

AN EXAMINATION OF ADOLESCENTS' RISK PERCEPTIONS ABOUT OBESITY AND ITS RELATED DISEASES IN SELECTED SENIOR HIGH SCHOOLS IN THE GREATER KUMASI

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ABSTRACT

Obesity is one of the most obvious but unappreciated public health challenges that affect individuals of all ages leading to serious health problems such as hypertension and type 2 diabetes. Due to their lack of physical activity, adolescents are more prone to obesity. The goal of this study was to examine the adolescents' risk perceptions about obesity and its related diseases in selected senior high schools in the Greater Kumasi. A descriptive cross-sectional research design was used in this study. A total of one hundred (100) students from each of the seven (7) schools were included in the study. The sample size was determined using the Cochran single proportion population calculation. Based on the 17.1% prevalence of overweight and obesity among Senior High school students in Greater Kumasi and a significance level of 5%, the sample size was estimated with a confidence range of 95% and a significance level of 5%. A simple random sampling procedure was utilised to ensure that each student from the chosen schools had an equal chance of being chosen. A questionnaire was used as the main instrument for the data collection. Data were analysed using descriptive statistics. The study revealed that respondents had a high-risk perception of obesity particularly when it comes to its ability to affect their health status. It was concluded that obesity has little influence on the majority of respondents' ability to concentrate in class or limit their involvement in physical activities. The school authorities should re-educate students on how obesity can hurt their concentration level as well as their physical competence.

Keywords: Obesity, Adolescents, high risks, obesity risks, weight measurement, high blood pressure, heart attack, Greater Kumasi

INTRODUCTION

Perception is seen as a key determinant for behaviour or action in the field of health promotion [1]. For instance, it is argued that the perception individuals, society, and professional bodies have about obesity and its associated risk tend to moderate an individual intention to take stringent measures control their weight status. Conceptually, weight perception is described as the perception of one's body figure as an important dimension of the body image, which plays an important role in related conducts [2]. Hence, negative perception about obesity is found to minimize obesity prevalence whereas a positive perception about obesity is found to induce obesity occurrence. This section of the study seeks to explore the adolescent risk perception about obesity.

A work done by [3] sought to assess the perceptions of body size, obesity risk awareness, and the willingness to lose weight among adults in living in resource-limited urban community in South Africa. The study used a descriptive qualitative approach where semi-structured and focus group discussions were used to collect information from both black men and women within the ages of 35–70 years living in an urban South African township. The study took the respondents weight and height measurements in order to classify them into optimal weight, overweight and obese groups based on their body mass index (Kg/m²). Participants were tasked to discuss the perceived obesity threat and risk of cardiovascular disease. Information on body image perceptions and the willingness to lose excess body weight were also discussed. The study used the thematic approach to analyse the study data. Results from the study suggest that most of the respondents were of the view that condition of obesity can result in an adverse health conditions such as heart attack, stroke, diabetes, and hypertension. Nevertheless, when it came to the perception of their level of severity on obesity, it was established that obesity was perceived differently in the groups. For instance, men in all groups and women in the obese and optimal weight groups had the perception that obesity could have adverse consequence on their health whereas the overweight women did not have that same kind of negative perception about obesity. Moreover, it was established that obese participants who had experienced chronic ailment showed strong perceptions of risk of obesity and cardiovascular disease.

Okop et al. [3] again asserted that when it came to the participants general perception about weight, the general view running through the respondents was that being thin was not desirable, and overweight size is socially desirable. For instance, a thin person was perceived as unhealthy, and one who suffers disease such as HIV/AIDS, TB and cancer. Other participants also attributed thin to individuals who are either suffering from physical or emotional stress, or depression. Likewise, results obtained in the study of [4] happen to be consistent with the perception claims made in the study of [3]. In the study of [4], it was observed that participants perceived thinness to be related to illness, specifically suspected HIV infection due to the relatively high prevalence of HIV infection in Botswana. Also, it was observed that obese body sizes were associated with laziness, isolation, and negative social stigma. Also, it was observed that westernized preferences are gradually replacing the historical notion that a large body size is consistent with wealth, strength, and prosperity. Brown [4] used a qualitative-descriptive study to analyze and interpret data from 15 focus groups (12 adolescent and 3 parent focus groups of unrelated participants) conducted in Gaborone, Botswana. The main aim of the study was to describe the factors that influence adolescent and adult perceptions and attitudes related to adolescent diet, physical activity, body size, obesity and potential obesity interventions.

