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Knowledge and Awareness about the Relation between Obesity and Academic Performance

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Authors' contributions

This work was carried out in collaboration among all authors. Author BS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RGD and AJP managed the analyses of the study. Author RGD managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health. It may even affect mental health also. Obesity also plays a role in academics; it may be disadvantageous to some of the students. Previous studies have found that obesity could influence academic performance. So this study concerned preparing questions and circulating among the students (school and college). The aim of this study is to determine the awareness level of association between obesity and academic performance. The purpose of the study was clearly explained to the students. A total of 100 responses were received. All the responses were taken into consideration and the statistical analysis paired t test was made using SPSS software for the representation of pie charts and bar graphs (association graphs). According to the results, 67% students answered that the rough weight of the topper of their class would be

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45-65 kgs, 25% of them said that it would be 65-80 kgs and the rest 8% said that it would be 80-90 kgs. 37% of students responded that obesity is disadvantageous towards academics, another 63% disagree with it. Most of the students of this survey responded that obesity does not cause any adverse effects on academics. But the care should be taken by the obese students towards their health and academics.

Keywords: Adolescents; obesity; academic achievement; association.

1. INTRODUCTION

Obesity is a common but often underestimated condition of clinical and public health importance in many countries around the world. Its general acceptance by many societies as a sign of well-being or a symbol of high social status, and the denial by health care professionals [1]. Although the exact association between obesity and poor academic performance remains to be defined, psychosocial factors, such as altered peer relationships and poor self-esteem have been suggested to influence the association between childhood obesity and school performance [2]. Although a broad spectrum of dietary treatment choices to lower excess weight is offered, there is an agreement among consultants that each one these strategies end in solely a restricted and short weight loss. Even multidisciplinary approaches together with dietary measures, increase in physical activity, and psychotherapy do not give a satisfactory success rate [3]. Apart from being a risk factor for cardiovascular diseases, Diabetic mellitus and other health conditions had been a cause for overweight and obesity. Obesity is further responsible for memory functions and cognitive ability [4]. The sleep-obesity relationship is inconsistent in adolescents. Sleep duration and quality may have crucial connections to obesity, particularly in adolescents where sleep alterations are common. Elevated BMI in adolescents may influence academic performance [5]. Adiposity did not relate to actual academic performance in a sample of predominantly Latino and Asian-American adolescents [6]. Physical activity and diet play a pivotal role in a student's life during examination. Awareness about healthy exercise and dietary lifestyle modifications may help the students to perform well during examinations [7]. Obesity could negatively influence academic outcomes. The relationship between obesity rates and academic performance deserves attention because obesity rates have been steadily increasing over the last few decades [8].

Previously our department has published extensive research on various aspects of endemic goitre [9], infertility, thyroid functions [10], environmental factors on sleep patterns [11], neonatal jaundice [12]. This vast research experience has inspired us to do research on the effect of obesity on academic performance. The main aim of this study is to assess the awareness about the relation between obesity and academic performance.

2. MATERIALS AND METHODS

The survey based study and a set of questionnaires was prepared based on the relation between obesity and academic performance. The students of schools and colleges were selected for the survey irrespective of the gender. Obese students, Underweight students, student's educational status were included in this study. It was circulated among the students through an online survey monkey link. The sample size chosen for the study was 100. Before the start of the survey, a detailed explanation of study was shared to the participants. All the responses were received into consideration and the statistical analysis paired t test was made using the SPSS software. The results were represented in the form of pie charts and bar graphs.

