ijlpr 2022; doi 10.22376/ijpbs/lpr.2022.12.4.L114-122

International Journal of Life science and Pharma Research

ISSN 2250-0480

Review Article

Knowledge, Attitude and Practice of Weight Reduction Among Overweight and Obese Adolescent Students

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Abstract: Overweight/obesity is usually associated with some complications that adversely affect the health of the individuals. Due to an increase in sedentary life style, increased consumption of junk food and lack of physical exertion, there's an impact on their body image by increase in weight leading to overweight and obesity. This study assessed the level of knowledge, attitude and practice of weight reduction among overweight and obese adolescent students in Karad community. This cross-sectional study included 94 overweight and obese individuals in which, 55 were females and 39 were males. A self-administered questionnaire was used to collect data on sociodemographic characteristics, knowledge, attitude and practice of weight reduction among overweight and obese adolescent students. A total of 94 participants were included in this study, among which 57% participants had good knowledge on weight reduction, the attitude regarding weight reduction in our study was observed that 52% of participants had a positive attitude. The level of practice was less compared to knowledge and attitude, 19% participants actually participated in weight reduction programs. The level of good knowledge and positive attitude is not enough to prevent complications of overweight and obesity. More efforts should be taken to increase the practice of overweight and obese adolescent students by active participation in weight reduction program. The study is important to highlight the importance of weight reduction programs in overweight and obese adolescent students. It also indicates the severity of ill effects of overweight and obesity. As many adolescents are facing the problems of overweight and obesity, it is important to make awareness of weight reduction programs. The result of this study indicates that there is a need to implicate the weight reduction programs in overweight and obese adolescent students.

Keywords: Overweight, Obesity, Knowledge, Attitude, Practice, Weight reduction

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Received On 07 August 2021
Revised On 10 June 2022
Accepted On 22 June 2022
Published On 01 July 2022

Funding

Citation Akshata Sanjay Bhujbal, Biji Baby and Dr. T. Poovishnu Devi , Knowledge, Attitude and Practice of Weight Reduction Among Overweight and Obese Adolescent Students.(2022).Int. J. Life Sci. Pharma Res.12(4), L114-122 http://dx.doi.org/10.22376/ijpbs/lpr.2022.12.4.L114-122

