



Impact Of Family Size On Body Mass Index (Bmi) And Self-Esteem: A Comparative Analysis Of Male And Female Adolescents

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Abstract

Background: Humans are sociable creatures who thrive in social situations. Family is the child's first social Microsystems with which he or she interacts from birth to death. Interaction with family members and other peers during the teenage years helps him understand the pace of development. Self-esteem and body image are two factors that can help a child deal with an ageing crisis. It is imperative to understand the impact of family size on these two attributes.

Objective: The current study sought to comprehend the impact of family size on BMI and self-esteem and to assess if any significant differences exist between male and female adolescents.

Method: 142 adolescents (63 males and 79 females) were selected by using the purposive sampling technique from the Delhi region of India. Pearson correlation coefficients and t-statistics were used to assess the relationship between variables and to check for significant differences between genders.

Conclusion: Family size was found to be the decisive factor in self-esteem and BMI. Small family adolescents have shown better self-esteem and BMI as compared to large families. Male adolescents' scores were significantly higher than female counterparts.

Keywords: Adolescents, BMI, self-esteem, family size

Introduction

Adolescence is a period of making the transition from dependent childhood to independent adulthood. It ranges from 12 to 18 years of human life in which the child is not only

undergoing biological, cognitive, and behavioural changes but is also internally conflicted. but because there is so much going on in the mind at the same time. G. Stanley Hall, a well-known American psychologist, referred to this stage of life as the "stage of stress and turbulence." This is not unique to human beings; even all mammalian species share the same transition (B.J. Casey, Stephanie Duhoux, and Matthew Malter Cohen (2011)). During this stage of life, the individual acts neither like a child nor like a fully functional adult. The development of secondary sexual characteristics causes changes in physical appearance. Boys seem different from girls. Transductive learning styles emerge, and the child begins to apply logic to the information he gathers from his surroundings. Adrenal and gonadal hormones set the basis for different bodily mechanisms. A plethora of factors laid the groundwork for a large yet powerful personality. Every interaction with which the child interacts, implicitly or explicitly, has an impact on learning and overall adjustment to the environment. Relationships with parents and other members of one's peer group are strongly related to one's self-concept (Garfield and Bester, 2007). During this patch of life, adolescents spend more time with their friends as compared to their parents (Mira Klarin et al., 2012). Both nature and nurture have an equal impact on adolescents and attempt to shape them.

Family

The family has an indispensable role to play in the formation of human character, and therefore, the parent's role in the early stages of life is remarkable. Parental influence is not as simple as it looks (Sheekha Elizabeth Jacob, 2015) and it decides the overall development and adjustment of the child in society. The association between family structure and mental health has deep-seated roots. This area is considerably less focused in comparison to other emotional and behavioural dimensions (Callie E. Langton and Lawrence M. Berger, 2013). Because the family is in the child's immediate vicinity, they share close contact. Socialization helps a lot with parents and peer members. It alters every facet of the adolescent years. It is the first and closest system of informal learning. Behavior imitation starts at home; mother-child interaction paves the way for future accomplishments. Family members share all of life's joys, happiness, and sorrows with one another, and their personalities are mutually influenced. Siblings complement each other in many aspects of development. Adolescents and families might use them as accessories. Various roles such as friend, competitor, mentor, and guide establish the roadmap for future transformations (Susan M. McHale, Kimberly A. Updegraff, and Shawn D. Whiteman, 2012). The size of the family is crucial and it is statistically and economically significant in terms of women's employment status (Kessler, Daniel, 1999). Family members' performance is also one of the important factors in shaping self-esteem (Abdullah Rezaei-Dehaghani, Somayeh paki, Mahrokh Keshvani 2015). Emotional temperament, cooperation, sharing, and caring are a few attributes that take

shape in a family environment. A study conducted by Mburu Josephine, Wairimn et al. (2016) indicated that adolescents (with family involvement) showed high self-esteem.

Body mass index (BMI)

A body mass index (BMI) is a measurement of body fat based on height and weight. A healthy BMI aids in body maintenance and prevents a variety of heart illnesses. BMI is simply calculated by dividing the weight (in kg) by the height (in metres squared). Everyone, regardless of gender, desires to be adored by others. Physical beauty is one of the most important aspects of human personality, which is why it is valued across all cultures and age groups. Because the child develops intimate relationships with colleagues and other peers during the adolescent years, physical appearance becomes more important. Gender differences soon started to affect self-esteem and body image at a young age. Boys seem more satisfied with their bodies than their counterparts, girls (Reut Agam, Snait Tamir, and Moria Golan, 2015). Rates of body dissatisfaction among girls are higher than among boys (Sarah Kate Bearman, Erin Martinez, and Eric Stice, 2006). Obesity is one of the most serious health issues that all stakeholders are concerned about. Obesity and being underweight both have serious repercussions.

