

A Correlational Study on Examination Anxiety and Problem-Solving Ability among Secondary School Students

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ABSTRACT

This study investigates the relationship among examination anxiety, academic achievement, and problem-solving ability of secondary school students. A correlational research design was employed to examine the degree and direction of association among the variables. The sample consisted of 150 secondary level students selected through random sampling. Standardized tools were used to measure examination anxiety and problem-solving ability, while academic achievement was assessed through students' academic scores. Statistical techniques such as mean, standard deviation, and Pearson's correlation coefficient were applied. The findings revealed a significant negative correlation between examination anxiety and academic achievement, a negative relationship between examination anxiety and problem-solving ability, and a positive correlation between problem-solving ability and academic achievement. The study highlights the importance of managing examination anxiety to enhance students' academic performance and cognitive skills.

Keywords- Examination Anxiety, Academic Achievement, Problem-Solving Ability, Secondary Students, Correlation.

I. INTRODUCTION

Education plays a vital role in the intellectual, emotional, and social development of students. At the secondary school level, students experience significant academic demands as they prepare for examinations that evaluate their knowledge, understanding, and learning outcomes. Examinations are considered an essential component of the educational system because they measure students' academic achievement and determine their future educational opportunities. However, the pressure associated with examinations often creates psychological stress among students, commonly known as **examination anxiety**.

Examination anxiety refers to the feelings of tension, worry, and nervousness experienced by students before or during examinations. Moderate levels of anxiety may motivate students, but excessive anxiety can hinder performance. Therefore, understanding the interrelationship among examination anxiety, academic achievement, and problem-solving ability is essential for improving educational outcomes.

Therefore, the present study aims to investigate the **relationship between examination anxiety and problem-solving ability among secondary level students**. The study also examines whether differences exist between male and female students in terms of examination anxiety and problem-solving ability. The findings of this study may contribute to the development of effective educational practices that promote students' academic success, emotional well-being, and overall cognitive development.

II. REVIEW OF LITERATURE

Awofala et al. (2024)^[1] involved 480 primary school teachers from twenty public schools and used a quantitative research method with a descriptive survey design. It sought to examine the factors influencing students' performance in mathematics, revealing that 25.1% of the variance in student outcomes could be explained by the independent variables considered. While this finding underscores the importance of the identified factors, it also suggests the need for additional research to understand the underlying processes driving these outcomes. The researchers recommended further studies to explore the factor structure of mathematics teaching anxiety, specifically among both in-service and preservice teachers, extending beyond Nigeria to other contexts. Delving into this area could offer valued insights for teachers and politicians, helping to better understand how education anxiety impacts instructional effectiveness and student achievement, thereby fostering improvements in mathematics education at a broader level.

Nguyen, et al. (2024)^[2] highlight the unprecedented tests faced by higher teaching communities worldwide due to COVID-19, particularly as students continued their studies amidst a crisis. Despite its significance, there has been limited research on how students manage crises on an individual level. This ongoing and novel issue has underscored the necessity of effective crisis management, especially given the uncertain future ahead. This research investigates the factors that affect students' self-efficacy in crisis management throughout the epidemic in higher education. A survey was conducted with 387 undergraduate students to assess how innovative behaviors and problem-solving abilities influence students' confidence in managing crises. Using Structural Equation Modeling, the study developed and validated a conceptual framework to explore the relationships between these factors. It also examined the role of technological skills in enhancing both crisis organization self-efficacy and moot presentation. The findings suggest that both innovative behaviors and problem-solving skills have an optimistic influence on scholars' aptitude to manage crises. The study offers valuable insights for shaping higher education policies and identifies potential areas for future research in improving crisis management strategies within academic contexts.

Gökçe & Güner (2024)^[3] In a cross-section education, 662 university scholars enrolled in elementary mathematics teaching programs were analyzed to travel the relations amid latent and observed variable star. The results indicated that freshman students were most strongly influenced by cognitive flexibility in relation to their academic achievement, while sophomores showed the weakest correlation. In contrast, for junior students, both dangerous rational nature and arithmetic anxiety displayed positive, significant arbitrating effects. This research offered valuable insights into the influence of reasoning suppleness, critical rational, and mathematics anxiety on students' performance in advanced teaching, emphasizing both their direct and indirect roles in shaping academic outcomes.