1. INTRODUCTION

Increasing rate of adolescent overweight and obesity is a world public health concern. Overweight is considered as the weight that is more than what's considered as a healthy weight for a given height. Obesity is defined as "an excessive deposit of body fat (BF) which may lead to adverse metabolic consequences, might impair short term and future physical health and build psychological disorders.[1] Body Mass Index best defines overweight and obesity. A person's height and weight determine his/her body mass index. The body mass index (BMI) is calculated by the formula weight (kgs)/height(m^2). Since BMI describes weight relative to height, there's a strong correlation with total body fat content in adults. As per world health organization, overweight is defined as a BMI of 25 to 29.9 and obesity is termed as a BMI of 30 or more. Obese is further classified as obese type 1(30 to 40), obese type 2 (40-50) and obese type 3 (over 50)[2]. The prevalence of overweight and obese participants among adolescent students was found to be 9.7% and 4.3% respectively and also there was no difference in prevalence between male and female.[3] Overweight and obesity in adolescents have adverse effects on premature mortality and physical morbidity in adulthood thus, it is necessary to prevent adolescent overweight /obesity for current and future health.[4] The prevalence of overweight among youngsters was higher in middle socioeconomic status as compared to high socioeconomic status. The prevalence of obesity was higher in high socioeconomic status as compared to middle socioeconomic status group.[5] The factors inflicting overweight and obesity includes, genetics as genes conjointly could contribute to a person's status to weight gain. Easy accessibility of food particularly high calorie diet, that are designed to be low-cost, last long on the shelf and taste thus incredibly good that they are hard to resist. Using food as an award to vary behaviour, reduced physical activities, unhealthy dietary habits such as non consumption of healthy food like fresh fruits and vegetables, television watching and snacking increases the chance of overweight and obesity. This leads to less energy consumption, hormonal issues like hypoactive thyroid, Cushing syndrome , polycystic ovary syndrome (PCOS), medications including some corticosteroids ,anti-depressants , and seizure medicines, stress ,emotional factors and poor sleep and additionally have an effect on weight as some individuals eat over usually when they are bored , angry ,upset or stressed.[6,7] Overweight and obesity in adolescent students will increase the chance of high blood pressure, dyslipidaemia , cholesterolemia and reduce glucose metabolism that has an effect on the physical health and might result in the risk of early health problem and death in later life.[8] Recurrent attempts to lose weight may result in a cycle of restrictive diet , followed by overeating or binge consumption which may truly promote weight gain in adolescents.[9] Female adolescents may have a lot of risk of nutrition deficiency, growth retardation , menstrual irregularities and delayed sexual maturation, irritability, sleep disturbances and concentration issues.[10,11] Extreme fasting will result in low self - esteem and different negative psychological states like depression, anxiety and self-destructive thoughts.[12]. Weight reduction helps to maintain the physical looks, confidence and body image and additionally reduces the chance of diabetes and other cardiovascular disease, marked improvement in BP, triglycerides and cholesterol in overweight. Therefore, sustained weight loss confers vital medical and psychosocial advantages for overweight and obese adolescents. The need for this study is to spread importance about the weight reduction program as due to sedentary lifestyle, the risk of obesity in adolescents is high. As these days, youngsters are more involved in mobile phones and computers enjoying on-line games, there are increased consumptions of junk food and lack of physical exertion. As a result, there's an impact on their body image and as adolescents are more worried regarding their look, they struggle to lose weight with the assistance of many weight reduction programs. Increased weight directly affects the extent of concentration of students which may become a barrier in their academic performance. Also, to increase academic excellence, most of the students suffer from stress and anxiety, which leads to overeating. The weight reduction program includes different types of physical exercise and diet management which help in the reduction program. As the adolescents follow many managements together and do not follow any fixed protocol, they do not get the desired result in reduction of weight and therefore they get demotivated and find themselves changing into overweight or obese adolescent students. The knowledge of weight reduction is an educational information of the community. [19] The data possessed by a community refers to their understanding concerning weight reduction[20]. The attitude towards weight reduction refers to their feelings towards this subject, likewise as any preconceived concepts that they'll have towards it. The practice of weight reduction refers to the ways that students demonstrate their knowledge and attitude through their actions. Level of knowledge about overweight and obesity can only help to determine the disease condition but good attitude and practice can prevent the disorder as well as reduce the related complications. Therefore, this study aims to assess the extent of knowledge, attitude and practice of weight reduction among overweight and obese.

2. MATERIALS AND METHODOLOGY

This was an observational study conducted among 94 overweight and obese adolescent students between the age group of 13-18 years. The participant selection was done according to simple random sampling technique. The study was conducted on students studying in Krishna English Medium School, Karad, India. Participants were selected according to the inclusion and exclusion criteria. The Inclusion criteria were both males and females, students between the age group of 13-18 years, students with BMI greater than 24.5Kg/m^2. The exclusion criteria were students with psychological disturbances, students who do gymnasium or any physical activity on a daily basis, and physically disabled students. The sample size was calculated according to the formula:

$$n = 4pq / L^2$$

where p- percentage of positive result from the parent article, q- percentage of negative result and L- precision value.

Procedure

This cross-sectional study was done in Krishna English Medium School, Karad . Ethical approval references no - KIMSDU/IEC/06/2019 of Krishna Institute of Medical Sciences "Deemed to be University" was obtained prior to the study. Permission to conduct the study on the students was granted by the Principal of the respective school. Participants' informed consent was obtained. Data was taken through a self-administered questionnaire. The questionnaire contained

personal data, socioeconomic status and anthropometric data of the respondent such as weight, height and BMI. The questions were related to the demographic data, knowledge (15 questions), attitude (5 questions), and practice (8 questions) of weight reduction program among overweight and obese adolescent students. All the three questionnaires were related to diet, food habits, weight control practices, and body image. The participants were allowed to give their response in 'yes' or 'no' form. Participants' weight and height were taken to determine their inclusion in the study based on the calculated BMI.

3. STATISTICAL ANALYSIS

The instat app was used for analysis of data. Analysis of data was done by calculating the mean and standard deviation. Chi Square test was used for the test of significance between males and females knowledge, attitude and practice of weight reduction.

TABLE 1: Total score of Knowledge, Attitude, Practice of weight reduction among overweight and obese adolescent students.

	FREQUENCY	PERCENTAGE
Knowledge	54	57%
Attitude	49	52%
Practice	18	19%

The table 1 shows the total of 94 overweight and obese adolescent students aged between 13-18 years were selected. The mean age group of participants was 15.5 years. Out of the total participants 57% students had good knowledge, 52% of them had a positive attitude towards weight reduction and only 19% participants practiced weight reduction program.

