

Sex Differences in Social and Sexual Problems
Related to Overweight/Obesity in a Rwandan Sample

Master's Thesis in
Peace, Mediation and Conflict Research
Developmental Psychology
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Abstract

Aim: The aim of the study was to investigate psychosocial problems due to overweight/obesity in a Rwandan sample.

Method: A questionnaire including scales measuring physical, psychological, social, and sexual problems due to overweight/obesity was constructed. It was filled in by 123 women and 85 men. The mean age was 36.0 years for women and 39.7 for men. The mean body weight was 109.9 kg ($SD = 12.0$) for women, and 114.7 ($SD = 10.8$) for men. An important number of participants had a BMI indicating obesity, and one respondent with a BMI below 25.0 was omitted. The mean value for BMI was 41.75 for women and 41.42 for men.

Results: BMI correlated significantly for both women and men with physical, psychological, social, and sexual problems due to overweight/obesity. Men scored significantly higher than women on the frequency of social problems and sexual problems due to overweight/obesity. Psychological, social, and sexual problems due to overweight/obesity were more frequent than physical problems for both women and men. The frequency of victimisation from intimate partner abuse due to overweight/obesity was significantly correlated with BMI for women but not for men.

Conclusions: Overweight/Obesity was associated with several psychosocial problems for both women and men.

Keywords: Obesity, overweight, BMI, psychological, social, sexual, physical problems, Rwanda

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1. Introduction

1.1 Aim of the Study

The aim of the study was to investigate associations between weight problems and physical, psychosocial, and sexual problems in a sample from Rwanda. Many Rwandans believe that having round shapes is a sign of wealth and prosperity (Mukabutera et al., 2016). Obesity has all the time been the subject of different visions. An obese person has not always been considered ill. For many decades, a person with excess weight has been seen as a symbol of health, wealth, prosperity, and a higher social class status than others (Sumińska et al., 2022). The development of science and medicine has changed this view over the past decades. Over the past 30 years, understanding the causes and consequences of obesity has made considerable progress, and adverse effects on the physical, mental, and social well-being caused by obesity have been noted (ibid.). In order to understand the daily life of a person living with weight problems, investigations were made in this study. The knowledge on this topic will probably not affect the society's views, but it can help spark discussion about these everyday issues.

1.2 Background

Obesity is a crucial health problem in the world. According to estimates of over 20-year-olds, 205 million men and 297 million women are obese, which means that over half a billion people worldwide live with obesity (Agrawal et al., 2015). Obesity is an illness and a leading cause of numerous deaths and chronic diseases (Avila et al., 2015). Obesity problems are not only seen in the Rwandan population, but have also been noticed in other developed and developing countries; for example, in the United States, between 1980 and 2000, the prevalence of obesity increased from 15% to 30% (Fabricatore & Wadden, 2003). In the U.K., obesity for women was 43%, and 74% for men in 1993 and 2003 (Wareham et al., 2005).

However, obesity health problems are not only linked to physical health; the association between obesity and mental illness has also been extensively highlighted. Moreover, the increase in obesity and mental illness decreases the quality of life of a person living with those difficulties. Mortality and disability are related to their expansion. These adverse health

outcomes are magnified when they occur together (ibid.). However, obesity is also associated with sexual difficulty. Sexual functioning is explained as a motivation that leads to attraction and envy. In addition, conditions like mental illness and a decrease in self-esteem affect sexual functioning. Disorders in sexual functioning are linked to many psychological problems, such as anxiety, depression, low self-esteem, and poor body image (Esfahani & Pal, 2018; Poggiogalle et al., 2014).

The body mass index (BMI) is the guide used to measure obesity. The World Health Organisation (WHO, 2007) defines excess weight to be present when BMI is ≥ 25 kg/m², overweight when BMI is 25.0–29.9 kg/m², obesity when BMI is ≥ 30 kg/m² or more. An adult is classified as normal when he has a BMI between 18.5 and 24.9 kg/m². In this study, most of the participants suffer from overweight/obesity, and one respondent with a BMI below 25.0 was omitted. Psychological disorders in obese people often begin with rejection from people around them and society (O'Brien et al., 2013). Due to the depreciation of their bodies and adverse reactions to their way of life, obese people are frequently ridiculed. Those depreciations are based on prejudice due to their personality and physical condition (Puhl & Brownell, 2001). Self-confidence and being positive are elements that determine good physical condition accompanied by psychological and social well-being (Danna & Griffin, 1999). The notion of emotional well-being is less clarified than physical well-being. However, the association between obesity and physical condition is well documented, showing that obesity increases the risk of morbidity and decreases life expectancy (Doll et al., 2000).

Beyond health problems, obese people face difficulties in society and in their everyday life. According to Puhl & Brownell (2001), a fat person needs to be put in a prison camp. This kind of discrimination can create isolation moments for people living with obesity, causing harm to the victims in different ways and can also cause constant harmful effects such as isolation, anxiety, and lower self-esteem (Puhl & Brownell, 2001). People with a cyclical weight present more psychological problems. This has been associated with the fact that their satisfaction with life is low, and they also present more eating disorders than those with stable weight (Agrawal et al., 2015). Prejudice toward obese people has been considered as a severe social problem that stigmatises obese persons. These social problems are frequently based on the reality that many societies stress the significance of the physical aspect (ibid.).

However, the physical and emotional well-being of life are essential and are accompanied by sexual satisfaction and intimacy. Obtaining balance in a difficult moment, including feelings of anxiety, anger, sadness, grief, and loneliness, can occur through eating and providing physical satisfaction (Adolfsson et al., 2004). The support in distress situations for some people comes from an intimate relationship, which can provide sexual satisfaction and result in peace and balance for the person (ibid.). However, this search for harmony and compensation can be found in fat consumption for some people.

People suffering from obesity have more problems finding sexual attraction and creating a satisfying romantic relationship than people of ordinary weight (ibid.).

Health longevity and shortened life expectancy are linked to a continuing epidemic of obesity leading to a sharp rise in poor health. Considering the severity of epidemic obesity and its rapid spread, obesity affects all generations. Obesity is a heavy burden in healthcare systems, which leads to a tremendous demand on health sectors (Doll et al., 2000). The effect of obesity and its harmful consequences plays an essential role in the economic sector. The costs of care related to obesity are tremendous, and the consequences of absenteeism in the workplace and decline in productivity are severe. Stopping overweight and obesity leads to savings in short-term health care and potentially vital savings in economic return (WHO, 2007).

