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Exploring Mathematical Anxiety Among Secondary Level Students

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Abstract: In this research, mathematics anxiety amongst secondary school students is investigated, considering the effect of socio-economic status (SES) and locality on the phenomenon. The research design that was used is the quantitative survey method in which purposive sampling technique was used to collect information from 211 students of class IX who were attending schools from UP Board in Lucknow district. Information on mathematics anxiety was collected using Mathematics Anxiety Scale for Secondary Students (MASSS), and Mann-Whitney U test was used for data analysis. The findings showed that socio-economic status has no substantial impact on the majority of dimensions of mathematics anxiety such as affective dimension, attitudes towards mathematics, perceived challenges, and social dimensions. On the contrary, a clear disparity was noticed in self-efficacy and self-concept of high SES students, implying that they were more confident compared to their counterparts in lower socio-economic status. For locality variable, it was found that the difference was only statistically significant for perceived difficulty dimension, where students from urban locales reported higher stress levels. Finally, mathematics anxiety can be said to be more related to psychological characteristics than socio-economic background.

Keywords: *Mathematics Anxiety, Socio-Economic Status (SES). Secondary School Students,Self-Concept and Self-Efficacy. Academic Performance.*

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I. INTRODUCTION

Mathematics is one of the core subjects in the curriculum of schools, as it plays an important role in promoting logical and analytical thinking among the students. Although mathematics is essential in the development of these abilities in students, many students at the secondary level have problems with the subject due to both their mental capabilities and emotional states related to mathematics anxiety. Mathematics anxiety is defined as a form of psychological state characterized by tension and fear in relation to performing operations with numbers and solving mathematics problems (Richardson & Suinn, 1972).

Mathematics anxiety has received much attention from scholars within recent years as they have tried to understand the origins, impacts, and significance of this phenomenon. According to research findings, mathematics anxiety is a quantifiable and multifaceted concept that arises as a result of multiple cognitive, affective, and environmental elements (Ashcraft, 2002). The research done in several nations indicates that there exists a negative correlation between the levels of mathematics anxiety and performance among students (Hembree, 1990). The more anxious the student is about mathematics, the worse their performance becomes, especially if they find themselves underachieving academically anyway.

Apart from affecting academic achievement, math anxiety also affects how the students participate in learning mathematics, and the level of confidence and interests of the students towards the subject. Students who exhibit high levels of math anxiety will be less likely to participate in activities involving the application of math concepts, have low levels of motivation, and form negative perceptions towards the subject (Ashcraft & Moore, 2009). Self-confidence and self-efficacy have been viewed as vital aspects that will help minimize the detrimental effects of math anxiety (Bandura, 1997). Students with high levels of self-confidence towards the math subject are more likely to benefit from learning activities and consequently perform better academically.

Mathematics anxiety is also known for being contextual and situation-based. Several studies have shown that anxiety levels can be affected by the level of difficulty in a task, the examination setting, and classroom setting (Beilock & Carr, 2005). For example, students usually feel anxious when taking an exam or trying to solve difficult mathematical problems. The way lessons are conducted, teaching

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techniques used, and the behaviour of the teacher significantly influence the anxiety level of the student. There are some teaching techniques that are proven to be effective in reducing anxiety, including collaborative learning, use of teaching materials, and positive reinforcements (Furner & Berman, 2003).

Other demographic indicators like gender, age, socio-economic status, and location have also been studied for any association with mathematics anxiety; however, the results of such research are inconsistent. On one hand, some studies indicate that females experience greater levels of mathematics anxiety compared to their male counterparts (Else-Quest et al., 2010). However, other studies have not found any significant difference in this regard. Other indicators such as the grade level and career goals of students can also play an important role in contributing to mathematics anxiety. For instance, socio-economic status and location can determine what kind of education a student receives.

However, there are still some gaps within the existing literature. The studies are limited with regards to the sample size used and the geographies that they consider. There is a scarcity of research that considers a combination of different variables including psychological factors, demographics, and classroom setting. Moreover, not much attention has been paid to considering socioeconomic status and locale in relation to math anxiety among students, especially those at the secondary school level.

