

IMPACT OF SOCIOECONOMIC CONDITIONS AND PARENTAL ENCOURAGEMENT ON ACADEMIC ACHIEVEMENT OF SECONDARY STUDENTS IN COOCHBEHAR

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ABSTRACT:

This study explores the impact of socioeconomic conditions and parental encouragement on the academic achievement of secondary students in Cooch Behar, West Bengal. A sample of 280 Class 10 students from coeducational Bengali-medium schools affiliated with the West Bengal Board of Secondary Education (W.B.B.S.E) was surveyed using a descriptive method. The findings reveal a positive association between higher socioeconomic status and better academic performance. Parental encouragement also emerged as a significant factor, with more excellent support linked to higher achievement. Gender differences were noted, with male students reporting slightly stronger family support and better economic conditions. A strong correlation was found between socioeconomic conditions and parental support, suggesting these factors jointly enhance academic success. The study highlights the critical role of familial and economic factors in shaping educational outcomes, offering valuable insights for policies aimed at improving student achievement in similar socio-economic settings.

Keywords: Socioeconomic Conditions, Parental Encouragement, Academic Achievement, Gender Differences, Education

INTRODUCTION:

Education is universally recognized as a pivotal factor in determining a student's economic and societal success, serving as a gateway to enhanced opportunities and improved quality of life (OECD, 2020). Academic achievement, often measured through grades, test scores, and teacher evaluations, reflects the degree of success students attain in their educational pursuits. As a crucial indicator of educational outcomes, academic achievement significantly shapes students' future prospects. Among secondary students, this multifaceted outcome is influenced by various factors, with socioeconomic conditions and parental encouragement emerging as critical determinants.

The socioeconomic condition of a region has a significant impact on students' academic achievement. In Cooch Behar, evolving socio-economic conditions have driven notable educational progress. Historically marked by low per capita income, the district has shown a steady improvement in financial stability. From ₹5,564.27 in 1993–94, per capita income rose to ₹54,069 in 2013–14 and was projected at ₹109,108 in 2022–23 (Barman, 2016). These advancements have enabled families to invest in private tutoring, books, and technology, reducing dropout rates and fostering academic success (Paul, 2022). Improved infrastructure has further contributed to better educational outcomes. As of the 2011 Census, all inhabited villages in Cooch Behar had access to electricity and drinking water, with significant improvements in telephone connectivity and paved roads (Office of the Registrar General & Census Commissioner, India, 2011). Programs like the Sabooj Sathi initiative, providing bicycles to students, have enhanced school accessibility; these initiatives especially help students in rural areas (Mondal et al., 2021). These developments,

coupled with socio-economic growth, have led to higher literacy rates, rising from 66.3 % in 2001 to 74.78% in 2011 (Office of the Registrar General & Census Commissioner, India, 2011).

Despite financial limitations, parental involvement remains a critical factor in academic success. Active participation, such as attending parent-teacher meetings and encouraging extracurricular activities, provides emotional and motivational support, which is particularly vital for underprivileged students. Such involvement fosters resilience and better performance, even in resource-constrained environments. Parental encouragement, shaped by better socio-economic conditions, has been pivotal in improving academic performance. Families increasingly view education as a pathway to upward mobility. Programs like Kanyashree Prakalpa have specifically promoted female education, reducing gender disparities (Nandi & Das, 2021).

Globally, socio-economic conditions are recognized as key drivers of academic success. Higher SEC families provide superior educational resources and supportive environments, while disadvantaged students face barriers like financial instability and limited parental education (Coleman, 1988; Sirin, 2005). However, parental encouragement mitigates these challenges, fostering motivation, self-confidence, and persistence (Jeynes, 2011). In India, research confirms that students from higher SEC families outperform their peers due to better access to resources, though parental support remains influential across all socio-economic backgrounds (Bhat et al., 2016; Kadlimatti, 2021)

Cooch Behar offers a unique context to explore these dynamics. The district's mix of rural, semi-urban, and urban populations highlights disparities in educational resources and parental support. While higher-income families typically achieve better academic results, economically disadvantaged students face challenges like limited resources. Parental involvement, such as helping with homework and monitoring school progress, has proven critical in overcoming these obstacles (Paul, 2022).

AREA OF THE STUDY:

Cooch Behar district in northeastern West Bengal, spanning 3,387 square kilometers with a population of 2,819,086 and a literacy rate of 74.78%, faces educational challenges, particularly in rural areas, and is characterized by its diverse socio-cultural landscape, with 12 administrative blocks, 6 municipalities, 128 Gram Panchayats, and 1,188 villages playing key roles in local governance, education, and development (Office of the Registrar General & Census Commissioner, India, 2011). This structure impacts the delivery of social and educational services, shaping the academic experiences and achievements of students in the area. Understanding these factors provides a foundation for examining educational influences in Cooch Behar.