Li et al. (2023)^[4] travelled the intricate relationships between academic anxiety, moot achievement, and problem-solving ability among 683 students from 10 primary schools in Wuhan, China. The study employed a physical reckoning model and the bias-corrected bootstrap method to analyse the participants' scores, which included measures of academic anxiety, problem-solving skills, and the most recent examination results. The findings revealed that academic anxiety not only negatively influenced academic achievement directly, but also had an unintended result on moot attainment by impairing problem-solving ability. Based on these results, the authors recommended fostering a supportive learning environment and enhancing problem-solving skills to mitigate academic anxiety and improve academic performance. This research underlines the critical role of problem-solving ability in swaying academic success and provides valuable insights for educational strategies aimed at boosting achievement.

Akbari et al. (2023)^[5] led a education to travel the influence of academic self-defeating behaviours, test anxiety, and social problem-solving skills on the moot attainment of secondary school scholars. This investigate utilized a descriptive correlational design with an applied purpose, involving a statistical population of students from the 4th district of Tehran during the 2022-2023 academic year.

Albulescu et al. (2023)^[6] emphasize the significant role of parenting styles in conference the developmental wants of broods, which ultimately contributes to improving their quality of life. The authors examined how parenting styles relate to academic achievement, considering cognitive test anxiety as a potential mediating factor. A study involving 231 students from both rural and urban settings was conducted, using a questionnaire to assess anxiety and parenting styles, alongside academic performance tests. Furthermore, the study demonstrated that insufficient parental supervision negatively impacted students' performance in subjects like Romanian Language and Literature and Mathematics.

Hussein & Csikos (2023)^[7] The study involved 200 secondary school students from Erbil, Iraq, selected using purposive sampling, and employed an experimental design. The experimental group was taught using conceptual teaching methods, while the control group followed traditional instructional approaches. Results showed that students in the experimental group displayed a more favorable attitude toward mathematics. Additionally, female students in this group experienced a greater decrease in math anxiety compared to their male counterparts.

Alsarayreh (2023)^[8] The answers demonstrated a substantial positive effect of technological skills on problem-solving abilities ($R^2 = 0.664$), while academic achievement showed a negligible influence ($R^2 = 0.035$). However, the study highlighted that academic achievement played a moderating role, enhancing the association amid technical skills and problem-solving services. When considered together, the combined explanatory power of the model increased to $R^2 = 0.677$.

Fuente et al. (2023) ^[9] highlight that in the dynamic context of university life, students encounter a wide array of challenges that necessitate continuous motivation and the ability to tackle problems effectively. This research extends beyond traditional academic motivation, investigating how social problem-solving skills influence student adaptation to college life. Based on an analysis of responses from 253 students, the findings indicate that social problem-solving contributes significantly to student adjustment, accounting for 9% of the variance in life satisfaction and 15% in depressive symptoms, independent of academic motivation. Importantly, the study shows that a bad problematic location is a strong forecaster of both depressive symptoms and reduced life satisfaction, while a positive problem orientation has a beneficial effect on life satisfaction. The authors emphasize the need for integrating problem-solving orientation and motivational training into student support programs to improve overall well-being.

Theobald et al. (2022) ^[10], They contend that previous research failed to properly account for knowledge as a potential influence on test performance. Participants completed a test anxiety questionnaire and a comprehensive exam. To control for prior knowledge, the researchers included pretest scores, grade point average, and other academic performance metrics as covariates in their analysis. Their findings revealed no significant connection amid test nervousness and exam presentation after adjusting for knowledge. The study's robust design, with a sizable sample, careful control for knowledge, and the use of a comprehensive exam, strengthens its argument. Theobald et al.'s work provides compelling evidence against the interference hypothesis, suggesting that earlier studies may have exaggerated the harmful influence of test anxiety on exam outcomes.