Concerning the current problems of the significant rise in obesity, the follow-up of the population's physical activity is an essential aspect of the public health sector's solution to reduce obesity. Standardising how to control physical activities is necessary to evaluate the present and future levels of obesity in the population (WHO, 2007). Establishing a plan to monitor the physical activity will determine how physical activity will help prevent obesity in people with fragile socioeconomic status (Agrawal et al., 2015). In the health community, the determination of the importance of physical activity is essential, hence the creation of environmental services to motivate the population to practice physical activity, especially those who are at risk of obesity (ibid.). Assessments should be made to provide factual information on the environmental contribution between physical activity and food consumed; as long as these two factors cause obesity, the interference should be noted in great detail (ibid.).

Increasing regular physical activity is necessary to combat obesity at the population level; teamwork between families, schools, communities, health personnel, media, and policymakers is most important. People suffering from obesity are stigmatised, discriminated against, have more difficulties to be integrated into society, face limitation in the labour market, and are even refused education (Fabricatore & Wadden, 2003). Furthermore, their weight plays a role in their sexual life. It may cause difficulties with sexual intercourse, lack of desire, feelings of disgust and anxiety, and avoiding sexual relations. The higher the BMI is, the more problems the person has (Adolfsson, 2004; O'Brien et al., 2013).

The cause of obesity is when energy consumption exceeds energy exertion. Consumption of beverages fortified with sugar tends to complete rather than restore energy from the diet. The rapid replenishment is often at an increased energy amount associated with intense ingestion. However, this restoration of energy leads to obesity. The contribution of market sectors is essential for improving the population's health (WHO, 2007). The agricultural industry must follow the principles of health ordered by the governments. The industrial sector's involvement is vital in reducing sugar, salt, and fat in food, thus promoting good food quality for its population. However, the complexity of obesity requires significant education and awareness of the causes of obesity and the difficulties related to the weight loss process. The predominant information in the media and companies which makes obese people feel guilty, rejected, and discriminated against must be replaced by the statement that obesity is a disease. Furthermore, people suffering from obesity need adapted support to face prejudice and discrimination, and that support will help with weight loss (Puhl & Brownell, 2001).

1.3 Obesity in Rwanda

Rwanda is located in East-Central Africa, with a population estimated to 12 million and an area of 27,000 km². Rwanda has about 500 inhabitants per km², the highest population density in Africa (Mutandwa, 2015). Rwanda, being a landlocked country, is located in eastern Central Africa. To the north of Rwanda lies Uganda, to the east Tanzania, to the south Burundi and to the west the Democratic Republic of Congo (Umuwandimwe, 2011). Rwanda has experienced political and social upheavals, which led to the genocide, which caused the loss of one million human lives in 100 days in 1994 (Mutandwa, 2015).

Yet, despite all its difficulties, the government of Rwanda has carefully prepared the vision of 2020, planning to make a crucial transformation of the country into a middle-income state with US\$900 per gross domestic product per capita. To achieve this, the government offered subsidy programmes in agriculture through the intensification of crops and consolidation of their use, which allowed the development of agriculture. Unfortunately, this change has resulted in health and socio-economic challenges regarding increased BMI (Mukabutera et al., 2016; Mutandwa, 2015).

Lack of education, genetic factors, lack of physical activity, high consumption of beverages, and increased income of city dwellers are associated with increased obesity in Rwandan society. Some environmental factors also influence obesity in Rwanda, such as lifestyle, cultural shocks, food aids and urbanisation. The high incomes of men in Rwanda are the impact of rising BMI, which explains their obesity (Mutandwa, 2015; Umuvandimwe, 2011).

Food sufficiency, a diet high in fat, and food aid have significant and crucial effects on the rising BMI in women and men in Rwanda (Mutandwa, 2015). For example, in the case of women, the frequency of overweight/obesity increased among women in 2000 from 13% to 16.5% in 2010, according to a study conducted in 2016 on the prevalence and elements associated with overweight/obesity. However, poor knowledge of obesity prevention and poor eating habits are at the heart of rising overweight and obesity. Moreover, it was found that in the Rwandan capital Kigali in 2010, the prevalence rate was 35%, and in other urban areas, 31.5% (Niyitegeka et al., 2021). The new socio-economic capacities are linked to the rise in obesity, which is more frequent in urban areas than in rural areas. Very often, obese women have the slightest knowledge about how to prevent obesity. In 2015, 34% of women were obese/overweight in the city of Kigali, against 21% at the national level, according to a demographic and health survey conducted in Rwanda (ibid.). However, the Rwandan government's effort regarding the transition from a low to a middle-income country affected the population rise in BMI (Mukabutera et al., 2016).

1.4 Prevalence, Consequences, and Causes

1.4.1 Epidemiology and Well-being and Economic Outcomes of Obesity

Overweight and obesity have always been the leading causes of type 2 diabetes mellitus, coronary heart disease, hypercholesterolemia, stroke, and hypertension.

Moreover, they have been the principal health problems associated with different diseases (Yach et al., 2006). Over the last decade, the variation in the quality of food due to high quantity of fat, sugar, salt, or calories, and the consumption of large amounts of food, accompanied by less interest in physical activity among the population, have led to the augmentation of overweight/obesity and its health complications (ibid.).

The extremely high level of physical inactivity among both men and women is a global challenge, which adds to the overall level of augmentation of obesity in children (Al-Hazaa, 2007). Obesity, with its complications, has become what tobacco is to lung cancer. More risks, represented in the global increase of obesity and its outcomes, can lead to diseases such as diabetes and cardiovascular disease, and some cancers such as colorectal, postmenopausal breast, and prostate cancer, which have been notable in recent years. Around 1 billion people worldwide are obese or overweight, compared to 850 million underweight (De Pergola & Silvestris, 2013; Yach et al., 2006). Even if the USA has the highest rate of obesity, some other places in the world, such as a number of countries in Latin America, and China, also experience high obesity rates (Yach et al., 2006).

Thompson et al. (1999) stated that obesity and other associated diseases worldwide are more of an economic than a health problem. The poor quality and the quantity of food consumed, combined with physical inactivity, have been pointed out as principal determinants of augmentation in the occurrence of obesity. They also noticed that the weaknesses in control and the capacity of the population to refrain from unhealthy food are problems of modification in social and economic situations.

