

## Impact of Self-Esteem on Problem Solving Skills of Male and Female Adolescents

Veena Prathap<sup>1\*</sup>, Adams I<sup>2</sup>, Nandhini P<sup>3</sup>

### ABSTRACT

Developing the cognitive abilities of people is a potential manner through which the overall growth of an individual can be expected (Fe et. al., 2022). Understanding the factors that influences the development of cognitive skills have been widely researched over years and the present study tries to understand the role of self-esteem in the problem solving skills of adolescent students. A quantitative study was conducted on a sample of 200 adolescents belonging to the Chennai city of India, measuring their problem solving capacity and self-esteem to know the relationship between the variables and understand if self-esteem predicts the problem solving skills of male and female adolescents. A gender specific lens was maintained throughout the study along with a note on the role of type of schooling. The study concluded that self-esteem significantly predicts the problem solving skills of female adolescents while the variables are not correlated among male adolescents. It was interesting to note that even when there was gender based difference in predictability of problem solving by self-esteem, neither the problem solving or self-esteem scores were significantly different among male and female adolescents. Other relevant results of the study along with the future implications and limitations have been discussed in detail.

**Keywords:** *Adolescents, Problem Solving, Self-esteem*

Life can be considered as a continuous process of solving different problems or obstacles that each individual faces over time which varies in its intensity of difficulty. Problem solving is one among the many general cognitive skills that an individual would slowly develop over their lifespan through experiences and learning. It can be defined as a behavioural process that provides a range of options for handling a difficult issue; and raises the likelihood of choosing the best course of action among the available and possible choices (D’Zurilla & Goldfried, 1971). Many different steps of problem solving have been mentioned by different researchers. It can basically be considered as a five-step process which starts with a broad orientation about the problem and its solution, defining and formulating what the exact problem is, considering every different alternative, making a final decision regarding the solution, and finally verifying them (D’Zurilla & Goldfried, 1971). Problem solving skills become an important aspect of research work as it forms the very basic generic skill that a person has to possess in order to function smoothly on a daily

<sup>1</sup>Assistant Professor, Department of Psychology, Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai

<sup>2</sup>BSc Psychology, Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai, India

<sup>3</sup>BSc Psychology, Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai, India

\*Corresponding Author

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basis in their life. A number of cognitive research studies have focused on understanding the process of problem solving and its impact on human life. It was evident through the research results that problem solving skills were related with well-being (Lui et. al., 2012), life satisfaction (Khan et. al., 2016; Hamarta, 2009), and quality of life (Murphy et. al., 2009; Seid et. al., 2010). Researchers have also shown better coping strategies (Chivanesh, 2013), decreased stress (Abdullahi et. al., 2018) and decreased suicidal ideation (Anisi et. al., 2014) among people with good problem solving skills. The development of problem solving skills from a very young age thereby becomes an important part of human growth.

Adolescence is a period of major growth-related changes where both physical and psychological growth happens rapidly irrespective of gender. It is also a period within which behavioural patterns, mental set and cognitive abilities develop entirely (Sawyer et. al., 2018). This would be the best period to focus on the development of different cognitive skills and abilities along with a proper understanding about one's self. Hay et. al. (2000) had concluded through a research work that the problem solving and conflict resolution among adolescents influence the formation of the concept of self, irrespective of gender. At the same time, it cannot be left unseen that the development of self-concepts varies among the males and females of the Indian population because of the cultural backdrop. As the concept of self is formed through life experiences of people from a very early period of time, it could be expected that the concepts of self could play a role in the development of the different cognitive skills of a person, which would go vice-versa to the conceptualizations of Hay and his colleagues (2000).

Self-esteem is said to be the personal evaluation of an individual about their own worth or value (MacDonald & Leary, 2012). It is one among the most discussed topics related to the sense of self of people. As self-esteem is a subjective understanding of oneself, it is in no way related with the qualities or skills a person actually possesses or the way in which other people evaluates them. Self-esteem develops slowly in an individual through their life experiences and is said to have different types of consequences which includes motivational, behavioural and affective dimensions (Ford & Collins, 2010). Rosenberg (1965) also clarifies that a person with high self-esteem can no way be related to the extreme self-regard that narcissistic people usually carry. In other words, it could be stated that self-esteem is a concept which can never be considered pathological or harmful for the individual or for the people around them even if it goes extremely high, while a lower level of self-esteem could be a matter of concern for people. Respecting and accepting oneself are the core dimensions of self-esteem which is not the case with narcissistic people (Ackerman et. al., 2011). This gives a clear understanding that self-esteem has a positive role to play and has significant influences in various aspects of an individual. A number of studies related better self-esteem with achievement motivation (Nwankwo et. al., 2013), intrinsic motivation (Baumeister and Tice, 1985), romantic relationship satisfaction (Erol & Orth et. al., 2017), quality social relationships (Harris & Orth, 2020) decreased anxiety and depression (Sowislo & Orth, 2013), life satisfaction (Moskenes & Espnes, 2013), and quality of life (Kermode & MacLean, 2001).