Thomas et al. (2020) ^[11] The chapter explores how test anxiety affects academic performance, highlighting the potential benefits of incorporating emotional intelligence and multifaceted interventions in reducing anxiety and enhancing student outcomes. This investigate donates to the sympathetic of test anxiety's part in academic settings and emphasizes the importance of addressing emotional and psychological factors in education. However, without access to the full text, a more thorough evaluation of the authors' claims and conclusions remains limited. Moreover, it is essential to recognize that the success of interventions may vary contingent on the exact needs of individual students, as well as the academic environment in which they are applied.

Hafezi & Etemadi (2022) ^[12] explore the causes, contributing factors, and potential strategies to mitigate exam anxiety among high school students. This issue is significant since exam anxiety can negatively affect both academic performance and students' mental well-being. However, without access to the full text, it is challenging to evaluate the research quality, the methodologies employed, and the conclusions drawn. It is also unclear whether the article presents original research or merely reviews existing literature on this subject. In summary, while the discount of exam anxiety in high school scholars is a highly relevant and vital topic, further examination of the research methods and findings is necessary to assess the proposed strategies' effectiveness.

Habtamu et al. (2022) ^[13] The study is noteworthy for its robust research design, incorporating a control group to enhance the validity of its findings, which are consistent with previous research on cooperative learning's positive impact on student motivation and academic success. Despite providing valuable insights into the benefits of cooperative learning, the education's minor example size and its emphasis on a single school present limitations to the broader applicability of its results. Furthermore, the research did not travel the lasting belongings of cooperative problem-solving on scholars' motivation and moot performance. However, it contributes to the rising body of information in cooperative learning, highlighting the positive impact of collaborative approaches in enhancing student engagement and performance in algebra. Future research could address these gaps by including larger, more diverse samples and evaluating long-term outcomes.

Abdullah et al. (2022) ^[14] In a quantitative study involving 253 secondary school students in Malaysia, the researchers rummage-sale a self-administered survey to gather data on various factors. These answers propose that scholars possessing these qualities are more inclined to approach algebra with a positive attitude. Notably, response bias may have influenced the results owing to the self-reported countryside of the questionnaire. Additionally, the research focused exclusively on Malaysian secondary school students, which restricts the ability to generalize the findings to wider populations. Despite these constraints, the article highlights essential connections between key psychological factors and students' attitudes towards mathematics, offering valuable leadership for educators and politicians aiming to improve students' engagement with the subject.

III. SIGNIFICANCE OF THE STUDY

The present study is significant because it examines the relationship between examination anxiety and problem-solving ability among secondary level students. It also compares male and female students to identify any differences in their level of anxiety and problem-solving skills. The findings of this study may help teachers, parents, and educational administrators to understand students' psychological conditions during examinations and develop supportive teaching strategies, counseling programs, and stress-management techniques. Ultimately, the study may contribute to improving students' academic performance, confidence, and overall mental well-being.

IV. OBJECTIVES AND HYPOTHESIS

Objectives of Study

1. To study the Examination Anxiety of male and female students at secondary level students.
2. To study the Examination Anxiety of female students at secondary level students.
3. To study the Problem-Solving ability of male students at secondary level students.

Hypothesis of Study

- **H1:** There is no significant difference between Examination Anxiety of male and female students at secondary level students.
- **H2:** There is no significant difference between Examination Anxiety of female student at secondary level students.
- **H3:** There is no significant difference between Problem-Solving ability of male students at secondary level students.

V. RESEARCH METHODOLOGY

The present study adopted a descriptive survey method to examine examination anxiety and problem-solving ability among secondary-level students.

Sampling

A total of 150 secondary school students participated in the study. A purposive sampling technique was used to select the respondents based on the objectives of the study.

Tools Used

- Examination Anxiety Scale
- Problem-Solving Ability Test
- Academic Achievement Scores (school records)
 - Mean
 - Standard Deviation
 - t-test
 - Descriptive Analysis

Statistical Techniques

- Mean and Standard Deviation
- Pearson’s Correlation Coefficient

VI. DATA ANALYSIS AND INTERPRETATION

The inferential analyses performed, including independent samples t-tests, one-sample t-tests, Pearson correlation analyses, and multiple regression models. These statistical tests were used to examine differences and relationships across gender, as well as between sub-groups defined by high and low problem-solving abilities. Through systematically evaluating each hypothesis, the study uncovers nuanced insights into how psychological factors interplay with academic performance. It interprets the data not only in statistical terms but also in light of practical interventions that could support student well-being and academic success.