The balance between the consumed calories and the expenses, combined with physical inactivity, has been shown to be a problem for the health of the population, with rising BMI due to consumption of cheap and bad-quality products which are sold in the markets. The unhealthier products in the markets are more affordable than the healthier food, and those extra calorie intakes on weight affect BMI. However, the population is still attracted by low-priced

products and unhealthier products due to economic problems and less enthusiasm for physical activity (Struben et al., 2014).

Obesity can no longer be directly consigned to individual responsibility regarding those economic elements outside human control. Over time willpower, preferences and genetics cannot clarify the augmentation of obesity. Most of the time, people do not have the financial means, which pushes them towards being more attracted to cheap and unhealthy products offered on the market. Their choice facilitates the market to sell out their product to the detriment of their health (ibid.).

In addition to the importance of the adverse problems engendered for health, obesity is a heavy burden economically on societies. For example, it has been shown that the costs of drugs and care paid by people linked to diseases caused by obesity are higher for the healthcare system (Yach et al., 2006). Furthermore, developing countries have rapidly observed environmental and obesogenic economic diversification over the past decades. As a result, the diversity of nutritional change continues or is even activated rapidly; those diversifications are not seen in developed countries (Finkelstein et al., 2005).

Obesity also sets a sizeable economic burden in the form of lost capacity and foregone economic extension due to missing working days, mitigating yield at work, mortality, and ongoing incapacity (Tremmel et al., 2017).

According to the evaluation of the cost of obesity and its consequences, the United States explains that the requirement of a critical healthcare system is essential, and to this is added the importance of energy expenditure for people with obesity (Finkelstein et al., 2005).

1.4.2 Expenditure of Energy and Obesity

Humans have evolved to exhibit complicated mechanisms subject to significant energy regulation to maintain body weight (Hall, 2012). However, what was in the past an advantage that is likely to evolve has become a barrier in the obesogenic environment which contains factors that promote obesity (Berthoud, 2012). The thought was that the thrifty genotype allowed people to successfully collect and manage the consumption of an essential quantity of food high in fat so that there was a balance between feast and famine during the period of food insufficiency. Unfortunately, these dominant genes have now prejudiced the global modern obesogenic environment where food shortages never occur. Lately, the release predation has

challenged the thrifty genotype supposition (Genné-Bacon, 2014). The lack of predation guides variation in body fat distribution in the community as a pattern of random changes and genetic deviations. This random deviation rather than a choice directly clarifies why some people can stay thin while remaining in an obesogenic environment.

Obesity results from a chronic disparity between energy intake and energy expenditure; in this case, the energy intake surpasses energy spending over a prolonged period (Foster & McGuckin, 2001). The characteristic of the social and modern environment is formed by a large amount of food rich in calories and of lower price, and very little physical activity, which leads to an obesogenic attitude.

To understand a person affected by obesity is essential to understand the significant metabolic aspect as a cause of the interpersonal lack of consistency of energy metabolism. The amount of physical activity and the muscle-to-fat ratio affect the energy metabolism; however, energy metabolism is crucial in the human body's function and has repercussions on energy expenditure (Berthoud, 2012). The weight increase is explained by a rise in energy consumption through food intake and a decrease in energy expenditure (Foster & McGuckin, 2001). A variation of energy metabolisms, such as a low metabolic rate or low rate of fat oxidation, can aggravate the liability to weight increase in humans between energy intake and energy expenditure; this means that during the resting and activity time, the metabolism will burn few calories, therefore, eating less will help to avoid overweight (Vega et al., 2006). Through overeating, the oxidation of carbohydrates and protein rises to offset the expanded input at the expenditure of fat intake. Yet, the rise in oxidation is not evenly linked to the intake. Thus, fat calories are accumulated, stocked fat will increase in size, and the human body will gain weight.

1.5 Behaviour, Society and Psychosocial contributions to Obesity

1.5.1 Physical Activity and Expansion of Obesity

Increased energy intake and decreased energy expenditure results in obesity. Some factors impact the amount of energy that needs to be spent per day, among other things age, body size, and genes. However, the most principal aspects are how much time an individual is involved in daily activities (Wareham et al., 2005). Regular activity is crucial for a person to keep healthy

and keep their weight in good balance. Simultaneously, it helps to lower the risk of diseases associated with obesity. Furthermore, regular activity also helps reduce stress and increase temperament (WHO, 2011). The WHO recommends that for better health, adults need to practice nearly two and a half hours of average to intense physical activity per week (ibid.).

A crucial increase in obesity of 74% in the USA between the years 1993 and 2003 was noted and, in the U.K., for women 43% and men 74% between the years 1993 and 2003. Physical inactivity at the population level is one of the leading causes of this increase (Wareham et al., 2005). The fact that there is a decrease in physical activity contributes to the worldwide increase in obesity and, at the same time, the augmentation of the level of long-term diseases in the world (Nwezeh & Ugbabe, 2014).

1.5.2 Obesity and Socio-Economic Condition

The global food industries sell products saturated with fat and sugar at low prices, and these foods supply physiological energy requirements. In addition, the taste of these foods encourages immense calorie consumption. The fact of eating poorly, the absence of physical activities, and the monitoring of weight are the results of cultural differences and behaviour regarding the health of the various socio-economic levels of the population (Hawkes, 2006; Higgins et al., 2019; Robertson, 2007).

A Finnish study has shown that households with low income, economic hardship, poor food choices, lack of jobs, and youth financial problems have been the cause of poor food choices leading to obesity (Robertson, 2007). Purchases of cheaper, poor-quality food due to economic difficulties and worries about not being able to afford food were declared among people living with obesity. However, in the U.K. Wardle⁸⁶ noted that obesity among more than 40% of people was significant among individuals receiving social benefits. Furthermore, poor nutrition is strongly linked to individuals receiving social benefits and lack of occupation and education (ibid.).

The relation between socio-economic inequalities and nutritional health is well recognised. Body mass problems at all levels of life and the effects of being underweight and overweight continue from generation to generation (Zhang & Wang, 2004).

1.5.3 Psychosocial Contributor to and Impact of Obesity

People with obesity in some developed countries face difficulties in their daily life beyond the problems associated with their health. The everyday psychological life they go through must be one of the most hurting parts of their obesity (Sarwer & Grilo, 2020). Short-term difficulties such as mitigating quality of life and social prejudice are often connected to obesity (Agrawal et al., 2015). Obese persons, due to their physical appearance, often catch attention in various places such as schools, the job market, and the social milieu. Consequently, those obese people are discriminated against and prejudiced (Andreyeva et al., 2008). The crucial social bias to stigmatising persons living with overweight and obesity has always been explained as an essential social rejection or prejudice (Agrawal et al., 2015).