As discussed, such a major concept of self-esteem can be expected to have a role in the development and enhancement of the cognitive skills like problem solving skills of people. If such a relationship exists, then it becomes a critical element to think about the ways through which the society influences the development of the self-esteem of people which could further reflect in their skills to deal with their life on a daily basis. Many social dimensions remain tangled within this aspect and the present study tried to pick on the role

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of gender and also the type of schooling adolescent students are into, in order to understand the relationship between their self-esteem and problem solving skills.

### *Need and Significance of the Study*

Understanding how self-esteem affects their ability to solve problems in the life of adolescents is an important and worthwhile work with broad ramifications as it can provide an important perspective on the overall growth of teenagers. Problem-solving is a life skill that has a significant impact on both personal and professional success of people, which clearly is not just a talent of academics. Strong problem-solving skills in adolescents prepare them better for obstacles in life, informed decision-making, and adjusting to the complexity of adulthood (D’Zurilla & Goldfried, 1971). Thus, the connection between self-esteem and problem-solving abilities is crucial in determining the life paths of young people, with ramifications for society as a whole. The research also helps in understanding the impact of gender differences and the role of the society in the development of generic skills of people. Empirically, this research can help adolescents become more self-assured by illuminating ways in which they might improve their problem-solving abilities by developing a more positive sense of self. Additionally, it can help people become more self-aware and identify areas in which they might benefit from assistance and growth, which will advance their wellbeing and personal development. On a broader perspective, research on this subject can offer empirical information to assist educators, parents, and policymakers in establishing programs and policies that support the healthy development of adolescents during this period when decisions are heavily influenced by data. In conclusion, there is much to be learned from the study of how teenagers' self-esteem affects their ability to solve problems, with implications for mental health, education, personal growth, and society at large.

### *Objective*

The major objective of the study is to understand the impact of self-esteem on problem solving skills of adolescents. It also tries to understand gender differences and the role of the school type in the development of these variables of concern.

### *Hypotheses*

- There is a significant relationship between self-esteem and problem solving skills of male and female adolescents
- There are significant differences in the self-esteem and problem solving skills of male and female adolescents.
- There are significant differences in the self-esteem and problem solving skills of adolescents belonging to private schools and government aided schools.
- Self-esteem significantly predicts the Problem solving skills of male and female adolescents.

## **METHODOLOGY**

### *Sample*

The target population of the study was adolescents belonging to the age range of 15-18 years. 200 school students were considered for the study which included 118 girls and 82 boys. All the students were from urban areas. The students belonged to both private schools and government aided schools. Data was collected from various schools within Chennai. Non-random sampling techniques of convenience sampling and snowball sampling were used to collect the necessary data for the study. A correlational research design was followed

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in order to understand the role of self-esteem in the development of decision making among adolescents.

### *Instruments*

The two major questionnaires were used in order to quantify Self-Esteem and Problem solving skills of adolescents.

- 1. Rosenberg Self-esteem Scale:** The scale developed by Rosenberg (1965) was used to measure the self-esteem of adolescent students. It is a 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale is a single-dimensional 4-point Likert scale with its response ranging from 'strongly agree' to 'strongly disagree'. The minimum and maximum score that can be obtained from the test is 10 and 40 respectively and each item is scored from 1 - 4. A higher score obtained in the test indicates a higher self-esteem. The scale has a high reliability with the alpha value being .86 and the concurrent validity is also found to be good (Tinacon & Nahathai, 2012).
- 2. The Problem Solving Survey:** The questionnaire developed by Barkman & Matchmes (2002) was used to measure the Problem Solving skills of the sample. This 24-item scale taps on the problem-solving ability of youngsters by examining the frequency of using six different skills necessary for solving problems in life. It is a 5-point Likert scale with the responses ranging from 0 - 'Never' to 4 - 'Always'. The maximum score that can be obtained through the test is 96 with the lowest score being 0. The greater the score obtained in the test, the better the problem solving skills of the participant. The Solving Problem Survey is a reliable and valid test as the reliability ranges from .5 to .9 with a good criterion validity and face validity (Barkman & Matchmes, 2002).