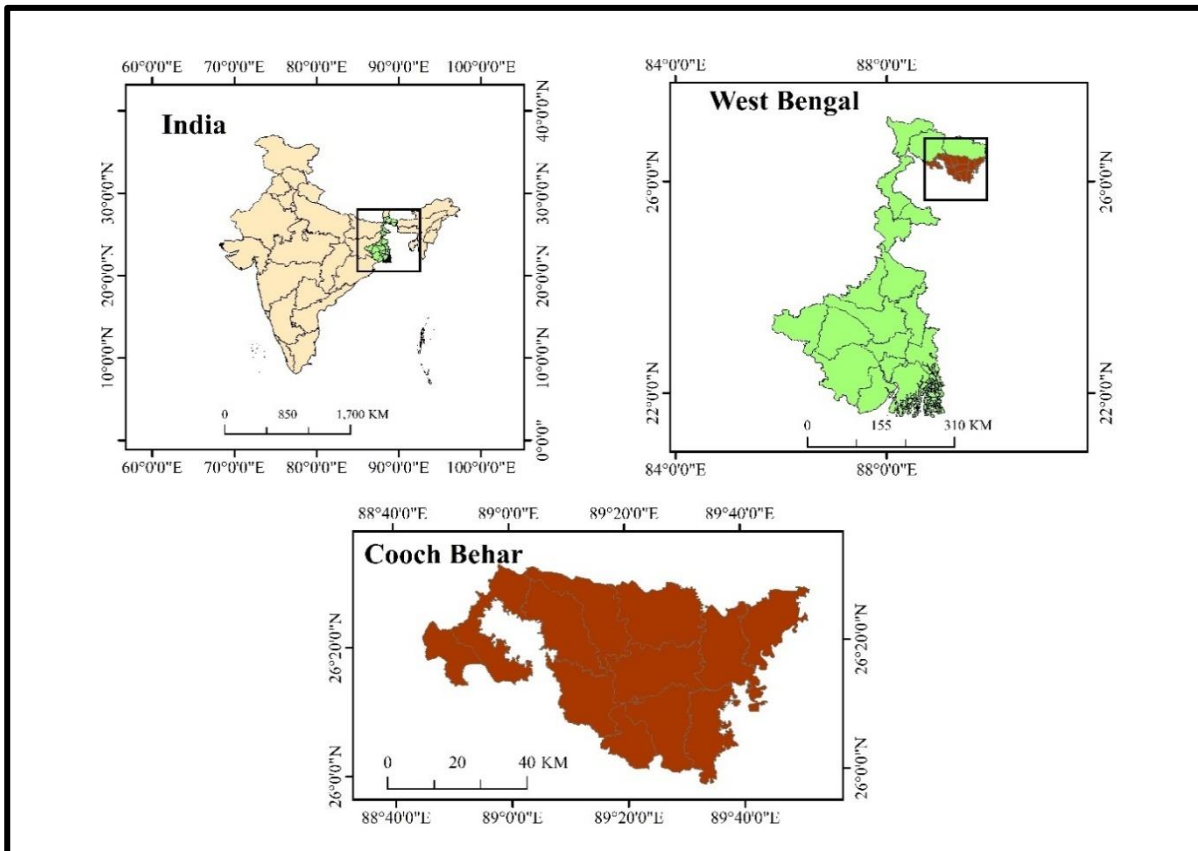


Fig 1: Location Map

Source: Prepared by the researcher using QGIS

REVIEW OF LITERATURE:

Research has shown that socioeconomic conditions and parental encouragement are important factors in determining academic success (Munir et al., 2023; Esther et al., 2018; Yang et al., 2023; Onwukwe et al., 2017). Along with factors like intelligence and motivation, the school and home environments greatly affect students' academic outcomes (Alomar, 2006). Studies, including those conducted in India, have found that students from higher socioeconomic backgrounds, where parents are more educated and involved, tend to perform better in school (Rathee, 2024; Chandra & Azimuddin, 2013; Singh & Choudhary, 2015).

Socioeconomic Conditions (SEC) and Academic Achievement:

Socioeconomic conditions encompass aspects like family income, parent's education, and occupational conditions, all of which significantly influence students' academic outcomes. Studies globally have shown that students from wealthier families tend to perform better academically due to their access to quality educational materials, technology, and extracurricular opportunities (Bradley & Corwyn, 2002; Sirin, 2005). In India, Desai and Kulkarni (2008) observed that family wealth, literacy, and parental occupation strongly influence school enrollment and academic success, especially in rural areas like Cooch Behar.

A supportive home environment is crucial in this relationship. Parents with higher education levels often create atmospheres conducive to learning, including structured routines and active engagement in academic activities (Duncan & Magnuson, 2012; Boruah, 2021). Regular conversations between educated parents and their children can enhance vocabulary and reading skills, fostering academic growth (Noble et al., 2015). Conversely, students from low-SEC

backgrounds face challenges such as limited access to resources, poor living conditions, and exposure to stressors like neighbourhood violence (Evans & Kim, 2013). In rural areas of West Bengal, such as Cooch Behar, these disadvantages are more pronounced, posing significant barriers to educational attainment (Mustaquim & Roy, 2015).

Parental Encouragement and Academic Achievement:

Parental encouragement is another pivotal factor influencing academic success. Research has consistently shown that active parental involvement, such as helping with homework, attending school events, and fostering academic aspirations, significantly benefits students (Jeynes, 2012). In the Indian context, Kumar et al. (2024) found that parental support is critical in bridging educational gaps in rural settings.

Parental encouragement not only motivates students but also boosts their self-confidence and resilience. Children who feel supported by their parents develop higher self-esteem and a belief in their academic abilities, which leads to better performance (Fan & Williams, 2010; Ghosh, 2019). Conversely, a lack of parental involvement or strained parent-child relationships can weaken these positive effects, leading to lower academic achievement (Froiland et al., 2013).

The quality of the parent-child relationship is equally important. Studies in the Indian context reveal that warm and supportive relationships significantly enhance children's ability to internalize academic expectations, thereby improving performance (Cheung & Pomerantz, 2012). However, economic pressures often limit the time and attention parents can dedicate to their children's education, particularly in low-SEC families (Jassal, 2020).

Interaction Between Socioeconomic Condition, Parental Encouragement, and Academic Achievement:

The relationship between SEC, parental encouragement, and academic achievement is intricate and interdependent. While SEC shapes the broader context of a child's education, parental encouragement often mediates the effects of SEC. Research shows that proactive parental involvement can mitigate some disadvantages of low SEC on academic performance (Davis-Kean et al., 2021). In rural India, parental involvement remains critical, as resource constraints are a persistent challenge in regions like Cooch Behar.