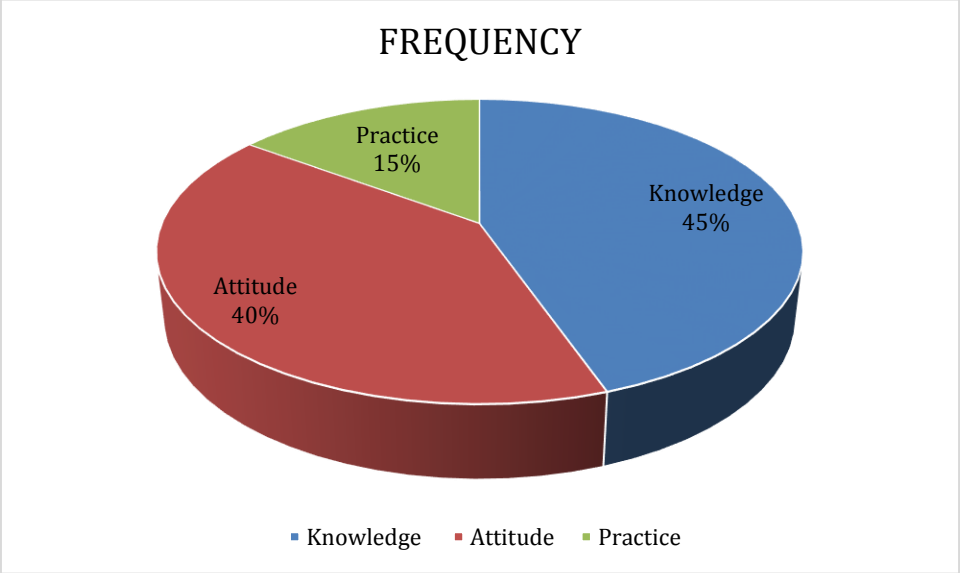

Fig.1 Total score of Knowledge, Attitude, Practice of weight reduction among overweight and obese adolescent students

TABLE 2: Age wise distribution of knowledge of weight reduction in adolescents

AGE [in years]	FREQUENCY	PERCENTAGE
13-15 years	49	52
16-18 years	45	48
total	94	100

Table 2 shows the knowledge of weight reduction among adolescents in age group of 13-15 years and 16-18 years. In age group ≤15 years 10 students showed good response,25 students showed average response and 13 students showed poor response. Whereas in age group >15 years ,5 students showed good response, 28 students showed average response and 12 students showed poor response. Chi square value was 1.782 and p value was 0.4103 which was not significant.

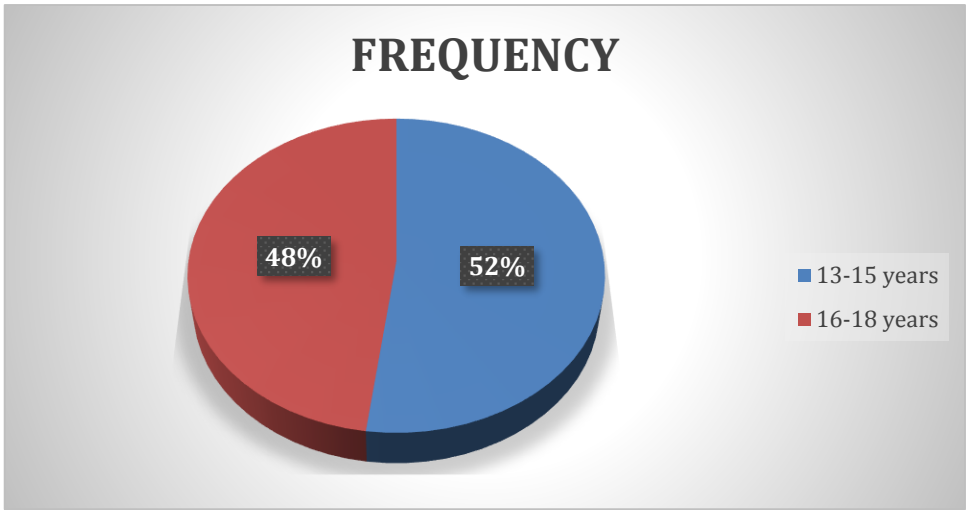

Fig.2 Age wise distribution of knowledge of weight reduction in adolescents

TABLE 3: Association of age with knowledge among overweight and obese adolescent students.

