

A Study On Mathematics Anxiety In Boys And Girls

B. Rajendra Kumar

Associate Professor of Mathematics,
Government Degree College, Patancheruvu .

ABSTRACT

Parents and Peers play a crucial role in the life of adolescents. Adolescents center their life based on academics. The subject which triggers anxiety among Adolescents is mathematics and at times their self esteem might get affected. This study focuses on how parents and peers help adolescents overcome their mathematics anxiety and enhance their self esteem. The objective is to study the relationship between parent and peer attachment and mathematics anxiety and parent and peer attachment and self esteem. Method: For this purpose 200 adolescents (100 boys and 100 girls) were selected. Result: The results revealed that there has been no significant relationship in parent and peer attachment and mathematics anxiety and parent and peer attachment and self esteem among boys. In girls there has been no relationship between parent and peer attachment and mathematics anxiety but there is a significant relationship between parent and peer attachment and self esteem.

Keywords: *Parent and Peer Attachment, Self Esteem, Mathematics Anxiety, Adolescents*

INTRODUCTION:

Adolescents are the future of our society. Schools play a major role in the life of adolescents. Adolescents need to develop high self esteem to overcome their academic problems. In today's scenario adolescents are very much concerned with academics. They believe academics is the elixir of their life. Our society gives more importance to academics. This creates more tension in the minds of adolescents. This study focuses on how adolescents overcome mathematics anxiety with the help of parents and peers to enhance self esteem.

Parents and peers play a crucial role in the life of adolescents. The ability to overcome mathematics lies in the way how parents and peer handle them and vice versa. The other important problem arising out of this difficulty is students getting low on self esteem. Low self esteem reflects in their performance in doing mathematics. The extent to which this disadvantage has hampered students is very difficult to surmise. Adolescents who believe that they have high mathematics anxiety may tend to have low self esteem. Such adolescents need the support of their parents and peers. Thus, the researcher would like to identify How adolescents overcome mathematics anxiety with the help of parents and peers, to increase the self esteem enables to raise the need for the present study.

REVIEW OF LITERATURE

Sadovnikova T (2016), conducted a study on attachment to parents and peers, self esteem and impact among interpersonal relationships. 161 adolescents participated in the age group of 13-18 years. The researchers used the Inventory of Parent Peer Attachment (IPPA) by Armsden and Greenberg, the Research Technique of Teenagers' Interpersonal Relations by Sobchik and the Self-Esteem Scale Dembo-Rubinstein inversion by Prikhozhan. The results revealed that attachments to parents had an impact on self esteem. The research concluded that psychological well being is necessary to adolescent growth.

Shaljan Areepattaamannil (2015), conducted a study by analyzing the relations of adolescent perceptions of their parents' attitudes towards mathematics to their own attitudes towards mathematics and mathematics achievement among a sample of 5116 adolescents from 384 schools in the United Arab Emirates. The results of this revealed that adolescents whose parents liked mathematics and considered mathematics an important subject for their children not only to study mathematics but also motivated the students to learn mathematics. But parents who believed that mathematics is important for their children's career reported higher levels of anxiety. Finally, adolescents who believed that their parents who considered mathematics as an important subject to study performed significantly better than did their peers whose parents disregarded the importance of learning mathematics.

Tocci C M and Engelhard (2015), conducted a study to investigate the relationships of attitudes towards mathematics achievement, parental support and gender. A secondary analysis was conducted using nationally representative samples of 13-year-old students in the United States ($n = 3,846$) and Thailand ($n = 3,528$), which were collected as a part of the Second International Mathematics Study (Garden, 1987). A multivariate general linear model was used to analyze the data within each country. Four attitude scales (Mathematics and Myself, Mathematics and Society, Mathematics as a Male Domain, and Mathematics Anxiety) were used as the criterion variables. Mathematics achievement, parental support, and gender were used as the predictor variables. In both countries, achievement, parental support, and gender were significant predictors of attitudes toward mathematics. The data suggest that there are gender differences in attitudes toward mathematics for 13-year-olds in the United States and Thailand. The largest gender differences were found on the Mathematics as a Male Domain scale. Even after controlling for achievement and parental support, we found that gender differences in attitudes toward mathematics were significant.

Huihua H E (2007) conducted a study to examine differences in adolescents' perception of their parents', peers' and their own mathematics anxiety and attitudes toward mathematics between European-American and Mainland-Chinese groups. The second goal of this study was to examine whether adolescents' perception of their parents', peers' and their own mathematics anxiety and attitudes toward mathematics which predicted mathematics achievement in both European-American and Mainland-Chinese groups. The responses were collected from 80 Mainland-Chinese and 54 European-American adolescents. Math anxiety Rating-Scale-Revised (MARS-R) and The Attitudes toward Mathematics Inventory (ATMI) are the questionnaires that were used in the study. The results revealed that parents' and peers' anxiety toward mathematics had an impact on adolescents' anxiety towards mathematics.