However, the ability to provide parental encouragement often depends on the SEC. Parents from higher SEC backgrounds generally have more time, resources, and knowledge to engage in their children's education (Cheadle, 2008). Despite these challenges, parental encouragement remains a powerful determinant of academic success. Kumar et al. (2020) found that even in low-income households, children who received consistent parental support performed better academically than those who did not. Similarly, Chen et al. (2018) highlighted that parental involvement could significantly offset the disadvantages faced by children in low-SEC families. This underscores the importance of parental encouragement as a critical factor in bridging achievement gaps.

Theoretical Insights:

The interplay between socioeconomic conditions, parental encouragement, and academic achievement is rooted in various theoretical frameworks. Social Capital Theory (Coleman, 1988) and Cultural Capital Theory (Bourdieu, 1986) emphasize how resources and cultural assets linked to socioeconomic conditions shape educational outcomes. Families with greater socioeconomic resources can provide better educational opportunities, enhancing academic success. Human Capital Theory (Becker, 1964) further explains how investment in education, often influenced by socioeconomic conditions, promotes skills and knowledge acquisition.

Parental encouragement, as highlighted in Vygotsky's Sociocultural Theory (1978), provides scaffolding that supports cognitive and academic growth. Parents play a critical role in fostering autonomy and intrinsic motivation, as explained by the Self-Determination Theory (Ryan, 1985). Additionally, Attachment Theory (Bowlby, 1982) underscores the importance of emotional support from parents in promoting academic success.

Academic achievement is also influenced by broader environmental factors, as framed by Bronfenbrenner's Ecological Systems Theory (1979), which situates learning within family and societal contexts. The Expectancy-Value Theory explains how parents' beliefs and encouragement shape students' academic motivation and performance (Eccles et al., 1983). Collectively, these theories reveal the dynamic interconnections between socioeconomic resources, parental involvement, and academic outcomes, underscoring the need for holistic educational strategies.

Importance and Justification of the Study:

This study examines the "Impact of Socioeconomic Conditions and Parental Encouragement on Academic Achievement of Secondary Students" to address critical factors influencing educational outcomes. Socioeconomic conditions, such as income, access to resources, and living environments, significantly shape students' academic performance. Understanding these disparities is essential for educators, policymakers, and stakeholders aiming to reduce educational inequalities and support students from diverse backgrounds.

Parental encouragement plays a crucial role in shaping students' motivation, self-esteem, and academic success. By exploring the influence of parental involvement and support, this research highlights how families can positively impact their children's education, irrespective of socioeconomic constraints. Focusing on secondary students in Coochbehar, this study considers the region's unique socioeconomic characteristics to provide localized insights. It seeks to illuminate how economic conditions and familial support systems collectively affect academic achievement. The findings will contribute to developing targeted interventions, policies, and educational programs that address socioeconomic challenges while promoting the importance of parental involvement. Ultimately, this research aims to foster a more equitable and supportive educational environment, helping students achieve their potential and reducing disparities in educational outcomes.

Statement of the problem:

The influence of parental encouragement and socioeconomic conditions extends across various aspects of a child's life, significantly impacting their academic achievement. Recognizing this, the researcher aims to explore the issue through a study titled **"The Impact of Socioeconomic Conditions and Parental Encouragement on the Academic Achievement of Secondary Students in Cooch Behar."**

Objectives of the study:

1. To compare the academic achievements of male and female secondary level students.
2. To compare the socioeconomic condition of male and female secondary level students.
3. To compare the parental encouragement of male and female secondary level students.
4. To find out the relationship between Socio-Economic Condition, and Parental Encouragement on the Academic Achievement of secondary level Students.
5. To study the first order interaction effect due to the variation of gender and socioeconomic condition on academic achievement of secondary level students.
6. To study the first order interaction effect due to the variation of gender and parental encouragement on academic achievement of secondary level students.

7. To study the first order interaction effect due to the variation of socioeconomic condition and parental encouragement on academic achievement of secondary level students.
8. To study the second order interaction effect due to the variation of gender, socioeconomic condition, and parental encouragement on academic achievement of secondary level students.

Hypotheses of the study:

1. **(H₀₁):** There is no significant difference in academic achievements between male and female secondary level students.
2. **(H₀₂):** There is no significant difference in the socioeconomic conditions between male and female secondary level students.
3. **(H₀₃):** There is no significant difference in parental encouragement between male and female secondary level students.
4. **(H₀₄):** There is no significant relationship between socioeconomic condition, parental encouragement, and academic achievement of secondary level students.
5. **(H₀₅):** There is no significant first order interaction effect exists between gender and socioeconomic condition on academic achievement of secondary level students.
6. **(H₀₆):** There is no significant first order interaction effect exists between gender and parental encouragement on academic achievement of secondary level students.
7. **(H₀₇):** There is no significant first order interaction effect exists between socioeconomic condition and parental encouragement on academic achievement of secondary level students.
8. **(H₀₈):** There is no significant second-order interaction effect exists between gender, socioeconomic condition, and parental encouragement on academic achievement of secondary level students.

Definition of Terms Used in the Study:

Academic Achievement: Academic achievement is defined as the measurable performance of students in educational settings, typically assessed through grades, test scores, and overall academic success. This variable is often quantified through standardized exams or school performance reports.

Socioeconomic Conditions: Socioeconomic conditions refer to the social and economic factors that influence students' academic achievement, such as family income, parental education levels, and occupation.

