

Research Paper

Relationship Between Overweight, Mental Health and Attitude Among Adolescents: An Exploratory Study

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ABSTRACT

The purpose of the study was to explore the relationship between overweight, mental health and attitude among adolescents. The study was conducted on a sample of 30 overweight adolescents aged between 13-18 years using purposive sampling method. Overweight can be defined as the condition of extra fat accumulation. According to Body Mass Index (BMI) (as provided by WHO), the weight between 25 to 29.9 kg is regarded as being in the overweight category. The hypothesis of the study was that there will be no significant relationship between overweight and mental health among adolescents. The adolescents were selected based on their BMI index of overweight and assessed using the Mental Health Battery (MHB). MHB measures adolescent's mental health on four levels: social, psychological, physical, emotion and, BMI was calculated using the BMI formula. The findings reveal that the hypothesis has been accepted i.e., there is no correlation between Overweight and Mental Health as well as Attitude among adolescents. The present work needs to be carried forward as major work has been done on obesity and not on overweight.

Keywords: *Overweight, Mental Health, Attitude, Adolescents, Correlation*

The global epidemic of overweight and obesity has a long-term impact on public health, which has significant effects on people's social, psychological, and physical well-being. Overweight and obesity are described as "abnormal or excessive fat accumulation that presents a risk to health" by the World Health Organization (WHO).

In India, the prevalence of overweight and obesity among adults has increased significantly between 1998 and 2016. Overweight/obesity prevalence among persons with lower socioeconomic status increased significantly in urban settings, implying that socioeconomic groups may be converging. There is more consistent rises in the prevalence of overweight and obesity in rural areas for all individuals, irrespective of their socioeconomic background. This may indicate a slowing of the overweight/obesity prevalence gap between rural and

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urban areas. Among women in rural areas, the prevalence went from 4% to 14% among those with no formal education between 1998 and 2016, whereas it jumped from 16% to 25% among those with higher education. (Luhar et al., 2018)

A study from the Korean National Health and Nutritional Examination Survey (KNHANES) which was conducted from 2010 to 2019 examined the relationship between weight status and mental health in Korean teenagers. The study found no correlation between the perceived weight status of overweight/obese participants and mental health issues. (Choi & Hong, 2023)

Analogously, studies on the views of adolescents from Jordan and the Marshall Islands on obesity and overweight provide fascinating new information. Overall, the students had positive attitude on obesity and lifestyle practice that were compatible with societal health norms. But compared to girls, boys exhibited much higher levels of positivity than girls. Surprisingly, no significant difference was found in views between obese and non-obese adolescents (Abu Baker et al., 2018).

In Northwest Arkansas, a study was conducted to analyse the views and attitudes of Marshallese adolescents who are overweight in relation to their overall weight. The study found numerous important themes pertaining to adolescents' perceptions of their weight and health in Marshallese people. The effects of diet, exercise, attitudes, and mental health on general health are some of these issues. Furthermore, the study discovered that adolescent's sense of responsibility for their health varied with age. It highlights the significance of understanding adolescent's views and attitudes toward health, as well as the impact of cultural variables on these attitudes.

In light of this, the research shows a patchwork of results that illustrate the complex interactions between adolescent overweight, mental health, and attitude. The equivocal links found in research like the cross-sectional study with adolescents in Bangladesh, however, show that gaps still exist. This cross-sectional study evaluates the association between overweight/obesity and mental health issues among Bangladeshi adolescents. The study reported that 13% adolescents were overweight or obese, while 35% of adolescents had moderate-to-severe depression and 16% had anxiety. But no meaningful correlation was discovered between depression and being overweight or obese. Relevant associations are still difficult to find despite the high prevalence rates of mental health problems and overweight/obesity, indicating the need for more research (Moonajilin, Rahman, & Islam, 2020).

Therefore, the present study aims to understand the tangled web of associations between overweight, mental health, and attitude among adolescent. It seeks to shed light on the intricate interactions influencing the health and well-being of adolescents by exploring the nuances of this complex phenomenon. This study also aims to make a meaningful contribution to the developing body of evidence by means of thorough analysis and nuanced investigation.