In such a scenario, the current research “Mathematical Anxiety Among Secondary Level Students” endeavours to bridge this gap through exploring the various key causes for mathematics anxiety and analysing the effect of mathematics anxiety on the engagement, confidence, and interest of the learners. This study will also endeavour to examine the influence of socio-economic background and locality of the learner on mathematics anxiety among secondary level learners. Through this comprehensive research approach, efforts have been made to understand mathematics anxiety and the factors associated with it.

The importance of this research is that it will make a valuable contribution in terms of both theory and practice. First, the findings will help teachers understand the reasons and degree of mathematics anxiety students suffer from and will be able to use these findings in order to combat this problem. Teachers may apply student-oriented approaches and create a conducive atmosphere in class in order to encourage students to enjoy studying mathematics. Second, the findings will be useful for policy makers in planning interventions in the reduction of mathematics anxiety in order to improve students' academic achievement.

II. REVIEW OF LITERATURE

The concept of anxiety is a quantifiable one which was introduced by Guo and Liao (2025). They studied both trait and state mathematics anxiety as well as the impact of these factors on engagement. While trait anxiety had a negative effect on engagement, state anxiety had situational effects as its intensity increased when the tasks were difficult or exams were nearby. Moreno et al. (2025) indicate negative correlations between mathematics anxiety and self-confidence and interest, whereas self-confidence and mathematical performance were positively associated. Mathematics anxiety was only weakly associated with academic performance, and self-confidence appeared to be an important predictor. Yarkwah et al. (2024) revealed that math anxiety is associated with poor performance in tests. Some reasons for such anxiety include fear of failure, inadequate teaching and preparation. The anxiety levels were high among girls. It recommended use of appropriate teaching approaches despite the limitations of small sample size and subjective measures used. Ayaz et al. (2024) revealed that there was a strong inverse association between math anxiety and achievement among high school pupils. This program significantly lowered anxiety levels. It is evident that anxiety adversely affects achievement, and appropriate intervention programs can help. Mweni et al. (2023) regarding math anxiety and academic performance of Kenyan secondary school pupils, where high anxiety was associated with poor performance. Differences in gender in relation to math anxiety were found. It is suggested that a conducive environment in classroom settings be developed to minimize anxiety. Rahaman et al. (2023), senior high school students have higher mathematics anxiety, with females having higher mathematics anxiety compared to males. In this study, a cross-sectional design was adopted, and gender emerged as a strong predictor. The study calls for interventions sensitive to gender. However, few studies have addressed gender differences previously. Ablian and Parangat (2022) indicated that mathematics anxiety and self-efficacy are prevalent in senior secondary school students. There was a significant relationship between anxiety and self-efficacy, which impacted their achievement, depending on the sex, strand, and school of the students. Omar et al. (2022) on secondary school students indicates that mathematics anxiety is moderate using the mixed-methods design. There was a high negative correlation between anxiety and academic achievement for low achievers. Effective teaching techniques alleviated anxiety. The research underscores the importance of creating positive classroom environments and employing different instruction strategies. Musa and Musa (2021) studied math anxiety via a qualitative case study of Malaysian students. Math anxiety had differential effects on high achievers and low achievers and is influenced by academic abilities and motivation. In addition, there is a need for more qualitative, longitudinal, and intervention-oriented studies on math anxiety involving teachers' and parents' views. Luu-Thi (2021), who found that it is significantly higher in Grade 12 and among some career-minded individuals. Gender differences were not significant. Anxiety correlated with learning outcomes and coping behaviours. This research indicates the need to investigate classroom and teaching issues associated with mathematics anxiety. Busari and Akinoso (2020) reported a significantly high positive correlation between personality traits and math anxiety among Nigerian secondary school students. There was no statistical difference regarding gender; however, age had some impact. The paper suggests student-focused learning approaches, noting that there is a limited geographical focus

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and calls for further intervention studies in this regard. A study by Anouti et al. (2018) revealed that there was a significant negative relationship between mathematics anxiety and mathematics performance for Lebanese students in grades 7-11. The higher the anxiety level, the poorer the students' academic achievement in mathematics. Correlational research design was employed in this study.