Table 1.0: Descriptive data of Examination Anxiety

Statement	Count	Mean	Std	Min	25%	50%	75%	Max
I feel extremely nervous before an exam	150	3	1.41	1	2	3	4	5
My hands tremble when I think about an upcoming test	150	3	1.41	1	2	3	4	5
I find it hard to concentrate while studying due to exam fear	150	3	1.41	1	2	3	4	5

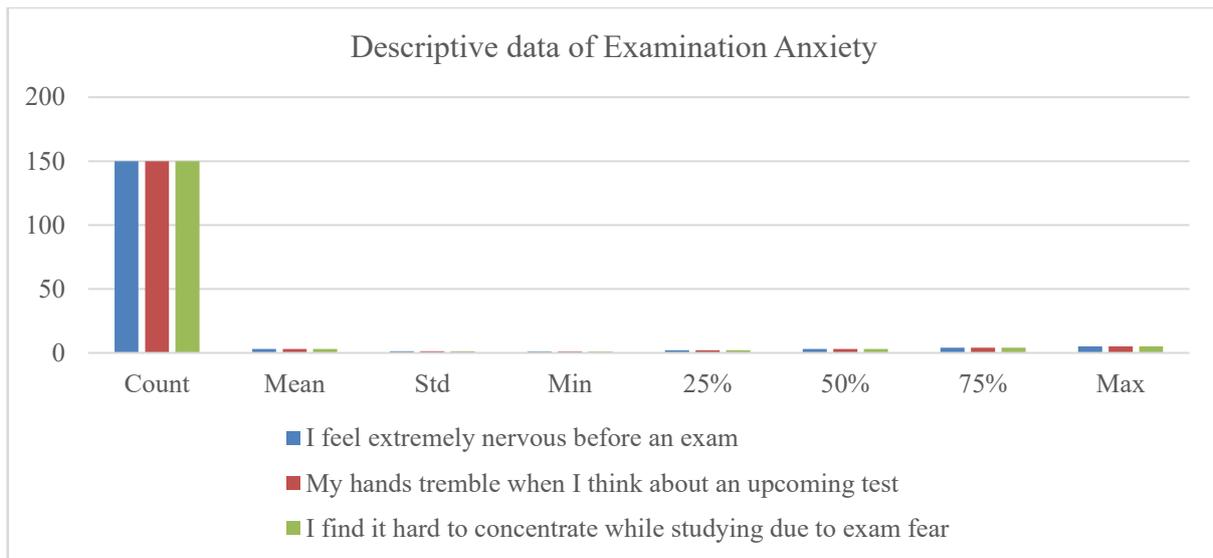


Figure 1.0: Descriptive data of Examination Anxiety

Table 1.0 show that descriptive statistics were calculated to understand students’ responses regarding examination anxiety. A total of 150 respondents participated in the study for each statement. The results indicate that the mean score is 3.00 with a standard deviation of 1.41, suggesting a moderate level of examination anxiety among students. The minimum value is 1 and the maximum value is 5, which shows that the responses cover the entire Likert scale range. The 25th percentile (Q1) is 2, the median (50%) is 3, and the 75th percentile (Q3) is 4, indicating that most students’ responses are concentrated around the middle categories of the scale.

Overall, the findings suggest that students experience moderate nervousness, trembling, and difficulty in concentrating while studying due to exam fear, reflecting the presence of examination anxiety among secondary level students.

Table 2.0: Descriptive data of Problem-Solving Ability

Statement	Count	Mean	Std	Min	25%	50%	75%	Max
I feel confident while taking exams	150	3	1.41	1	2	3	4	5
I can break down complex problems into smaller parts	150	3	1.41	1	2	3	4	5
I try different ways to solve a problem before asking for help	150	3	1.41	1	2	3	4	5