In the same country that is, Botswana, a study by [5] observed that Botswana adolescent students had a negative perception towards overweight and obesity. Specifically, Malete et al. [5] found out that overweight and obese adolescent school students in Botswana expressed that their body weight and size were farther from the ideal and that they had greater dissatisfaction with weight and body size than their normal-weight peers. In South

Africa, a study by [6] observed that overweight women do not perceive themselves as being overweight and accordingly viewed thinness as being synonymous with HIV infection or AIDS. In the same study it was observed that South African girls and adolescent females identified their parents' perception of excess weight as a sign of wealth and health. However, in Cameroun a study undertaken by [7], observed that Cameroonian adolescent girls looked-for a little extra fat for a desirable body shape, but did not want to gain too much body weight. Conversely, Black African girls living in Cape Town, perceived body shapes associated with overweight and obesity as a sign of happiness, wealth, strength, and respectability whereas thin body shapes as perceived as a symbol of poor health or as a hint that the person is suffering from chronic ailment such as, HIV/AIDS and tuberculosis [8]. Moreover, with the study of [9], it sought to explore the differences in risk perceptions of overweight/obese and normal-weight adolescents about obesity and associated risk factors. The study used a quality approach where focus group discussion was used to obtain information from adolescents in schools in South Indian city of Hyderabad. Seventy-nine adolescents within the ages of 11–14 years were organized around 10 groups. Results were presented according to 6 themes. It was observed that the participants across the 10 groups had limited understanding of nutrition during adolescence as well as causes and consequences of obesity. For instance, most of the participants particularly those within the overweight group held a bias perception that obesity did not lead to any negative health outcome.

Obesity is a disease and a known risk factor for a variety of conditions, including high blood pressure, heart disease, stroke, diabetes, joint problems such as osteoarthritis, sleep apnea, and respiratory problems, gallstones, kidney stones, and infertility [10]; cancers of the esophagus [11]. Ghana has had the highest prevalence of overweight and obesity in West Africa, according to a WHO assessment [12]. Prevalence studies using similar measures in Ghana show that 12.20 % of high school students in Kumasi metropolis are overweight or obese, while 17.4 % of school-aged children in Tamale are overweight or obese, 10.9 % of primary school students aged 5-15 years in Greater Accra are overweight or obese, and 11.7 % of high school students aged 15-19 years in Greater Accra are overweight or obese [13] [14] [15] [16]. These findings suggest that childhood obesity is a public health issue affecting more than one out of every ten Ghanaian youngsters. However, there are established immediate and long-term repercussions of high body fat, in addition to its prevalence [17]. Many forms of studies have identified factors that contribute to obesity and overweight. Overweight and obesity have been linked to dietary habits, physical activity, socioeconomic status, lifestyle behaviors (such as smoking and alcohol consumption), and environmental factors [18] [19]. The majority of these studies have been conducted in adults and a few in adolescents in various regions of the country. As a result, the municipality's obesity and overweight teenage risk factors must be assessed.

Through secondary data analysis, the Ghana Demographic and Health Survey, which reveals a high prevalence of obesity among women and this was, confirmed by [20]. Increased sedentary nature of daily activities, and physical inactivity, pose serious health

risks to the body, as they raise the risk of obesity and overweight, compromising appropriate body function and output [21]. In Ghana, obesity is on the rise. According to Amoah's research, the total prevalence of overweight and obesity was 23.4 % and 14.1 % in both urban and rural Accra, respectively. As a result, if this problem is addressed, we will be able to prevent not only the transition of adolescent obesity to adulthood, but also health-related problems associated with obesity, thereby extending the lives of these adolescents. The study aimed to examine the adolescents' risk perceptions about obesity and its related diseases in selected senior high schools in the Greater Kumasi.