➢ *Need and Significance of the Study*

The need for this study arises from the pressing requirement to address the issue of performance-anxiety paradox that has been mentioned in previous studies. While Anouti et al. (2018) and Ayaz et al. (2024) found out a significant negative relationship between anxiety and performance, other scholars such as Moreno et al. (2025) argue that the decrease in self-efficacy plays a major role. The proposed study will provide clarification on the discussed psychological processes and reconcile contradictory findings regarding demographic factors such as the question of why some studies have shown that anxiety was higher among females (Rahaman et al., 2023), whereas Luu-Thi (2021) showed that there were no differences. Moreover, this study proposes to bridge a notable gap through the study of environmental factors of stress, including SES and location, which relate to state anxiety according to Guo and Liao (2025). This research is of great importance throughout the entire educational system. For professionals, it is an empirical basis for switching to an approach based on creating a positive emotional atmosphere in the classroom (Omar et al., 2022). School counsellors can use these results for developing interventions aimed at "mathematics phobia," while decision-makers can use the findings to implement curricular changes sensitive to both genders (Rahaman et al., 2023). Furthermore, the research will enable parents to understand whether their child lacks aptitude for mathematics or experiences psychological pressure in learning. Finally, in terms of bridging quantitative links with qualitative aspects of student participation, the research adds critical geographic data to the global discussion on mathematics anxiety.

➢ *Research Questions*

- What are the major factors contributing to mathematics anxiety among secondary level students?
- What is the impact of mathematics anxiety on students' engagement, confidence, and interest in learning mathematics?

➢ *Research Objectives*

- To study the impact of locale on mathematics anxiety among secondary level students.
- To study the impact of Socio-Economic Status (SES) on mathematics anxiety among secondary-level students.

➢ *Research Hypotheses*

- There is significant difference in the impact of Socio-economic Status (SES) on mathematics anxiety among secondary level students.
- There is significant difference in the impact of locale on mathematics anxiety among secondary level students.

➢ *Null Hypotheses*

- There is no significant difference in the impact of Socio-economic Status (SES) on mathematics anxiety among secondary level students.
- There is no significant difference in the impact of locale on mathematics anxiety among secondary level students.

III. METHODOLOGY

➢ *Research Method*

Quantative Method has been used by the researcher to explore the insights of the mathematics Engagement towards secondary schools' students.

➢ *Research Design*

In the present study descriptive survey design has been used by the researcher.

➢ *Study of the Population*

The study population consisted of Class 9 secondary school students from Lucknow district.

➢ *Sample Size*

The sample for the present study consisted of 211 Class 9 students selected from two UP Board schools in Lucknow district.

➢ *Sampling*

The present study has used purposive sampling was employed.

➢ *Process of Data Collection*

The Perception Scale of "Mathematics Anxiety Scale for Secondary Students (MASSS)" was developed by the researchers to collect data on students' insights towards Mathematics Anxiety.

IV. DISCUSSION AND ANALYSIS

- Main Objective: To study the impact of Socio-Economic Status (SES) on mathematics anxiety among secondary-level students.
- Research Hypotheses: There is significant difference in the impact of Socio-economic Status (SES) on mathematics anxiety among secondary level students.
- Sub Objective: To study the impact of Socio-Economic Status (SES) on the perception secondary level Student of UP Board toward Perceived Difficulties.
- Null Hypothesis: There is no significant impact of Socio-Economic Status (SES) on the perception of secondary level students in U.P Board towards Perceived Difficulties.