Age [in years]	GOOD	AVERAGE	POOR	CHI SQUARE VALUE	P VALUE
13-15 years	10	25	13	1.782	0.4103
16-18 years	5	28	12		

Table 3 shows the knowledge of weight reduction among adolescents in age group of 13-15 years and 16-18 years. In age group ≤15 years 10 students showed good response,25 students showed average response and 13 students showed poor response. Whereas in the age group >15 years , 5 students showed good response, 28 students showed average response and 12 students showed poor response Chi square value was 1.782 and p value was 0.4103 which was not significant

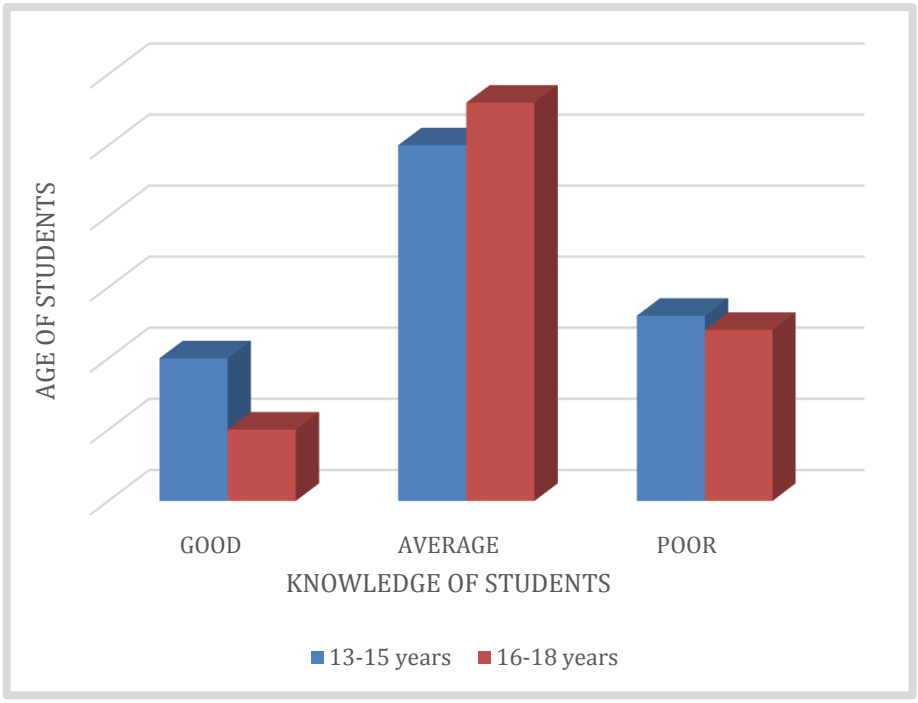

Fig.3 Association of age with knowledge among overweight and obese adolescent students.

TABLE 4: Association of age with attitude among overweight and obese adolescent students

AGE [in years]	ATTITUDE			CHI SQUARE VALUE	P VALUE
	GOOD	AVERAGE	POOR		
13-15 years	20	14	7	10.818	0.0045
16-18 years	7	27	10		

Table 4 shows the attitude of participants towards weight reduction programs in which 20 students showed good response,14 students showed average response and 7 students showed poor response in the age group of ≤ 15 years. Whereas in the age group of > 15 years ,7 students showed good response,27 students showed average response and 10 students showed poor response. Chi square value was 10.818 and p value was 0.0045 which was extremely significant.