### *Procedure*

Both online and offline modes of data collection methods were used in the present study. Pen-paper questionnaires and Google forms were both made with the same content which included a demographic sheet and the two respective questionnaires. The necessary ethical guidelines were strictly followed during the study. It was informed to the participants through the introduction of the questionnaire and to the students in person that the collected data will be kept confidential and will be used only for the research purposes. The different schools were informed prior about the data collection and the forms also asked for the consent of the parents as the population of the study was adolescents below 18. The collected information including the demographics was coded appropriately and the data was later analyzed statistically using SPSS version 25 to test the hypotheses of the study. The statistical technique used for testing the hypothesis of the study included Pearson's correlation, Independent sample t-tests and Linear Regression.

## **RESULTS**

The major aim of the present study was to understand the predictability of problem solving based on self-esteem among male and female adolescents. Being a quantitative study, normality of the data was checked first-hand using Shapiro-Wilk test, Kolmogorov-Smirnov test and by checking the kurtosis, skewness of the data distribution. It was concluded from the results that the data was normally distributed and thereby the choice of necessary statistical tests were made. Karl Pearson's correlation, Independent sample t-tests and Linear Regressions were conducted in order to test the hypotheses of the study and reach the conclusion. SPSS version 25 was used to statistically analyze the data and the results of the tests have been detailed below.

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**Table 1: Correlation between Problem Solving and Self-esteem among male adolescents**

Variables	1	2
Problem Solving	-	.193
Self-esteem		-

N = 82,  $p = .08$

**Table 2: Correlation between Problem Solving and Self-esteem among female adolescents**

Variables	1	2
Problem Solving	-	.377**
Self-esteem		-

N = 118, \*\* $p < 0.01$

Karl Pearson's correlation was conducted to understand the relationship between problem solving and self-esteem among male and female adolescents and the results have been depicted in Table 1 and Table 2. It is clear from the data that there is a statistically significant positive correlation of low strength between problem solving and self-esteem among female adolescents ( $r = .377$ ,  $p < 0.01$ ) and no relationship between the variables among male adolescents ( $r = .193$ ,  $p > 0.05$ ). The positive correlation between the variables means that an increased self-esteem is related to increased problem solving capacity among female adolescents while such a pattern is not seen among male adolescents. The gender difference in the relationship between the variables of concern is noteworthy.

**Table 3: t-test on Problem Solving and Self-esteem based on gender of adolescents**

Grouping variables	Male			Female			t-value	p value
	N	Mean	SD	N	Mean	SD		
Self-esteem	82	27.49	3.63	118	27.61	3.85	.226	.82
Problem solving	82	59.20	10.28	118	58.07	9.60	.793	.42

**Table 4: t-test on Problem Solving and Self-esteem based on school type of adolescents**

Grouping variables	Private			Government-Aided			t-value	p value
	N	Mean	SD	N	Mean	SD		
Self-esteem	74	26.92	4.58	126	27.94	3.13	1.85	.064
Problem solving	74	60.72	9.83	126	57.25	9.71	2.42	.016*

\* $p < 0.05$

The statistical results from Table 3 and Table 4 shows that there is no significant difference in the problem solving scores ( $t = .79$ ,  $p > 0.05$ ) and self-esteem scores ( $t = .22$ ,  $p > 0.05$ ) obtained by male and female adolescents. The mean score variation among the male and female samples on problem solving and self-esteem is found to be negligible. This clarifies that gender plays no major role in the problem solving and self-esteem of adolescents. Similarly, the results of t-test done in order to understand the role of school type in problem solving and self-esteem reveals that there is significant difference in problem solving skills ( $t = .064$ ,  $p < 0.05$ ) among the students belonging to the two school types while there is no difference in self-esteem ( $t = 1.85$ ,  $p > 0.05$ ). It is evident that the problem solving skills of the students belonging to the private schools ( $M = 26.92$ ,  $SD = 4.58$ ) are significantly higher than that of the students belonging to government-aided schools ( $M = 57.25$ ,  $SD = 9.71$ ).

**Table 5: Linear regression report predicting problem solving by self-esteem among female adolescents**

	<b>B</b>	<b>SE B</b>	<b>β</b>
<b>Constant</b>	32.137	5.966	
<b>Self-esteem</b>	.939	.214	.377**

Note:  $R^2 = .142$ ,  $**p < .01$ ,  $N = 118$

As there is a significant positive correlation between problem solving and self-esteem among female adolescents, the extent to which self-esteem predicts problem solving is a significant question of concern. Table 5 reports the linear regression between these variables and the results clarifies that self-esteem predicts 14.2 % variation in the problem solving skills of adolescents ( $R^2 = .142$ ,  $F(1,116) = 19.26$ ,  $p < 0.01$ ). The regression coefficient  $\beta$  clarifies that .377 units of change in the self-esteem of adolescents can lead to a unit change in the problem solving scores in the same direction as the score varies ( $\beta = .377$ ,  $p < 0.01$ ).