Relevance of the study

Several studies related to Parent and Peer Attachment, Mathematics Anxiety and Self Esteem have been done during the year 1980- 2017. The majority of the study focuses on parent and peer attachment and self esteem among adolescents. There are very few studies on parenting and peer attachment and mathematics anxiety. Shaljan Areepattaamannil (2015) et. conducted the study revealing the relationship between mathematics anxiety and parent and peer attachment. Similar study was conducted by Tocci C M and Engelhard (2015), where his research revealed that parents and peers play a significant role to overcome mathematics anxiety. Sadovnikova T (2016) conducted a study on attachment to parents, peers, self esteem and the impact on interpersonal relationships among adolescents. The results revealed that there is a relationship between parents and peer attachment and self esteem. Huihua H E (2007), conducted a study on perception of adolescents on parents, peers and mathematics anxiety among 80 Mainland Chinese and 54 European American Adolescents. The results revealed that parents and peer play a pivotal role to reduce mathematics anxiety and enhance self esteem.

Thus, the study on the following variables, were chosen, such as parent and peer attachment, mathematics anxiety and self esteem were conducted to find how parent and peer attachment has an impact on mathematics anxiety and self esteem among adolescents.

METHODOLOGY***Aim:***

To investigate the influence of parenting and peer attachment in mathematics anxiety and self esteem among adolescents.

Objectives:

- (i) To identify the relationship between self esteem , parenting and peer attachment of boys and girls.
- (ii) To identify the relationship between mathematics anxiety, parenting and peer attachment of boys and girls.

Hypothesis:

- 1) There is no significant gender difference in parenting and peer attachment of boys and girls.
- 2) There is no significant gender difference in mathematics anxiety of boys and girls.
- 3) There is no significant gender difference in self esteem of boys and girls.
- 4) There is no significant relationship between the level of parenting and peer attachment and mathematics anxiety of boys .
- 5) There is no significant relationship between the level of parenting and peer attachment and mathematics anxiety of girls.
- 6) There is no significant relationship between the level of parenting and peer attachment and self esteem of boys.
- 7) There is no significant relationship between the level of parenting and peer attachment and self esteem of girls.

Research Design:

Expost facto research design was adopted for the study.

Research Sample

The sample comprised of two hundred high school students in the age group of 12-15 years, comprised of class VII-IX. The investigator herself visited the concerned schools on different date and time. The investigator obtained prior permissions and dates were finalized. On the given date data was collected from the students. The students were told that the test had nothing to do with their personal lives and academics. It was made sure that they would be kept confidential and would be used for research purpose only. Proper instructions were given to do the questionnaire.

Sampling Criteria:

Exclusion Criteria:

Adolescents, whose parents are divorced, separated and single parent children are not included in the population.

Inclusion Criteria

Adolescents who are living with their parents
Adolescents aged 12-15 years

Adolescents who are attending regular school

Adolescents who are able to read , speak and understand English

Instruments

Three measures were used in this study,

- 1) Mathematics Anxiety Scale (Dr. Ayottollah Karimi and Professor S. Venkatesan, 2009)
- 2) Rosenberg Self Esteem Scale (Rosenberg, 1965)
- 3) Inventory of Parent and Peer attachment (Armsden and Greenberg, 1997)

Procedure

The present study was conducted for high school students in the age group of 12-15 years, comprised of class VII-IX. The investigator herself visited the concerned schools on different date and time. The investigator obtained prior permissions and dates were finalized. On the given date data was collected from the students. The students were told that the test had nothing to do with their personal lives and academics. It was made sure that they would be kept confidential and would be used for research purpose only. Proper instructions were given to do the questionnaire.

Analysis of data:

The data was analyzed using SPSS 16.0

Pearson Product Moment Correlation was used to find the relationship between concerned variables

Statistical Significance of the differences in mean scores of the variables between gender was computed using t – test.

Mean and SD of the study variables were calculated.

RESULTS**Data Analysis and Interpretation**

The main purpose of the study was to investigate the relationship on Parent and Peer Attachment in Mathematics Anxiety and Self Esteem among adolescents. For this purpose the investigator formulated seven hypothesis. The results are shown in the form of a table.