Parental Encouragement: Parental encouragement involves the support and motivation provided by parents to foster their child's academic success. This includes behaviors such as helping with schoolwork, providing positive reinforcement, and encouraging educational goals, measured through self-reports or parent surveys.

Secondary Student: Secondary students refer to individuals who are currently enrolled in Class 9th and 10th. In this study, secondary students are those who are currently enrolled in Class 10 at Bengali medium co-educational schools affiliated with the West Bengal Board of Secondary Education.

Research Design and Methodological Approach:

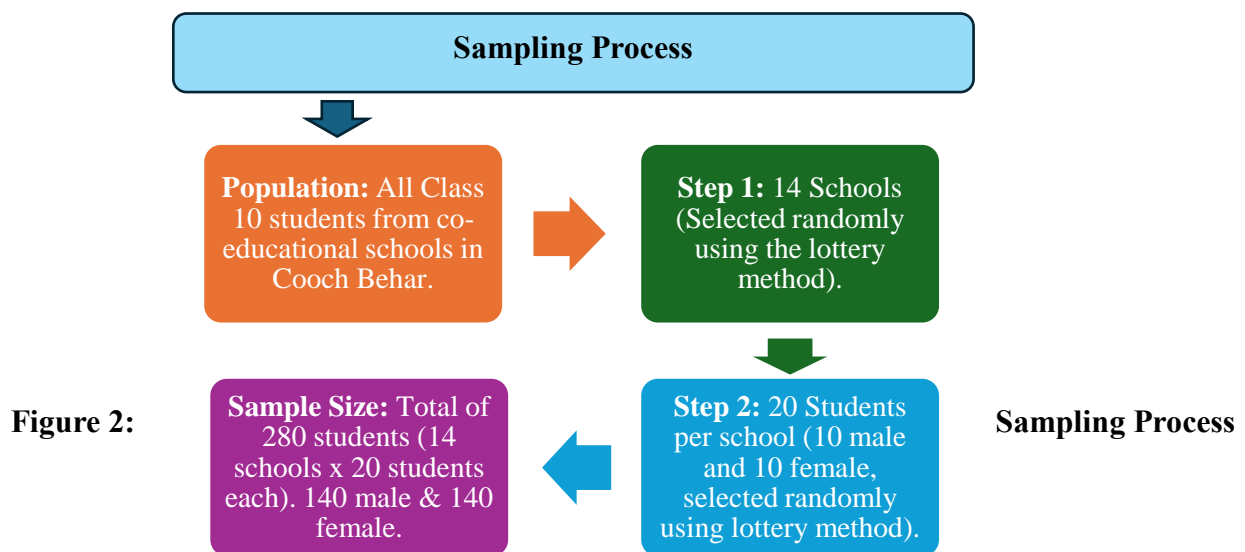
The study employs a descriptive survey method, a quantitative approach commonly used to systematically collect and analyze data from a specific population. This method enables the researcher to describe and interpret existing conditions, practices, or characteristics of the population under study (Best & Kahn, 2016). Moreover, this method is ideal for examining and

comparing variables such as academic achievement, socioeconomic conditions, and parental encouragement among secondary-level students. Data was collected through structured questionnaires administered to a representative sample of secondary-level students. The quantitative nature of the study facilitates the comparison of academic achievements, socioeconomic conditions, and parental encouragement across different demographic groups, enabling the identification of significant relationships and interaction effects (Cohen, Manion, & Morrison, 2018; Creswell, 2014). This approach ensures the reliability and validity of the findings.

Population and Sampling Framework:

The population for this study consists of all Class 10 students attending co-educational schools in Cooch Behar, affiliated with the West Bengal Board of Secondary Education. These students collectively serve as the study's focus, providing a comprehensive representation for analyzing key academic and social variables.

The sample for this study was determined using a probability sampling method. Initially, 14 co-educational schools in Cooch Behar were selected through simple random sampling using the lottery method (Cohen, Manion, & Morrison, 2018). Subsequently, 10 male and 10 female students were randomly chosen from each school using the same technique. This process resulted in a total sample size of 280 students. This approach ensures that each student has an equal chance of being included, enhancing the representativeness of the sample (Fraenkel, Wallen, & Hyun, 2015).



Participants	Gender	
	Male	Female
280	140	140

Table 1: Sample Profile

Research Instruments Employed in the Study:

1. **Academic Achievement:** This was measured using Class 9 results, which provided a quantitative basis for evaluating student performance.
2. **Parental Encouragement Scale:** Developed by the researcher, this scale included 45 items across four sub-themes—educational encouragement, financial support, mental support, and disciplinary encouragement. It utilized a 5-point rating scale from "Always" (5) to "Never" (1). All items were positively framed, with content validity checked by experts. The scale demonstrated a reliability coefficient of .780 (Cronbach's alpha), indicating good internal consistency.

3. **Socioeconomic Condition Scale:** Created by the researcher, this scale was standardized and validated by experts to measure students' socioeconomic backgrounds effectively.

Procedural Overview of Data Collection and Analysis:

The data analysis process began with the selection of a sample of 280 students, comprising 140 males and 140 females from various schools. After finalizing the sample, the researcher visited each school to conduct data collection. Questionnaires were distributed to each student to gather relevant information on the research variables.

Once data collection was complete, the researcher entered and coded the data into SPSS 20 software to prepare it for statistical analysis. Following coding, normality checks were conducted to confirm that the data met the assumptions for parametric tests.

