

Relationship Between Anxiety and BMI among Adolescents

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Abstract

The period of adolescence is considered to be the most crucial phase of life. It is also known as the period of stress and storm. The general feeling of anxiety is commonly prevalent due to the fear of failure, societal pressure, peer pressure, career choices, etc. The feeling of anxiety sometimes crosses its normal and generalized limits as a result it may lead to various adverse effects covering both psychological and psychological effects. The effect of anxiety is very much found to be linked with food consumption and eating habits. Hence it may adversely affect BMI. The BMI of adolescents is also connected with various types of anxiety levels. This paper focuses on the relationship between the level of anxiety and BMI among adolescents.

Keywords: Anxiety, BMI, Adolescence, dietary habits.

INTRODUCTION:

The Oxford Dictionary (2000) defines anxiety as the unpleasant unease of the mind around an imminent or anticipated event. According to Sullivan (1953), anxiety is a very unpleasant feeling of tension brought on by encountering rejection in interpersonal interactions. RC Carson (2002) Another definition of anxiety is the emotional unease brought on by the perception of risk. Anxiety disorders involve unreasonable, chronic fear or worry that causes significant suffering or interferes with functioning, even though some degree of anxiety is often normal and adaptive.

BMI was first proposed in 1832 by Adolphe Quetelet. It was later known as "body mass index" by Ancel Keys Karvonen, Taylor, and Kimura (1972). A first diagnosis is aided by the BMI, which provides a simple and practical technique to evaluate a person's body weight. Body mass index (BMI) is determined by dividing a person's height by their weight (usually expressed in kg/m², or kilograms per square meter). It is used to figure out a person's adiposity based on their height and an estimate of average body composition. A person's body mass index (BMI) is determined by dividing their height in meters squared by their weight in kilograms. A high BMI could indicate increased body fat. BMI assesses weight categories that may lead to health problems but does not diagnose a person's body fat or health. According to the World Health Organization (2016), both obesity and overweight are conditions characterized by an abnormal or excessive build-up of fat that may be hazardous to health.

Adolescence is a time of advancement, according to E. Lakshmi (2021). At this crucial time, eating habits are developed, and these habits can have a big impact on someone's long-term health and nutritional

condition. The purpose of the current study was to assess the eating patterns of adolescent females and link them to their body mass index (BMI). According to Bruna Caruso Mazzolani et al. (2021), Brazilian women's eating habits changed during the COVID-19 pandemic regardless of BMI. According to BMI groupings, there were variations in the parameters relating to food preferences. We also showed that eating habits were associated with psychiatric symptoms and dietary preferences during the COVID-19 pandemic, which may help better design programs aimed at lowering the risks of food insecurity and obesity in certain communities.

Cobham, Veronica E. (2020) Adolescents with CMCs are shown to have a higher prevalence of anxiety disorders than the general population. Although a definitive inference cannot be drawn from the data, anxiety may potentially hurt the prognosis of the adolescent disease. Longitudinal research using parent-youth composite anxiety measures, as well as parent-youth subjective and objective measures of disease-related outcomes, is needed. Even though these problems may not have an impact on the course of the disease, screening for and treating anxiety disorders in young individuals with CMCs is advised due to the sickness burden they cause.

OBJECTIVE:

1. To assess the BMI and Anxiety among adolescents.
2. To find out the relationship between Anxiety and BMI among adolescents.

SIGNIFICANCE OF THE STUDY:

Anxiety adversely affects the food habits and eating pattern of the adolescents. The main symptoms of anxiety in adolescents are stress, guilt, low self-restraint, low maturity, doubt etc. One of the main reasons for adolescents to be anxious is also the fact that they are considered to be in the stage of identity vs role confusion. Various factors including both physiological and psychological can cause anxiety during adolescence period. Height and weight as a parameter of BMI can affect the appearance of adolescents, and is a very important contributing factor of anxiety. Weight management practices and to maintain a healthy physique is one the important factor of grooming for adolescents. When they are unable to maintain their physique, they may face anxiety. It becomes very important to study the linkage and relationship between the Anxiety and BMI of adolescents.

METHODOLOGY- Purposive random sampling was used to collect the data. For collecting the data regarding anxiety, STAT (State-Trait Anxiety Test), developed by Sanjay Vohra, was used. The height and weight were collected to categorise the data for the BMI of the respondents. The sample size consists of 50 adolescents aged 14–19 years. The adolescents were approached through two schools in Aligarh, i.e., Angel Global School and Ayesha Tarin Modern Public School Aligarh. The anxiety was analysed using the norms of the Anxiety Scale STAT (State-Trait Anxiety Test) developed by Sanjay Vohra, and the BMI was analysed using Anthro-plus software developed by the WHO (World Health Organization). The secondary data was collected using books, e-books, journals, websites, etc. The data were analysed using the chi-square test and the percentage method.