3. RESULTS AND DISCUSSION

According to the results, 67% students answered that the rough weight of the topper of their class would be 45-65 kgs, 25% of them said that it would be 65-80 kgs and the rest 8% said that it would be 80-90 kgs. (Fig. 1) 1% of them responded that underweight students take more leaves, 81% of them responded that normal weight students take more leaves followed by 18% overweight students taking leaves (Fig. 2). 59% students are having obese child that are good at studies and 41% are not having (Fig. 3). 42% were aware of the effect of obesity on studies and 58% were not aware (Fig. 4). 13% students have high concentration, 53% students have good concentration and 27% have low concentration and the rest 7% have very low concentration

(Fig. 5). 41% of students were found to be healthy and the other 59% were found to be unhealthy (Fig. 6). 30% of the obese students show good involvement during physical exercises and 70% of them show bad involvement (Fig. 7). 20% of the obese students show 10-15 min active participation in a 2 hours of class, 30% of them show 15-30 min active participation, 42% of them show 30 min-one hour active participation and the rest 8% show less than 10 min active participation (Fig. 8). 37% of students say that obesity is disadvantageous towards academics, another 63% disagree with it (Fig. 9).

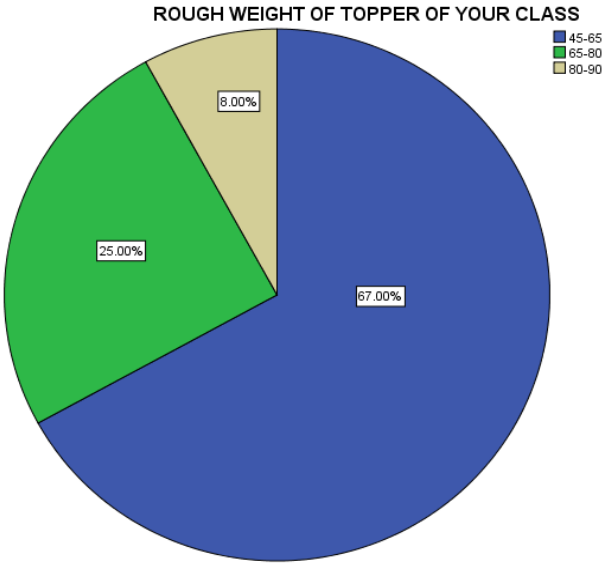

Fig. 1. Pie chart showing the distribution of weight of toppers in a class. 67% students answered that the rough weight of the topper of their class would be 45-65 kgs (blue), 25% of them said that it would be 65-80 kgs (green), and the rest 8% said it would be 80-90 kgs (yellow)

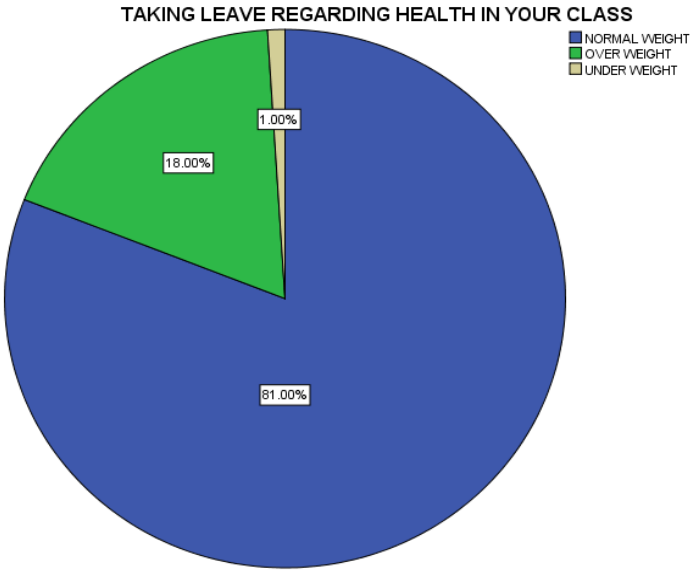

Fig. 2. Pie chart showing the distribution of taking leaves among a class in accordance to weight. 1% of them said that underweight students take more leaves (yellow), 81% of them said that normal weight students take more leaves (blue) followed by 18% overweight students taking leaves (green)