In line with the research objectives and hypotheses, both descriptive and inferential statistics were applied. Descriptive statistics, including mean, percentage, and standard deviation, provided initial insights into the data distribution. Inferential analyses, including t-tests, correlation, and ANOVA, were conducted to examine relationships and differences related to the research title: "Impact of Socioeconomic Conditions and Parental Encouragement on Academic Achievement of Secondary Students in Coochbehar." This structured approach aimed to fulfill the primary goals and objectives of the study by rigorously testing hypotheses and identifying significant patterns and correlations.

Analysis and Interpretation of Data:

Classification of Variables into Levels:

The researchers categorized three major variables—Academic Achievement, Parental Encouragement, and Socioeconomic Conditions—into three distinct levels: high, medium, and low. Academic Achievement was classified based on established criteria, with high achievement defined as scores above 60%, medium achievement ranging from 45% to 60%, and low achievement defined as scores below 45% (Ghosh, 2020; Borsato, 2006; Ghatak & Mittal, 2009).

Socioeconomic Conditions (SEC) were analyzed using an alternative specification that divided the sample into three categories: low SEC, accounting for approximately 33% of the sample; medium SEC, encompassing about 37% of the sample; and high SEC, comprising roughly 30% of the sample, following the methodology outlined by Tomaszewski et al. (2022a).

To categorize Parental Encouragement, the range was calculated as $190 - 109 = 81$. This range was then divided into three equal intervals of 27, resulting in the following definitions: Low (109–136), Medium (137–164), and High (165–190). This structured approach enables a clear classification and interpretation of the data, facilitating a comprehensive analysis of the relationships among the variables.

Table 2: Categorization of Academic Achievement, Socioeconomic Conditions, and Parental Encouragement into High, Medium, and Low Levels.

Variables	Levels	Male (N=140)	Female (N=140)	Total (N=280)
Academic Achievement	High	28 (10%)	16 (5.7 %)	44 (15.7 %)
	Medium	76 (27.1%)	77 (27.5%)	153 (54.6 %)
	Low	36 (12.9)	47 (16.8%)	83 (29.6 %)
	Total	140 (50%)	140 (50%)	280 (100 %)

Socioeconomic Condition	High	41 (14.6 %)	40 (14.3 %)	81 (28.9 %)
	Medium	57 (20.4 %)	47 (16.8 %)	104 (37.1 %)
	Low	42 (15 %)	53 (18.9 %)	95 (33.9 %)
	Total	140 (50%)	140 (50%)	280(50%)
Parental Encouragement	High	43(15.4%)	22 (7.9%)	65 (23.2%)
	Medium	74 (26.4%)	95 (33.9%)	169 (60.4%)
	Low	23 (8.2%)	23 (8.2%)	46 (16.4%)
	Total	140 (50%)	140 (50%)	280 (100%)

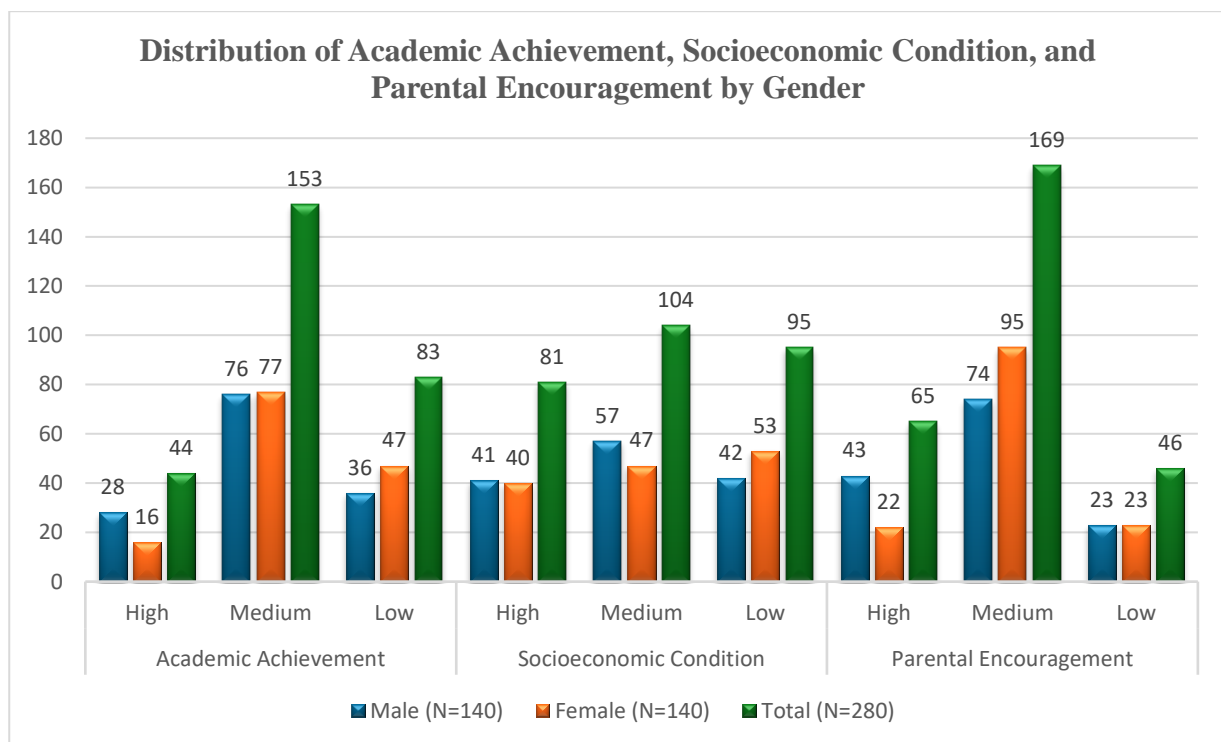


Figure 3: Gender-Based Graphical Representation of Academic Achievement, Socioeconomic Conditions, and Parental Encouragement.