Persons with weight imbalance have more psychological problems than those with average weight. They have a significantly low level of life satisfaction; they find more comfort in the food (Klaczynski et al., 2004). Morbid and severe obesity relates to a lack of self-esteem, ambition, self-confidence, stupidity, dishonesty, laziness, and emotional difficulties (Rothblum et al., 1990). In some societies, a thin waist in adults, especially adolescents and women, is an important message because signs of obesity are signs of poor self-control (Klaczynski et al., 2004). In people with obesity, various signs have been noticed: anxiety, stress, a major depressive episode, and no life satisfaction.

1.5.4 Depression

The connection between depression and obesity has been studied thoroughly, with proven depression being a significant warning sign of obesity, BMI levels, or weight gain. Overall, depression was demonstrated to raise the risk of obesity (Faith et al., 2011).

Food is the facilitator between depression and future weight gain, especially in women. Depression can also contribute to unexpected attitudes, such as reducing physical exertion or unhealthy eating attitudes, which will lead to mass gain. Biological evidence has demonstrated that depression can even lead to obesity by the hypothalamic-pituitary leading to abdominal obesity. Eventually, being stigmatised because of one's mass would increase the risk of depression related to obesity. In addition, chronic health conditions under which obese people live can contribute to depression (Blaine, 2008; Fabricatore & Wadden, 2003; Jantaratnotai et al., 2017; Pan et al., 2012).

1.5.5 Anxiety

The most prevalent mental disorder in developed countries is an anxiety disorder, and the most significant public health difficulty acknowledged is obesity. The relationship between anxiety and obesity is still an open matter (Strine et al., 2008). Constructive association with obesity has been connected to anxiety with panic disorder, often in women, with particular and community phobia (ibid.).

A personality disorder is commonly associated with anxiety. Passive dependent and passive aggressive personality characteristics are present in obese people. The exhibiting behaviour of any obese person is unfavourable and calamitous (Van Hout et al., 2004). People suffering from obesity also show less collaboration and fail to see the self as independent and desegregated. When they are involved in community activity, they are subject to discrimination and prejudice. They need to be treated with attention to help them reduce their feeling of guilt and rejection in society (Flint & Snook, 2014).

The relation between obesity and anxiety may come via emotions such as social discrimination, which is often notable in obese people. In obese people, lower self-esteem has been observed; this factor leads to anxiety. They do not have a pleasant social connection. Since they consider themselves insufficient and the milieu in which they are unkind, it is clear that they go through psychological distress, avoidance by keeping them away from the society, and present anxiety. The community's view of them can be the same as the one they have of themselves. They feel responsible for being obese and try to reduce their weight in various ways, however, unsuccessfully. Their concern for measuring food intake and controlling their weight leads to extreme worry and anxiety. Anxiety in obese people has been associated with deregulation of the hypothalamic-pituitary-adrenal axis, with abnormality and impaired control of a metabolic, physiological, or psychological process that may increase food intake; people experience stress and gain more weight. Alterations in adipose tissue due to local cortisol metabolism may also influence the risk of obesity (Nigatu et al., 2016; Strine et al., 2008; Tomiyama, 2019).

1.5.6 Stress

In certain respects, stress has a relation to the evolution and preservation of obesity. The individual stress system progresses in helping to escape a threatening situation, which engages

significant metabolic effort. The often-stressful event a person is affected by is psychological (Klaczynski et al., 2004). The stress and metabolic mechanisms are associated, as the metabolism of the person can be increased by stress, and this affects the weight of the person; in the event of permanent stress, the muscles which burn calories are perturbed, and this creates an increase in appetite and an urge to consume foods that are not good for the health and, thus, the body fat increases. Stress and the body's mass index are connected.

The behaviour regulation of people is mastered by self-regulation. It is pertinent since self-regulation is needed to prevent obesity attitudes, such as feeding and physical activity. The cognitive-emotional regulation can also be blocked by stressful events, which will make the person more sensitive to the emotional regulation, leading to unfavourable eating (Martins et al., 2008). Stress can lead to obesity by creating obstacles to the cognitive method needed for self-regulation. Stress increases the eating, which is the significant way stress engenders obesity, which is perceptible by eating more and more unhealthy food. Furthermore, stress can interfere with activity. The inactivity attitudes and physical activity are mitigated during the stress moment (Dassen et al., 2018).

An association has been noted between IPV (intimate partner violence) and obesity, because IPV creates stress. IPV is defined as problems that occur between individuals in a close relationship, such as physical, emotional, and sexual abuse. However, a release of stress hormones such as cortisol by the hypothalamic-pituitary-adrenal axis in response to stress may also influence the risk of obesity; people go through stress and gain more weight (Davies et al., 2016; Huang et al., 2011). Furthermore, if chronic stress occurs, a person facing stress adapts to the stress and the cortisol level always remains high; this permanent elevation of cortisol pushes the desire to eat and can also lead to other health problems, such as cardiovascular diseases. It is, however, difficult to follow a healthy diet and have good physical activity for people who are victims of IPV due to the hormonal stress response, which leads to the risk of obesity (ibid.).

1.5.7 Personality Traits and Emotional Issues

The causes of obesity in recent research have suggested that personality traits are involved (Magee & Heaven, 2011). In obesity, eating habits can be understood by personality traits; body weight can increase through behaviour and lifestyle, which are indirectly influenced by

personality traits, for example, less likely to be obese (ibid.). Eating behaviour has three psychological dimensions: emotional eating, restricted eating, and external eating. However, the tendency to eat caused by negative emotions such as feelings of loneliness, depression or disappointment is defined as emotional eating (Heaven et al., 2001; Van Strien, 2018). Furthermore, the taste of food, the smell and the presentation of the meal are determined by the external food. Finally, controlled body weight through conscious determination and effort to reduce a high-calorie diet is challenged by a restricted diet (ibid.).

These eating behaviours may be evident in people with problems with overweight or obesity. Higher body weight and unhealthy diets are associated with problematic eating styles that can be considered emotional and external eating (Heaven et al., 2001). In addition, inadequate relationships in early childhood have psychological origins in inadequate and overeating related to adverse emotional reactions explaining the basis of emotional eating based on psychosomatic theories (Russell & Russell, 2020).

