

Social relationships, academic performance, dietary habits and body mass index in school children: A comparative study

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Abstract: Adolescence is always an interesting phase for doing research as their quest for new things and self-identity goes on. This study aims to explore the relationship among social relationships, academic performance, dietary habits and body mass index on school children. We assumed that all the study variables will be significantly correlated with each other. We tested our hypotheses using data collected from 201 school children (141 boys and 60 girls) in different schools in Jalandhar, Punjab. Results revealed significant and positive relationship between social relationship and academic performance, significant and positive relationship between social relationship and food habit, significant and negative relationship between social relationship and body mass index, significant and negative relationship between academic performance and body mass index and significant and negative relationship between food habit and body mass index. Moreover, there were gender differences on social relationships and food habit where males are found to be higher than females. However, no gender differences were obtained on academic performance and body mass index.

Key Words: Social Relationships, Dietary habits, Academic performance, Body mass index.

1. INTRODUCTION:

Human personality is greatly influenced by home and school environment in the initial years. A child's maiden sitting, walking and talking is pampered by the parents, hence they become the first guide of a child. Then comes the role of school, teachers and friends in their life. Personality develops when we start interacting with people. Our social relationship has to be good as it has a link with our personality. There are other factors too that affect our social relationships. Social relations have an impact on our mental and physical health and healthy behavior. Adolescence has a different world of their own where their social relationships shape their further development. Adolescence is in the growing phase of making new healthy relationships. Hence, social skills in adolescence are very much relevant. Maintaining a good social relationship helps us to be mentally healthy. Social relationships have an effect on individual's health which can be short term or long term. This can start in childhood onwards and it may affect throughout the life. This was proven by studies done by the University of Texas and explained in the article 'Social Relationships and Health'. Social relationships can lead to taking good care of the dear and near ones of us.

According to Erikson's psychosocial stage in infancy the psychosocial crisis "Trust versus Mistrust" has significance in social relationship. If an individual develops a trust on their caregiver in their infancy age, they will have a good social relationship. Positive adolescent-parent relationships are associated with the development in various ways. Personality development of an individual is affected, if the caregiver fails to give care and trust. Moreover, it will affect the social relationship as well.

Adolescence has been an interesting subject for researchers as they are inquisitive to find new things and relationships. This is the best time of one's life where the development of personality occurs. Life of a teenager is stressful and exciting at the same time because they are no longer children but an adult as a consequence of changes occurring physically and psychologically in them. Furthermore developmental psychologists assume that this stage as a period of 'role examination' where the adolescents can find alternative behaviors, interests, and ideologies. The living environment and parenting styles are the prime factors that plays a crucial role in development of the well-being. During this stage, the adolescent acquires sexual maturation, hormonal variations and searches and establishes for self-identity. The stage of puberty can be explained as a time of storm and stress. Someone has to make them understand the changes and why this changes happen in them and what they have to be taken care of. Not only physical but also mental and emotional changes can be seen. Mood swings are most common during this period.

Adolescent is the period when individuals gain new intellectual skills and become advanced in reasoning and problem solving abilities. Therefore, proper support, care and love have to be given to the adolescence in the

right time. If the support, care, love and guidance are not given by the family it may lead them confused regarding what is happening, why this happening is and what to do next. Due to lack of guidance and support during adolescence children often seek advice and information from their peers. This may lead to misunderstanding and wrong guidance. At the time of stress, adolescents seek comfort from their caregivers and parents if they get the proper care. This seeking help from the caregivers will give teenager a feeling of safety. Healthy family relationships, school and neighborhood play a major influence on the adolescent which helps in developing them to be socially competent and helps to gain an ability to make the right relationship required. Therefore, family has a very important role for adolescence life especially before, during and after puberty.

2. SOCIAL RELATIONSHIPS AND ACADEMIC PERFORMANCE:

Social relationships are the basic pillar stone in the childhood life to create a sense of who I am, where I belong to, what are my strengths and what I can be. Researchers found that social relationships with parents, teachers, siblings, cousins, friends and strangers are very important in one's life. Relationship also starts from childhood with 'parents', relatives', teachers', friends' and so on. Perceiving the world will be through the social relationships child have at that time. Social relationship plays a major role in the psychological development of an adolescent and the young adult. A child who is obese because of unhealthy food habits or other factors is teased more when compared to the normal weight children. Because of these bullying or teasing they tend to avoid classes which may result in low academic performance, they may also undergo neglecting among peers, depressed and leads to low esteem as well.

