

Effect of Obesity on Psychological Profile of Adolescents

Anu Arora¹, Amrin Shaikh², Sujata Yardi³

¹Associate Professor, DY Patil University, School of Physiotherapy, Navi Mumbai, India

²BPT Student, DY Patil University, School of Physiotherapy, Navi Mumbai, India

³Ex Professor and Director, DY Patil University, School of Physiotherapy, Navi Mumbai, India

Abstract: *The pandemic of obesity in adolescent population has brought along with it adverse implications not just for physical aspects of the health but also the psychological well-being of the affected subjects. Since psychological well-being in adolescence would have far reaching repercussions not only in adolescent subjects presently but also in their future life, hence this research studies the comparison between the Emotional health in normal and overweight/obese adolescents subjects through the Centre for Epidemiologic Studies Depression Scale and Rosenberg's self-esteem scale. Analysis of data from 205 study subjects recruited as per inclusion criteria, found statistically significant reduction in self-esteem in Overweight & Obese Adolescents as compared to normals ($p < 0.05$). However no statistically significant difference between the mean depression scores in normal versus Overweight/Obese Groups was found in the study.*

Keywords: Overweight, Obesity, Adolescents, Depression, Self-esteem, psychological well-being

1. Introduction

Adolescence is an important period of life, since dramatic physiological and psychological changes take place at this age. Long lasting lifestyle and behaviors are developed during these years, which in turn may influence adult behavior & health status. Optimum fitness levels in childhood are likely to carry beneficial biological and behavioral effects into adulthood. This is justified by heuristics which support the claim that physically active children are more likely to become physically active adults and physical fitness in children may protect against future musculoskeletal and cardiovascular disease and also the fact that over adiposity may have adverse effect on various domain of Health related Physical Fitness measures.¹⁻⁶

Adolescence (approximately spanning the ages 10–19; Sawyer et al., 2012) is of considerable interest from an emotion regulation perspective for several reasons. Developmentally, this period is associated with significant biological and physical changes, a growing need for independence, academic and employment pressures and fluctuating social relationships (Casey et al., 2010). These challenges are often accompanied by increased emotional reactivity and stress. It could therefore be a critical phase for the disturbances in the emotional health of the adolescent which becomes more critical in light of the variations in hormonal profile during the pubescent year.

At the same time, adolescents are developing and consolidating their sense of self. With this increasing self-identity, including their development of sexual identity comes growing concern about other people's opinions, particularly those of their peers⁷. The social stigma attached to being overweight can be as damaging to the subjects especially in the vulnerable adolescent age group as

the physical diseases and conditions that often accompany obesity.

In a society that is fixated on thinness rather than fitness, subjects may associate negative stereotypes with excess weight and believe that a heavy individual is simply less likable⁸. In general, if a child is obese, he is more likely to have low self-esteem than his thinner peers

Experiences due to weight stigma may have negative consequences on the emotional health, making the vulnerable adolescent subjects easy target for lowered self-esteem and depression. Though there have been some studies on effects of obesity psychological profile in adults, not many quality researches are available on comparative analysis of obesity on self-esteem and depression in normal versus overweight and obese adolescents.

Therefore the objective of this research is to compare depression and Self Esteem in normal versus overweight/obese adolescent subjects.

2. Aims

To compare self-esteem and depression between normal, overweight and obese adolescence.

3. Objectives

- 1) To classify consenting adolescence into normal, overweight and obese groups.
- 2) To assess self-esteem through Rosenberg Self-esteem Scale.
- 3) To assess levels of depression through Center for Epidemiologic Studies Depression Scale (CES-D).
- 4) To compare self-esteem and depression in the above mentioned groups.

4. Materials and Methods

Duration of Study: 6 months

Study Subjects: Adolescent subjects in the age group of 10-19 years gave written informed consent from parent and written assent was obtained from the subjects.

Study Design: Cross sectional study.

Sample Size: 205

Ethical approval

Permission for the study was obtained by making a petition prior to collecting data. This was achieved by contacting and receiving approval from the Research committee, Pad Dr D.Y. Patil University.

After description of the procedures, and purpose of the study, written informed consent was obtained from each subject's parent or guardian and written assent was obtained from the subject.

This study was conducted in accordance with the ethical standards of institutional review boards and with the Helsinki Declaration.