Self-esteem

How you think of yourself and rate yourself gives you an idea of self-esteem. It is a very subjective experience. It gives you an overall opinion. It is a crucial psychological construct that tells us a lot about our overall well-being. In terms of Rosenberg (1965), your self-esteem is comprised of your positive and negative attitude towards yourself along with your evaluation of your thoughts and feelings. According to Coopersmith, "a positive attitude and a negative attitude towards oneself" give self-esteem. Family has much to do with self-esteem. Interaction among family members lays the foundation of strong and effective self-esteem (Scott T. Yabiku, William G. Axinn, 1999). The self-esteem of young people is significantly affected by social interaction.

Problem statement

The researcher's problem statement for the current study is as follows:

"Impact of family size on BMI and self-esteem: A comparative analysis of male and female adolescents."

Objectives of the study

- 1) To find out the relationship between family size and body mass index.
- 2) To find out the relationship between family size and self-esteem.
- 3) To compare the BMIs of male and female adolescents in relation to family size.
- 4) To compare the self-esteem of male and female adolescents in relation to family size.

Hypothesis

The researcher established the following hypotheses:

- 1) There is no correlation between family size and body mass index.
- 2) There is no correlation between family size and self-esteem.
- 3) There is no statistically significant difference in body mass index (BMI) between male and female adolescents.
- 4) There is no statistically significant difference in self-esteem between male and female adolescents.

Methodology

Study Design: An exploratory research technique was used by the researcher to establish the links between the independent variable (family size) and the dependent variables (self-esteem and BMI) and to observe the impact of one variable over the other.

Participants: Adolescents between the ages of 12 and 18 from the Delhi region were chosen using the purposive sampling technique. A total of 142 adolescents, 63 males and 79 females, were selected for the study.

Data collection: To obtain the required information and attain the objectives of the present study, the investigator used the Rosenberg self-esteem scale, measuring tape, and weighing machine. The Rosenberg self-esteem scale is an extensively used scale to measure global self-worth by considering both positive and negative feelings about oneself. It is a scale with a total 10 items. It is a 4-point Likert scale, ranging from "strongly agree" to "strongly disagree." Participants under study were asked to mark the responses to the best of their knowledge. Based on the adolescents' responses, scores were calculated. A higher score indicated a higher level of self-esteem and vice versa.

For the calculation of BMI, the height and weight of the participants were measured by using a measuring tape and a weighing machine, respectively.

Statistical methods: To check the correlations between the independent and dependent variables, Pearson correlation coefficients were calculated and t-tests were used to check the statistically significant difference between the variables for male and female adolescents.

Results

Table 1: Relationship between family size, Body mass index and self-esteem

Variable	BMI	Self-Esteem
Family size	-0.3369	-0.5294

The Pearson correlation coefficient (r) between the variable family size and body mass index was -0.3369, indicating a negative and weak relationship. The coefficient 'r' between family size and self-esteem was -0.5294. This is a moderate correlation, indicating that a larger family size is associated with low self-esteem. The current study's findings rejected the researcher's null hypothesis. Despite the fact that the relationships are weak and moderate, they must not be overlooked.

Table 2: Relationship between BMI and self-esteem

Variable	Self-esteem
BMI	0.539

Moderate but positive correlation with $r = 0.539$ was found between BMI and self esteem. This indicates that with high value of BMI self-esteem also increases.

Table 3: Compares BMI levels in male and female adolescents.

Variable	Gender	N	Mean	S.D	df	t
BMI	Male	63	22.296	3.945	140	3.250
	Female	79	20.365	3.135		

Table 3 clearly shows that the body mass index mean score in both genders is different. Male adolescents reported higher scores on BMI, with a mean score of 22.296, whereas female adolescents reported a mean score of 20.365. The table reveals that there is a statistically

significant difference in the BMI of male and female adolescents ($t = 3.250$ at $p < 0.01$) and hence our third hypothesis is invalidated.

Table 4: Compares self-esteem levels in male and female adolescents.

Variable	Gender	N	Mean	S.D	df	t
Self-esteem	Male	63	22.84	3.95	140	2.679
	Female	79	21.35	2.63		

Results displayed in table 4 reveal that there is a significant difference in the self-esteem of male and female adolescents ($t = 2.679$, at $p < 0.01$). Self-esteem in males is significantly higher as compared to females. Male adolescents' mean score was 22.84, whereas females' had a mean score of 21.35. As a result, we can conclude that males have higher self-esteem than females, ruling out our fourth hypothesis, which states that there will be no statistically significant difference in self-esteem between male and female adolescents.