Gender-Based Analysis of Academic Achievement, Socioeconomic Conditions, and Parental Encouragement.

The analysis of categorical variables in this study reveals insights into the relationship between academic achievement, socioeconomic condition, and parental encouragement among secondary students.

Academic Achievement

Out of the 280 respondents, the majority (54.6%) achieved medium academic performance, while 15.7% attained high academic achievement, and 29.6% were classified as low achievers. The

distribution of high achievers shows a higher percentage of males (10%) compared to females (5.7%), indicating a potential gender disparity in high academic performance.

Socioeconomic Condition

In terms of socioeconomic conditions, 28.9% of students come from high socioeconomic backgrounds, 37.1% from medium, and 33.9% from low. Notably, a significant proportion of students from high socioeconomic conditions tend to perform better academically, suggesting that socioeconomic factors may play a crucial role in educational outcomes.

Parental Encouragement

Regarding parental encouragement, 23.2% of students reported high levels of encouragement, while the majority (60.4%) experienced medium encouragement. Interestingly, 16.4% indicated low parental support. The data suggests that greater parental involvement is correlated with higher academic achievement, further emphasizing the importance of supportive home environments.

Normality Test:

Table 3: Normality Test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Academic Achievement	.053	280	.056	.993	280	.208
Socioeconomic Condition	.035	280	.200*	.990	280	.055
Parental Encouragement	.048	280	.200*	.990	280	.056
a. Lilliefors Significance Correction						

The **Kolmogorov-Smirnov** and **Shapiro-Wilk** tests for normality showed that all variables (**Academic Achievement**, **Socioeconomic Condition**, and **Parental Encouragement**) have p-values greater than 0.05, indicating that they do not significantly deviate from normality. Therefore, we can assume that these variables follow a normal distribution, which is suitable for parametric testing.

Hypothesis-wise Data Analysis:

Parametric tests, including **Pearson Correlation** (to examine relationships between variables), **Independent Samples t-test** (to compare gender differences in academic achievement), and **Two-Way** and **Three-Way ANOVA** (to explore interactions between gender, socioeconomic condition, and parental encouragement), were used to test the hypotheses and analyze the results.

(H₀₁): There is no significant difference in academic achievement between male and female secondary level students.

Table 4: t-test result for comparison of Academic Achievement Between Male and Female Students

Pare of Compari son	N	Mean	SD	df	t-value	MD	p-value	Inferen ce
Male	140	328.14	62.318	278	1.664	11.85	.097 (p-value >.05)	Not Signifi cant
Female	140	316.29	56.712					

N= Number, SD= Standard Deviation, df= Degree of Freedom, MD= Mean Difference

The table above presents the analysis of the null hypothesis (H_{01}), which posits that there is no significant difference in academic achievement between male and female secondary students. The descriptive statistics show that male students achieved a mean score of 328.14 (SD = 62.318), while female students had a mean score of 316.29 (SD = 56.712). Despite male students displaying a slightly higher average academic performance than their female counterparts, this difference was not statistically significant.

The t-test results revealed a t-value of 1.664 and a p-value of 0.097. Since the p-value is greater than the standard alpha level of 0.05, the null hypothesis cannot be rejected. This suggests that the academic achievement of male and female secondary students does not differ significantly.

(H_{02}): There is no significant difference in the socioeconomic condition between male and female secondary level students.

Table 5: t-test result for comparison of socioeconomic condition between male and female students

Pare of Compari son	N	Mean	SD	df	t- value	MD	p-value	Inferenc e
Male	140	91.32	16.456	278	2.276	3.971	.024 (p-value <.05)	Significa nt
Female	140	87.35	15.195					

The table evaluates the null hypothesis (H_{02}), which states that there is no significant difference in socioeconomic conditions (SEC) between male and female secondary-level students. According to the descriptive statistics, male students had a mean socioeconomic condition score of 91.32 (SD = 16.456), while female students scored an average of 87.35 (SD = 15.195), suggesting that male students have slightly better socioeconomic conditions than their female counterparts.

The t-test results produced a t-value of 2.276 and a p-value of 0.024. As the p-value is below the standard alpha level of 0.05, the null hypothesis is rejected. This indicates a statistically significant difference in socioeconomic conditions between male and female students, with male students having significantly better socioeconomic conditions than females.

(H_{03}): There is no significant difference in parental encouragement between male and female secondary level students.

Table 6: t-test result for comparison of parental encouragement between male and female students

Pare of Compari son	N	Mean	SD	df	t- value	MD	p-value	Inferenc e
Male	140	154.68	15.507	278	2.136	4.043	.034 (p-value <.05)	Signific ant
Female	140	150.64	13.632					

The above table examines the null hypothesis (H_{03}), which posits that there is no significant difference in parental encouragement between male and female secondary-level students. The descriptive statistics indicate that male students had an average parental encouragement score of

154.68 (SD = 15.507), while female students scored an average of 150.64 (SD = 13.632). This suggests that male students experienced slightly higher levels of parental encouragement compared to their female counterparts.

The t-test results yielded a t-value of 2.136 and a p-value of 0.034. As the p-value is below the standard alpha threshold of 0.05, we reject the null hypothesis. This confirms a statistically significant difference in parental encouragement between male and female students, with male students receiving greater parental encouragement than females.

(H₀₄): There is no significant relationship between socioeconomic condition, parental encouragement, and academic achievement of secondary level students.

Table 7: Correlation results of Academic Achievement, Socioeconomic Condition, and Parental Encouragement

Variables:	Academic Achievement	Socioeconomic Condition	Parental Encouragement
Academic Achievement	1.00	.499**	.756**
Socioeconomic Condition	.499**	1.00	.492**
Parental Encouragement	.756**	.492**	1.00
"The correlation is statistically significant at the 0.01 level (for a two-tailed test)."			

