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Adolescent Obesity: Understanding Psychological Impacts And Knowledge Gaps In Urban India

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ABSTRACT

Adolescent obesity has emerged as a global health concern, with significant physical and psychological implications. This study aimed to assess adolescents' knowledge regarding the psychological impacts of obesity in a selected pre-university college in Bangalore, with a view to developing an information guide sheet. Using a descriptive research design, data were collected from 455 adolescents (272 boys and 183 girls) aged 16–17 years through a structured knowledge questionnaire comprising 40 items. The questionnaire assessed four key areas: basic concepts of obesity, psychological impacts, body dissatisfaction, and poor psychosocial adjustment.

Findings revealed that 56% of participants had inadequate knowledge, 44% had moderate knowledge, and none demonstrated adequate knowledge about the psychological impacts of obesity. The mean knowledge score was 41.4%, with the highest scores in basic concepts of obesity (46.3%) and the lowest in depression and poor psychosocial adjustment (37.8%). Significant associations were observed between knowledge levels and variables such as age, gender, place of residence, and dietary patterns. Older adolescents, females, and those with mixed dietary patterns had better knowledge scores.

The results underscore the urgent need for targeted educational interventions to improve adolescents' understanding of obesity and its psychological consequences. Such efforts are essential to promote healthier behaviors, improve mental well-being, and reduce the burden of obesity-related complications. This study highlights the critical role of health education in addressing the dual burden of physical and psychological challenges associated with adolescent obesity.

Keywords: *Adolescent obesity, Psychological impacts, Body dissatisfaction, Poor psychosocial adjustment, Depression in adolescents, Health education interventions, Knowledge assessment, Obesity awareness campaigns*

1. INTRODUCTION

Obesity is a chronic condition characterized by excessive accumulation of body fat, often measured using the Body Mass Index (BMI), defined as weight in kilograms divided by height in meters squared (kg/m²). A BMI exceeding 25 is categorized as overweight, while a BMI over 30 denotes obesity (1). This condition has become a global epidemic, with over one billion adults classified as overweight and more than 300 million as obese. Among adolescents, the problem has escalated, with industrialization, urbanization, and globalization significantly influencing lifestyle choices and dietary habits (2) In India, the rapid shift towards economic growth and urban lifestyles has led to a surge in obesity, even among adolescents from middle-income families.

Globally, childhood and adolescent obesity is a significant public health concern. According to studies, 50–80% of obese children and adolescents remain obese into adulthood, making them susceptible to numerous health complications, including diabetes, cardiovascular diseases, and various psychological disorders (3). In India, a cross-sectional study conducted in Punjab reported an overall obesity prevalence of 11.1% among adolescents aged 9–15 years, while urban areas like Delhi showed even higher rates, with 24% prevalence among adolescents in private schools (4). Such statistics highlight the pressing need to address this issue, especially given the lasting impact of obesity on physical and mental health.

1.1 Adolescence as a Vulnerable Phase

Adolescence, derived from the Latin term "adolescere," meaning "to grow into maturity," is a transformative period of life, typically spanning ages 10–20 (5). It is marked by dramatic physical, emotional, and social changes as individuals transition from childhood to adulthood. Physiological growth, including increased fat and muscle mass, hormonal changes, and the onset of puberty, renders adolescents particularly susceptible to eating disorders such as anorexia nervosa, bulimia, and obesity (6).

During this phase, adolescents are also exposed to evolving cultural norms, modern communication systems, and sedentary lifestyles, making them vulnerable to unhealthy behaviors. Sedentary activities like excessive screen time and academic pressures often replace physical activities, contributing to weight gain (7). Additionally, the consumption of energy-dense, nutrient-poor foods has become a major contributor to obesity among adolescents in India. These behaviors often track into adulthood, establishing lifelong patterns of poor health.

1.2 Psychological Impacts

The implications of obesity extend beyond physical health, significantly affecting the psychological well-being of adolescents. Obesity often serves as a source of social stigma, leading to discrimination from peers, educators, and even health professionals (8). This negative perception fosters low self-esteem, social isolation, and body dissatisfaction among obese adolescents. Studies indicate that these individuals are more likely to experience depression, anxiety, and suicidal ideation compared to their non-obese peers (9).