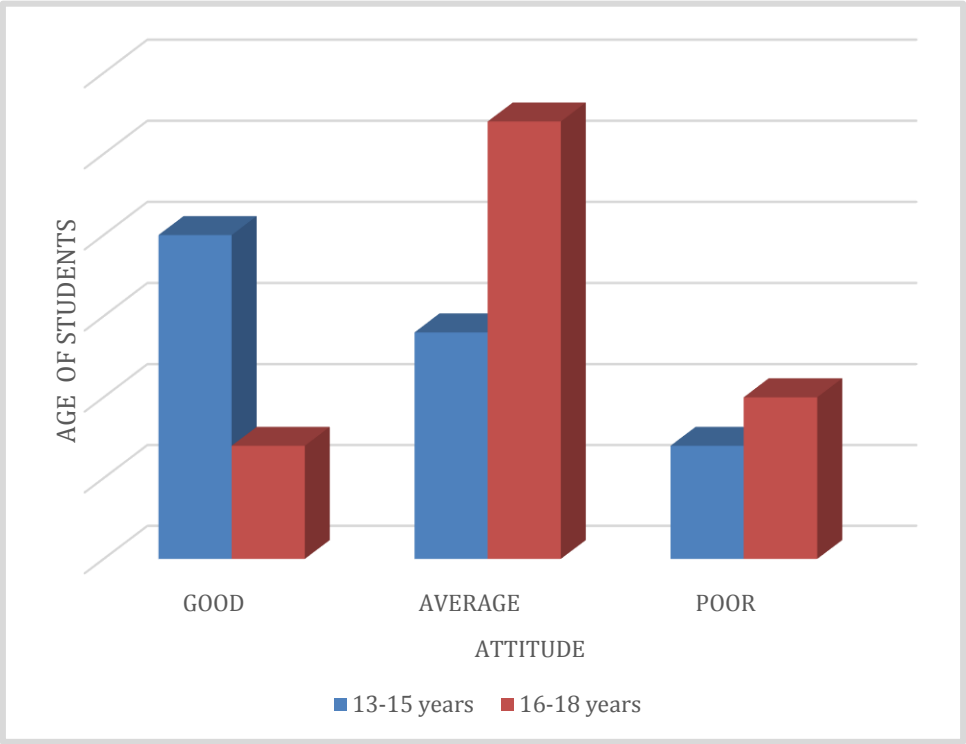

Fig 4. Association of age with attitude among overweight and obese adolescent students.

TABLE 5: Association of age with practice among overweight and obese adolescent students.

AGE [in years]	PRACTICE			CHI SQUARE VALUE	P VALUE
	GOOD	AVERAGE	POOR		
13-15 years	20	8	18	1.417	0.4924
16-18 years	10	7	16		

The table 5 shows the level of practice of weight reduction in participants in age group 13-15 years old and 16-18 years old. In which, the practice in age group of 13-15 years was found good compared to 16-18 years old in which 20 participants had good response, 8 had average response and 18 participants had poor response while 10 participants had good response ,7 participants had average response and 16 had poor response respectively. Chi square value was 1.417 and the p value was 0.4924 which was not significant.

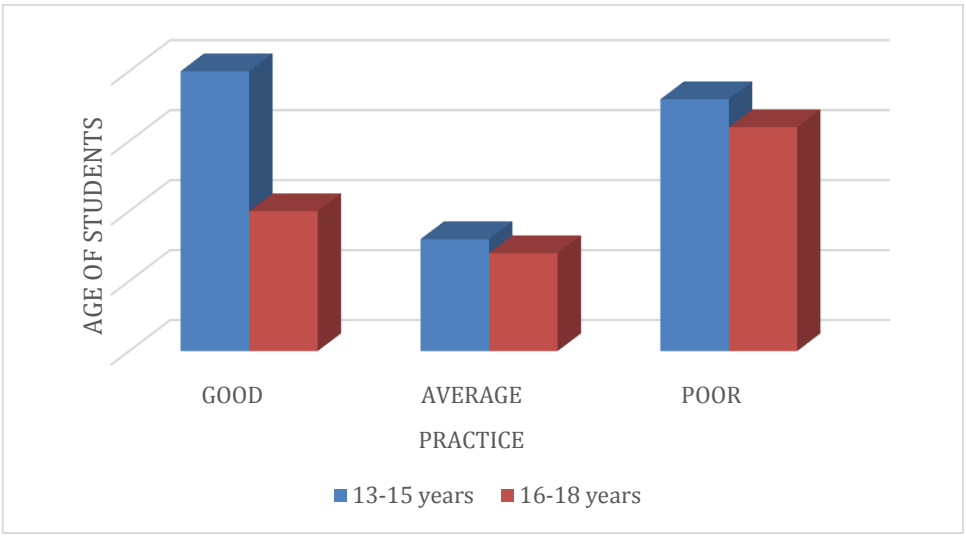

Fig.5 Association of age with practice among overweight and obese adolescent students.

TABLE 6: Gender wise distribution of knowledge of weight reduction among overweight and obese adolescent students.

GENDER	FREQUENCY	PERCENTAGE
Females	55	58
Males	39	42
Total	94	100

Table no. 6 shows the overall Gender wise knowledge of weight reduction among overweight and obese adolescent students. Out of total 94 participants and among total 39 males, 20 had good knowledge, 10 had average and 9 had poor knowledge. Also, out of total 55 females, 15 had good knowledge, 20 had average knowledge and 20 had poor knowledge about weight reduction programs. Chi square value was 5.661 and p value was 0.0590 which was not significant.