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Table 1 Rank

Rank				
	Socio-Economic Status (SES)	**N**	**Mean Rank**	**Sum of Ranks**
Perceived difficulties	High Socio-Economic status	79	102.03	8060.50
	Low Socio-Economic status	132	108.38	14305.50
	Total	211		

Table 2 Test Statistics

Test Statistics	
	Perceived Difficulties
Mann-Whitney U	4900.500
Wilcoxon W	8060.500
Z	-.736
Asymp. Sig. (2-tailed)	.461

Table 3 Socio-Economic Status (SES) Mean Ranks, N and Mann-Whitney U-values of Perceived Difficulties.

Variable	Socio-Economic Status (SES)	Mean Ranks	N	Mann-Whitney U-values	Remark
Perceived Difficulties	High Socio-Economic status	102.03	79	4900.500	p>0.05
	Low Socio-Economic status	108.38	132		

The data provided in Table 1 shows the mean ranks of the difficulties faced by students regarding their socio-economic status. It was seen that the mean rank of the students of low socio-economic status (Mean Rank = 108.38, N = 132) is higher than that of the students of high socio-economic status (Mean Rank = 102.03, N = 79). Therefore, students belonging to the low socio-economic group feel relatively higher difficulty in mathematics as compared to those who belong to high socio-economic status.

In order to check the statistical significance of this finding, the Mann-Whitney U test was conducted. It can be seen from Table 2 that the calculated value of U is 4900.50, while the Z-value comes out to be -0.736. Also, the significance value comes out to be 0.461, which is greater than the critical value of 0.05.

Thus, there is no statistical difference in the perceived difficulties of students belonging to high and low socio-economic status. In other words, the null hypothesis stating that "There is no significant difference in perceived difficulties among secondary school students based on socio-economic status" holds good.

- Sub Objective: To study the impact of Socio-Economic Status (SES) on the perception secondary level Student of UP Board toward Emotional Responses.
- Null Hypothesis: There is no significant impact of Socio-Economic Status (SES) on the perception of secondary level students in U.P Board towards Emotional Responses

Table 4 Rank

Rank				
	Socio-Economic Status (SES)	**N**	**Mean Rank**	**Sum of Ranks**
Emotional Response	High Socio-Economic status	79	110.48	8728.00
	Low Socio-Economic status	132	103.32	13638.00
	Total	211		

Table 5 Test Statistics

Test Statistics	
	Emotional Responses
Mann-Whitney U	4860.000
Wilcoxon W	13638.000
Z	-.830
Asymp. Sig. (2-tailed)	.406

Table 6 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Emotional Responses

Variable	Socio-Economic Status (SES)	Mean Ranks	N	Mann-Whitney U-values	Remark
Emotional Responses	High Socio-Economic status	110.48	79	4860.000	p>0.05
	Low Socio-Economic status	103.32	132		

It can be seen from Table 4 that mean ranks of the emotional responses by secondary school students in relation to their socio-economic status are provided. Students who belong to high socio-economic status have higher mean ranks (Mean Rank = 110.48, N = 79) than those who belong to low socio-economic status (Mean Rank = 103.32, N = 132).

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Hence, students who belong to high socio-economic status have stronger emotional responses for mathematics in comparison with their counterparts who belong to low socio-economic status.

In order to test whether there is any difference between the two groups, the Mann-Whitney U test has been performed. As per Table 5, the value of U statistic has been found to be 4860.00 and Z has been found to be –0.830. The corresponding p-value has been found to be 0.406, which is greater than 0.05 level of significance.

Hence, it has been concluded that the difference between emotional responses of secondary school students of high socio-economic status and low socio-economic status does not exist statistically. Thus, the null hypothesis that "there is no significant difference in emotional responses among secondary school students based on socio-economic status" is accepted.

- Sub Objective: To study the impact of Socio-Economic Status (SES) on the perception secondary level Student of UP Board toward Attitude Towards Mathematics.
- Null Hypothesis: There is no significant impact of Socio-Economic Status (SES) on the perception of secondary level students in U.P Board towards Attitude Towards Mathematics.