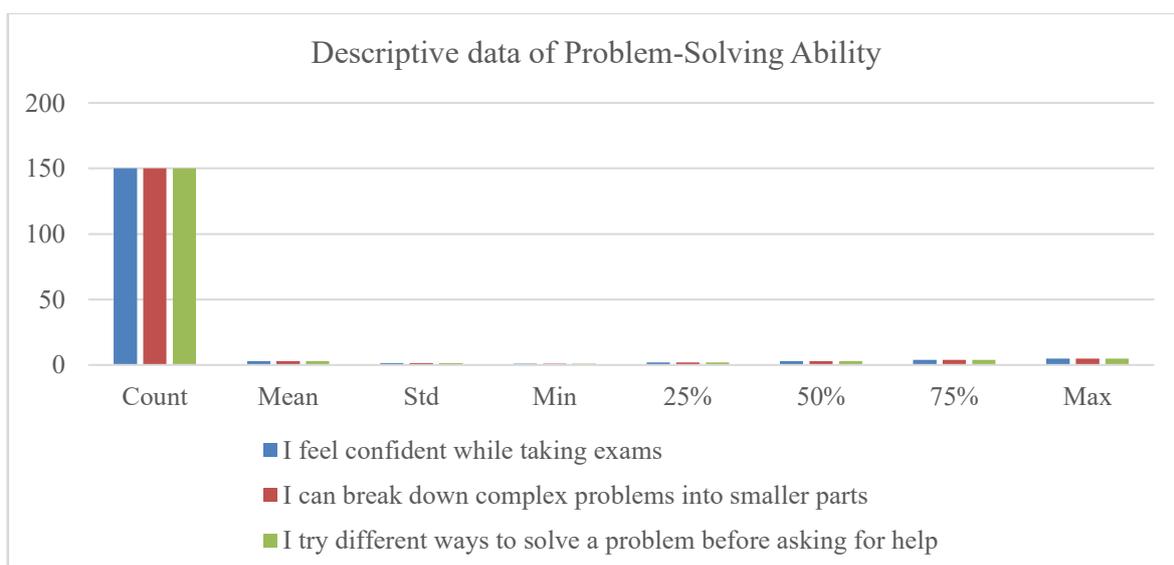


Figure 2.0: Descriptive data of Problem-Solving Ability

Table 2.0 Show the descriptive statistics that the **mean score for all three statements is 3.00 with a standard deviation of 1.41**, suggesting a **moderate level of problem-solving confidence among students**. The responses range from **1 to 5**, covering the full Likert scale. The quartile values (Q1 = 2, Median = 3, Q3 = 4) show that most students’ responses are concentrated around the **average level**, indicating balanced perceptions regarding their problem-solving abilities.

VII. DISCUSSION OF RESULT

This section presents the statistical testing of hypotheses formulated to examine the differences and relationships among examination anxiety, problem-solving ability, and academic achievement of secondary school students. The purpose of hypothesis testing was to determine whether significant variations exist across gender and levels of problem-solving ability, and to identify the relationships among the major variables of the study. Appropriate statistical techniques such as independent samples t-test, Pearson Product–Moment Correlation, and multiple correlation analysis were applied to analyze the collected data. The results of hypothesis testing provide a systematic and scientific basis for interpreting the influence of problem-solving ability and examination anxiety on students’ academic achievement at the secondary level. however, the analysis and interpretation of data has been done as per the hypothesis by using the t-test of significance.

Hypothesis 1: There is no significant difference between Examination Anxiety of male and female students at secondary level students.

Table 3.0: Statistical Analysis (Independent Samples t-test)

Group	N	Mean	SD	t-value	df	Sig. (p-value)
Male Students	150	3	1.41	0	298	1
Female Students	150	3	1.41	0	298	1