In our present study we consider two types of families small families (with Five or less than five family members) and large families (family with more than five family members) to compare the variables (BMI and self esteem).

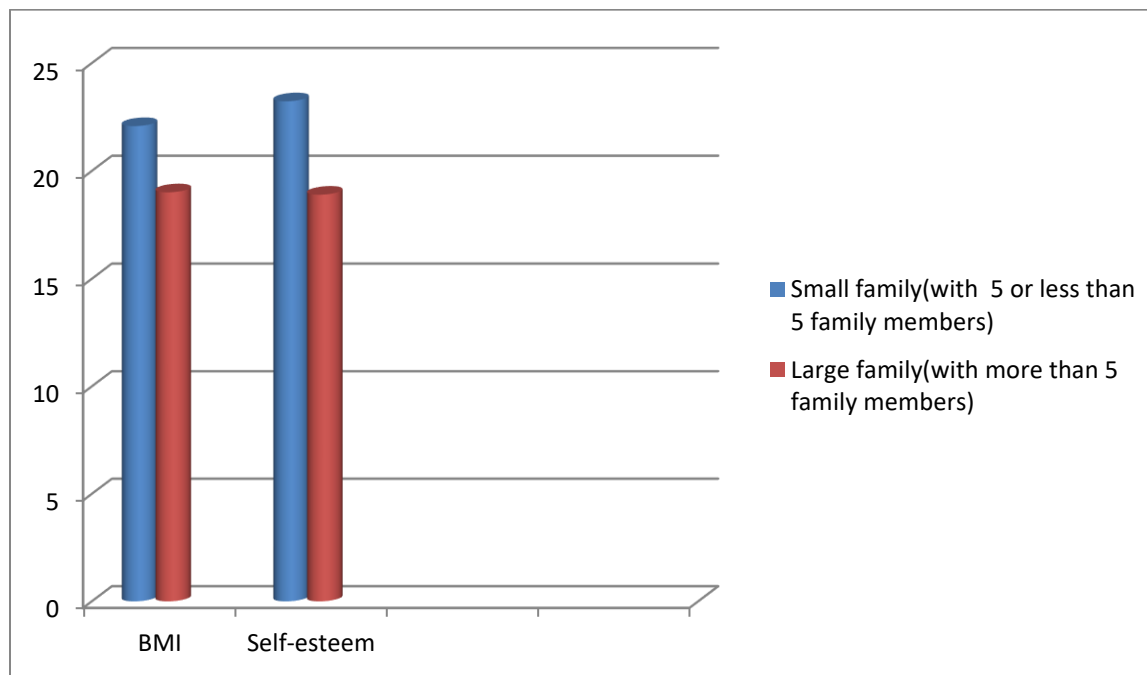


Fig 1: Showing mean score (Y- axis) of BMI and self-esteem (X-axis) with respect to small and large family.

Discussion

Body mass index and self-esteem are two significant aspects of human psyche. Adolescents are quite protective about their physical appearance, and BMI plays an important part in developing self-esteem. Girls sculpt their bodies for various beauty pageants, whilst boys use fitness clubs and gyms to maintain their bodies in shape. Social media is acting as a catalyst, increasing the demand for ideal physical stature among people of both genders. As a result, the young are more likely to maintain their physical form. Self-esteem is profoundly ingrained in a person's nature. It not only avoids overt behavior but also other psychological disorders such as poor mental health and sadness. Mental health concerns are among the most important issues for all stakeholders (Nakul khatri and Kumar Ashutosh, 2021). Without a doubt, the adolescent years are the most typical and difficult. The importance of the family and its size cannot be overstated. It is closely related to the overall development of the child (Fogelman K.R., 1995). Interaction among family members, whether direct or indirect, shapes the child's outlook and perception. More family members not only increase the number but also demand a share of the available family resources. The education level of children in large families is found to be low (Atison Booth and Hiau Kee, 2009). In this study, we were concerned about the consequences of family size on BMI and self-esteem. We also investigated the link between the variables and discovered some intriguing results. The study discovered that family size and BMI had a negative relationship. The BMI drops as the size of the family grows. As a result, the first hypothesis was rejected.

The notion of a mixed family is not unusual or novel in Indian culture. The notion of a shared family has existed since ancient times, albeit the nuclear family is now more popular. Joint families are huge in size because they include a high number of family members. Nuclear families, on the other hand, are relatively tiny families. Our current findings are consistent with previous research on BMI and family size. Manju Dewan (2017) found evidence of reciprocal interactions in her research. Obesity and diabetes were shown to be more prevalent in nuclear households. Obesity and overweight were observed to be greater in a combined family than in a nuclear household (Tika Gurung and Vijayalaxmi Neginhel Gurung, 2014). Timothy Hatton and Richard M.Martin (2010) concluded that family size seems to have no effect on BMI.