The cause of external nutrition is based on the externality theory, which suggests that the sensitivity of obese people is related to external food stimuli and cues; for external nutrition, it is interesting to know how the person reacts to the world outside, as there may be the presence of a susceptibility to respond to foods in the environment due to their sight and smells (Koenders & Van Strien, 2011).

The moment of restricted eating is based on the concept of cognitive restriction. The urge to hold back increases over time as weight decreases, as holding back has established an effective and crucial eating strategy for controlling weight. Hence, the capital importance of maintaining the strategy of controlling daily calorie consumption leads to a path to success that is essential. If this struggle of planning and regulation turns to failure, it leads to overfeeding (Magee & Heaven, 2011).

The big five are used as the main theories of personality, and are based on five overarching personality traits: agreeableness, conscientiousness, neuroticism, openness, and extroversion. Emotional eating is associated with lower self-discipline and lower conscientiousness, which is further positively associated with neuroticism, particular depression, and impulsiveness. External eating is more linked to lower self-discipline and impulsiveness. These eating habits

have a relation with overweight and obesity in a person as in emotional eating; the person reacts to negative emotions, which causes overeating as compensation. Depressive emotions are related to emotional eating (Elfhag & Morey, 2008).

1.6 Tackling obesity, the role of the Government

1.6.1 What can Government do to Improve Well-being?

The government has a crucial part to play regarding the population's well-being. The stakeholder and the government's collaboration are crucial for creating a milieu that permits and incites diversification in the attitudes of persons, families, and society. Life improvement is made through a commitment to a healthy diet and physical activity (WHO, 2006). The change in dietic habits and physical activity patterns will require the unification of many stakeholders, public and private, for a long time. A coalition of decisive measures is necessary at the global, regional, and local levels, immediately checking and assessing their effect (WHO, 2009). The government is promoted to coordinate a national health diet and physical activity with an entire health promotion plan. Local authorities need to be concerned.

1.6.2 WHO Policies on Diet and Physical Activity

The global strategy of the WHO (World Health Organisation) marks two crucial points accountable for increasing the noncommunicable disease leading to unfavourable diet and non-physical activity related to numerous global deaths of 60% and nearly the global burden of diseases 47% (WHO, 2004; Waxman, 2004).

Recommendations have been put into place regarding food consumption to improve the health of populations and for each person to get involved, attain energy stability, and eat healthy food. Local and national recommendations have been established to control food intake and limit fat, specifically saturated fat and trans-fatty acids, for the population in order to develop a policy for the population regarding an environment for better health, mainly due to unhealthy products sold in the market that contain high sugar and salt (Bauman & Craig, 2005). Healthier products should be available and accessible in the market and an environment should be promoted that gives access to the population to practice physical activity, walking and cycling (Waxman, 2004). Media should be involved in making people aware of the importance of participating in physical activity for their well-being. Regular physical activity for at least 30 minutes is needed

per day to maintain good health results, from moderate to intensified physical exercise. Physical activity balances a person's mental health and reduces the risk of diseases associated with obesity (WHO, 2011).

1.6.3 Weight Loss and Changes in Psychosocial Status

Amelioration of well-being in a person suffering from obesity leads to participation in weight loss education. The person often feels pleasure regarding their body transformation and their capacity to learn managing their weight. The psychological amelioration can be connected with the change in their weight (Stotland & Larocque, 2005). However, the body's displeasure, shame, mood changes due to obesity, and adverse psychosocial and cognitive benefits due to non-adjustment of eating attitudes may be correlated to deficient weight regulation, obesity, diet management, and other adverse effects causes such as anxiety and depression. For example, decreasing body displeasure might hamper intense dieting and have a negative influence that could occur in the programme of losing weight (Martinez, 2000).

The body transformation should work against the evolution of unfavourable attitudes about obesity. Therefore, cognitive influence connected to alteration during weight control may have more than adequate results. Psychological amelioration is a common determinant, as well as attitude change. Methodical physical activity has promising effects on emotions such as anxiety, depression, low self-esteem, and other psychological disorders. The amelioration in psychological well-being anticipates weight loss and continuity in the long term (Latner et al., 2009; Stotland & Larocque, 2005).

1.7 Obesity and sexuality

1.7.1 Obesity Increases the Decline in Sexual Quality

Functioning sexuality is part of complete human health, hence a link between obesity and sexual functioning. Sexual functioning is explained as a motivation that leads to attraction and envy. Conditions such as depression, anxiety, stress, and low self-esteem affect sexual functioning. Disorders in sexual functioning are linked to many psychological difficulties, such as anxiety, depression, low self-esteem, and poor body image (Esfahani & Pal, 2018; Poggiogalle et al., 2014).

Specific points have been distinguished in the sexuality of obese people: orgasm disorders, which can be absence, delay, decrease in vivacity, intense disgust accompanied by anxiety disorders of excitement in women as in men expressed by the absence of desire for excitement and sexual desire, lack of sexual interest, erectile dysfunction and difficulties in ejaculation in men, the lack of sexual performance in men and women, decreased sensations of sexual arousal or enjoyment (Bajos et al., 2010; Esposito et al., 2008; Poggiogalle et al., 2014).

1.7.2 Sexual Dissatisfaction and Obesity

The satisfaction of emotional and physical well-being is accompanied by sexuality and intimacy. Eating and feeling physically satisfied contribute to our balance of stress and distress, which add feelings of anxiety, anger, grief, loneliness, and sadness (Adolfsson, 2004). For some individuals, their sense of balance and peace may be felt through an intimate relationship, leading to sexual satisfaction to provide support in a moment of suffering. However, obese people do not demonstrate this interest, power, and ability to create romantic relationships. This disinterestedness links the mass transformation of their body to obesity (Kolotkin et al., 2006). Overweight men showed less willingness to participate in sexual activity, but obese men showed a significant absence of sexual desire. However, some obese men with stable partners have problems with sexual satisfaction and lack of sexual desire (Adolfsson et al., 2004).

Mass gain contributes to a reduction of sexual activity; the moment the person's weight decreases, the desire increases. The homeostatic function is well present in obesity as in sexuality. Homeostasis is the capacity to conserve internal constancy in an organism in response to a milieu of trauma (Yaylali et al., 2010). The decrease in weight in the individuals who were obese led to an interest in sexuality, and homeostasis remained constant as the body regulation had stability due to the weight change. Sexual abuse has also been noted in obese people; due to this trauma, losing weight is brought forward unless they perceive medical support for their trauma (Yaylali et al., 2010). Obesity becomes an obstacle, refraining the person from sexual advances and sexual intimacy. This may arouse trauma and anxiety in the obese (Esfahani & Pal, 2018). Considering all the complications and difficulties that obesity causes to physical function and well-being, as well as psychological well-being, obesity concern is a prominent issue that deserves more attention.