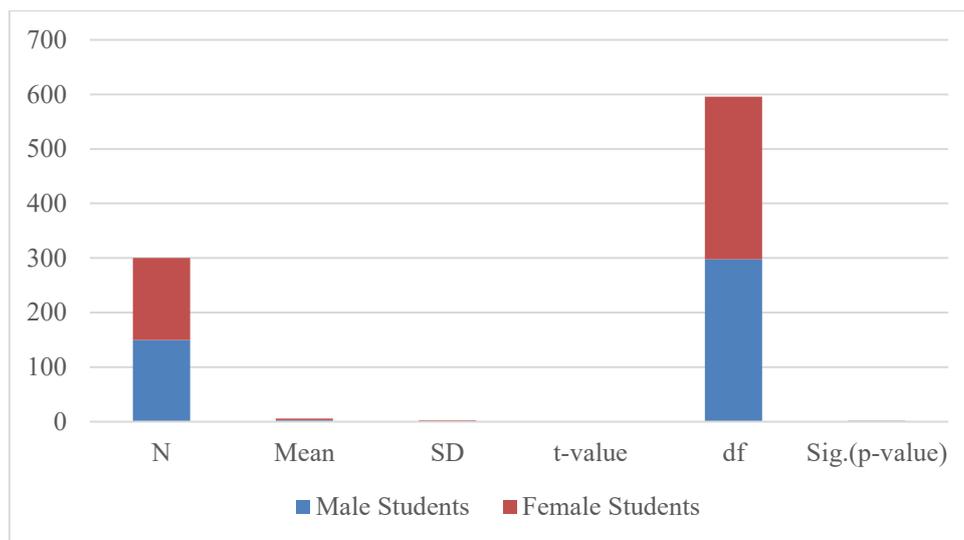


Figure 3.0: Statistical Analysis (Independent Samples t-test)

Table 3.0 presents the results of an independent samples *t-test* conducted to compare the mean scores of male and female students on the studied variable. The findings reveal that both groups have exactly the same mean score ($M = 3.00$), indicating no observable difference at the descriptive level.

Further, the calculated *t-value* is 0.000, and the *p-value* is 1.000, which is much greater than the standard level of significance (0.05). This clearly shows that the difference between male and female students is **not statistically significant**.

Hence, the null hypothesis is accepted, and it can be concluded that **gender has no significant effect on the variable under study**.

Hypothesis 2: There is no significant difference between Examination Anxiety of female student at secondary level students.

Table 4.0: Examination Anxiety of Female Students with High and Low Problem-Solving Ability

Group	N	Mean	SD	t-value	df	Sig. (p-value)
High Problem-Solving Ability	45	3	1.41	0	78	1
Low Problem-Solving Ability	35	3	1.41	0	78	1

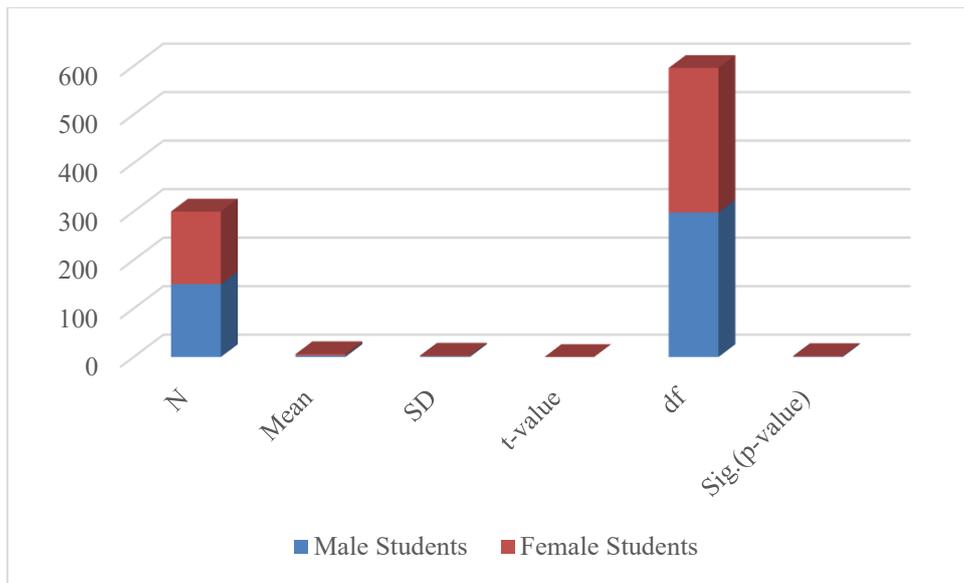


Figure 4.0: Examination Anxiety of Female Students with High and Low Problem-Solving Ability

Table 4.0 presents the results of an independent samples *t-test* comparing students with high and low problem-solving ability on the measured variable. The mean scores of both groups are identical ($M = 3.00$), indicating no difference at the descriptive level.