The psychological impact of obesity also manifests in academic and social performance. Adolescents facing body image issues often withdraw from competitive activities, fearing judgment or failure(10). Social rejection can further exacerbate feelings of inadequacy and alienation. Research shows that psychological issues such as depression and anxiety not only result from obesity but also perpetuate it, creating a vicious cycle that affects overall quality of life(11).

1.3 Significance of the Study

Understanding the psychological ramifications of obesity and addressing them early is critical to fostering healthy development during adolescence. The prosperity of any nation depends on the health and well-being of its youth, making it imperative to prioritize interventions that mitigate the physical and mental health risks associated with obesity (12). India, home to nearly 230 million adolescents, must address the dual burden of malnutrition and obesity to secure a healthier future (13).

This study assumes significance as it sheds light on the knowledge gaps among adolescents regarding the psychological impacts of obesity. By assessing their understanding, the research identifies critical areas where awareness and education are lacking. It also emphasizes the importance of developing comprehensive health promotion strategies that address not only the physical but also the emotional aspects of obesity.

Aligning with global health objectives, including those outlined by the World Health Organization (WHO), this study contributes to the broader goal of reducing obesity-related morbidity and mortality. It also resonates with national health policies, advocating for school-based interventions and community engagement to combat obesity among India's youth.

1.4 Objectives

The primary objectives of this study are:

1. To assess the knowledge of adolescents regarding the psychological impacts of obesity. This includes evaluating their understanding of basic concepts of obesity, its psychological consequences such as depression, body

dissatisfaction, and social isolation, and their awareness of preventive measures.

2. To identify demographic factors influencing knowledge levels. By exploring variables such as age, gender, dietary habits, and family income, the study aims to uncover associations that can inform targeted interventions.
3. To develop and provide an information guide sheet. Based on the findings, the study seeks to create educational material to bridge knowledge gaps and promote healthier behaviors among adolescents.

2. METHODOLOGY

It includes research approach, research design, the setting, and population, sampling technique, development and description of the tool, pilot study and method of data collection and plan for data analysis (14).

2.1 Study Design

The study adopted a descriptive research design, which focuses on assessing and describing the knowledge levels of adolescents regarding the psychological impacts of obesity. This design is well-suited for identifying existing knowledge gaps and patterns without altering the environment or conditions. It allows for the systematic collection, organization, and analysis of data to draw conclusions that inform intervention strategies.

2.2 Setting and Participants

The research was conducted in a government pre-university college located in Old Fort, Chamarajpet, Bangalore. This setting was chosen due to its accessibility and representation of the target population. The participants consisted of 455 adolescents aged 16–17 years, wherein number of boys were 272 and girls 183. The demographic profile of the participants included variations in family type (joint or nuclear), socioeconomic status, dietary patterns, and physical activity levels, reflecting the diversity of adolescents in Bangalore.

2.3 Sampling

The study employed purposive sampling, a type of non-probability sampling where participants are selected based on specific characteristics relevant to the research objectives. This method was chosen because it ensured that the sample consisted of adolescents within the defined age group and those who were available and willing to participate during the data collection period. Purposive sampling was effective in identifying individuals likely to provide meaningful data about their knowledge of obesity and its psychological impacts.

2.4 Data Collection Tools

Data were collected using a structured knowledge questionnaire, designed to comprehensively assess the adolescents' understanding of the psychological aspects of obesity. The questionnaire consisted of two main parts:

1. Demographic Information: This section captured the participants' age, gender, religion, place of residence, type of family, family income, dietary pattern, physical activity, known cases of obesity, and sources of health information.

2. Knowledge Assessment: This section included 40 items divided into four categories:

Basic concepts of obesity (13 items): Focused on general understanding of obesity and its causes.

Psychological impacts of obesity (6 items): Addressed features such as depression, social isolation, and anxiety.