RESULT AND DISCUSSION:

Relationship of BMI between different Anxiety levels of the respondent-

1. Guilt proneness (GP) with BMI

2. Self-control (SC) with BMI
3. Maturity (MA) with BMI
4. Suspiciousness (SU) with BMI
5. Tension (TN) with BMI

1. Relationship between Guilt proneness (GP) with BMI:-

BMI, N=50	Guilt proneness (GP)		
	LOW, N=15	AVERAGE, N=15	HIGH, N=20
Under-weight, N=14	4	3	7
Normal, N= 16	5	1	10
Over-weight, N=12	2	9	1
Obese, N=08	4	2	2

The under-weight category of BMI includes 14 adolescents. Out of 14 adolescents 4 respondents are having low guilt-proneness, 3 respondents are having average guilt proneness and 7 respondents are having high guilt-proneness. The normal category of BMI includes 16 adolescents. Out of 16 adolescents 5 respondents are having low guilt-proneness, 1 respondent is having average guilt proneness and 10 respondents are having high guilt-proneness. The over-weight category of BMI includes 12 adolescents. Out of 12 adolescents 2 respondents are having low guilt-proneness, 9 respondents are having average guilt proneness and 1 respondent is having high guilt-proneness. The obese category of BMI includes 8 adolescents. Out of 8 adolescents 4 respondents are having low guilt-proneness, 2 respondents are having average guilt proneness and 2 respondents are having high guilt-proneness.

The relationship of was between BMI and guilt-proneness is found to be significant. [$X^2(6,50)=19.1468, p=.003923$]. Cohen et.al. (2011), concluded that people who are high in shame-negative self-evaluation are more likely to experience neuroticism, personal discomfort, low self-esteem, and low self-compassion than people who are high in guilt-negative behavior-evaluation. When they feel unhappy, they are also more inclined to ruminate, which is connected to an increase in depression symptoms. Therefore, shame propensity seems to be a bit of a mixed bag. Although it prevents dishonesty and criminal activity, guilt-proneness eclipses its moral standing and keeps people on the straight and narrow. Lucibello, K. M et.al. (2020), in their study that self-conscious feelings may be the processes through which young adults' perceptions of their weight affect their levels of physical activity and sedentary behavior.

2. Relationship between Self-control (SC) with BMI:-

BMI, N=50	Self-control (SC)		
	LOW, N=12	AVERAGE, N=15	HIGH, N=23
Under-weight, N=14	5	2	7
Normal, N= 16	1	3	12
Over-weight, N=12	3	6	3
Obese, N=08	3	4	1

The under-weight category of BMI includes 14 adolescents. Out of 14 adolescents 5 respondents are having low self-control, 2 respondents are having average self-control and 7 respondents are having high self-control. The normal category of BMI includes 16 adolescents. Out of 16 adolescents 1 respondent is having low self-control, 3 respondents are having average self-control and 12 respondents are having high

self-control. The over-weight category of BMI includes 12 adolescents. Out of 12 adolescents 3 respondents are having low self-control, 6 respondents are having average self-control and 3 respondents are having high self-control. The obese category of BMI includes 8 adolescents. Out of 8 adolescents 3 respondents are having low self-control, 4 respondents are having average self-control and 1 respondent is having high self-control.

The relationship of was between BMI and self-control is found to be significant. [$X^2(6,50)=14.0835, p=.028717$]. Price, M. (2017), in his study suggests an important role of time perspective in health outcomes. Self-control likely mediates the relationship between temporal perspectives and BMI, suggesting that time perspective may be a target for individualized interventions. Wang, Lili. (2014), discovered that the positive association between Sham and BMI may be mediated entirely by self-control, most importantly.

3. Relationship between Maturity (MA) with BMI:-

BMI, N=50	Maturity (MA)		
	LOW, N=20	AVERAGE, N=18	HIGH, N=12
Under-weight, N=14	2	5	7
Normal, N= 16	12	3	1
Over-weight, N=12	4	6	2
Obese, N=08	2	4	2

The under-weight category of BMI includes 14 adolescents. Out of 14 adolescents 2 respondents are having low maturity, 5 respondents are having average maturity and 7 respondents are having high maturity. The normal category of BMI includes 16 adolescents. Out of 16 adolescents 12 respondents are having low maturity, 3 respondents are having average maturity and 1 respondent is having high maturity. The over-weight category of BMI includes 12 adolescents. Out of 12 adolescents 4 respondents are having low maturity, 6 respondents are having average maturity and 2 respondents are having high maturity. The obese category of BMI includes 8 adolescents. Out of 8 adolescents 2 respondents are having low maturity, 4 respondents are having average maturity and 2 respondents are having high maturity.