Procedure

A Cross sectional study design was used to conduct a study on 205 adolescent subjects from various schools, colleges and sports club in Thane and Navi Mumbai. The subjects were selected through random sampling within the age group of 10-18 years. Demographic details, eating profile and level of physical activity were collected through pre validated self-devised questionnaire.

Description of the procedures was done and purpose of the study was explained.

Body Mass Index (BMI) was calculated using the Quetelet Index by taking the child's weight (in kgs) and dividing by the height (in meters) squared.

Subjects were classified into Underweight, Normal, Overweight or Obese categories based on the BMI cut-off points given by the Indian Association of Pediatrics.

The subjects were then asked to self-report the Rosenberg Self-esteem Scale and Center for Epidemiologic Studies Depression Scale (CES-D).

Psychometrics properties of these scales are well established.

5.Data Analysis and Results

A total of 205 subjects were enrolled in the data were processed using two aspects, which were as follows:-

Descriptive statistics - for demographic data (age & BMI)
 Results of descriptive analysis at baseline are reported as means and standard deviations.

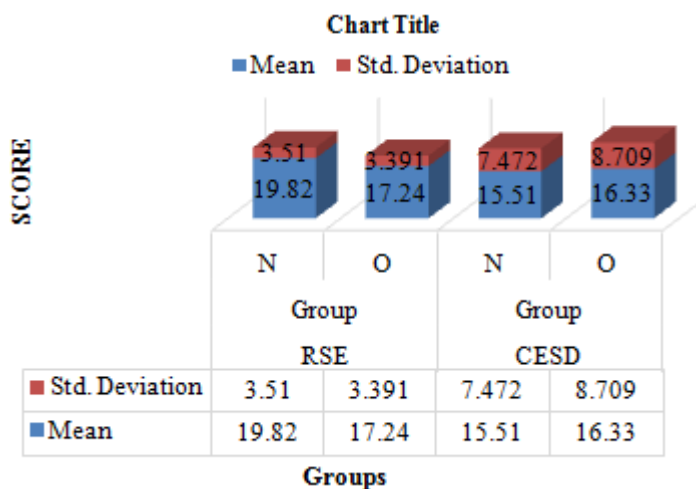
Analytical Statistics - for outcome measures (Depression & Self esteem)

Data was analyzed using IBM SPSS Version 23. Tables were made using Microsoft word and figures were plotted using Microsoft Office Excel 2007. Associations denoted as statistically significant were those that yielded a *p* value<0.05, assuming a 2-sided alternative hypothesis.

Demographics

Table 1: Descriptive Statistics

Parameter	N	Minimum	Maximum	Mean
Age	205	11	18	14.5
BMI	205	14.5	26	20.2



Graph 1: Comparison between Self Esteem & Depression in Normals versus Overweight/Obese adolescents

Table 2

	Group	Mean	Std. Deviation	Std. Error Mean	P value
RSE	1	19.82	3.510	.343	P<0.05 (significant)
	2	17.24	3.391	.339	
CESD	1	15.51	7.472	.729	P>0.05 (not significant)
	2	16.33	8.709	.871	

Inference. There is a statistically significant reduction in self-esteem in Overweight & Obese Adolescents as compared to normals ($p < 0.05$). However though the mean depression scores in Overweight Obese Groups is less than the subjects within normal BMI ranges, this difference is not statistically significant.

6. Discussion

Two domains of psychological wellbeing i.e. depression and self-esteem have been studied in normal and overweight and obese adolescents. Over adiposity has been found to have adverse effect on Self-esteem of adolescent subjects however though depression was found across BMI groups, there was no statistically significant difference between groups.

Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration. Self-esteem is feeling of satisfaction that someone has in himself or herself and his or her own physical appearance⁹.

The analysis of data shows that there is statistically significant difference between self-esteem of normal and overweight and obese adolescents. Self-esteem of normal adolescents is high as compared to overweight and obese adolescents. Adolescence is a period of physical growth and development in which the importance of body shape and physical appearance is perhaps greater than at any other developmental stage in life. Sexuality and opposite-sex relationships are emerging and new roles are being negotiated in these areas that are tied to physical appearance. Thus, it is consistent that body weight and self-esteem relationships would be stronger in this age group compared to younger, preadolescent ages. Furthermore, in a culture that values extreme thinness, the self-esteem of adolescent who are overweight would be expected to be more negatively impacted compared to normal weight adolescents⁸. Earlier onset, longer duration, and greater severity of obesity may have a more negative impact on self-esteem over time. Also the children who were teased about being overweight were more likely to have poor body image, low self-esteem, and symptoms of depression. Parents and peers of obese children constantly reminds them of the activities which they could not perform or kind of clothes they can't wear which demotivates them in involving in physical activities and social gatherings resulting in low self-esteem of those children.