Table 7 Rank

Rank				
	Socio-Economic Status (SES)	**N**	**Mean Rank**	**Sum of Ranks**
Attitude Towards Mathematics	High Socio-Economic status	79	111.06	8773.50
	Low Socio-Economic status	132	102.97	13592.50
	Total	211		

Table 8 Test Statistics

Test Statistics	
	Attitude Towards Mathematics
Mann-Whitney U	4814.500
Wilcoxon W	13592.500
Z	-.935
Asymp. Sig. (2-tailed)	.350

Table 9 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Attitude Towards Mathematics.

Variable	**Socio-Economic Status (SES)**	**Mean Ranks**	**N**	**Mann-Whitney U-values**	**Remark**
Attitude Towards Mathematics.	High Socio-Economic status	111.06	79	4814.500	P>0.05
	Low Socio-Economic status	102.97	132		

Based on Table 7, there is the mean rank of attitude toward mathematics by the secondary school students regarding their socio-economic status. There is a clear indication that students with a high socio-economic status have a higher mean rank of 111.06 (N=79) than those with low socio-economic status, whose mean rank is 102.97 (N=132). Therefore, it is clear that the students with high socio-economic status have a positive attitude towards mathematics than the low socio-economic students.

To determine the statistical significance of the difference, the Mann–Whitney U-test was employed. The output provided in Table 8 illustrates that the value of U is 4814.50 while the Z-value is -0.935. The resulting p-value (0.350) is greater than 0.05 level of significance.

Therefore, the difference in the attitude towards mathematics among the two socio-economic statuses is not statistically significant. In other words, the null hypothesis, which states that “there is no significant difference in attitude towards mathematics among secondary school students based on socio-economic status,” should be accepted.

- Sub Objective: To study the impact of Socio-Economic Status (SES) on the perception secondary level Student of UP Board toward Self Concept and Self Efficacy in Mathematics.
- Null Hypothesis: There is no significant impact of Socio-Economic Status (SES) on the perception of secondary level students in U.P Board towards Self Concept and Self Efficacy in Mathematic

Table 10 Rank

Rank				
	Socio-Economic Status (SES)	**N**	**Mean Rank**	**Sum of Ranks**
Self-Concept & Self-Efficacy in Mathematics	High Socio-Economic status	79	116.83	9229.50
	Low Socio-Economic status	132	99.52	13136.50
	Total	211		

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Table 11 Test Statistics

Test Statistics	
	Self-Concept and Self Efficacy in Mathematics
Mann-Whitney U	4358.500
Wilcoxon W	13136.500
Z	-2.006
Asymp. Sig. (2-tailed)	.045

Table 12 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Self-Concept and Self Efficacy in Mathematics.

Variable	Socio-Economic Status (SES)	Mean Ranks	N	Mann-Whitney U-values	Remark
Self-Concept and Self Efficacy in Mathematics	High Socio-Economic status	116.83	79	4358.500	P<0.05
	Low Socio-Economic status	99.52	132		

The results contained in Table 10 show the mean ranks of self-concept and self-efficacy in mathematics for secondary school learners in relation to socio-economic status (SES). From the results, it is clear that learners whose socio-economic status falls within the high category have a mean rank of 116.83 while those whose socio-economic status falls within the low category have a mean rank of 99.52. From this result, it can be concluded that students in the high socio-economic status category have stronger self-concept and self-efficacy in mathematics.

In order to establish whether there exists a statistically significant difference between the two groups, the Mann Whitney U test was conducted. As shown in Table 11, the computed value of U is 4358.50 and its corresponding Z value is -2.006. The p-value (0.045) computed in this analysis is less than the level of significance of 0.05.

It is therefore established that the difference in self-concept and self-efficacy in mathematics among learners from high and low socio-economic status categories is statistically significant. Based on these findings, the null hypothesis, which states that "there is no significant difference in self-concept and self-efficacy in mathematics among secondary school students based on socio-economic status," is rejected.

- Sub Objective: To study the impact of Socio-Economic Status (SES) on the perception secondary level Student of UP Board toward Social and Environmental Influence.
- Null Hypothesis: There is no significant impact of Socio-Economic Status (SES) on the perception of secondary level students in U.P Board towards Social and Environmental Influence.