Rationale

In India, the prevalence of overweight and obesity among adults has increased significantly between 1998 and 2016 (Luhar et al., 2018). Overweight and its accompanying health implications, particularly mental health difficulties are of growing concern among

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adolescents. Along with one's physical, spiritual, and economic well-being, mental health plays a significant role in one's life. Adolescent mental health is a growing concern among school and community counsellors and educators (Senad, 2018). Previous literature shows that overweight is more common in adolescents and school-age children than in preschoolers, and many people continue to struggle with it into adulthood. Numerous physiological and psychological factors, including genetic, environmental, lifestyle, and hormonal impacts, contribute to obesity (Sanyaolu,2019). Obesity is influenced by societal norms, genetics, and lifestyle choices. Numerous chronic illnesses that affect many organ systems are associated with overweight. However, there is a gap in studies so far, because not much exploration has been done on machine learning to identify obesity. (Safaei et al., 2021). The findings of this research will provide there is no correlation between Overweight and Mental Health as well as Attitude.

Objective

The objective of the study was to explore the relationship between overweight, mental health and attitude among adolescents seeking to uncover insights that can enrich understanding of how these factors interact and influence one another.

Hypotheses

The study began with three assumptions hypothesising that a) there will be no significant relationship between overweight and mental health among adolescents, b) there will be no significant relationship between overweight and attitude adolescents, and c) there will be no significant difference between the six domains of MHB and three domains of SAS.

METHODOLOGY

Sample

The sample population for this study comprised of 30 overweight adolescents selected using purposive Sampling technique. The overweight adolescents were between the age range of 13 and 18 years who fulfilled the inclusion criteria. They were assessed using the Body Mass Index (BMI). BMI was calculated using the BMI formula. The adolescents falling in the overweight criteria ranging from 25-29.9 Kg/m² on BMI were selected for the study. Then Mental Health Battery (MHB) and Sodhi's Attitude Scale (SAS) were administered on them. Prior written consent was also taken from them.

The study employed the Ex-Post Facto research design.

Tools

Following tools were used for data collection in the present study:

- **BODY MASS INDEX (BMI):** With the use of height and weight, the body mass index (BMI) calculates whether a certain weight is considered healthy. Body Mass Index (BMI) is calculated by dividing a person's weight in kilograms divided by their height in meters squared.

$$\text{BMI Formula} = \text{Weight(kg)} \div [\text{Height(m)}]^2$$

- **MENTAL HEALTH BATTERY (MHB-ss):** Mental Health Battery was developed by Arun Kumar Singh and Alpana Sen Gupta in 2000 which assess the status of mental health of persons age ranging from 13 to 22 years. There are 130 items in the battery based on six popular indices of mental health. The questions require to be answered either "yes" or "no". Score of 1 is awarded yes answers and zero is

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awarded to no answer. MHB measures adolescent's mental health on four levels: social, psychological, physical, and emotion

- **SODHI'S ATTITUDE SCALE (SAS):** The Sodhi's Attitude Scale was developed by Dr. T.S. Sodhi to assess the individual's level of attitude based on five dimensions of attitude which includes attitude towards Teachers and Parents; attitude towards Discipline; attitude towards Life and Humanity; attitude towards Country and attitude towards Religion. The scale scores in each area were correlated with the three rating scores and thus three validity coefficients were computed by the Pearson's Product Moment Method for each scale area. There are 71 items in the questionnaire that are answered with either 'Yes', or 'No' or '?' responses. Score of +1, -1, and 0 are assigned respectively.

Procedure

The researcher approached the principals of two Kendriya Vidyalayas in Lucknow, Uttar Pradesh to seek their permission. Later, the purpose of the study was explained to the students and their consent was obtained. The data was collected and results were formulated. The data was analysed using SPSS (Statistical Package for Social Sciences, version 20). Descriptive statistics (Mean and SD values) were calculated for BMI (Obesity), Mental Health, and Attitude. The data were analyzed by Pearson Correlation and Regression to know the relation between Obesity, Mental Health, and Attitude. Lastly the results were interpreted forming the conclusion which included the implications of the research as well.

RESULT AND DISCUSSION

The study examined the differences in Mean and Standard Deviation between BMI, Mental Health, and Attitude of overweight adolescents. Additionally, the study explored the correlation between BMI & Domains of MHB and of SAS; and correlation between Six Domains of MHB and Three Domains of SAS. The result of the analysis is presented in this report to provide a comprehensive understanding the relationship between overweight, mental health and attitude.