Despite the high prevalence of obesity and depression, exploration of any association between them has been limited. Though the depression in overweight & obese subjects is high as compared to subjects within normal BMI

ranges the difference is not statistically high (mean value of normal BMI adolescent-15.51 & mean value of overweight and obese adolescents- 16.33. this could be because all the subjects in this study were school going children and interacting within the community which improves the ability to react and deal with stressful situations. If the adolescent is morbidly obese the interacting abilities of those children would be affected due to lack of confidence in them and depression in them would be pathological and would need counseling and psychiatric help. Adolescents during this stage are learning how to navigate the complex and unsettling world of social interaction in new and complicated ways. Teens are under an enormous amount of pressure to succeed academically, especially as the costs of higher education rise and more families are reliant upon scholarships to help offset the expense. Stressing over classes, grades and tests can cause you to become depressed, especially if you're expected to excel at all costs or are beginning to struggle with your course load. Popularity is important to most teens, and a lack of it can be very upsetting. Being a teenager isn't easy on the self-esteem. From a changing body shape to the appearance of pimples, it seems in the natural course that the external as well as internal factors come together to create an environment that predisposes these adolescents to depression. This probably is the reason why adolescents are known to be particularly vulnerable age group. Feelings of helplessness and powerlessness often go hand in hand with the struggle with depression, and can make the existing condition even more severe. So obesity might be considered as a risk factor for depression in an already susceptible age of adolescence. However the levels may not be severe unless the subjects are morbidly obese. It is important to note that participation in recreational activities will not only help keep children fit but will also develop sportsmanship and improved social interaction which would in turn boost their psychological well-being in long run.

7. Conflict of Interest

There exists no conflict of interest in this research to the best of our knowledge

8. Acknowledgements

We wish to express our sincere gratitude to the Schools & Students for their kind permission and support to this research.

References

- [1] Association between Body Mass Index and Hamstring/Back Flexibility in Adolescent Subjects Anu Arora , Sneha D' Souza International Journal of Science and Research (IJSR), <https://www.ijsr.net/archive/v5i7/v5i7.php> Volume 5 Issue 7 Pages 96-99
- [2] Guo SS e. Predicting overweight and obesity in adulthood from body mass index values in childhood and adolescence. - PubMed - NCBI. Ncbi.nlm.nih.gov. 2016. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/12198014>

- [3] Whitaker R, Wright J, Pepe M, Seidel K, Dietz W. Predicting Obesity in Young Adulthood from Childhood and Parental Obesity. *New England Journal of Medicine*. 1997;337(13):869-873.
- [4] Eriksson J, Forsén T, Osmond C, Barker D. Obesity from cradle to grave. *International Journal of Obesity*. 2003;27(6):722-727
- [5] Bray GBouchard C. *Handbook of obesity*. Boca Raton: CRC Press, Taylor & Francis Group; 2014
- [6] Power C e. Measurement and long-term health risks of child and adolescent fatness. - PubMed - NCBI. Ncbi.nlm.nih.gov. 2016. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/9226480>
- [7] Adolescence: a period needing special attention - adolescence-psychological-and-social-changes. Apps.who.int. 2016. Available from: <http://apps.who.int/adolescent/second-decade/section2/page5/adolescence-psychological-and-social-changes.html>
- [8] 2016. Available from: <http://www.healthychildren.org>
- [9] WHO | Depression. Who.int. 2016. Available from: <http://www.who.int/topics/depression/en/>

Author Profile



Dr Anu Arora is an Associate Professor in Physiotherapy from School of Physiotherapy, DY Patil University. She specializes in preventive, promotive, curative and rehabilitative aspects of Physiotherapy. She takes special interests in areas of Women's Health, Fitness, Obesity, Industrial Ergonomics & Occupational Health.



Dr Amrin Shaikh is a Physiotherapist from DY Patil University, Nerul. She has keen interest in Fitness & Health Promotion especially in the younger age groups.