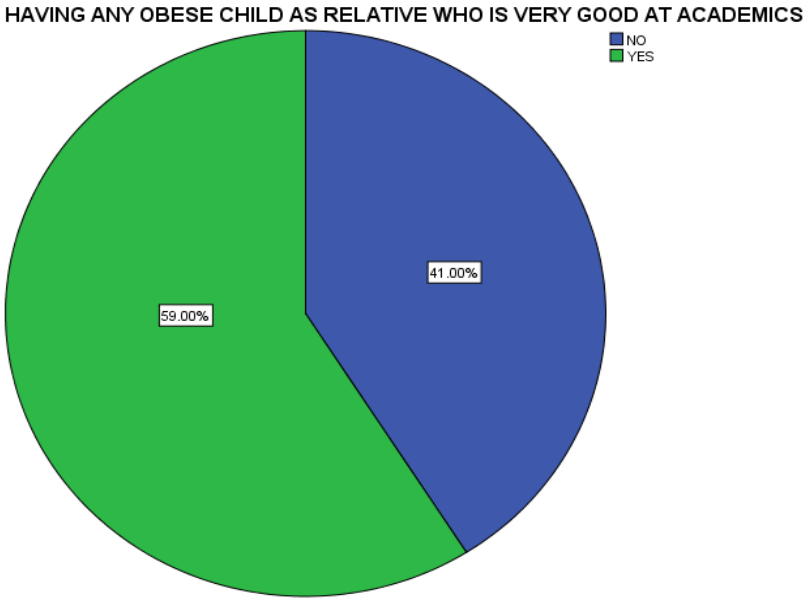

Fig. 3. Pie chart showing the distribution of students on having any obese child as relative who are good at studies. 59% students were having obese child that are good at studies (green), 41% were not having (blue)

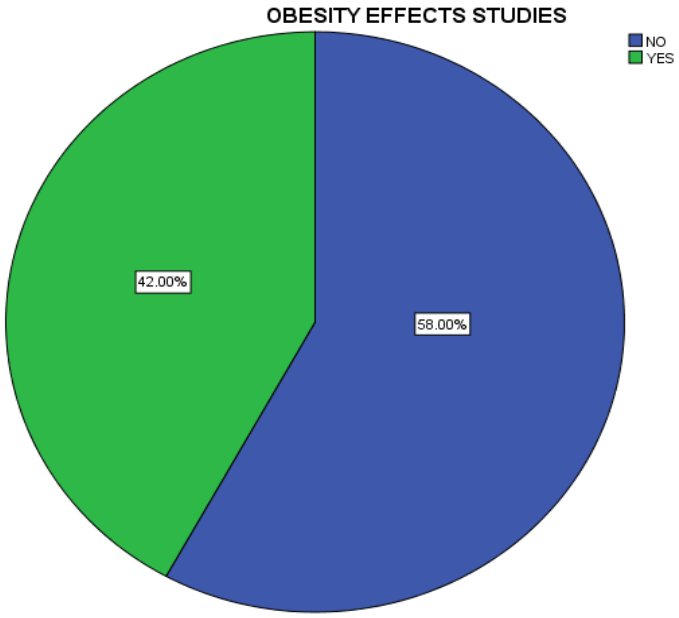

Fig. 4. Pie chart showing the distribution of students having awareness of the effect of obesity on studies. 42% were aware (green) and 58% were not aware (blue)

Twenty-four studies assessed the association between overweight and/or obesity and academic achievement whereas two studies related percentage body fat, one study BMI z scores and two studies BMI, to children's academic achievement. Measures of academic achievement were obtained from school records or standardised tests by 25 studies and five studies relied on teacher or self-reported academic attainment [13]. The findings of our study are also supported by many other studies such as the one done in the UK by Arora T, 2012 and in Allahabad city by Bansal N, 2016 pointing out the fact that poor academic performance may

be because of peer victimisation which includes teasing and bullying and related absenteeism. Children from cities are more ex- posed to junk food consumption which may be the reason for poor scores in mathematics and reading subjects thus making the overall academic excellence level low [14]. Overall, only 15 of the 34 studies that met our criteria found a significant negative relationship between obesity and academic performance. Eleven of the 23 cross- sectional