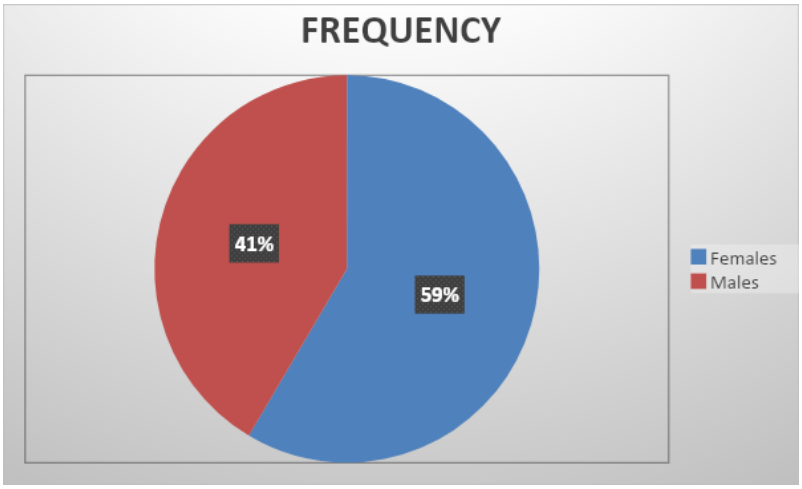

Fig.6 Gender Wise Distribution

TABLE 7: Association of gender with knowledge among overweight and obese adolescent students.

GENDER	GOOD	AVERAGE	POOR	CHI SQUARE VALUE	P VALUE
Males	20	10	9	5.661	0.0590
Females	15	20	20		

The table 7 shows the association of knowledge with gender among overweight and obese adolescent students. It shows that the response of boys were more good than that of girls (20 boys had good responses while 15 girls had good responses whereas, only 9 boys had poor response and 20girls with poor response). Chi square value was 5.661 and p value was 0.0590 which was not significant.

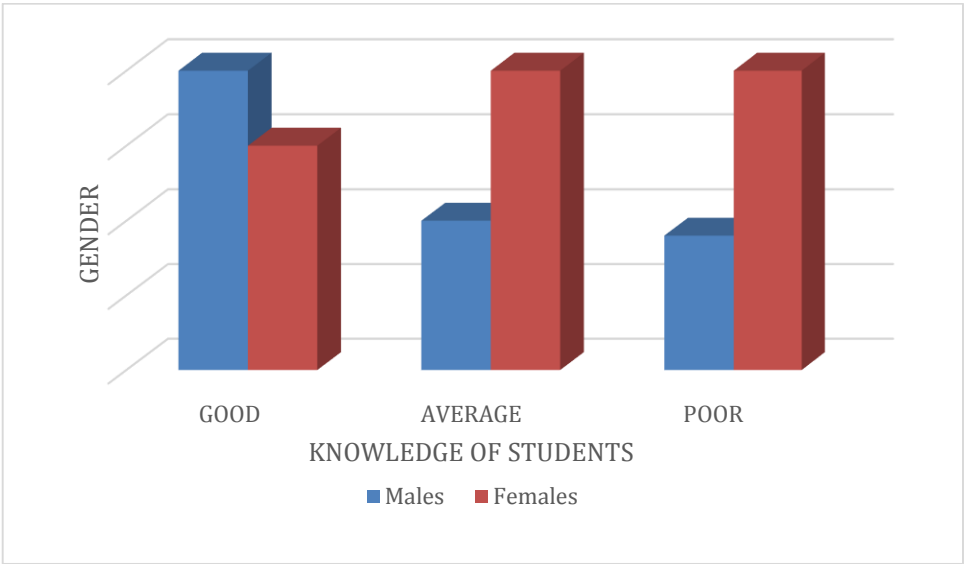

Fig.7 Association of gender with knowledge among overweight and obese adolescent students.

TABLE 8: Association of gender with attitude among overweight and obese adolescent students.

GENDER	GOOD	AVERAGE	POOR	CHI SQUARE VALUE	P VALUE
Males	20	20	15	7.214	0.0271
Females	25	9	5		

The table 8 shows the association of attitude and gender among overweight and obese adolescent students. In which, the number of girls with good attitude were 25 as compared to boys those were 20 which means the attitude of girls is more than boys. Chi square value was 7.214 and p value was 0.0271 which was extremely significant.