Table 1 Mean and SD on Parent and Peer Attachment on Gender

| Variable | Sample | N | Mean | Standard Deviation | t- value |
|---------------------|--------|-----|--------|--------------------|----------|
| Parent | Boys | 100 | 252.56 | 44.76 | 2.8071** |
| And Peer Attachment | Girls | 100 | 237.86 | 27.11 | |

*p< 0.01

Null Hypothesis states that there is no significant gender difference between parenting and peer attachment of boys and girls. The results revealed that there is a significant gender difference and boys show greater attachment to parents and peers than compared to girls. These findings are similar to the study conducted by researchers James O, Etheldreda N.M., Seggane M, Eric B and Ilse D (2014) , where the results revealed that there is a significant gender difference in parent and peers. So the null hypothesis stating that there is no significant gender difference in parenting and peer attachment is not accepted.

Table 2 : Mean, Standard Deviation on Self Esteem on Gender

| Variable | Sample | N | Mean | Standard Deviation | t- value |
|----------|--------|-----|------|-----------------------|----------|
| Self | Boys | 100 | 30.6 | 3.5 | 7.0881** |
| Esteem | Girls | 100 | 27.3 | 2.8 | |

**p<,0.01

Null Hypothesis states that there is no significant gender difference in self esteem. The results indicated that there is a significant gender difference in Self Esteem among Boys and Girls. These findings are consistent with the study with the study by researchers by Kang (2017) , who reported that there is significant difference in self esteem and boys tend to have high self esteem than compared to girls. Thus the hypothesis stating that there is no significant gender difference in self esteem is not accepted.

Table 3 : Mean and SD on Mathematics Anxiety on Gender .

| Variable | Sample | N | Mean | Standard Deviation | t - value |
|----------|--------|-----|--------|-----------------------|-----------|
| Self | Boys | 100 | 100.36 | 21.4 | 1.56 |
| Esteem | Girls | 100 | 105 | 18 | |

NS

Null Hypothesis states that there is no significant gender difference in mathematics anxiety. The results indicate that there is no significant gender difference in mathematics anxiety among boys and girls. Thus the null hypothesis stating that there is no significant gender difference in boys and girls is accepted.

Table 4: Correlation Coefficient between Parent and Peer Attachment and Mathematics Anxiety in boys.

| Variable | N | Correlation Coefficient |
|-------------------------------|-----|-------------------------|
| Parenting and Peer Attachment | 100 | 0.176 NS |
| Mathematics Anxiety | 100 | |

NS Not Significant

Null Hypothesis states that there is no significant correlation between parenting and peer attachment and mathematics anxiety of boys. The correlation coefficient between mathematics anxiety and parent and peer attachment is 0.15. This indicates that there is no relationship between mathematics anxiety and parent and peer attachment in boys. Thus the null hypothesis stating that there is no significant relationship between Parenting and Peer Attachment and Mathematics Anxiety is accepted.

Table 5: Correlation Coefficient between Parent and Peer Attachment and Mathematics Anxiety in girls.

| N | Correlation Coefficient | |
|-------------------------------|-------------------------|-------|
| Parenting and Peer Attachment | 100 | 0.088 |
| Mathematics Anxiety | 100 | |

NS Not Significant

Null Hypothesis states that there is no relationship between Parenting and Peer Attachment and Mathematics Anxiety in girls. The correlation coefficient between Parent and Peer Attachment and Mathematics Anxiety is 0.088. Thus the null hypothesis stating that there is no significant relationship between parenting and peer attachment and mathematics anxiety in girls is accepted.

Table 6: Correlation coefficient between Parent and Peer Attachment and Mathematics Anxiety in girls.

| Variable | N | Correlation Coefficient |
|-------------------------------|-----|-------------------------|
| Parenting and Peer Attachment | 100 | 0.124 NS |
| Self Esteem | 100 | |

NS Not Significant

Null Hypothesis states that there is no relationship between Parenting and Peer Attachment and Self Esteem in boys. The correlation coefficient between parent and peer attachment and self esteem is 0.124. Thus the null hypothesis stating that there is no significant relationship between parenting and peer

Table 7: Correlation Coefficient between Parent and Peer Attachment and Mathematics Anxiety in girls

| Variable | N | Correlation Coefficient |
|-------------------------------|-----|-------------------------|
| Parenting and Peer Attachment | 100 | 0.35** |
| Self Esteem | 100 | |

**p< 0.01

attachment and self esteem in boys is accepted.