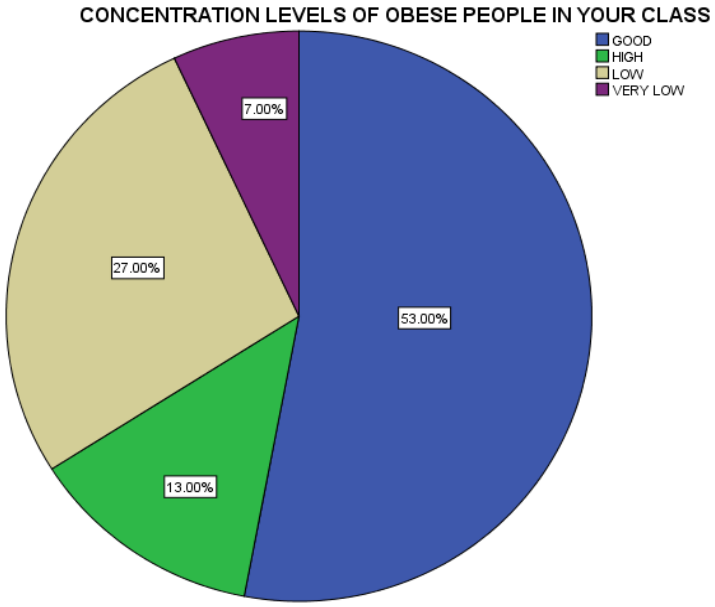

Fig. 5. Pie chart showing the distribution of concentration levels among the students of the class. 13% students had high concentration (green), 53% students had good concentration (blue), 27% had low concentration (yellow), and the remaining 7 % had very low concentration (purple)

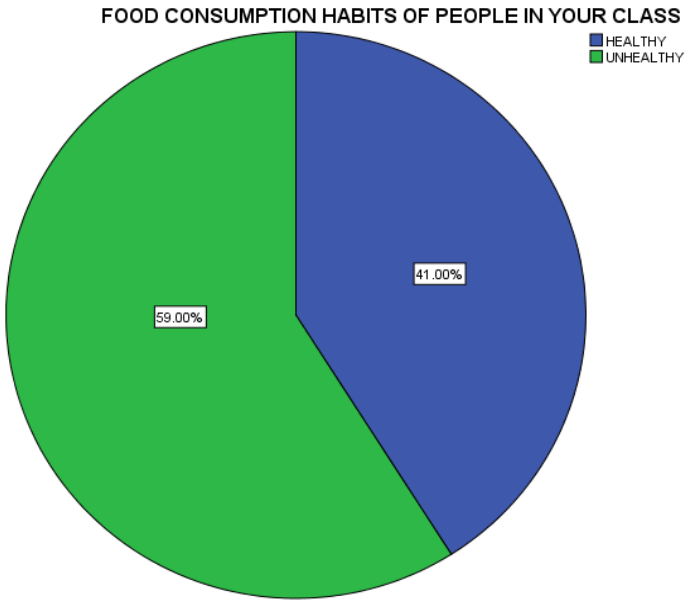

Fig. 6. Pie chart showing the distribution of food consumption habits of people in a class. 41% of students were found to be healthy (blue), and the other 59%were found to be unhealthy (green)

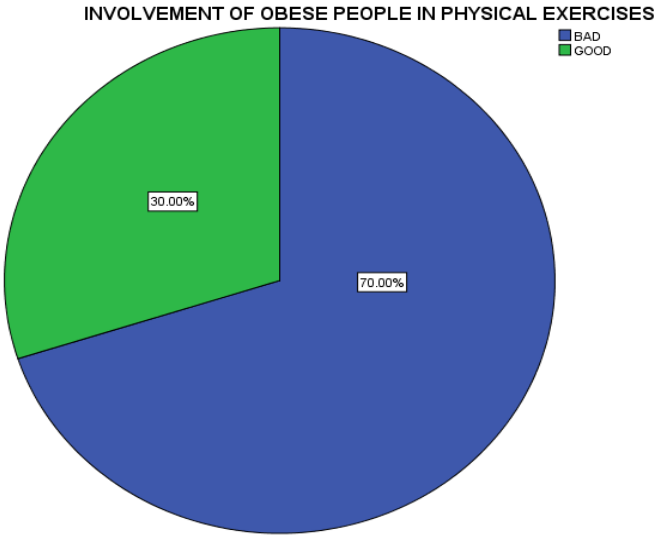

Fig. 7. Pie chart showing the distribution of involvement of obese students in physical exercises. 30% of the obese students showed good involvement in physical exercises (green) and 70% showed bad involvement (blue)