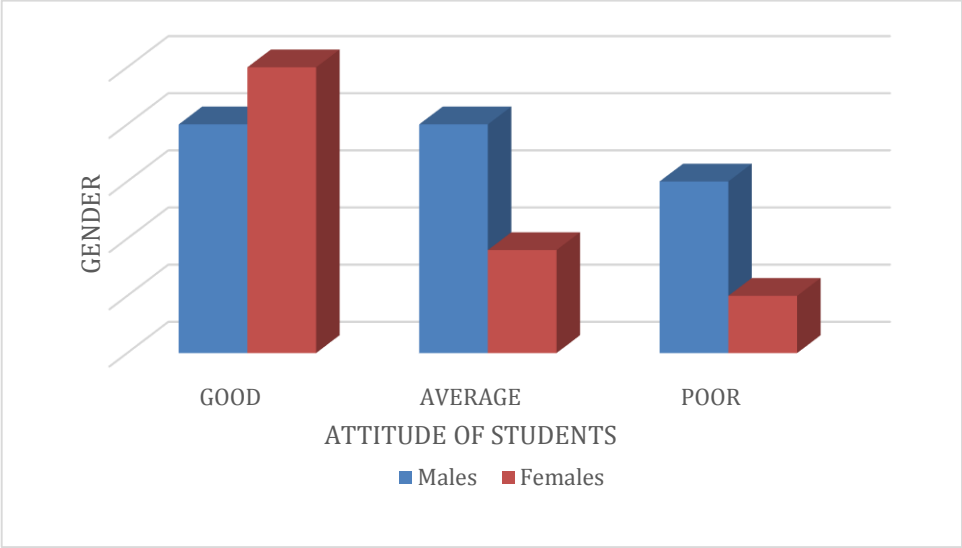

Fig.8 Association of gender with attitude among overweight and obese adolescent students.

TABLE 9: Association of gender with participation among overweight and obese adolescent students.

GENDER	GOOD	AVERAGE	POOR	CHI SQUARE VALUE	P VALUE
Males	15 0	10	19	0.6001	0.7408
Females	105	10	20		

The table 9 shows the association of gender with participation among overweight and obese adolescent students. Here, 15 boys and 10 girls had good response. But there was same number of students who had an average and poor response, hence it is can be concluded that there is no such difference between males and fermales in terms of practice of weight reduction. Chi square value was 0.6001 and p value was 0.7408 which was not significant.

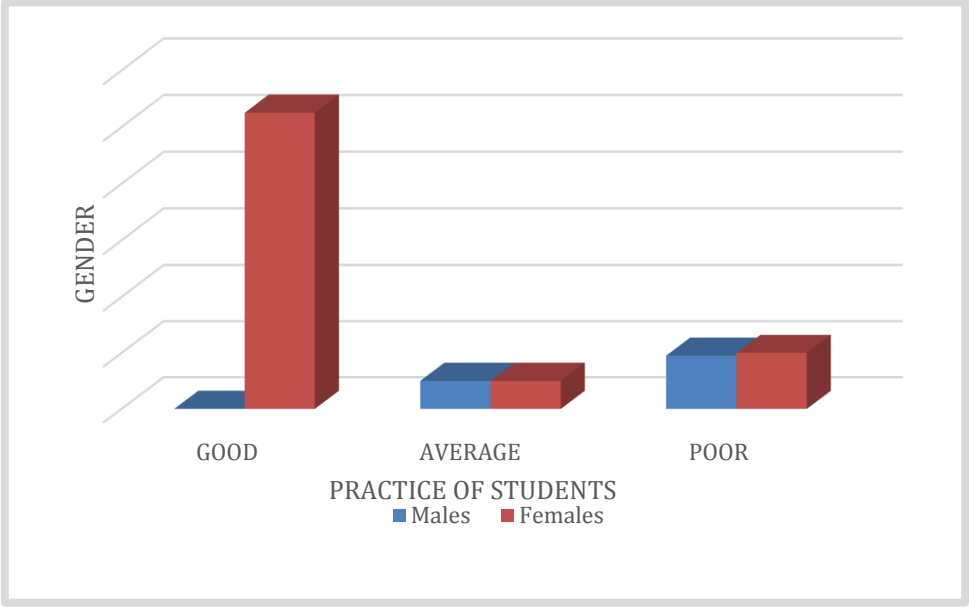

Fig.9 Association of gender with participation among overweight and obese adolescent students.