Body dissatisfaction and low self-esteem (8 items): Explored the emotional consequences of obesity.

Depression and poor psychosocial adjustment (13 items): Covered long-term psychological challenges.

Each item was multiple-choice, with one correct answer assigned a score of 1 and incorrect answers assigned 0. The maximum score was 40, with knowledge levels classified as:

- Inadequate knowledge: ≤ 50%
- Moderate knowledge: 51–75%
- Adequate knowledge: > 75%

2.5 Pilot Study

A pilot study was conducted on fifty students from a nearby pre-university college to test the questionnaire's reliability and validity. The results indicated that the tool was clear, comprehensible, and appropriate for the target population. Using Karl Pearson's correlation coefficient, the reliability score was calculated at 0.94, indicating high internal consistency. Validity was ensured through expert review by mental health professionals and statisticians, who provided feedback to refine the questionnaire.

2.6 Ethical Considerations

The study adhered to ethical research principles. Permission was obtained from the principal of the participating college, and written informed consent was secured from all participants. They were assured of the confidentiality of their responses and informed that participation was voluntary, with the option to withdraw at any time. Anonymity was maintained throughout the study, and data were securely stored to protect participants' privacy.

2.7 Analysis

Data were analyzed using descriptive and inferential statistical methods. Frequencies and percentages were used to describe demographic characteristics and overall knowledge levels. Aspect-wise mean scores were calculated to identify specific areas of strength and weakness. Inferential statistics, including chi-square tests, were applied to examine associations between demographic variables (e.g., age, gender, place of residence, dietary habits) and knowledge levels. The analysis was carried out using a structured master sheet, ensuring systematic interpretation of findings.

3. RESULTS

Analysis is the categorizing, ordering and summarizing the data to obtain answers to the research question. Interpretation is the adequate exposition of the true meaning of the material presented in terms of the purpose of the study being reported.

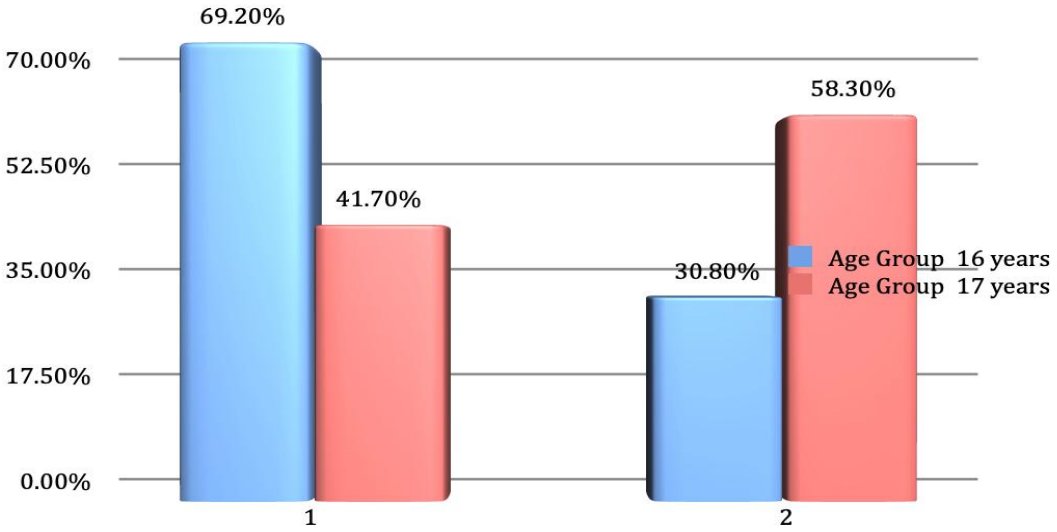

Figure 1: Association between Age and Knowledge level of Respondents on Psychological Impact of obesity

Table No:1 Association between Demographic variables Pre test Knowledge level of Respondents on Psychological Impact of Obesity