Table 13 Rank

Rank				
	Socio-Economic Status (SES)	**N**	**Mean Rank**	**Sum of Ranks**
Social & Environmental Influence	High Socio-Economic status	79	111.42	8802.00
	Low Socio-Economic status	132	102.76	13564.00
	Total	211		

Table 14 Test Statistics

Test Statistics	
	Social and Environmental Influence
Mann-Whitney U	4786.000
Wilcoxon W	13564.000
Z	-1.002
Asymp. Sig. (2-tailed)	.316

Table 15 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Social and Environmental Influence.

Variable	Socio-Economic Status (SES)	Mean Ranks	N	Mann-Whitney U-values	Remark
Social and Environmental Influence	High Socio-Economic status	111.42	79	4786.000	p>0.05
	Low Socio-Economic status	102.76	132		

Based on the data shown in Table 13, the mean ranks of social and environmental influence of secondary school students with respect to socio-economic status (SES) are computed. The results reveal that secondary school students who belong to the high socio-economic status group have a mean rank of 111.42 (N=79) while students who belong to the low socio-economic status group have a mean rank of 102.76 (N=132).

To determine whether the mean ranks significantly differ from each other, the Mann-Whitney U test is used. Based on the computation shown in Table 14, the value of U is 4786.00, with a corresponding Z value of -1.002, with a p-

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value of 0.316 which is greater than the level of significance of 0.05.

From this result, it can be concluded that there is no significant difference between social and environmental influence between secondary school students of high and low socio-economic status. Thus, the null hypothesis formulated, "There is no significant difference in social and environmental influence among secondary school students based on socio-economic status," is accepted.

- Main Objective: To study the impact of locale on mathematics anxiety among secondary level students.
- Research Hypotheses: There is significant difference in the impact of locale on mathematics anxiety among secondary level students.
- Sub Objective: To study the impact of locale on the perception secondary level Student of UP Board toward Perceived Difficulties.
- Null Hypothesis: There is no significant impact of locale on the perception of secondary level students in U.P Board towards Perceived Difficulties.

Table 16 Rank

Rank				
	Locale	**N**	**Mean Rank**	**Sum of Ranks**
Perceived Difficulties	Urban	111	116.05	12881.00
	Rural	100	94.85	9485.00
	Total	211		

Table 17 Test Statistics

Test Statistics	
	Perceived Difficulties
Mann-Whitney U	4435.000
Wilcoxon W	9485.000
Z	-2.539
Asymp. Sig. (2-tailed)	.011

Table 18 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Perceived Difficulties.

Variable	Locale	Mean Ranks	N	Mann-Whitney U-values	Remark
Perceived Difficulties	Urban	116.05	111	4435.000	P<0.05
	Rural	94.85	100		

Table 18 provide the Mann–Whitney U test. It was conducted to examine whether there was whether there was a significant difference in perceived difficulties between urban and rural students. The results showed that urban students (M = 116.05, *n* = 111) had higher mean ranks compared to rural students (M = 94.85, *n* = 100). As the value of U = 4435.00, *Z* = -2.54, *p* = .011 (two-tailed). The difference between the two groups was found to be statistically significant.

The obtained *p*-value (.011) is less than the significance level of .05. The null hypothesis is rejected. This indicates that there is a significant difference in perceived difficulties between urban and rural students.

- Sub Objective: To study the impact of locale on the perception secondary level Student of UP Board toward Emotional Responses.
- Null Hypothesis: There is no significant impact of locale on the perception of secondary level students in U.P Board towards Emotional Responses.