1.8 Research Questions

The following research questions were investigated.

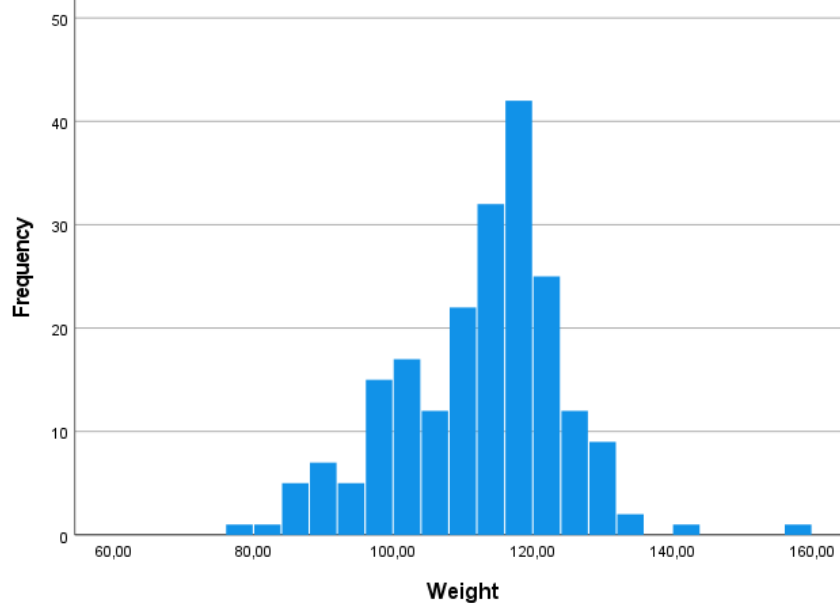
- (a) Does BMI correlate with physical, psychological, social, and sexual problems due to overweight/obesity?
- (b) Are there differences regarding the frequency of experienced physical, psychological, social, and sexual problems due to overweight/obesity?
- (c) Are there sex differences regarding frequency of physical, psychological, social, and sexual problems due to overweight/obesity?
- (d) Is there an association between victimisation from intimate partner abuse and overweight/obesity?

2. Method

2.1 Sample

A questionnaire was filled in by 209 respondents in Rwanda. Of the respondents, 123 were women, 85 were men, and one stated “other” for sex. The mean age was 36.0 years ($SD = 7.9$) for women, and 39.7 ($SD = 6.0$) for men. The age difference was significant [$t_{(206)} = 3.58, p < .001$]. Of the participants, 102 were married, 47 were single, 33 were living in a relationship, 26 were divorced, and one was widowed. The body weight range of the respondents was between 79 kg and 156 kg. The mean weight was 111.8 kg (cf. Fig. 1). The mean weight was 109.9 kg ($SD = 12.0$) for women, and 114.7 ($SD = 10.8$) for men. The difference was significant [$t_{(206)} = 2.93, p = .002$].

Figure 1
The Distribution of Body Weight among the Respondents in the Study (N = 123).

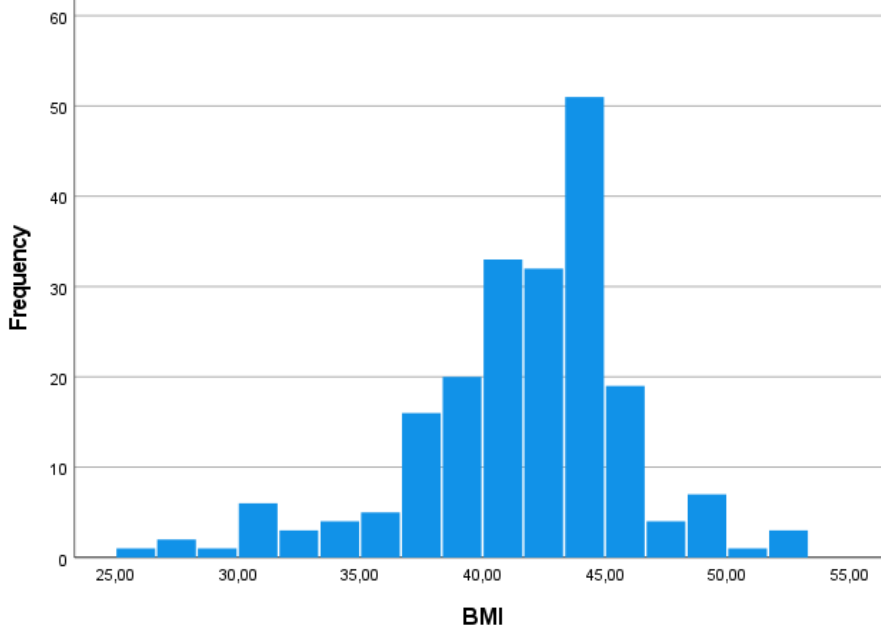


The length of the participants was between 150 and 187 cm. The mean length was 162.4 ($SD = 6.6$) for women, and 167.1 ($SD = 6.5$) for men. The difference was significant [$t_{(206)} = 5.08, p < .001$].

Body Mass Index (BMI) was calculated for each respondent with the formula: $BMI = \frac{kg}{m^2}$. Kg stands for a person’s body weight in kilograms and m^2 for their height in meters squared.

See Figure 2. A BMI of 25.0 is considered overweight, and a BMI over 30.0 is considered obese, while the healthy range is between 18.5 and 24.9. One respondent with a BMI below 25.0 was omitted. The mean value for BMI was 41.75 (*SD* 4.75) for women and 41.42 (*SD* 4.20) for men. The sex difference was not significant.

Figure 2
The Distribution of BMI among the Respondents in the Study (N = 208).



2.2 Instrument

A questionnaire including four scales was constructed for the study. The scales measured physical, psychological, social, and sexual problems due to overweight/obesity. Responses were given on a five point scale (0 = never, 1 = seldom, 2 = sometimes, 3 = often, 4 = very often). For number of items in the scales and Cronbach's Alphas, see Table 1. For single items of the scales, see Tables 2–5.

Table 1
Alpha Values of the Scales in the Study (N = 208)

Scales Measuring Problems due to Overweight/Obesity	Items in the scale	Cronbach's Alpha α

Physical	9	.88
Psychological	5	.73
Social	7	.93
Sexual	4	.92

Table 2

Single Items Measuring Physical Problems due to Overweight/Obesity

Because of my weight ...