MATERIAL AND METHODS

A descriptive cross-sectional research design was used in this study. According to Kumar [22], cross-sectional studies are most suited to determining the dominance of a phenomenon, situation, problem and attitude, among a cross-section of a population. The study was conducted in the Greater Kumasi and Adolescents at Senior High School made up the study population. Within the Greater Kumasi Metropolis, seven schools were targeted. Furthermore, the study population consisted of one hundred (100) students from each of the seven (7) selected schools. As a result, 700 students were chosen. The Cochran single proportion population calculation was used to get the sample size. With a confidence range of 95 % and a significance level of 5%, the sample size was estimated based on the 17.1 % prevalence of overweight and obesity among Senior High school students in Greater Kumasi [23]. Simple random sampling technique was used in this study to ensure that each student from the selected schools had an equal chance of being selected. This study was guided on the principles of quantitative research approach and therefore questionnaire instruments were used as the data collection instrument [24]. The researchers sought permission from the school Management before administering the questionnaire which took three weeks to retrieve all the responded questionnaires. A pre-test was done at a comparable environment, Yaa Asantewaa Girls Senior High and Islamic Senior High School, to ensure the instrument dependability. This activity aided in determining whether the respondents comprehend the things as presented in the survey. Any misunderstandings discovered during the pre-test were changed to make them more straightforward and meaningful. The researchers required to maintain a professional demeanour and equally addressed the questions and concerns raised by the respondents in the course of the study [25]. Also, a cover letter was secured from the University of Education, Winneba which spells out the purpose of the study and the items in the questionnaire. Data were analysed using descriptive statistics (i.e. frequencies, percentages).

RESULTS AND DISCUSSION

Gender of respondents

Figure 1 shows that of the 496 total responders, 239 were males (48.2%), while 257 were females (51.8%). According to the findings, there were more females than males among the respondents in this survey. Figure 1 depicts the results of the gender distribution of the respondents.

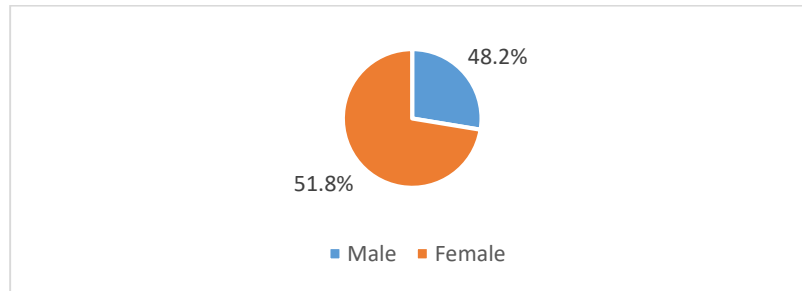


Fig. 1: Gender Distribution of Respondents

Source: Authors field work, 2020

Age Distribution of Respondents

Table 1 shows that 25.4% of the respondents are between the ages of 11 and 15, as can be seen. However, 64.6% of the respondents, or more than half of the total, were between the ages of 16 and 20. Again, 10.0% of the respondents were between the ages of 21 and 25, indicating that they were between the ages of 21 and 25. This is remarkable, given that pupils in senior high school are supposed to be no older than 20 years old. According to the Ghana Education Service's age framework, the mean age distribution of final year senior high pupils should be between 17 and 19 years old. According to this concept, pupils in senior high school should be between the ages of 15 and 19. Surprisingly, 10% of the respondents in this study had ages that fell within the age range of 21-25 years, indicating that their ages were significantly higher than the predicted age range of senior high school students.

Table 1: Age Distribution of Respondents

Age	Frequency	%
11-15	125	25.4
16-20	318	64.6
21-25	49	10.0
Total	492	100.0

Source: Authors field work, 2020

Class Year of Respondents

Figure 2 shows that a little more than half of the respondents, or 51%, were in their third year. In the understudied schools, 38.5 % of the respondents were in year two, while the remaining 10.5 % were in year one. This indicates that the majority of the responders were in their final year of college. The large number of year three students could be due

to the Covid-19 condition, which has limited students' access to schools, notably year one and two students. Only year three pupils and gold year two students have been permitted to return to school.