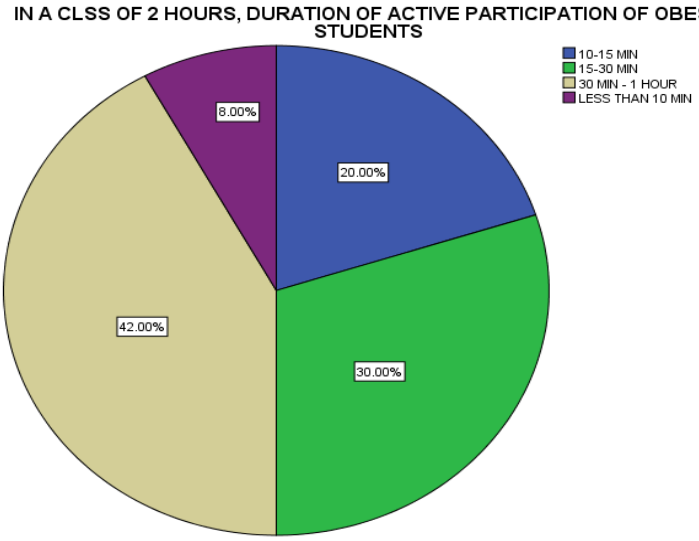

Fig. 8. Pie chart showing the distribution of time lapse of active participation of obese people in a class. 20% of the obese students showed 10-15 min active participation in a 2 hours of class (blue p), 30% of them showed 15-30 min active participation (green), 42% of them showed 30 min-one hour active participation (yellow) and the rest 8% showed less than 10 min active participation (purple)

studies and four of the 11 longitudinal studies reported a significant negative relationship between obesity and academic performance [15]. Despite the current lack of understanding about the directionality of the association between obesity and poor school performance, the fact that there is an association adequate to influence change in school policies and practices. Parents, school board members, and other administrators must grapple with decisions about how to balance their children's diet [16]. Ghana is going through an economic and nutrition transition and experiencing an increase in the prevalence of obesity and obesity-related illnesses. There is the need now, more than ever, to set up a multi-sectoral task force to assess the national prevalence, trends, determinants and impact of obesity and its related NCDs on the society

as a whole and on health care provision in the country [17]. Economic crisis result in various physiological and psychological disorders among school going children which, in turn, has a negative impact on their academic performance too. We report a negative independent association between overweight/ obesity and subsequent academic performance among female high-school students in Saudi Arabia. The results highlight the need for community and school programmes to target overweight/obesity among high-school students [18].

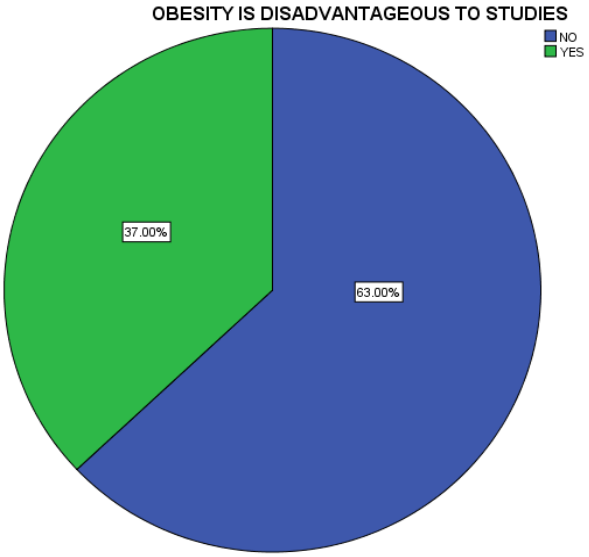

Fig. 9. Pie chart showing the distribution of students having awareness of disadvantages towards academics. 37% of students said that obesity is disadvantageous towards academics (green), other 63% disagree