Table No. 1: Total, Mean & SD of BMI, MHB & SAS with N = 30

	T	M	SD
BMI	788.2	26.273333	1.1252382
MHB			
Emotional Stability (ES)	216	7.2	2.024
Over-all Adjustment (OA)	678	22.6	4.43
Autonomy (AY)	262	8.73	1.96
Security Insecurity (SI)	233	7.767	1.942
Self-Concept (SC)	242	8.067	1.701
Intelligence (IG)	484	16.133	4.7687
SAS			
Attitude towards Teachers and Parents (ATP)	42	1.4	3.37
Attitude towards Discipline (AD)	-46	-1.5	2.74
Attitude towards Life and Humanity (ALH)	9	0.3	3.87

Table No. 1 highlights the Domain-wise Mean and Standard Deviation (SD) scores for the 30 overweight adolescents. According to which the average Body Mass Index (BMI) of

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overweight adolescents is 26.27, and SD of six domains of Mental Health Battery (MHB) as well as three domains Sodhi's Attitude Scale (SAS) is lower than the Mean. The Mean scores of Mental Health dimensions of the overweight adolescents appears to have moderate levels of emotional stability, overall adjustment, autonomy, security-insecurity, self-concept, and intelligence. The mean attitude scores suggest that there is relatively neutral attitude towards Attitude Towards Teachers and Parents (ATP), Attitude towards Discipline (AD) and Attitude towards Life and Humanity (ALH), with standard deviations suggesting variability in attitudes among the participants.

Table No. 2: Correlation between BMI & Domains of MHB and SAS

S.NO.	BMI
MENTAL HEALTH BATTERY	
Emotional Stability (ES)	-0.146*
Over-all Adjustment (OA)	-0.124*
Autonomy (AY)	-0.147*
Security Insecurity (SI)	-0.222*
Self-Concept (SC)	0.01*
Intelligence (IG)	0.045*
SODHI'S ATTITUDE SCALE	
Attitude towards Teachers and Parents (ATP)	0.042*
Attitude towards Discipline (AD)	0.068*
Attitude towards Life and Humanity (ALH)	-0.204*

*Note: * means the value is significant at 0.05 level and ** means the value is significant at 0.01 level.*

Table No. 2 shows the correlation coefficient of BMI with six domains of MHB along with three SAS domains for the sample size of 30. The coefficient value of BMI with Emotional Stability is -0.146 which means that there is negligible correlation between them at the significant level of 0.01. The coefficient value of BMI with Over-all Adjustment is -0.124 which means that there is negligible correlation between them at the significant level of 0.01. The coefficient value of BMI with Autonomy is -0.147 which means that there is negligible correlation between them at the significant level of 0.01. The coefficient value of BMI with Security-Insecurity is -0.222 which means that there is negligible correlation between them at the significant level of 0.01. The coefficient value of BMI with Self-Concept is 0.01 which means that there is negligible correlation between them at the significant level of 0.01. The coefficient value of BMI with Intelligence is 0.045 which means that there is low positive correlation between them at the significant level of 0.01. The coefficient value of BMI with Attitude towards Teachers and Parents is 0.042 which means that there is low positive correlation between them at the significant level of 0.01. The coefficient value of BMI with Attitude towards Discipline is 0.068 which means that there is negligible correlation between them at the significant level of 0.01. The coefficient value of BMI with Attitude towards Life and Humanity is -0.204 which means that there is negligible correlation between them at the significant level of 0.01.

The result suggests that overweight may not have a significant effect on Mental Health and Attitude among adolescents. From this table it is inferred that there is no significant effect of overweight on Emotional Stability, Over-all Adjustment, Autonomy, Self-Concept, and Attitude towards Discipline among adolescents. However, there are some weak correlations

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between Overweight and Mental Health and Attitude which is largely insignificant or negligible. Being overweight may slightly decrease feelings of security among adolescents. Another observation was that there is a slight positive influence on intelligence and Attitude towards Teachers and Parents, although the correlation is weak. It was also inferred that there is a moderate negative correlation between BMI and Attitude towards Life and Humanity.