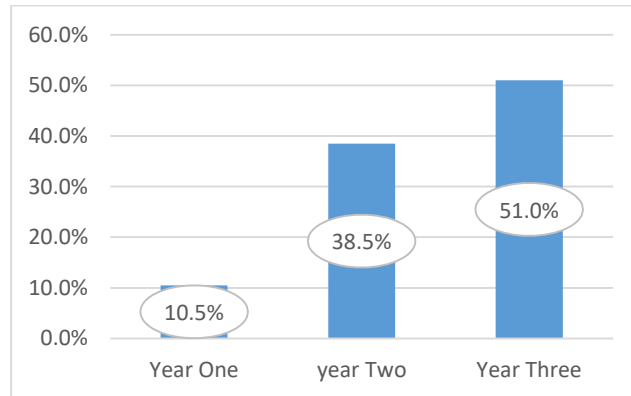


Fig. 2: Class Year of Respondents

Source: Author's field work, 2020

Place of Stay of Respondents

Results in Table 2 show that most of the respondents' lived in a city. This means that 33.4% of the respondent's place of residence falls under the description of cities. Living in the city means that the respondents will be predisposed to a lot of sedentary lifestyles such as watching television, playing video games, and eating junk foods because of their ease of access in those areas. Again, as cities tend to have limited space for play it presupposes that respondents staying in cities will be less engaged in physical activities. Also, 20.2% of the respondents lived in suburbs that is, residential areas located on the outskirts of cities or large towns. In Ghana, suburbs often connote a new site that is, a newly developing area outside the main town. Since suburbs in Ghana tend to be developing areas it suggests that residents in this area will be engaged in the same sedentary lifestyle as their counterparts found in cities. This is largely because developing area tends to have fewer neighbours' and neighborhoods as such most residents in this area are likely to stay indoors than to walk around. Again, 17.6% of the respondents lived in a rural area. As rural areas tend to be characterised by high agricultural activities such as farming and animal rearing, it suggests that students in this area may be engaged in a lot of farm activities hence increasing their engagement in physical activities. Also, living in a rural area means that the individual will have access to fresh foods to eat hence restricting their consumption of fatty foods and cheap imported calorie-dense foods. Again, 17.2% of the respondents lived in medium-size towns whereas the rest that is, 11.5% lived in small towns. Generally, where a person stays or lives tends to contribute to their obesogenic behavior as an individual place of stay can either restrict or increase his or her engagement in physical activities or can even determine their accessibility to junk foods.

Table 2: Place of Stay of Respondents

Location	Frequency	Percent
Rural area	87	17.6
A small town	57	11.5
A medium-sized town	85	17.2
A suburb	100	20.2
City	165	33.4
Total	494	100.0

Source: Authors field work, 2020

Discussion

This objective sought out to explore the respondents' risk perception towards obesity. Hence, the emphasis was to examine whether the respondents perceived obesity as less risk or high-risk health condition particularly as to whether obesity could increase one predisposition to diseases or lower person social status or self-confidence. Accordingly, results on the respondents' risk perception about obesity have been presented in Table 3.

On this study objective, a 5-point Likert scale was employed to elicit the respondents' responses on their risk perception towards obesity and its related diseases. However, a significant level of 0.05 was pre-determined and a hypothetical mean range of 1.0 to 1.44 was used to indicate that the respondent's level of agreement on an item fell under "strongly disagree", mean score within the range of 1.50 to 2.44, on the other hand, hinted that the respondents level of agreement fell under "disagree", 2.50 to 3.44 meant that the respondents level of agreement on an item fell under "not sure" rating, 3.50 to 4.44 indicated that the respondents level of agreement on an item fell under "agree" and finally, a mean score within the range of 4.50 to 5.00" hinted that the respondents level of agreement to an item fell under "strongly agree". The descriptive analysis shows that all the risk perception items had their mean values above 1.5, suggesting that the respondents' responses on these items were situated within the ratings of disagreed, not sure, and agreed to rate. Among all the thirteen (13) items, "eating leafy foods (i.e. foods rich in vegetables)" was viewed by most of the respondents as very important in controlling the respondents' weight. This item recorded the highest mean value of 3.59. This mean value hints that most of the respondents were of the view that eating leafy foods that is, foods rich in vegetables) could significantly improve their body weight. Subsequently, the next highest mean value went to item 10, "being overweight increases one risk level to chronic diseases such as diabetes, hypertension, stroke, etc." Specifically, this item recorded a mean value of 3.54 indicating that the respondent's rating on this item fell within the agreed score. What this mean value suggests is that most of the respondents perceived the condition of obesity as very deadly as it can

increase one's vulnerability to chronic diseases such as diabetes, hypertension, cancer, stroke, etc. Likewise, the respondents rating on item 12 'being overweight may not have a serious effect on my health' confirm the respondent's rating on item 10 "being overweight increases my risk level to chronic diseases such as diabetes, hypertension, stroke, etc." On this item, most of the respondents held a contrary view as their level of agreement fell within the disagreed score. It recorded a mean value of 2.41 indicating that most of the respondents say that being overweight can negatively affect their health status. Again, the third-highest mean value went to item 4, 'eating fatty foods always will increase my body weight. It recorded a mean value of 3.53 suggesting that most of the respondent's ratings on this item fell within the agreed score. What this mean value also suggests is that most of the respondents perceived the consumption of fatty foods such as ice cream, cakes, sausage, pizza, etc. as wrong food choices since these foods could increase the adiposity in a person's body. Again, having most of the respondents responding on the reverse on item 1, 'eating fatty foods always can be good for my personal health' tends to affirm their earlier views on item 4. Particularly on item 1, results from Table 3 show that most of the respondent's ratings fell within the disagreed when asked whether consuming fatty foods always can be good for a person's health. It obtained a mean score of 2.08.