Climbing stairs causes me difficulties.

When doing the slightest effort, I get trouble breathing.

When I take a walk my legs and ankles become swollen.

I get pain in the chest when I am tired.

I have back pain.

I have joint pain.

I have difficulty taking a shower.

I have problems putting on and taking off clothes.

I find it difficult to find the right clothes for my size.

Table 3

Single Items Measuring Psychological Problems due to Overweight/Obesity

Because of my weight ...

I feel depressed.

My body causes me shame.

It is my own fault if I weigh too much.

I feel less worth compared to others.

I don't enjoy life.

Table 4

Single Items Measuring Social Problems due to Overweight/Obesity

Because of my weight ...

I have only few friends.

People think I am good for nothing.

People think I am not intelligent.

I feel discriminated.
People poke fun at me because of my weight.
I feel guilty when others see me eat.
I don't want anyone to see me naked.

Table 5
*Single Items Measuring Sexual Problems due to
Overweight/Obesity*

Because of my weight ...
I have almost no sexual desire.
I take no joy in sexual relations.
I avoid sexual relations as much as possible.
I have physical problems during sexual acts.

One item, “Due to my weight I have been abused by my partner”, measured victimisation from intimate partner aggression. The response alternatives were as above.

2.3 Procedure

The data were collected with an online questionnaire in English. The participants filled in the electronic questionnaire in Google Drive. The participants were reached using WhatsApp and Facebook. The link was active during February and March 2022. The participants were found with the help of friends living in Rwanda. Rwandans living abroad were also approached via social media. All respondents were voluntary and anonymous.

2.4 Ethical Considerations

The study adheres to the principles concerning human research ethics of the Declaration of Helsinki (World Medical Association, 2013), as well as guidelines for the responsible conduct of research of the Finnish Advisory Board on Research Integrity (2012).

3. Results

3.1 Correlations between BMI and Problems due to Overweight/Obesity

BMI correlated significantly for both women and men with physical, psychological, social, and sexual problems due to overweight/obesity (Table 6).

Table 6
Correlations between the Scales in the Study (N = 208)

Scales Measuring Problems due to Overweight/Obesity	BMI	BMI
	Women	Men
Physical	.37 ***	.67 ***
Psychological	.32 ***	.66 ***
Social	.46 ***	.67 ***
Sexual	.27 ***	.68 ***

*** $p < .001$

3.2 Sex Differences due to Overweight/Obesity

A multivariate analysis of variance (MANOVA) was conducted with sex as independent variable, the four scales measuring physical, psychological, social, and sexual problems due to obesity as dependent variables, and age as covariate. The multivariate analysis was significant (Table 7). The univariate analyses showed that men scored significantly higher than women on frequency of social problems and sexual problems due to obesity. There were no significant differences regarding physical or psychological problems.

Table 7
Results of a Multivariate Analysis of Variance (MANOVA) with Sex as Independent Variable, Four Scales Measuring Physical, Psychological, Social, and Sexual Problems due to Overweight/Obesity as Dependent Variables, and Age as Covariate (N = 208)

	F	df	p <	η_p^2	Mean values	
					Women	Men
Effect of Sex						
Multivariate analysis	3.05	4, 201	.018	.057		
Univariate analyses						
Physical Problems	0.67	1, 204	ns	.003	2.02	2.14
Psychological Problems	1.27	"	ns	.006	2.71	2.78

Social Problems	6.53	“	.011	.031	2.80	3.07
Sexual Problems	4.62	“	.033	.022	2.78	3.05

3.3 Differences between Types of Problems due to Overweight/Obesity

Two multivariate within-subject analyses of variance were made, one for women and one for men, comparing frequency of the four different types of problems due to overweight/obesity with each other. The multivariate analyses were significant for both women [$F_{(3, 120)} = 49.11, p < .001, \eta_p^2 = 0.551$] and men [$F_{(3, 81)} = 147.02, p < .001, \eta_p^2 = .845$]. It was found that in the case of women, physical problems due to overweight/obesity (2.02) were less frequent than psychological (2.71), social (2.80), or sexual problems (2.78). In the case of men, the pattern was the same with physical problems due to overweight/obesity (2.14) being less frequent than psychological (2.78), social (3.07), or sexual problems (3.05).

3.4 Victimization from Intimate Partner Abuse due to Overweight/Obesity

The frequency of victimisation from intimate partner abuse due to obesity was significantly correlated with BMI for women [$r = .21, p = .019$] but not for men.

4. Discussion

4.1 Summary of Findings

BMI correlated significantly for both women and men with physical, psychological, social, and sexual problems due to overweight/obesity. These replicate findings of previous studies (Adolfsson et al., 2004; Agrawal et al., 2015; Andreyeva et al., 2008; Blaine, 2008; Danna & Griffin, 1999; Doll et al., 2000; Esfahani & Pal, 2018; Fabricatore & Wadden, 2003; Jantaratnotai et al., 2017; Klaczynski et al., 2004; Magee & Heaven, 2011; Martins et al., 2008; O'Brien et al., 2013; Pan et al., 2012; Poggiogalle et al., 2014; Puhl & Brownell, 2001; Sarwer & Grilo, 2020; Strine et al., 2008; Van Hout et al., 2004; Wareham et al., 2005; WHO, 2007; WHO, 2011). No significant differences were found between women and men regarding physical and psychological problems associated with overweight.

Problems that a person living with overweight experiences in everyday life have been found to correlate with low levels of life satisfaction, low ambition, low self-confidence, and a lack of self-esteem (Klaczynski et al., 2004; Rothblum et al., 1990). The variables in the present study indicated sex differences for problems due to overweight. Men scored significantly higher than women on the frequency of social and sexual problems due to overweight. Additionally, participants faced conflicts with intimate partners due to being overweight.

In the open responses, some participants explained how difficult the daily life was: *“discrimination in the working place”, “Discrimination in school”, “When I go to the market and some people say that this person is big and stupid at the level she doesn't even think about her life”, “People underestimate my capacity to do things,” “stigmatization,” “In the bus, I was offended because of my obesity“, “Discrimination in my working place. Even before I got a job it was very difficult when you come for the interview the way people look at you you feel uncomfortable”, “Friendship discrimination”, “Yes, one day I met a person and he told how can food be better than me. For him, I was stupid because of my weight”* This might create isolation. On the other hand, it has been found that obese persons found comfort in the food (Klaczynski et al., 2004).