Table 19 Rank

Rank				
	Locale	**N**	**Mean Rank**	**Sum of Ranks**
Emotional Responses	Urban	111	112.24	12459.00
	Rural	100	99.07	9907.00
	Total	211		

Table 20 Test Statistics

Test Statistics	
	Emotional Responses
Mann-Whitney U	4857.000
Wilcoxon W	9907.000
Z	-1.576
Asymp. Sig. (2-tailed)	.115

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Table 21 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Emotional Responses

Variable	Locale	Mean Ranks	N	Mann-Whitney U-values	Remark
Emotional Responses	Urban	112.24	111	4857.000	p>0.05
	Rural	99.07	100		

Table 21 provide the Mann–Whitney U test. It was conducted to examine whether there was a significant difference in emotional responses between urban and rural students. The results showed that urban students (M = 112.24, n = 111) had higher mean ranks compared to rural students (M = 99.07, n = 100). As the value of U = 4857.00, Z = -1.58, p = .115 (two-tailed). The difference between the two groups was not found to be statistically significant.

The obtained p-value (.115) is greater than the significance level of .05. The null hypothesis is Not Rejected. This indicates that there is no significant difference in emotional responses between urban and rural students.

- Sub Objective: To study the impact of locale on the perception secondary level Student of UP Board toward Attitude Towards Mathematics.
- Null Hypothesis: There is no significant impact of locale on the perception of secondary level students in U.P Board towards Attitude Towards Mathematics.

Table 22 Rank

Rank				
	Locale	N	Mean Rank	Sum of Ranks
Attitude Towards Mathematics	Urban	111	103.73	11514.50
	Rural	100	108.52	10851.50
	Total	211		

Table 23 Test Statistics

Test Statistics	
	Attitude Towards Mathematics
Mann-Whitney U	5298.500
Wilcoxon W	11514.500
Z	-.571
Asymp. Sig. (2-tailed)	.568

Table 24 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Attitude Towards Mathematics.

Variable	Locale	Mean Ranks	N	Mann-Whitney U-values	Remark
Attitude Towards Mathematics.	Urban	103.73	111	5298.500	p>0.05
	Rural	108.52	100		

Table 24 provide the Mann–Whitney U test. It was conducted to examine whether there was a significant difference in attitude towards mathematics between urban and rural students. The results showed that rural students (M = 108.52, n = 100) had slightly higher mean ranks compared to urban students (M = 103.73, n = 111). As the value of U = 5298.50, Z = -0.57, p = .568 (two-tailed). The difference between the two groups was not statistically significant.

The obtained p-value (.568) is greater than the significance level of .05. The null hypothesis is not rejected. This indicates that there is no significant difference in attitude towards mathematics between urban and rural students.

- Sub Objective: To study the impact of locale on the perception secondary level Student of UP Board toward Self Concept and Self Efficacy in Mathematics.
- Null Hypothesis: There is no significant impact of locale on the perception of secondary level students in U.P Board towards Self Concept and Self Efficacy in Mathematics.

Table 25 Rank

Rank				
	Locale	N	Mean Rank	Sum of Ranks
Self-Concept and Self Efficacy in Mathematics	Urban	111	102.36	11362.50
	Rural	100	110.04	11003.50
	Total	211		

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Table 26 Test Statistics

Test Statistics	
	Self-Concept and Self Efficacy in Mathematics
Mann-Whitney U	5146.500
Wilcoxon W	11362.500
Z	-.917
Asymp. Sig. (2-tailed)	.359

Table 27 Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Self-Concept and Self Efficacy in Mathematics.

Variable	Locale	Mean Ranks	N	Mann-Whitney U-values	Remark
Self-Concept and Self Efficacy in Mathematics	Urban	102.36	111	5146.500	P>.05
	Rural	110.04	100		

Table 27 provide the Mann–Whitney U test. It was conducted to determine whether there was a significant difference in self-concept and self-efficacy in mathematics between urban and rural students. The results showed that rural students (M = 110.04, *n* = 100) had higher mean ranks compared to urban students (M = 102.36, *n* = 111). As the value of *U* = 5146.50, *Z* = -0.92, *p* = .359 (two-tailed). The difference between the two groups was not statistically significant.

The obtained *p*-value (.359) is greater than the significance level of .05. The null hypothesis is. This indicates that there is no significant difference in self-concept and self-efficacy in mathematics between urban and rural students.