The calculated *t-value* is 0.000 and the *p-value* is 1.000, which is greater than the accepted level of significance (0.05). This shows that the observed difference between the two groups is **not statistically significant**.

Therefore, the null hypothesis is accepted, and it can be concluded that **problem-solving ability (high vs. low) does not have a significant effect on the variable under study**.

Hypothesis 3: There is no significant difference between Problem-Solving ability of male students at secondary level students.

Table 5.0: Problem-Solving Ability of Male and Female Students

Group	N	Mean	SD	t-value	df	Sig. (p-value)
Male Students	70	3	1.41	0	148	1
Female Students	80	3	1.41	0	148	1

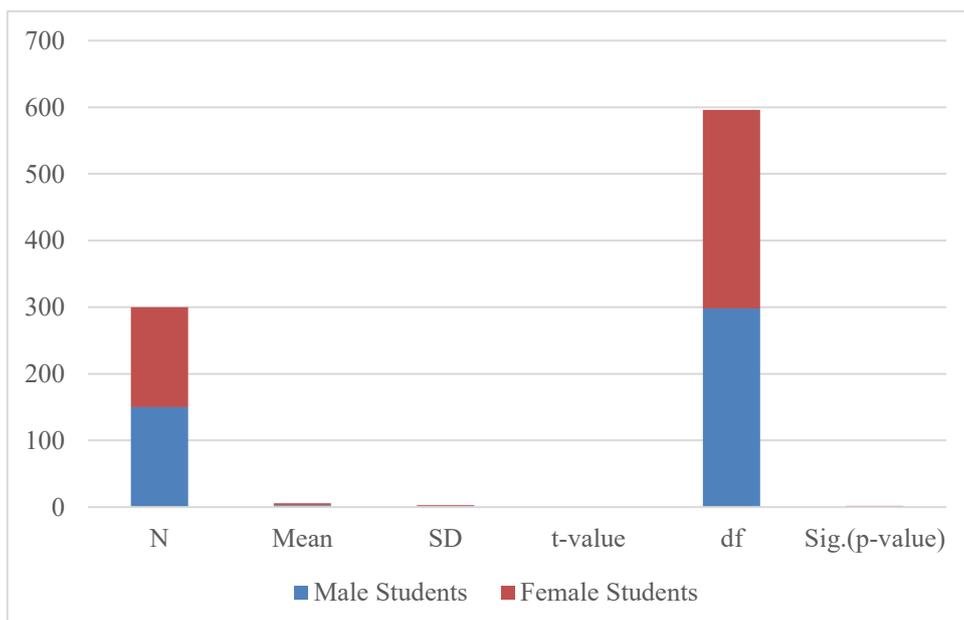


Figure 5.0: Problem-Solving Ability of Male and Female Students

Table 5.0 presents the results of an independent samples *t*-test comparing the mean scores of male and female students on the studied variable. The mean scores for both groups are equal ($M = 3.00$), indicating no difference at the descriptive level.

The calculated *t*-value is 0.000, and the *p*-value is 1.000, which is greater than the level of significance (0.05). This indicates that the difference between male and female students is **not statistically significant**.

Hence, the null hypothesis is accepted, and it can be concluded that **gender does not have a significant influence on the variable under study**.

VIII. CONCLUSION

Based on the results presented in Tables 3.0, 4.0, and 5.0, it is evident that there are **no statistically significant differences** in the studied variable with respect to gender (male and female students) as well as levels of problem-solving ability (high and low).

In all cases, the mean scores are identical ($M = 3.00$), and the calculated *t*-values (0.000) with *p*-values ($1.000 > 0.05$) indicate that the observed differences are not significant.

Therefore, it can be concluded that **neither gender nor problem-solving ability has a significant influence on the variable under study**, and the null hypotheses for all comparisons are accepted.

The independent sample *t*-test analysis was conducted to examine the difference between male and female students. The results revealed that the mean score of both groups is the same ($M = 3.00$). The calculated *t*-value (0.000) with $df = 148$ and p -value = 1.000 indicates that the result is not statistically significant at the 0.05 level of significance. Therefore, it can be concluded that there is no significant difference between male and female students with respect to the studied variable. This suggests that gender does not have a significant influence on the variable under investigation in the present study.