Demographic Variables	Category	Sample	Respondents Knowledge				χ^2 value	P Value
			Inadequate		Moderate			
			N	%	N	%		
Dietary Pattern	Vegetarian	65	33	51.1	32	42.9	6.28*	< 0.05
	Non vegetarian	118	99	84.6	19	15.4		
	Mixed	272	117	43.3	155	56.7		
Daily physical activity	Walking	236	109	46.1	127	53.9	5.51 NS	> 0.05

	Exercise	46	0	0.00	46	100		
	Outdoor games	91	46	50.0	45	50.0		
	Cycling	82	55	66.7	27	33.3		
Known person of Obesity	Family members	118	37	30.8	81	69.2	5.20 NS	> 0.05
	Relatives	91	55	60.0	36	40.0		
	Friends	210	147	69.6	63	30.4		
	Neighbors	36	18	50.0	18	50.0		
Source of Information	Electronic media	200	100	50.0	100	50.0	0.77 NS	> 0.05
	Print media	128	82	64.3	46	35.7		
	Family members/Relatives	109	63	58.3	46	41.7		
	Health Personnel	18	9	50.0	9	50.0		
Combined		455	255	56.0	200	44.0		

* Significant at 5% Level, NS : Non-significant

Figure 2: Distribution of respondents based on Aspect wise Mean Knowledge Score on Psychological Impact of Obesity.