Moreover, when it comes to the other items which generally sought to assess the respondent's perceptive view on plus body size in terms of how it affected their social status or engagement in physical activities, it was established that most of the respondent's ratings appeared to be mixed. For instance, in certain instances, most of the respondent's level of agreement fell within the disagreed score whereas in other instances their level of agreement fell within the not sure rating. Particularly, when the respondents were asked whether appearing overweight among their peers makes them feel good and happy, it was revealed that most of the respondent's levels of agreement on this item fell within the disagreed score. It obtained a mean score of 1.83 indicating that appearing overweight neither made the respondents feel good nor happy.

Again, as to whether being big (i.e. in terms of size) among their peers increases their self-confidence, it was established that most of the respondent's ratings on this item fell within the disagreed score. It recorded a mean value of 2.09 pointing out that being big among their peers did not in any way increase the respondent's self-confidence. Similarly, when the respondents were asked whether being overweight reduces their level of class participation, results from Table 2 suggests that most of the respondents' responses fell within the disagreed score. It obtained a mean value of 2.37 hinting that most of the respondents held that being overweight did not in any way reduce their classroom participation.

More so, results from Table 3 show that most of the respondents disagreed when asked whether overweight individuals are well respected in their communities. This item recorded a mean value of 2.13 indicating that being overweight did not improve a person's status or self-respect. Generally, having most of the respondent's ratings falling within the

disagreed score suggests that being overweight did not result in any higher social status. For instance, appearing overweight was found not to result in any improvement in social status such as an increase in self-confidence and self-respect among the respondent's peers. Again, it was revealed that being overweight did not reduce the participants' level of participation in-class activities. However, as indicated earlier, on some of the other items it was revealed that most of the respondents could not be very explicit in their level of agreement as most of their ratings fell within the not sure rating. For instance, on item 6, 'being overweight reduces my level of participation in sports activities, results from Table 3 show that most of the respondent's ratings fell within the not sure rating. Meaning, most of the respondents neither agree nor disagree as to whether being overweight reduces their participation in sports activities. It obtained a mean score of 2.94 confirming that most of the respondents could not be conclusive in rating. Once again, when the respondents were asked whether appearing overweight did enable them to bully their juniors, it was established that most of the respondents remain undecided in their rating. It obtained a mean value of 2.66 hinted that most of the respondents neither agree nor disagree as to whether appearing overweight enabled them to bully their juniors at school. Again, when the respondents were asked to indicate their level of agreement as to whether they hate being seen/regarded as obese (i.e. 'Obolo') among their peers, it was revealed that most of the respondents could not tell whether this was the case or not. The mean value on this item was 3.33 indicating that most of the respondents could neither agree nor disagree as to whether they hate being seen/regarded as obese (i.e. 'Obolo') among their peers.

Moreover, a statistical t-test was further used to establish whether the respondent's risk perception of obesity was statistically significant or not. The statistical t-test analysis in Table 3 indicates the test significance concerning the mean, standard deviation, and standard error for each risk perception and their corresponding statistical significance level. The standard error is the standard deviation of sample means and is an indicator of how representative the sample is when compared to the study population. A large standard error suggests that there is a lot of variability between means of different samples. A small standard error suggests that most sample means are similar to the population mean and so the sample is likely to be an accurate reflection of the population. The standard error for all the means is almost nearing 1 suggesting that the sample chosen is an accurate reflection of the population (see Table 3). Moreover, out of the 13 risk perception items, the standard deviation for all the items were either nearing 1.00 or above 1.00 confirming that the respondent's responses on these items were well spread across all the 5-point rating with none of the items having its rating spread across one direction.

Again, the p-value provides a basis for a statistical decision to be made as to whether or not the respondent's risk perceptive view on obesity was statistically significant or not. Results in Table 3 show that all the p-values on the 13 items were below 0.005 confirming the statistical significance of the respondent's rating. Results from Table 3 show that the respondents had a high-risk perception of obesity particularly when it comes to its ability

to affect their health status. For instance, most of the respondents shared the view that being obese can increase one predisposition to chronic diseases such as diabetes, hypertension, cancer, stroke, etc. Likewise, most of the respondents held the view that being overweight could have a consequential effect on their health. Additionally, results from the study suggest that being obese or overweight did not improve or enhance a person's social status or self-confidence within the community and among their peers. For instance, most of the respondents held that appearing overweight among their peers did not make them feel good and happy. Likewise, most of the respondents were of the view that being overweight did not enhance a person's self-respect within their communities. Moreover, results from the study suggest that most of the respondents had a lower risk perception of obesity particularly with regards to its ability to affect their physical prowess and mental cognition. For instance, it was revealed that most of the respondents held the view that obesity did not in any way affect their classroom concentration or restricts their engagement in physical activities. This is quite revealing since existing evidence has proven that being obese does restrict one engagement in physical activities and even limits one motor skills development.

