 7 shows that items are statistically significantly correlated at the significance level of (0.01) with the total score for the axis to which the item belongs. Values of correlation coefficients were in the range (.643**-.870**). This indicates that the questionnaire's items are highly internally consistent.

**Table 8.** Cronbach reliability coefficients of the questionnaire's axes

| Item No. | Correlation Coefficient | Item No. | Correlation Coefficient | Item No. | Correlation Coefficient |
|---|---|---|---|---|---|
| 1 | .912 | 5 | .904 | 9 | .899 |
| 2 | .903 | 6 | .896 | 10 | .912 |
| 3 | .905 | 7 | .899 | | |
| 4 | .904 | 8 | .896 | | |
| Total Reliability Coefficient | .890 | | | | |

Table 8 shows that the values of reliability coefficients for the questionnaire's axes were high, with values being in the range (.896-.912). The total reliability coefficient for the questionnaire's axes was valued at (.890). These values of the reliability coefficients indicate the validity of the questionnaire for application and reliability of its results.

***Discussion of the study's main question: What is the level of community awareness about the complications of obesity in Al-Baha region?***

In order to answer this question, means and standard deviations were calculated for each item of the questionnaire. Items were listed in a descending order by mean, as outlined in Table 9 below.

**Table 9.** Frequencies, percentages, means, and standard deviations for sample members' responses on community awareness about the complications of obesity in Al-Baha region

| | Statement | | Responsiveness | | | | | Mean | Standard Deviation | Item Ranking | Degree of Responsiveness |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree | | | | |
| 4 | I know that obesity elevates the risk of diabetes mellitus | f | 0.0 | 1 | 9 | 34 | 86 | 4.58 | .657 | 1 | Very High |
| | | % | 0.0 | .8 | 6.9 | 26.2 | 66.2 | | | | |
| 3 | I am aware that obesity is a risk factor for hypertension | f | 1 | 1 | 9 | 42 | 77 | 4.48 | .729 | 2 | Very High |
| | | % | .8 | .8 | 6.9 | 32.3 | 59.2 | | | | |
| 5 | I know that obesity can cause problems in bones and joints | f | 1 | 2 | 10 | 43 | 74 | 4.44 | .768 | 3 | Very High |
| | | % | .8 | 1.5 | 7.7 | 33.1 | 56.9 | | | | |
| 2 | I am aware the obesity could affect mental health and cause depression | f | 0.0 | 3 | 9 | 54 | 64 | 4.38 | .718 | 4 | Very High |
| | | % | 0.0 | 2.3 | 6.9 | 41.5 | 49.2 | | | | |
| 7 | I believe that obesity elevates the risk of heart diseases | f | 2 | 3 | 20 | 48 | 57 | 4.19 | .890 | 5 | High |
| | | % | 1.5 | 2.3 | 15.4 | 36.9 | 43.8 | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | I know that obesity could result in difficulty of breathing during sleep | f | 1 | 5 | 24 | 51 | 49 | 4.09 | .884 | 6 | High |
| | | % | .8 | 3.8 | 18.5 | 39.2 | 37.7 | | | | |
| 9 | Obesity elevates the risk of certain types of cancer, such as breast and colon cancer | f | 1 | 3 | 25 | 62 | 39 | 4.04 | .811 | 7 | High |
| | | % | .8 | 2.3 | 19.2 | 47.7 | 30.0 | | | | |
| 6 | I know that obesity negatively affects fertility among men and women | f | 2 | 9 | 26 | 53 | 40 | 3.92 | .961 | 8 | High |
| | | % | 1.5 | 6.9 | 20.0 | 40.8 | 30.8 | | | | |
| 1 | Obesity could affect the health of the digestive system and elevates the risk of gastrointestinal reflux | f | 5 | 19 | 18 | 45 | 43 | 3.78 | 1.16 | 9 | High |
| | | % | 3.8 | 14.6 | 13.8 | 34.6 | 33.1 | | | | |
| 10 | I am aware that obesity could affect the immune system and resistance to diseases | f | 10 | 27 | 28 | 30 | 35 | 3.41 | 1.29 | 10 | High |
| | | % | 7.7 | 20.8 | 21.5 | 23.1 | 26.9 | | | | |
| Total Mean Score for the Questionnaire | | | | | | | | 4.13 | .644 | --- | High |

Table 7 above shows that the level of community awareness about the complications of obesity in Al-Baha region was (high), as the total mean of the questionnaire was valued at (4.13), with a standard deviation of (.644). The values of the standard deviations of the questionnaire's items were within the range of (.657-1.29).

Ranked first was Statement (4) (I know that obesity elevates the risk of diabetes mellitus), with a mean of (4.58) and a standard deviation (.657). Ranked second was Statement (3) (I am aware that obesity is a risk factor for hypertension), with a mean of (4.48) and a standard deviation of (.729). Ranked last was Statement (10) (I am aware that obesity could affect the immune system and resistance to diseases), with a mean of (3.41) and a standard deviation (1.29). The rest of the questionnaire's items had a high degree of responsiveness.

The researcher believes that the high level of community awareness about the complications of obesity in Al-Baha region may be attributable to intensive efforts for raising awareness on obesity and its complications though media campaigns and health education programs that highlight the risks associated with obesity and its complications. It is also possible that some sample members or their relatives have experienced complications of obesity, which could have increased their interest in investigating the risks associated with obesity. This finding is in line with that obtained by the study of Alshehri & Alorfi (2023), which indicates that adults in Saudi Arabia have high levels of awareness on the need for practicing physical activity regularly, indicating high levels of awareness on obesity and its dangerous complications. On the other hand, other studies in the Saudi context present different findings, such as those obtained by the study of Al Qahtani et al. (2022), which show low levels of awareness of what an obese person is among Saudis who are obese in multiple regions in Saudi Arabia.

The study also highlights that levels of awareness on the potential complications of obesity are very low.

***Conclusion:***

This study has discussed a variety of topics on community awareness about the complications of obesity in Al-Baha region, Saudi Arabia. The discussions presented in this study highlight the significant importance of strong awareness as enabler of effective prevention against obesity and its dangerous effects. Awareness can stimulate behaviors associated with a healthy lifestyle, such as rational nutritional choices and practicing physical activity. Therefore, raising awareness on obesity is a necessity for promoting public health in contemporary societies, including Saudi Arabia.

In the light of the presented discussions, this research presents a number of research suggestions and practical recommendations:

- Research suggestions
  - Conducting further research on public awareness about obesity and its complications in large metropolitan centers in Saudi Arabia, such as Riyadh and Jeddah.
  - Conducting studies that investigate levels of awareness among the general public in Arab countries about factors associated with the risk of obesity.
- Practical recommendations
  - Healthcare institutions in Saudi Arabia, including Al-Baha region should launch campaigns for promoting awareness about the nature of obesity, its associated risk factors, and its impacts of on different aspects of physical and mental health.
  - Educational institutions should launch educational campaigns for encouraging students on practicing healthy physical activity regularly.

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