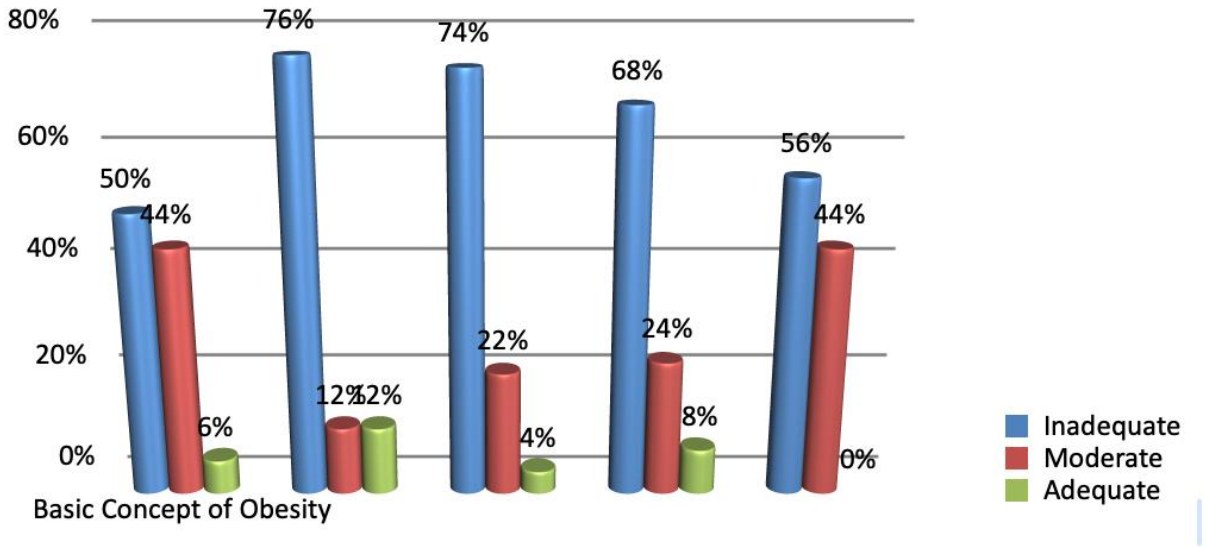

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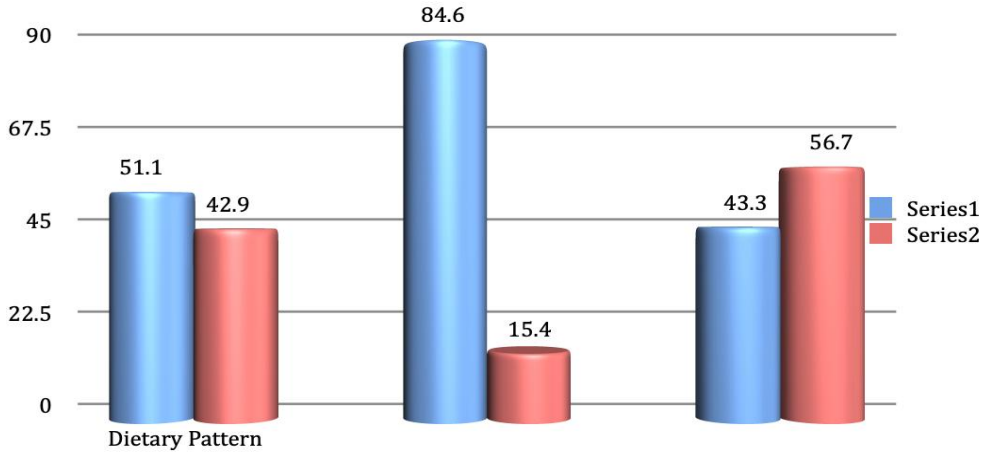
Figure 3: Association between Dietary pattern and Knowledge level on Psychological Impact of Obesity.



4. DISCUSSION

This study aimed to evaluate the knowledge of adolescents regarding the psychological impact of obesity and develop an informational guide for its management. The findings, structured around specific objectives, provide insights into adolescent awareness and its associations with demographic variables.

4.1 Demographic Characteristics:

The majority of respondents were aged 16 (52%) and predominantly from rural areas (56%), Hindu (82%), and from nuclear families (54%). Most participants had a mixed dietary pattern (60%), with walking as the primary physical activity (52%). Media, especially electronic sources, was the most common information source. These findings align with prior research by Tiwari et al. (2004), who reported similar demographic trends in knowledge on obesity among adolescents.

4.2 Knowledge Assessment:

The study revealed that 56% of adolescents had inadequate knowledge, with a mean knowledge score of 41.4%, emphasizing gaps in understanding the psychological effects of obesity. These findings concur with Tiwari et al., highlighting insufficient awareness of obesity-related psychiatric issues among adolescents.

4.3 Demographic Associations:

Significant associations were identified between knowledge levels and factors like age, gender, residence, family type, and dietary patterns. However, religion, income, physical activity, and information sources showed no significant impact. The results are supported by studies demonstrating knowledge disparities based on demographics and the influence of socio-environmental factors on adolescent obesity knowledge.

4.4 Information Guide Development:

Based on these findings, an information guide was created and validated, including details on obesity's meaning, causes, psychological impacts like depression and low self-esteem, and management strategies. The guide was finalized in Kannada to enhance accessibility and address the identified knowledge gaps effectively.

5. CONCLUSION

The study aimed to assess knowledge regarding the psychological impact of obesity among adolescents at a pre-university college in Bangalore and develop an informational guide. Using a descriptive method and structured knowledge questionnaire, findings highlighted significant gaps in knowledge and associations with demographic variables.

Most respondents (52%) were 16 years old, Hindu (82%), from rural areas (56%), nuclear families (54%), and had a mixed dietary pattern (60%). Walking was the most common physical activity (52%), with electronic media being the primary information source (44%). Knowledge assessment revealed that 56% of respondents had inadequate knowledge, with a mean score of 41.4%. Significant associations were found between knowledge and age, gender, residence, family type, and dietary pattern. Urban, female, and joint-family respondents exhibited better knowledge. However, no associations were observed with religion, family income, or information sources.

The study highlights the need for health education programs targeting adolescents to improve awareness about obesity's psychological impacts. Nursing professionals can integrate this knowledge into practice through planned educational interventions, leveraging innovative methods and technology.

6. RECOMMENDATIONS

Future studies should involve larger, randomized populations and evaluate planned teaching programs. Experimental designs with control groups and comparative studies (e.g., government vs. private colleges, boys vs. girls) can provide deeper insights. Health education tools, manuals, and follow-up studies are recommended to enhance adolescents 'understanding and management of obesity's psychological impacts. Overall, this study underscores the critical role of education in addressing obesity's multifaceted effects on adolescent well-being.

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