Table No. 3: Correlation between Six Domains of MHB & Three Domains of SAS

MENTAL HEALTH BATTERY (MHB)						
=>	ES	OA	AY	SI	SC	IG
SODHI'S ATTITUDE SCALE (SAS)						
Attitude Towards Teachers and Parents (ATP)	-0.017	0.207	0.051	0.494	0.278	-0.106
Attitude towards Discipline (AD)	0.119	0.005	-0.194	0.034	-0.177	-0.116
Attitude towards Life and Humanity (ALH)	-0.131	-0.24	0.12	0.179	-0.144	-0.075

Table No. 3 calculates the Pearson's correlation between Six Domains of Mental Health Battery and Three Domains of Sodhi's Attitude Scale for the sample size of 30. The coefficient value of Attitude Towards Teachers and Parents with Emotional Stability is -0.017 which means there is negligible correlation but it is negative. The coefficient value of Attitude Towards Teachers and Parents with Over-all Adjustment is 0.207 which means that there is negligible correlation but it is positive. The coefficient value of Attitude Towards Teachers and Parents with Autonomy is 0.051 which means that there is negligible correlation but it is positive. The coefficient value of Attitude Towards Teachers and Parents with Security-Insecurity is 0.494 which means that there is low positive correlation. The coefficient value of Attitude Towards Teachers and Parents with Self Concept is 0.278 which means that there is negligible correlation but the value is positive. The coefficient value of Attitude Towards Teachers and Parents with Intelligence is -0.106 which means that there is negligible correlation but it is negative. The coefficient value of Attitude towards Discipline with Emotion Stability is 0.119 which means that there is negligible correlation but it is positive. The coefficient value of Attitude towards Discipline with Over-all Adjustment is 0.005 which means that there is negligible correlation but it is positive. The coefficient value of Attitude towards Discipline with Autonomy is -0.194 which means that there is negligible correlation but it is negative. The coefficient value of Attitude towards Discipline with Security-Insecurity is 0.034 which means that there is negligible correlation but it positive. The coefficient value of Attitude towards Discipline with Self-Concept is -0.177 which means that there is negligible correlation but it is negative. The coefficient value of Attitude towards Discipline with Intelligence is -0.116 which means that there is negligible correlation but it is negative. The coefficient value of Attitude towards Life and Humanity with Emotion Stability is -0.131 which means that there is negligible correlation but it is negative. The coefficient value of Attitude towards Life and Humanity with Over-all Adjustment is -0.24 which means that there is negligible correlation but it is negative. The coefficient value of Attitude towards Life and Humanity with Autonomy is 0.12 which means that there is negligible correlation but it is positive. The coefficient value of Attitude towards Life and Humanity with Security-Insecurity is 0.179 which means that there is negligible correlation but it is positive. The coefficient value of Attitude towards Life and Humanity with Self Concept is -0.144 which means that there is negligible correlation but it is negative. The coefficient value of Attitude towards Life and Humanity with Intelligence is -0.075 which means that there is negligible correlation but it is negative.

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Upon analysing the correlation between Attitude towards Discipline (AD) and Six domains of MHB, it is inferred that there is no significant influence of AD on Mental Health factors. The result also suggests that adolescents' Attitude towards Life and Humanity has minimal association with Emotional Stability, Overall Adjustment, Autonomy, Self-Concept, and Intelligence. However, there is a slight association between feelings of security and insecurity, suggesting that adolescents, regardless of their mental health status, may feel a little more secure if they have a more positive outlook on life and humanity.

This study suggests that there could be various factors other than overweight itself that affects the mental health and attitude. A wide range of factors beyond BMI must be taken into account in order to gain a thorough knowledge of the mental health and attitudes of adolescents.

To sum up, the result of the present study reveals that there is no Effect of Overweight on Mental Health and Attitude among adolescents.

Limitation and Implications for Future Work

Every research study has scope for development and correction. The present research work have the potential drawbacks namely, the sample size wasn't large enough and there is a possibility of influence of other variables which was not assessed in this study such as individual differences, socio-cultural influences and environmental factors, may play a more significant role in shaping mental health and attitudes among adolescents than weight status alone.

This research study had focused on effect of overweight on mental health and attitudes among adolescents. The results showed that overweight has minor influences on certain aspects of mental health and attitude. A wide range of factors must be taken into account in order to gain a thorough knowledge of the mental health and attitudes of adolescents. There might be variables other than mental health and attitude among adolescents. This area can further be explored for a much better and in-depth understanding of this topic of study.

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Conflict of Interest

The author(s) declared no conflict of interest.

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