Null Hypothesis states that there is no relationship between Parenting and Peer Attachment and Self Esteem in girls. The correlation coefficient between mathematics anxiety and parent and peer attachment is 0.124. This indicates that there is a positive relationship between Self Esteem and parent and peer attachment in girls. These findings are similar to the research done by Paterson J , Pryor J and Field J (1994) . The researchers conducted study among 493 New Zealand Adolescents starting from the age 13 to 19 years of age . The results revealed that adolescent self esteem is strongly correlated with quality of affect towards family and friends. Thus the null hypothesis stating that there is no significant relationship between parenting and peer attachment and self esteem in girls is not accepted

SUMMARY AND CONCLUSION

The study can be concluded that , there was no relationship between parent and peer attachment and mathematics anxiety among boys and no relationship between parent and peer attachment and self esteem among boys. Among girls, there was no relationship between parent and peer attachment and mathematics anxiety but there was a positive relationship between parent and peer attachment and self esteem.

MAJOR FINDINGS

- 1) There is a significant gender difference in parenting and peer attachment in boys and girls and the null hypothesis is not accepted.
- 2) There is a significant gender difference between self esteem in boys and girls and the null hypothesis is not accepted.
- 3) There is no significant gender difference in mathematics anxiety in boys and girls and the null hypothesis is accepted.
- 4) There is no significant relationship between parenting and peer attachment and mathematics anxiety in boys and the null hypothesis is accepted.
- 5) There is no significant relationship between parenting and peer attachment and mathematics anxiety in girls and the null hypothesis is accepted.
- 6) There is no significant relationship between parenting and peer attachment and self esteem in boys and the null hypothesis is accepted.
- 7) There is a significant relationship between and parenting and peer attachment and self esteem in girls and the null hypothesis is not accepted.

LIMITATIONS

The study has not included relationship with siblings

The study has not included adolescents whose divorced parents, separated and single parent .**SUGGESTIONS FOR FURTHER RESEARCH**

Longitudinal studies are needed to examine the role of parenting and peer attachment.

Further researches could also include participation from teachers to overcome mathematics anxiety for adolescents

REFERENCE

- Armsden, G. C., and Greenberg, M. T. (1987). The Inventory of Parent and Peer Attachment: Relationships to well-being in adolescence. *Journal of Youth and Adolescence*, 16 (5), 427-454.
- Ayotallah Karimi and S . Venkatesan (2009), Mathematics Anxiety, Mathematics Performance and Academic Hardiness in High School Students , *International Journal of Educational Sciences*, 1(1), 33-37, url: <http://www.krepublishers.com/02-Journals/IJES/IJES-01-0-000-09-Web/IJES-01-1-000-09-Abst-PDF/IJES-01-01-033-09-012-Karimi-A/IJES-01-01-033-09-012-Karimi-A-Tt.pdf>
- Cynthia M Tocci and George Engelhard (2015) , Achievement, Parental Support and Gender Differences in Attitudes Toward Mathematics , *The Journal of Educational Research* , 84
- Huihua HE (2007), Adolescents Perception of Parental and Peer Mathematics Anxiety and Attitude towards Mathematics: A Comparative Study of European American and Mainland Chinese Students, Citeseer, url: http://www.dissertations.wsu.edu/Dissertations/Spring2007/h_he_042407.pdf
- James Okella , Etheldreda Nakimula – Mpungu, Seggane M . , Eric Broekaert and Lise Derlyun (2014) , The association of Attachment and Mental Health Symptoms among school going adolescents in Northern Uganda: The moderate role of War Related Trauma , *Plus one* , 9 (3) , 1-7 , url: <https://doi.org/10.1371/journal.pone.0088494>
- Paterson J , Pryor J and Field J (1994) , Adolescent attachment to parents and friends in relation to aspects of self-esteem , *Journal Of Youth And Adolescence* , 24(3), pg 365-376, doi: /article/10.1007/BF01537602
- Prachi Shukla and Tejpreet K Kang (2017) , Self Esteem among Adolescents: A Study of gender and locale differences , *Indian Journal of Health and Well Being* , 8 (9), 981-984 , url: <http://www.ij-scholar.in/index.php/ijhw/article/view/162021>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Shaljan Areepattaamannil , Myint Swe Khine , Michael Melkonian , Anita G Welch , Samira Ahmed Al Nuaimi and Fatimah F Rashad (2015) , International note: Are Emirati parents' attitudes toward mathematics linked to their adolescent children's attitudes toward mathematics and mathematics achievement? *Journal of Adolescence* , 44 , 17-20, doi: <https://doi.org/10.1016/j.adolescence.2015.07.002>
- Tatiana Sadovnikova (2016) , Self Esteem and Interpersonal Relations in Adolescence, *Prcodia – Social and Behavioral Sciences Elsevier Journals* , 233 , 440-444, doi: <https://doi.org/10.1080/00220671.1991.10886028>