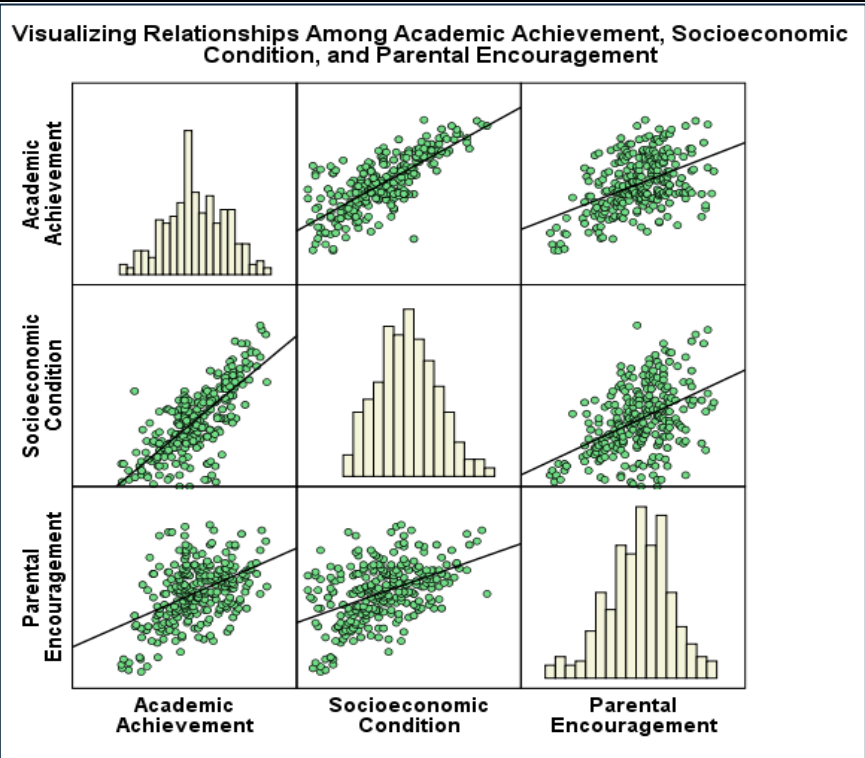


Figure 4: Histogram and Scatter Plot Matrix illustrating the Distribution and Correlations among Academic Achievement, Socioeconomic Condition, and Parental Encouragement

Table 7 illustrates the Pearson correlation coefficients between academic achievement, socioeconomic condition, and parental encouragement among secondary students. The results reveal significant positive relationships at the 0.01 level ($p < 0.01$).

1. **Academic Achievement and Socioeconomic Condition:** The correlation between academic achievement and socioeconomic condition is strong and positive ($r = 0.756$, $p < 0.01$), indicating that students from higher socioeconomic backgrounds generally perform better academically. This supports existing literature on socioeconomic conditions as a key driver of academic success. As a result, the null hypothesis (H_04) is rejected concerning socioeconomic conditions.

2. **Academic Achievement and Parental Encouragement:** A moderate positive correlation exists between academic achievement and parental encouragement ($r = 0.499$, $p < 0.01$), suggesting that students receiving higher levels of parental support tend to achieve better academically. This relationship is statistically significant, so the null hypothesis (H_04) is also rejected regarding parental encouragement.

3. **Parental Encouragement and Socioeconomic Condition:** The moderate positive correlation ($r = 0.492$, $p < 0.01$) between parental encouragement and socioeconomic condition indicates that students from higher socioeconomic backgrounds receive more encouragement, which may further boost academic outcomes.

The null hypothesis (H_04) is rejected as there are significant positive correlations between socioeconomic condition, parental encouragement, and academic achievement. These factors collectively contribute to shaping academic success among secondary students.

(H₅): There is no significant first-order interaction effect exists between gender and socioeconomic condition on academic achievement of secondary level students.

Table 8: Two-way ANOVA result for a first-order interaction effect between gender and socioeconomic condition on the academic achievement

Source	Sum of Squares	df	Mean Square	F	Sig.
Gender	4983.720	1	4983.720	2.757	.098
Socioeconomic condition	487186.335	2	243593.167	134.737	.000
Gender × Socioeconomic Condition	4007.509	2	2003.755	1.108	.332
Error	495370.280	274	1807.921		
Total	30066221.000	280			

The results of the Two-Way ANOVA show that there is no significant interaction effect between gender and socioeconomic condition on academic achievement among secondary students. The interaction term (gender × socioeconomic condition) yielded $F(2, 274) = 1.108$ and $p = 0.332$. Since the p-value exceeds the standard significance level of 0.05, it suggests that gender and socioeconomic conditions do not interact in a way that significantly influences academic achievement. Consequently, the null hypothesis (H_05) is accepted, indicating that the interaction effect between gender and socioeconomic condition is not significant ($p = 0.332$).

(H₀₆): There is no significant first-order interaction effect exists between gender and parental encouragement on academic achievement of secondary level students.

Table 9: Two-way ANOVA result for a first-order interaction effect between gender and parental encouragement on the academic achievement

Source	Sum of Squares	df	Mean Square	F	Sig.
Gender	8029.903	1	8029.903	2.894	.090
Parental Encouragement	193116.969	2	96558.485	34.794	.000
Gender × Parental Encouragement	14083.160	2	7041.580	2.537	.081
Error	760389.031	274	2775.142		
Total	30066221.000	280			

The Two-Way ANOVA results indicate that gender and parental encouragement do not have a significant interaction effect on the academic achievement of secondary-level students. The interaction term Gender × Parental Encouragement shows $F(2, 274) = 2.537$ with a p-value of 0.081, which is greater than the 0.05 significance level. This means that the interaction between gender and parental encouragement does not significantly influence academic achievement, suggesting that parental encouragement has a similar impact on academic performance for both male and female students.