The relationship of was between BMI and guilt-proneness is found to be significant. [$X^2(6,50)=16.5253, p=.011196$]. McLaren et.al. (2008), suggests the importance of considering the type, severity level, gender, and age of mental illness when examining the relationship between BMI and mental health. It was also reported that there is also a difference in the maturity level of adolescents due to BMI.

4. Relationship between Suspiciousness (SU) with BMI:-

BMI, N=50	Suspiciousness (SU)		
	LOW, N=14	AVERAGE, N=18	HIGH, N=18
Under-weight, N=14	4	4	6
Normal, N= 16	5	6	6
Over-weight, N=12	3	8	1
Obese, N=08	2	1	5

The under-weight category of BMI includes 14 adolescents. Out of 14 adolescents 4 respondents are having low suspiciousness, 4 respondents are having average suspiciousness and 6 respondents are having high suspiciousness. The normal category of BMI includes 16 adolescents. Out of 16 adolescents 5 respondents are having low suspiciousness, 6 respondents are having average suspiciousness and 6

respondents are having high suspiciousness. The over-weight category of BMI includes 12 adolescents. Out of 12 adolescents 3 respondents are having low suspiciousness, 8 respondents are having average suspiciousness and 1 respondent is having high suspiciousness. The obese category of BMI includes 8 adolescents. Out of 8 adolescents 2 respondents are having low suspiciousness, 1 respondent is having average suspiciousness and 5 respondents are having high suspiciousness.

The BMI and guilt-proneness are not found to be significant. [$X^2(6,50)=9.1081, p=.16759$].

5. Relationship between Tension (TN) with BMI:-

BMI, N=50	Tension (TN)		
	LOW, N=13	AVERAGE, N=17	HIGH, N=20
Under-weight, N=14	4	3	7
Normal, N= 16	2	11	3
Over-weight, N=12	5	2	5
Obese, N=08	2	1	5

The under-weight category of BMI includes 14 adolescents. Out of 14 adolescents 4 respondents are having low tension, 3 respondents are having average tension and 7 respondents are having high tension. The normal category of BMI includes 16 adolescents. Out of 16 adolescents 2 respondents are having low tension, 11 respondents are having average tension and 3 respondents are having high tension. The over-weight category of BMI includes 12 adolescents. Out of 12 adolescents 5 respondents are having low tension, 2 respondents are having average tension and 5 respondents are having high tension. The obese category of BMI includes 8 adolescents. Out of 8 adolescents 2 respondents are having low tension, 1 respondent is having average tension and 5 respondents are having high tension.

The relationship of was between BMI and guilt-proneness is found to be significant. [$X^2(6,50)=13.9516, p=.030182$]. van der Valk et al. (2018), reported that in people who are more sensitive or exposed to glucocorticoids than average, stress may be an important factor in the onset and maintenance of obesity. Susan J. Torres, and Caryl A. Nowson, (2007), found that stress appears to alter overall food intake in two ways, resulting in under or overeating, which may be influenced by the severity of stress. Due to this the level of BMI is also affected.

CONCLUSION:-

According to the findings of the above study, there is a significant relationship between the respondents' guilt-proneness and BMI, self-control and BMI, maturity and BMI, and tension and BMI. The parameter of suspiciousness is discovered to be unrelated to BMI. The person who has high dimension of tension tends to be very tense, excitable, frustrated, driven, restless, fretful and impatient as a result it affects the BMI. The person who has high dimension of guilt-proneness tends to be depressed, apprehensive, troubled, moody, a worrier, full of foreboding and brooding, as a result it can alter the food consumption and affects the BMI. The person who has high dimension of Maturity is easily affected by feelings and tends to be low in frustration tolerance, changeable and plastic. The person who has high dimension of self-control will not be bothered with will control and regard for social demand. In this way, it can be concluded from the study that anxiety and body mass index level are related to each other. A large sample can be taken to study this relationship in a wider context

REFERENCES:

1. Siefiring, J. (Ed.). (2005). *The Oxford dictionary of idioms*. OUP Oxford.
2. Bazerman, Charles. (2001). *Anxiety in Action: Sullivan's Interpersonal Psychiatry as a Supplement to Vygotskian Psychology*. *Mind. Culture*, 174-186. [10.1207/S15327884MCA0802_04](https://doi.org/10.1207/S15327884MCA0802_04).
3. Ingraham, L. J., & Wright, T. L. (1987). *A Social Relations Model test of Sullivan's anxiety hypothesis*. *Journal of Personality and Social Psychology*, 52(6), 1212–1218. <https://doi.org/10.1037/0022-3514.52.6.1212>
4. Newman, Michelle & Erickson, Thane. (2010). *Generalized anxiety disorder*. [10.1037/12084-009. https://egyankosh.ac.in/bitstream/123456789/67628/1/Unit-2.pdf](https://egyankosh.ac.in/bitstream/123456789/67628/1/Unit-2.pdf)
5. Keys, A., Fidanza, F., Karvonen, M. J., Kimura, N., & Taylor, H. L. (1972). *Indices of relative weight and obesity*. *Journal of chronic diseases*, 25(6), 329–343. [https://doi.org/10.1016/0021-9681\(72\)90027-6](https://doi.org/10.1016/0021-9681(72)90027-6)
6. Lakshmi E. 2021. *Food consumption pattern and body mass index of adolescents- A descriptive study*; *International journal nutrition pharmacology neurological diseases*
7. Mazzolani, B. C., Smaira, F. I., Astley, C., Iraha, A. Y., Pinto, A. J., Marques, I. G., Cordeiro Amarante, M., Rezende, N. S., Sieczkowska, S. M., Franco, T. C., Miranda, L., Lindoso, L., Helito, A. C., Oba, J., Queiroz, L. B., Pereira, R., Roschel, H., Silva, C. A., & Gualano, B. (2021). *Changes in Eating Habits and Sedentary Behavior During the COVID-19 Pandemic in Adolescents With Chronic Conditions*. *Frontiers in pediatrics*, 9, 714120. <https://doi.org/10.3389/fped.2021.714120>
8. Fruh S. M. (2017). *Obesity: Risk factors, complications, and strategies for sustainable long-term weight management*. *Journal of the American Association of Nurse Practitioners*, 29(S1), S3–S14. <https://doi.org/10.1002/2327-6924.12510>
9. World Health Organization (WHO).(2016). *10 Facts on obesity*. Retrieved from <https://www.who.int/features/factfiles/obesity/facts/en/>
10. World Health Organization (WHO) . (2016) . *Obesity*. Retrieved from <https://www.who.int/topics/obesity/en/>
11. Kellerman, J., Zeltzer, L., Ellenberg, L., Dash, J., & Rigler, D. (1980). *Psychological effects of illness in adolescence*. I. Anxiety, self-esteem, and perception of control. *The Journal of paediatrics*.
12. Bandelow, B., & Michaelis, S. (2015). *Epidemiology of anxiety disorders in the 21st century*. *Dialogues in clinical neuroscience*, 17(3), 327–335. <https://doi.org/10.31887/DCNS.2015.17.3/bbandelow>
13. Cohen, Taya & Wolf, Scott & Panter, A & Insko, Chester. (2011). *Introducing the GASP Scale: A New Measure of Guilt and Shame Proneness*. *Journal of personality and social psychology*. 100. 947-66. [10.1037/a0022641](https://doi.org/10.1037/a0022641).
14. Lucibello, K. M., Sabiston, C. M., O'Loughlin, E. K., & O'Loughlin, J. L. (2020). *Mediating role of body-related shame and guilt in the relationship between weight perceptions and lifestyle behaviours*. *Obesity science & practice*, 6(4), 365–372. <https://doi.org/10.1002/osp4.415>
15. Price, M., Higgs, S., & Lee, M. (2017). *Self-control mediates the relationship between time perspective and BMI*. *Appetite*, 108, 156–160. <https://doi.org/10.1016/j.appet.2016.09.034>
16. Wang, Lili. (2014). *Body Mass Index, Obesity, and Self-Control: A Comparison of Chronotypes. Social Behavior and Personality: an international journal*. 42. [10.2224/sbp.2014.42.2.313](https://doi.org/10.2224/sbp.2014.42.2.313).
17. McLaren, L., Beck, C. A., Patten, S. B., Fick, G. H., & Adair, C. E. (2008). *The relationship between body mass index and mental health*. *A population-based study of the effects of the definition of mental*

- health. *Social psychiatry and psychiatric epidemiology*, 43(1), 63–71. <https://doi.org/10.1007/s00127-007-0269-x>
18. van der Valk, E. S., Savas, M., & van Rossum, E. (2018). *Stress and Obesity: Are There More Susceptible Individuals*. *Current obesity reports*, 7(2), 193–203. <https://doi.org/10.1007/s13679-018-0306-y>
19. Susan J. Torres, Caryl A. Nowson, 2007. *Relationship between stress, eating behavior, and obesity*, *Nutrition*; Volume 23, Issues 11–12. <https://doi.org/10.1016/j.nut.2007.08.008>.