- Sub Objective: To study the impact of locale on the perception secondary level Student of UP Board toward Social and Environmental Influence.
- Null Hypothesis: There is no significant impact of locale on the perception of secondary level students in U.P Board towards Social and Environmental Influence.

Table 28 Rank

Rank				
	Locale	**N**	**Mean Rank**	**Sum of Ranks**
Social and Environmental Influence.	Urban	111	102.72	11401.50
	Rural	100	109.65	10964.50
	Total	211		

Table 29 Test Statistics

Test Statistics	
	Social and Environmental Influence
Mann-Whitney U	5185.500
Wilcoxon W	11401.500
Z	-.827
Asymp. Sig. (2-tailed)	.408

Table 30- Locale-Wise Mean Ranks, N and Mann-Whitney U-values of Social and Environmental Influence.

Variable	Locale	Mean Ranks	N	Mann-Whitney U-values	Remark
Social and Environmental Influence	Urban	102.72	111	5185.500	p>0.05
	Rural	109.65	100		

Table 30 provide the Mann–Whitney U test. It was conducted to examine whether there was a significant difference in social and environmental influence between urban and rural students. The results showed that rural students (M = 109.65, *n* = 100) had slightly higher mean ranks compared to urban students (M = 102.72, *n* = 111). As the value of *U* = 5185.50, *Z* = -0.83, *p* = .408 (two-tailed). The difference between the two groups was not statistically significant.

The obtained *p*-value (.408) is greater than the significance level of .05. The null hypothesis is Not rejected. This indicates that there is no significant difference in social and environmental influence between urban and rural students.

V. DISCUSSION

This current study analysed the effects of socio-economic status (SES) and place of residence on different dimensions of math anxiety in secondary school students. The results show that socio-economic status does not significantly affect all dimensions of math anxiety such as difficulty, emotion, attitude towards math, and social-environmental influence. Even though there is a difference in mean ranks, it was insignificant, suggesting that students from all socio-economic statuses suffer similarly from math-related anxiety

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problems in those dimensions. Nevertheless, a significant difference is shown in the dimension of self-concept and self-efficacy, where those from high socio-economic statuses tend to have more confidence in their mathematical ability.

Regarding the place factor, the results show that only the perceived problems showed a significant difference where urban students reported higher levels than the rural counterparts. This can be explained by the greater amount of academic stress, competition, and expectations among students who study in urban areas. Nonetheless, there are no differences in terms of emotions, attitudes, self-concept, and social environment influence. The impact of the place on the math anxiety construct remains relatively low. In conclusion, from the results obtained, it becomes clear that math anxiety is a multifaceted phenomenon that depends more on psychology-related issues than demographics.

VI. CONCLUSION AND FINDING

In this study, the effects of socio-economic status (SES) and location on mathematics anxiety were evaluated along five factors: difficulty perception, emotional reaction, attitude toward mathematics, self-concept/self-efficacy, and social/environmental impact. The results indicated that socio-economic status was not a significant factor for most aspects of mathematics anxiety. No significant differences were noted in difficulty perception, emotional reactions, attitude toward mathematics, and social/environmental impact for students of different SES levels. Significant differences were found only in self-concept and self-efficacy; that is, students of higher SES had more confidence in themselves.

Regarding location, the findings show a significant difference only for the perception of difficulties where students from the urban setting had higher levels of difficulty than those from the rural setting. There were no significant differences between the urban and rural students in their emotions, attitudes toward mathematics, self-concept and self-efficacy, and social and environmental influence.

In summary, the research demonstrates that there is no strong association of socio-economic status and location with mathematics anxiety. This anxiety is rather influenced by internal psychological elements such as confidence. Based on the significant importance of self-concept and self-efficacy, it is possible to assume that raising the students' confidence levels is an efficient approach to eliminating mathematics anxiety. Thus, teachers should provide stimulating educational settings where the development of self-concept takes place and anxiety decreases.

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