(H₀₇): There is no significant first order interaction effect exists between socioeconomic condition and parental encouragement on academic achievement of secondary level students.

Table 10: Two-way ANOVA result for a first-order interaction effect between parental encouragement and socioeconomic condition on the academic achievement

Source	Sum of Squares	df	Mean Square	F	Sig.
Parental Encouragement	3999.366	2	1999.683	1.233	.293
Socioeconomic condition	120397.232	2	60198.616	37.104	.000
Parental Encouragement × Socioeconomic condition	28007.311	4	7001.828	4.316	.002
Error	439676.899	271	1622.424		
Total	30066221.000	280			

Table 10 of the Two-Way ANOVA results demonstrates a statistically significant interaction effect between parental encouragement and socioeconomic condition on academic achievement, with $F(4, 271) = 4.316$ and $p = 0.002$. This finding indicates that the impact of parental encouragement on academic achievement differs based on socioeconomic conditions. As a result, the null hypothesis, which posits no significant interaction between parental encouragement and socioeconomic conditions, is rejected.

(H₀₈): There is no significant second-order interaction effect exists between gender, socioeconomic condition, and parental encouragement on academic achievement of secondary level students.

Table 11: Three-way ANOVA result for a second-order interaction effect between gender, socioeconomic condition, and parental encouragement on the academic achievement

Source	Sum of Squares	df	Mean Square	F	Sig.
Gender	4134.139	1	4134.139	2.605	.108
Socioeconomic Condition	146597.985	2	73298.992	46.195	.000
Parental Encouragement	2424.124	2	1212.062	.764	.467

Gender × Socioeconomic Condition × Parental Encouragement	46422.424	11	4220.220	2.660	.003
Error	417312.620	263	1586.740		
Total	30066221.000	280			

The Three-Way ANOVA analysis reveals a significant second-order interaction effect among gender, socioeconomic condition, and parental encouragement on academic achievement, with $F(11, 263) = 2.660$ and $p = 0.003$. This indicates that the combined influence of these three factors on academic achievement is statistically significant. Consequently, the null hypothesis, which asserts no significant interaction among gender, socioeconomic condition, and parental encouragement, is rejected.

Findings:

Table 12: Summary of Hypothesis Testing

Hypotheses	Significance	Decision
H ₀₁	Not significant	Accept
H ₀₂	Significant	Reject
H ₀₃	Significant	Reject
H ₀₄	Significant	Reject
H ₀₅	Not significant	Accept
H ₀₆	Not significant	Accept
H ₀₇	Significant	Reject
H ₀₈	Significant	Reject

H₀₁: Male and female students show no significant difference in academic achievement, as indicated by the t-test result ($p = 0.097$). Gender does not influence academic performance.

H₀₂: Male students have significantly better socioeconomic conditions than female students, as shown by a significant t-test result ($p = 0.024$). Gender impacts socioeconomic conditions.

H₀₃: Male students receive significantly more parental encouragement than female students, supported by the t-test ($p = 0.034$). Gender affects parental encouragement levels.

H₀₄: Academic achievement positively correlates with socioeconomic condition ($r = 0.756$) and parental encouragement ($r = 0.499$). Socioeconomic conditions and parental encouragement are also moderately correlated ($r = 0.492$).

H₀₅: No significant interaction effect was found between gender and socioeconomic condition on academic achievement ($p = 0.332$). Gender and socioeconomic conditions do not jointly influence academic performance.

H₀₆: No significant interaction exists between gender and parental encouragement on academic achievement ($p = 0.081$). Parental encouragement affects students of both genders similarly.

H₀₇: Socioeconomic condition and parental encouragement interact significantly ($p = 0.002$), showing that encouragement impacts academic achievement differently based on socioeconomic background.

H₀₈: Gender, socioeconomic condition, and parental encouragement interact significantly ($p = 0.003$), collectively influencing academic achievement in a statistically meaningful way.

CONCLUSION:

This study has highlighted the significant roles that both socioeconomic conditions and parental encouragement play in shaping the academic achievement of secondary students in Coochbehar. The findings reveal a strong positive relationship between socioeconomic conditions and academic performance, indicating that students from wealthier backgrounds tend to perform better

academically due to access to more resources and a stable environment. Additionally, parental encouragement was found to be a crucial factor in boosting student performance, with both emotional and practical support from parents correlating positively with academic success. Gender differences were also noted, with male students generally receiving more parental support and having slightly better socioeconomic conditions than their female counterparts. Broad Indian studies support these findings, emphasizing the pivotal role of parental encouragement in promoting academic success even in socio-economically disadvantaged settings (Singh & Kaur, 2020). For instance, consistent parental support has been linked to better learning habits, enhanced self-confidence, and greater engagement in academic activities. The socio-cultural dynamics of Cooch Behar, where familial ties and community interactions strongly influence educational aspirations, further underscore the importance of parental involvement.

The educational implications of these findings are considerable. The study emphasizes the need for targeted interventions aimed at reducing the academic gap between students from varying socioeconomic backgrounds. Educational programs should be developed to provide resources and support to students from disadvantaged families, ensuring they have access to materials, tutoring, and extracurricular opportunities. Furthermore, schools should encourage greater parental involvement by organizing workshops and initiatives that promote active participation in students' academic journeys. Such efforts could help bridge the gap caused by socioeconomic disparities and foster an environment where all students can reach their full academic potential.

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