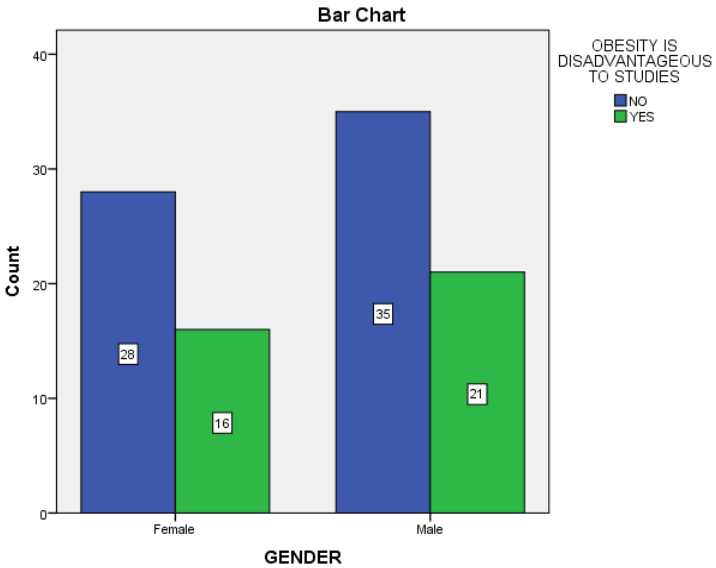

Fig. 10. Bar graph showing association of gender on having awareness on disadvantages of obesity towards academics. X-axis represents the gender and Y-axis represents the number of participants. Majority of males said that obesity is disadvantageous to studies when compared to females. However the difference is statistically not significant using chi square analysis, p=0.907 (>0.05)

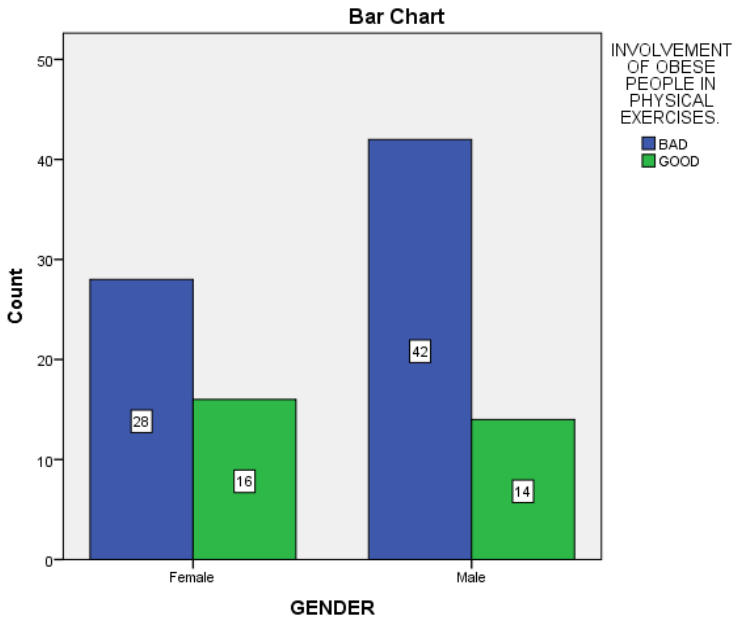

Fig. 11. Bar graph showing association of gender with participation in physical exercises in relation to obesity. X-axis represents the gender and Y-axis represents number of participants . Majority of the obese males show bad involvement in physical exercises when compared to females . However the difference is statistically not significant using chi square analysis, p=0.218 (>0.05)

4. CONCLUSION

This research concludes that obesity is not any threat to life. But related to academics it may be disadvantageous but not all the time. Most of the students of the survey responded that obesity does not cause any adverse effects on academics. But the care should be taken by the obese students towards their health and academics.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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