According to Erikson's Psychosocial stages, if a child learns trust from his/her caregivers in infancy stage, then the child will be able to interact with others whereas if mistrust is formed in the infant it will be difficult for him/her to communicate with others with trust and maintain any relationship they will find difficulty. This individual has a chance of being an introvert also. Children understand themselves and the world around them by the way they are treated since birth. If the proper care, guidance, support are all given from the early stage of life it can create an impact on children. These students who got all this positive approach will have good self-esteem, confidence level, comfort and safety feeling. A child learns to keep good social relationship from their family. Grown up with a healthy and trustworthy relationship from family will result in children who has the ability to maintain positive social relationships as well. Keeping a well social relationship will help an individual to reach success and live happily.

Longobardi et al. (2015) conducted a longitudinal study using self-reported questionnaires. An increase in closeness with teachers was found in 9th grade when compared with 8th grade. This resulted in good academic performance in the students' which connotes that a good teacher- child relationship has a positive impact on the academic performance of the students'. The study concluded that a good teacher-student relationship plays a very important role in the academics and the behavior of students.

Melby, Janet. N., and Conger, R. D. (1996) found that academic performance is affected by parenting and hostility. Positive reinforcement behavior from both mother and father gave a good impact on child and showed good academic achievements whereas hostility decreased the academic performance. It was concluded that a child's academic performance depends upon parental behaviors which include parenting as well as hostility.

In another study positive relationship with teachers was found with an element of faith meaning that student had sheer faith in their teachers and motivated them to study, thus results in good academics and social growth (Sara and Sandilos, 2011).

Human et al. (2016) found that the attitude of adolescent who reported their parent's behavior positively and normatively was having good psychological adjustments. The study further revealed that the certainty of perceiving their parent's behavior may be unfavorable to psychological adjustment and inflammatory processes of the adolescent.

Therefore, based upon the above review we pose the hypotheses:

H1: There will be significant relationship between social relationships and academic performance in school children.

H2: Social relationship will be significantly related to dietary habits in school children.

H3: Social relation will be significantly related to body mass index in school children.

3. DIETARY HABITS AND ACADEMIC PERFORMANCE:

Healthy body is a part of good personality. For good social relationship, strong physic and best academic performance the individual has to be healthy. A good dietary habit can help in being strong. If one is physically healthy he/she will be half mentally healthy too. The other half depends on his/her stress management level. A good

diet is essential for brain. Healthy food intake is needed for our brain to work effectively. The metabolism of the body largely depends on the kind of food a child eats. A good healthy diet can provide the right amount of nutrition to our body which is associated to good academic performance.

Health is not only the absence of any illness or physical fitness; it is defined as a state of complete physical, mental and social well-being. A good dietary habit has a great impact on healthy living. Kristjánsson et al. (2015) conducted a cross-sectional study to find the relationship between health behaviors, BMI, self-esteem and academic performance. Findings revealed that adolescents with good self-esteem and higher chance of performing well in their academics if their body mass index is low, physical activity and good dietary habits are maintained.

Busch et al. (2014) investigated the impact on health behaviors on academic achievement among adolescents. The health related behaviors includes healthy diet, physical activities, drugs, smoking, sexual intercourse, and use of screens like mobile, TV, gaming and internet. It was found that physical activities and healthy diet gives a positive academic performance. Other health related behaviors such as smoking, alcohol, screen usage, and bullying create a negative academic performance. Their study revealed the fact that health and health related behaviors have an effect on academic performance and therefore, an adolescent has to give importance to health.

Recently Arnold et al. (2015) conducted a study to know the mental health and academic performance in adolescents grown up in military families. Family structure processes and its outcome on the adolescents were examined. Adolescents from a single-parent with poor family support and parent-child relationship showed lower academic achievement and higher depressive symptoms.

Raine et al. (2017) conducted a longitudinal study on school children from their sixth to eighth grade. During these years they were asked to focus on PACER tests measuring aerobic fitness and ISAT academic achievement tests in reading and mathematics. Remarkably, the result showed a positive relationship with fitness and academic performance.

Another study is done by Paul J. Veugelers (2005). His findings establish that children who follow a healthy diet which includes especially fiber, vegetables, proteins and fruits in the essential amount shows good academic achievements than children who don't take a healthy diet.

Erin et al. (2015) conducted a survey on 1595 Canadian school students of 5th grade. The result revealed that a healthy dietary intake has an impact on the academic achievements on both boys and girls and this study supports school-based nutrition programs.

Thus, we pose the hypotheses:

H4: Dietary habit will be significantly related to academic performance in school children.

H5: Dietary habit will be significantly related to body mass index in school children.