“To have much weight is problematic, you can not find a job people think you are lazy and can not do your job properly, and in your marriage, your wife she will all the time complain about all things you do. I had all the time sexually difficult with my wife, then divorced”.

Overweight/obese men showed less willingness to participate in sexual activity and showed less sexual desire. A previous study showed that overweight/obese men with stable partners had problems with sexual satisfaction and lack of sexual desire (Adolfsson et al., 2004). These findings might be due to the shame of assuming their sexual role as a man in the relationship. Nevertheless, psychological, social, and sexual difficulties due to being overweight/obese were more frequent than physical problems for both women and men. This might be due to the postmodern society that sends the message through media, parents, and peers that the ideal body is thin. Some might think that people who cannot control their bodies are incompetent, lack the motivation to triumph over their bodies and have undesirable characteristics to succeed in other areas. Their social level of attraction is low, hence significant stigmatisation at the social level. However, because of the absence of control over their weight, overweight persons devalue themselves and feel that they belong to a devalued social category of lacking competencies and willpower to achieve control of their weight; this might cause the blame of people with overweight/obesity for having personality shortcomings. People with low self-esteem are more predisposed than those with high self-esteem to belong to a high-status and dominant group (Klaczynski et al., 2004). Therefore, disorders in sexual functioning have been found to be linked to psychological difficulties such as poor body image, anxiety, depression, and low self-esteem (Agrawal et al., 2015; Andreyeva et al., 2008; Bajos et al., 2010; Esfahani & Pal, 2018; Esposito et al., 2008; Faith et al., 2011; Klaczynski et al., 2004; Poggiogalle et al., 2014). Finally, the frequency of victimisation from intimate partner abuse due to being overweight significantly correlated with BMI for women but not for men. Intimate partner violence (IPV) is defined as problems between partners in a close relationship, such as physical, emotional, and sexual abuse. Approximately four million obese women are exposed to IPV annually in the USA (Davies et al., 2016). These women have been found to experience adverse health consequences such as post-traumatic stress disorder difficulties (ibid.), mental health (ibid.), intestinal disorders (ibid.), depression (ibid.), chronic pain (ibid.), anxiety (ibid.) and sleep disorders (ibid.). Those things might be due to such violence they experience.

There is a fundamental similarity between IPV and obesity since IPV causes stress, and stress has a plausible link to obesity. Since IPV and obesity are very frequent, an association between IPV and obesity seems likely (Davies et al., 2016; Huang et al., 2011). A significant release of hormones such as cortisol or glucocorticoids causes a considerable desire for food consumption; the person experiencing stress can develop obesity through multiple mechanisms of hormonal release. Beyond that, harmful habits for health can be created by stress, such as a decline in physical activity and poor diets, which promotes obesity. Obesity has been observed even in people with less stress, which causes individuals to consume foods high in fat and high in sugar (ibid.).

4.2 Limitations of the Study

The sample used in this study consisted of individuals who experienced overweight/obesity. In the responses, many participants said that they were victims of discrimination and stigmatisation at work, in public spaces, and in their relationships, which for some had led to divorce. Due to the discrimination and stigmatisation, some of them first chose to remain single.

Should this study be replicated, more items measuring sexual abuse in relationships should be included in the form of scales to be more reliable. Additionally, many participants who experienced discrimination, intimate partner abuse, and stigmatisation did not want to discuss it.

Many participants requested help from the government to make healthy food available to everyone, public spaces for physical activities accessible to each person, and the government to make this matter their matter. Additionally, the control of the food market for their contents of nutrients, mainly those with high contents of fat and sugar, might be crucial for the population's well-being.

4.3 Implications of the Study and Suggestions for Future Research

The study indicates that BMI correlated significantly for both women and men with physical, psychological, social, and sexual problems due to being overweight. Discrimination,

stigmatisation, and other difficulties, such as isolation, anxiety, depression, and low self-esteem, have been found to lead to poor well-being in persons suffering from obesity (Puhl & Brownell, 2001). Obesity should be considered as a disease. Another study has also shown that some women were forced to stay obese because their husbands wanted plump women (Mukabutera et al., 2016).

Problems related to obesity, such as personality issues, depression, anxiety, stress, sexual, emotional and many other issues all affect the brain and disturb, to varying degrees, the mental functions of cognition, perception, and emotional regulation which affects people's daily lives. The lack of understanding and awareness of obesity problems is that people are unsure or ashamed to accept that obesity is positively stigmatised. The stigma means dishonour or disgrace. If obesity could be treated like other diseases, symptoms such as depression would be like chest pain, or anxiety would be like shortness of breath (Agrawal et al., 2015; Blaine, 2008; Esfahani & Pal, 2018; Fabricatore & Wadden, 2003; Faith et al., 2011; Jantaratnotai et al., 2017; Klaczynski et al., 2004; Magee & Heaven, 2011; Pan et al., 2012; Poggiogalle et al., 2014).

Medication can help eradicate symptoms but does not help to eliminate prejudice or discrimination and stigma that a person with obesity experiences in daily life. The most significant barrier to obesity is the lack of awareness, access to care, and stigma. Providing this kind of proactive healthcare to people with obesity would decrease healthcare costs (Agrawal et al., 2015; Doll et al., 2000; Sarwer & Grilo, 2020; Tremmel et al., 2017; WHO, 2007). In addition, families of people with obesity would be relieved of emotional stress and financial burden. Society would benefit from the fact that many of the glaring social problems that disturb the community would be reduced or eliminated (Yach et al., 2006). Stopping the suffering from obesity and stigma or discrimination, it should be recognised that obesity is a medical condition which needs to allow those with obesity problems to be treated without being stigmatised. This achievement is crucial by showing the need to be involved, show our concern, show compassion, make no judgment, and not be afraid to ask to make that your concern. It is good to give support and care to someone and alleviate unnecessary suffering and potential harm to themselves or others, hence the importance of influencing the government and the media either individually or through advocacy groups.

It is important to understand that obesity is a medical, psychological, and social condition, and there are effective treatments that must be accessible to everyone. Increasing consciousness among the public, the government, and the media is important to end the stigma and discrimination toward obese persons (Agrawal et al., 2015; Puhl & Brownell, 2001). Finally, continuing research on this topic would be valuable for the awareness of the difficulties experienced by people with overweight/obesity on the psychological, social and sexual level and to research intimate partner abuse and overweight/obesity.

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