There is no correlation between family size and self-esteem; this was our second hypothesis, but our current findings reveal a negative moderate level of correlation between these two variables. Self-esteem decreases with increases in family size. As a result, we rejected our

null hypothesis in favor of the alternative. Extended families confront a variety of challenges, including a financial load on earning hands, bad housing, neglected children at home, a lack of decent educational facilities, and inadequate health care, which might be one of the causes for low self-esteem among large family children. Relationships with parents lay the groundwork for future social interactions and provide guidance on proper social dynamics. If a child has a strained relationship with his or her parents, his or her academic performance is likely to suffer as well. Attachment quality varies during the adolescent years, and gender has a significant influence on these changes (Kirsten L. Buist and Maja Dekovic, 2002). Females' support and proximity to their mothers increase with age (Paterson, Janis E, Field, Jeff, and Pryor, Jan, 1994). Parents engage with their children more regularly in a small family, which could also explain why teenagers from small families scored higher.

There was a perceptible difference in the mean BMI score for both genders. The estimated t value at $p < 0.01$ confirmed that there is a notable change in BMI between the sexes. As a result of these observations, our third hypothesis was rejected. Our current finding was consistent with prior research conducted by Kuan PX, Ho HL, et al,2011; G.F.Wandalsen, L.V.Boges, et al,2015; Poreddi Vijayalakshmi, Rohini Thimmaiah, et al,2017; Jiao Zhang, Lingzhong Xu, et al,2019.

Discrimination is always unwelcome, yet it is ingrained in all cultures and ethnicities. The treatment of both genders has a long-term influence on overall development. Because of considerable disparities in self-esteem between male and female teenagers, our fourth hypothesis was rejected. The adolescent years are full of surprises; concurrent growth in physical, emotional, social, and cognitive domains effects self-esteem. Self-esteem reported by youngsters was found to be greater than females. According to Kearney Cooke (1990), females in her study expressed lower self-esteem and unfavorable appraisals of their physical and intellectual characteristics than males. A statewide cross-cultural research using a large number of online samples looked at age and gender disparities in self-esteem. Higher male scores suggested that there were substantial gender differences (Bleidom, Wiebke et al., 2016).However, through meta-analysis, Kling. Kristen, C, and Hyde-Janet Shibley, et al. (2016) demonstrated a small difference in male and female self-esteem.

The correlation coefficient (r) calculated in our study showed the positive relationship between BMI and self-esteem. Self-esteem is a broader concept, and body image is one of its main constructs. Satisfaction with body image is one of the prime issues among adolescents. Males' better scores in BMI indicated their concern for their body shape. Small family adolescents scored better on self-esteem and the BMI scale, which points to how important family size is.

Conclusion

Since the family has been the most influential factor in a child's personality, its size matters. So far, relatively few scholars have attempted to address this problem, and very little is known, emphasizing that there is much more to discover. More research on the influence of family size should be performed. We endeavored to understand the implications of family size on BMI and self-esteem through our research. Our data show a modest negative relationship between family size and BMI and a substantial negative relationship between family size and self-esteem. Considerable differences in BMI and self-esteem across genders indicate something important. Considering the intercorrelation of the parameters and the sex difference, it might be argued that all stakeholders must place a special attention on the female gender, especially in a country like India where the future marriage life and social life are inextricably linked to body type.

A healthy mind is supposed to live in a healthy body. A healthy body aids in coping with adversity and, eventually, aids in the development of a kid into a productive adult in society. Nobody can deny the value of a healthy BMI. Although the lower BMI reduces the chances of obesity (Ashlesha Datar, 2017), it also decreases self-esteem. A healthy BMI improves self-image and self-esteem while decreasing other problems such as obesity, anxiety, depression, mental health issues, and heart-related disorders.

Delimitation

Our research revealed that family size plays an effect, but there are certain caveats to be aware of. To begin with, our research is limited to data from a single Indian state. As a result, these findings cannot be applied to other parts of the world. Culture is a crucial factor that weaves the human personality together, thus it must be considered before making broad generalizations. Second, because the participants in our study were teens, these findings cannot be applied to other age groups, such as middle or late adulthood, where inadequate physical movement and other health conditions are also factors in skewed BMI and self-esteem. Thirdly, the information were gathered from urban households. Because of the stronger cohesiveness among family members in rural locations, family sizes are often larger. As a result, we can't just apply the findings to rural areas. Finally, this research study only included teenagers between the ages of 12 and 18. The same study may be conducted with different elderly individuals, and characteristics such as socioeconomic background, disability, and quality of life can be taken into account.

Declaration of conflicting interest

There are no conflicts of interest declared by the authors.

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