Results found in this study tend to be consistent with some portions of [3]. Specifically, the portion this result seems to align with is the high-risk perception their respondents had about obesity. In the case of [3], the respondents held the view that being excessively overweight could increase one's vulnerability to chronic ailments such as heart attack, stroke, diabetes, and hypertension. However, the social perception view formed by these study respondents tends to be quite different from what was found in the study of [3]. Particularly, in this study, obesity did not improve or enhance a person's social status or self-confidence within the community or among their peers. Nevertheless, in the study of [3], it was observed that appearing big 'i.e. overweight' improves one social status. Specifically, the general view running through their study respondents was that being thin was not desirable, and overweight size is socially desirable. For instance, a thin person was perceived as unhealthy, and one who suffers diseases such as HIV/AIDS, TB, and cancer. Other participants also attributed thin to individuals who are either suffering from physical or emotional stress, or depression. Again, findings from this study are inconsistent with the results of [5] as in their case; it was found that Botswana adolescent students had a negative perception towards overweight and obesity. Specifically, [5] found out that overweight and obese adolescent school students in Botswana expressed that their body weight and size were farther from the ideal and that they had greater dissatisfaction with weight and body size than their normal-weight peers. Interestingly, this was not the case in this study as it was established that most of the respondents held that appearing overweight among their peers neither made them feel good nor happy. Meaning, this study respondents appear to care less about their body size even though they admit it could affect their health negatively. Again, the views shared by the respondents seem to contradict the one found in the study of [26] in South Africa. In their study, excess weight was accorded the status of wealthy.

Table 3: Adolescent Risk Perception about Obesity and its Related Diseases

Risk Perception	Mean	Std. Dev	t	Mean Diff	Std Mean	Error	Sig. (2-tailed)
1. Eating fatty foods always can be good for my personal health.	2.08	1.172	38.567	2.081	.054		.000
2. Appearing overweight among my peers make me feel happy.	1.83	1.051	37.901	1.833	.048		.000
3. Being big among my peers increase my self-confidence.	2.09	1.228	36.670	2.091	.057		.000
4. Eating fatty foods always will increase my body weight.	3.53	1.322	57.786	3.532	.061		.000
5. Being overweight reduces my level of participation in class.	2.37	1.302	39.377	2.367	.060		.000
6. Being overweight reduces my level of participation in sports activities.	2.94	1.523	41.789	2.942	.070		.000
7. Appearing overweight can enable me bully my juniors.	2.66	1.375	40.864	2.661	.065		.000
8. Eating leafy foods (i.e. foods rich in vegetables) will improve my body weight.	3.59	1.348	57.079	3.593	.063		.000
9. I hate been seen/regarded as obese (i.e. "obolo") among my peers.	3.33	1.398	51.331	3.327	.065		.000
10. Being overweight increases my risk level to chronic diseases such as, diabetes, hypertension, stroke, etc.	3.54	1.402	54.553	3.536	.065		.000
11. Eating fast foods every day is good for my health.	2.12	1.285	35.598	2.123	.060		.000
12. Being overweight may not have a serious effect on my personal health.	2.41	1.300	41.653	2.513	.060		.000
13. Overweight individuals are well respected in our communities.	2.13	1.288	31.852	2.126	.067		.000

Source: Authors field work, 2020

CONCLUSION

Based on the findings, it was concluded that the majority of respondents had a high-risk impression of obesity, especially when it came to its propensity to damage a person's health state. In addition, the majority of respondents had a decreased danger perception of fat, particularly in terms of its tendency to impact their physical prowess and mental cognition abilities. Furthermore, an appreciable number of respondents felt that being fat or overweight did not increase or enhance a person's social status or self-confidence in the community or among their peers in any way. Obesity, according to the majority of respondents, has no effect on their ability to concentrate in class or limit their participation

in physical activities. The school authorities should re-educate students on how obesity can have an adverse effect on their concentration level as well as their physical competence.

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