4. DISCUSSION

Overweight and obesity is usually associated with some complications which badly affects the health of the sufferer.[16] This study assessed the level of knowledge, attitude and practice of weight reduction among overweight and obese adolescent students. Out of the total 94 collected samples, categorization according to age groups and gender were done. In this, group 1 consists of participants with age group of 13-15 years, group 2 with age group of 16-18 years. The numbers of participants in the age group between 13-15 years were 49 (52%), whereas the numbers of participants in the age group between 16-18 years were 45(47%), while the numbers of male participants were 39 (41%) and female participants were 55 (58%). The KAP survey usually is conducted to collect information on the knowledge (i.e what is known), attitude (i.e what is thought), and practices (i.e what is done) about weight reduction program among overweight and obese adolescent students[17]. A total of 94 participants were included in this study among which, 57% participants had good knowledge on weight reduction as the participants included in the study were school going and educated therefore had an idea about overweight and obesity, their risk factors and were aware about the importance of physical exercises for weight reduction. This response is similar to the result of a study done by Bolarinde S Olufemi et al, which claimed that 76.64% had good knowledge.[13] While another study by Jennifer et al contradicted that there was not enough knowledge about overweight obesity, its control and weight reduction program.[14] The attitude regarding weight reduction in our study observed that, 52% of participants had a positive attitude. Also, it was observed that, female participants had good attitude as most of the females in adolescent age group were trying to lose weight to gain the socially endorsed ideal of a beautiful body. Hence high level of attitude towards weight reduction activities were seen in this study, A similar study also showed that 69% girls were interested in reducing weight and changed their weight status as compared to boys.[15]And also in a similar study by Kristina Ojala, the age and attitude of the participants is associated with each other. The girls age group of 16 to 18 years were more interested in weight reduction programs in comparison with those of age ranging between 13 to 15 years.[9] The females in the study had an ideal picture of perfect body in order to maintain their attitude towards the weight reduction program was more. The level of practice was less compared to knowledge and attitude that is 19% participants actually participated in weight reduction programs. The low level of practice is seen due to many reasons like tiredness during physical exercise, inability to create time for physical exercise, weight reduction program interference with their personal day to day activities[18]. Inability to exercise during school days while some students actually find it difficult to practice weight reduction especially the aspect of dieting. Also, in this study, males were more involved in physical activities than females. As the male students are mostly involved in sports activities, the level of physical exertion is more in males compared to females. Similarly, in a study by Chia Yin Lee et al., Knowledge, attitude and behaviors is related to weight control and body -image perceptions among chinese high school students.[15].It was found that the level of practice in males were more than females. The study concludes that adequate knowledge and the right attitude does not translate into a high level of participation in weight control and weight reduction activities. More effort should be devoted to improve level of active participation in weight reduction program among overweight and obese adolescent students.

5. CONCLUSION

The study concluded that, among the total 94 participants, number of overweight students was higher than obese students. The result of the study was that the level of knowledge and attitude towards weight reduction programs was higher as compared to the level of practice. This shows that only good knowledge and attitude are not sufficient to tackle the complications of overweight and obesity. In order to prevent the risk of overweight or obesity, there is a need for good knowledge and attitude along with good practice. This can be developed by factors such as motivation, awareness about weight loss practices and lifestyle modification. This can only be achieved by taking self-efforts towards managing overweight and obesity from the beginning. More efforts should be taken to increase the practice of overweight and obese adolescent students by active participation in weight reduction program. There are some limitations in the study as participants are only in age group of 13-18 years old. The number of females were more in this study . Therefore, it could be better if the samples were of all age and both the genders.

6. AUTHOR CONTRIBUTION STATEMENT

Miss. Akshata Bhujbal conceptualized and gathered the data with regard to this work. Miss. Biji Baby analysed these data and necessary inputs were given towards the designing of the manuscript. All authors discussed the methodology and results and contributed to the final manuscript.

7. ACKNOWLEDGEMENTS

The authors wish to thank the subjects who participated in the study, the students between age group of 13-18 from Krishna English Medium School, Karad. We would also like to acknowledge Dr. T. Poovishnu Devi who supported throughout the study. The study was funded by the Krishna Institute of Medical Sciences Deemed to Be University Karad.

8. CONFLICT OF INTEREST

Conflict of interest declared none.

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