## DISCUSSION

The present study tried to understand the relationship between self-esteem and problem solving skills among adolescents of Chennai by taking a critical gender perspective and also analyse if self-esteem predicts problem solving skills of adolescents and if they vary among males and females. The role of the type of school to which the adolescents belong to was also taken into consideration along with gender to know if there is any significant difference in the variables among the different groups. The results of the statistical tests reported that self-esteem significantly predicts the problem solving skills of female adolescents while the relationship doesn't seem to be significant among male adolescents. While reviewing the literature it is evident that there haven't been many studies that have exclusively tried to understand the relationship between self-esteem and problem solving. Hamatra E. (2009) tried to understand if problem solving can act as a predictor of self-esteem among adults and revealed that the prediction is significant. A vice-versa relationship of the variables has been explained in the present study wherein an increase in self-esteem can be considered as a way to develop problem-solving skills within the adolescents. Problem solving being one of the very important life-skills to be developed among people, it becomes quite significant to focus on the effectiveness of developing self-esteem among adolescents in order to enhance the problem solving potentials in the future. The element of self-confidence and self-efficacy has also been found to enhance the problem solving potentials of people (Pajares & Miller, 1994) as the ones with higher self-confidence will be willing to try out their maximum potential with lower amount of fear about failures. The capacity to face and come out of failures will be high among these people which can help them to solve their problems better (Pinar et. al., 2018).

An interesting point to note in the present study is the significant gender difference in the predictability of problem solving by self-esteem even when the mean scores of both the variables do not vary across gender. This can be further explained with the common gender schema evident among adolescents wherein the male adolescents remain impulsive in life by exploring all the different possibilities of the world around them without the fear of the consequences of their action (Barker et. al., 2006). Peer pressure during this period is also found to be higher among males when compared to females who pass through a much more different stage of puberty (Sumter et. al., 2009). Male adolescents usually do not consider their idea of self or self-esteem while taking decisions or acting out their decisions during the period as they are privileged by the society to be independent and powerful to live their choices (Ybrandt, 2008). The socially constructed idea to teach female adolescents to be

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socially cautious is highly accepted, followed, and propagated, in order to make sure that female children do not make wrong choices in life and sort their problems by taking the ethical and moral ideals of the society (Ma, 2006). This can be considered as one of the reasons why the concept of self plays a major role in the problem solving skills of female adolescents and not the males. Females have the general tendency to make sure that they remain safe in every decision they take as the society would always be invisibly monitoring their actions which could impact their self-esteem and sense of self (Ybrandt, 2008). The ones with a stronger self-esteem can thereby be expected to have the courage to try different alternatives without the fear of failure or the fear of judgments and solve their problems much more sensibly by considering them to be worthy individuals. Adolescent men cannot be expected to think in such a depth about the society or about the after effects of being judged to the extent in which females would be cautious (Ybrandt, 2008).

The problem solving skills of private school children is found to be comparatively higher than government school children according to the results of the study which could point fingers at the differences in the socioeconomic backgrounds to which these children belong to. The life experiences and availability of better resources can thereby be considered as one of the reasons behind such a result. At the same time, it cannot be left unconsidered that there can be certain differences in the extent to which the school environment and the school syllabus help children to grow in such a different manner (Singh, 2015). Skill development programs would be much more promoted in the private schools which might have been the reason for such an increase in the problem-solving skills of private school adolescents.

While discussing the results of the present study it is also important to talk about the limitations of the study. The research has been conducted on a very small sample which could be a matter of concern as it would be affecting the power of the statistical tests conducted. It is necessary to repeat the particular study on a larger sample from the same population in order to have a concrete conclusion. It is also to be noted that the questionnaires were shared in English to the students which might have made it difficult for them to comprehend and respond accurately. Having the questionnaires in the mother language of the population would be much more preferable. An in depth qualitative analysis could also be a future possibility based on the current results and there is an interesting gender difference in the relationship between self-esteem and problem solving skills. The role of socially constructed ideals, gender roles, gender schema and stereotypes can all be taken into the rhetoric for a better understanding. As of now, the quantitative data analysis clarifies that the development of self-esteem is an essential part of better problem solving capacity of female adolescents. Different strategies for self-esteem enhancement can be provided to the female adolescents so that they could have a better life with proper and efficient problem solving skills.

### **CONCLUSION**

The study concluded that self-esteem significantly predicts the problem solving skills of female adolescents while the variables are not correlated among male adolescents. The study also provides evidence that there is no significant difference in the self-esteem scores of adolescents based on gender while the problem solving skills have been found to be significantly higher among the private school children when compared with the government-aided school children.

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### **Conflict of Interest**

The author declared no conflict of interest.

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