4. BODY MASS INDEX AND ACADEMIC PERFORMANCE:

Body mass index in short form BMI is mostly used tool for calculating the weight and categorizing the individual as underweight, normal weight, overweight and obese. Body mass index in short BMI is calculated by dividing the person's weight in kilograms by height in squares. Adolescent is a period of puberty therefore many changes can be seen. Puberty changes are another factor that contributes in weight and height gaining or losing. Physical and hormonal changes occur in this stage during puberty. Other than changes in secondary sexual characteristics there are changes like gaining height and weight, increase in muscle mass. Physical and hormonal changes occur in this stage during puberty. Other than changes in secondary sexual characteristics there are changes like gaining height and weight, increase in muscle mass. The change in boys and girls during this stage is asymmetrical. In other words, changes may be earlier in girls and delayed in boys. The change during puberty stage is something new to adolescents and therefore they need guidance and support from parents.

Faught et al. (2011) found a high correlation with lifestyle behaviors and academic performance but no association was found with the body weight. They concluded that a healthy lifestyle has a positive impact on academic achievement and therefore a healthy diet and fitness has to be maintained.

In another study conducted by Williams and Mummery (2011) it was found that the home environment has a crucial role in maintaining the body weight and physical activity characteristics of the adolescent. The school has to do interventions involving their parents also which will help the adolescent more effectively.

Y.H Hu et al. (2011) conducted a study to compare the relation with obesity and blood pressure (BP). The three obesity indices by which the obesity was calculated was body mass index (BMI), waist circumference (WC) and waist-to-height ratio (WHR). Study found out that BMI, WC and WHR were directly related with high BP.

Tabaka et al. (2015) investigated the relation between Health Locus of Control and the dietary behaviors of Turkish adolescent students. It was found that the students who were having high level of Health Locus of Control had a risky dietary behavior.

Therefore we pose the hypothesis:

H6: Body mass index will be significantly related to academic performance in school children.

In case of gender differences we pose the hypotheses:

H7: There will be significant differences in gender with social relationship in school children.

H8: There will be significant differences in gender with dietary habits in school children.

H9: There will be significant differences in gender and academic performance in school children.

H10: There will be significant differences in gender with body mass index (BMI) in school children.

5. METHOD:

Sample

The study was carried out on 201 school children who were between 15 to 19 years of age from Jalandhar city, Punjab. Permission to collect data was sought from the principals of concerned schools. Questionnaires were administered to school children including both boys and girls. The respondents were assured of complete anonymity of responses and were requested to return filled questionnaires within two days. The responses in the filled questionnaires were collected personally by the researcher. Participants' different demographic backgrounds like age and gender were recorded through random sampling.

Measures

The following measures were used to operationalize the study variables:

Social Relationships Scale (SRS): Developed by Dr. Pardeep Kumar, Faheem Nabi, and Neha Thakur (2016), this questionnaire is used to collect data for social relationships. This questionnaire consists of 35 items which measures the social relationships which includes parents, siblings, relatives, friends, teachers, classmates and strangers. The scale is used on adolescents above 15 years of age. The age for which this test can be conducted ranges from 15 to 30 years. . Response description against each item was obtained on 5-point Likert-type scale. The reliability and validity are high and the scale also has high correlation with Social Connectedness Scale – Revised and Interpersonal Support Evaluation List.

Adolescent Food Habit Checklist: Adolescents food habit was assessed using Adolescent Food Habit Checklist by Johnson, F. et al. (2002) to know their dietary habits. The checklist consists of 23 items to check the dietary fat and fiber intake, fruit and vegetable consumption, dietary restraint, nutrition knowledge and a measure of family income. Cronbach's α is found to be 0.91.

Body Mass Index: Body mass index of the students were calculated by the formula: $\text{weight (kg)}/\{\text{height(m)}\}^2$. Data for this was sought from the school authority and later calculated with the help of the formula.

Academic Achievement: Data for academic achievement was sought from the school authority. The researchers asked for the progress report of every student and it was tabulated later.

Data Processing

The obtained data was scrutinized, coded, scored and transformed to standard scores. The responses given by each subject were checked for wrong markings, omissions, double markings, unattempted items etc. The response sheets filled completely in all respect were retained and considered for analysis, rest were rejected. Each response sheet was hand scored as per the instructions given in the manuals of the respective scale.

Statistical Analyses

For the analysis of data of the present study, SPSS version 22 software package was used. The researcher analyzed Pearson Product Moment Correlation among the study variables and t-test using IBM SPSS 22 package.

6. RESULTS:

The obtained data on all the study variables were analyzed. Table 1 explains the demographic details of the sample of the study (N = 201). The sample is divided into three categories as gender, locality and family type. The age group of the sample ranges from 15 to 19 years, therefore the average age for the total sample is 17 years for both the genders. Out of the total sample 55.1% belongs to rural places, 39% from urban area and 5.9% are from

semi-urban area. More than half of the total sample i.e. 60.1% belongs to nuclear family and around 39.9% belongs to joint family. The following table depicts the demographic details of the sample.

For further analysis, Pearson correlations among the variable were estimated to indicate the relationships (Table 2). Correlation table shows positive and significant relationship between social relationship and academic performance ($r = .549$), therefore we interpret that as social relationship increases the academic performance of children also increases. Hence hypothesis 1 is supported. Social relationship also shows positive and significant relationship with food habit ($r = .353$) meaning that as social relationship of children improves food habit also improves. This also supports hypothesis 2. The table further depicts significant and negative relationship amid social relationship and body mass index ($r = -.265$). This finding illustrates that higher the social relationship lower is the body mass index, thus supports hypothesis 3. Moreover, there is positive relationship amid academic performance and food habit but its insignificant ($r = .136$), therefore, hypothesis 4 is rejected. Academic performance also has negative and significant relationship with body mass index ($r = -.197$) which explains that as academic performance increases, body mass index decreases. Lastly food habit shows negative and significant relationship with body mass index ($r = -.172$). The finding suggests that healthy food habit results in low body mass index.

In the case of gender differences, the results revealed that there exist a gender differences on social relationships as well as food habits, therefore, H7 and H8 are supported. Moreover, H9 and H10 are not supported because there exist no gender differences on academic achievement and body mass index as the results show no significance.

Gender		Average age	Total
Male	141	17 years	201
Female	60		
Locality		Percentage	201
Rural	110	55.1%	
Semi-urban	12	5.9%	
Urban	78	39%	
Family type		Percentage	201
Nuclear family	121	60.1%	
Joint family	80	39.9%	

Table 2. Correlation coefficient of study variables

Variables	SR	AP	FH	BMI
SR	1			
AP	.549**	1		
FH	.353**	.136	1	
BMI	-.265**	-.197**	-.172*	1

** $p < 0.01$, * $p < 0.05$

Note: **SR**: Social Relationship; **AP**: Academic Performance; **FH**: Food Habit; **BMI**: Body Mass Index

Table 2: showing values of T-test to find the gender difference with social relationships, body mass index, academic performance and food habits and Means and t-ratios of between groups for gender.

Variables	Gender	N	Mean	t-value	p-value
Social relationships	Males	141	121.60	2.575	.011
	Females	60	115.91		
Body mass index	Males	141	16.09	1.086	.279
	Females	60	15.64		
Academic performance	Males	141	64.00	1.284	.201
	Females	60	61.93		
Food habits	Males	141	15.25	2.824	.005
	Females	60	13.66		

7. DISCUSSION:

The objective and purpose of the present research was to investigate and enlarge the previous literature and findings on the discussed variables. An individual's secure and healthy living revolves around people and in social context. It is possible through social relationships that a man redefines himself as a person. A social relationship can exist with parents, siblings, cousins, friends and teachers. In a recent study conducted by Arnold et al. (2015) supports our finding where the results showed that poor family support and parent-child relationship contributed with lower academic achievement and higher depressive symptoms. The present findings are also supported by the study conducted by Melby et al. (1996). The researchers concluded that positive parental behavior gives good academic performance in their child and negative parental behaviors resulted in decreased academic performance. Moreover, our result is also supported by the findings of Longobardi et al. (2011) through teacher-children relationship. They found that a good teacher-student relationship plays a very important role in the academics and the behavior of students.

For academic performance, which was found to be strongly and significantly related to body mass index, is also supported by the findings of Kristjánsson et al. (2015) where they conclude that adolescents who had poor dietary foods affected their self-esteem and academic performance negatively, also self-esteem was negatively influenced with increased body mass index level. Busch et al. (2014) investigated the impact on health behaviors on academic achievement among adolescents found that health and health related behaviors have an effect of academic performance, and, therefore an adolescent has to give importance to health. Moreover, Daniels (2014) found that there exist a negative part of obese students that they may feel inferior or shy to attend school and face their friends which will lead to poor attendance and academic performance.

For gender differences on social relationships and food habits, in our study we found that males are high on both these variables. In our study we suggest that these children mostly belong to nuclear family where much attention and pampering is provided by the parents, also boys receive relatively more pocket money. They prefer to eat fast food and have high cravings for various food items. Their eating behavior entails a social gathering too. However, gender differences on academic achievement and body mass index does not exist.

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