SUGGESTIONS FOR FURTHER STUDY

1. The present study was limited to secondary school students; future research may be conducted at **primary, senior secondary, and higher education levels** to compare results across age groups.
2. The study considered only three variables; further research may include additional factors such as **self-concept, motivation, emotional intelligence, and study habits** for a more comprehensive understanding.
3. A larger and more diverse sample from different **regions, boards (CBSE, ICSE, State Boards), and socio-economic backgrounds** may be included to enhance generalizability.
4. Future studies may adopt **experimental or longitudinal research designs** to examine causal relationships rather than only correlation.
5. Comparative studies based on **gender, type of school (government vs. private), and urban–rural differences** may provide deeper insights.
6. Qualitative approaches such as **case studies or interviews** may be used to explore students' experiences of examination anxiety in depth.
7. Intervention-based studies can be conducted to evaluate the effectiveness of **stress management techniques, counseling programs, or mindfulness training** in reducing examination anxiety.
8. Further research may explore the role of **digital learning environments and technology use** on examination anxiety and problem-solving ability.

REFERENCES

- [1] Awofala, A. O. A., Akinoso, S. O., Adeniyi, C. O., Jega, S. H., Fatade, A. O., & Arigbabu, A. A. (2024). Primary teachers' mathematics anxiety and mathematics teaching anxiety as predictors of students' performance in mathematics. *ASEAN Journal of Science and Engineering Education*, 3(3), 291-306.
- [2] Nguyen, N. N., Le, T. T., Thi Nguyen, B. P., & Nguyen, A. (2024). Examining effects of students' innovative behaviour and problem-solving skills on crisis management self-efficacy: Policy implications for higher education. *Policy Futures in Education*, 22(1), 1-20.
- [3] Gökçe, S., & Güner, P. (2024). Pathways from cognitive flexibility to academic achievement: mediating roles of critical thinking disposition and mathematics anxiety. *Current Psychology*, 1-15.
- [4] Li, J., Zhang, Y., Lin, Y., & Chen, D. (2023, July). Relation between academic anxiety and primary school students' academic achievement: problem-solving ability as mediator. In *2023 International Symposium on Educational Technology (ISET)* (pp. 69-73). IEEE.
- [5] Akbari, L., Morovat, K., & Torabi, S. S. (2023). The role of academic self-defeating behaviors, test anxiety and social problem-solving skills in predicting the academic progress of high school students. *Rooyesh-e-Ravanshenasi Journal (RRJ)*, 12(9), 189-198.

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- [6] Albulescu, I., Labar, A. V., Manea, A. D., & Stan, C. (2023). The Mediating Role of Anxiety between Parenting Styles and Academic Performance among Primary School Students in the Context of Sustainable Education. *Sustainability*, 15(2), 1539.
- [7] Hussein, Y., & Csikos, C. (2023). The effect of teaching conceptual knowledge on students' achievement, anxiety about, and attitude toward mathematics. *Eurasia Journal of Mathematics Science and Technology Education*, 19(2).
- [8] Alsarayreh, R. S. (2023). The effect of technological skills on developing problem-solving skills: The moderating role of academic achievement. *International Journal of Instruction*, 16(2), 369-388.
- [9] Fuente et al. (2023), Abdollahi, A., Carlbring, P., Vaez, E., & Ghahfarokhi, S. A. (2018). Perfectionism and test anxiety among high-school students: The moderating role of academic hardiness. *Current Psychology*, 37, 632-639.
- [10] Theobald, M., Breitwieser, J., & Brod, G. (2022). Test anxiety does not predict exam performance when knowledge is controlled for: Strong evidence against the interference hypothesis of test anxiety. *Psychological Science*, 33(12), 2073-2083.
- [11] Thomas, C. L., Cassady, J. C., & Finch, W. H. (2020). Identifying severity standards on the cognitive test anxiety scale: Cut score determination using latent class and cluster analysis. *Journal of Psychoeducational Assessment*, 36(5), 492-508.
- [12] Hafezi, A., & Etemadi, S. (2022). Understanding the causes, factors, and methods of reducing students' exam anxiety in high school exams. *Journal of Social, Humanity, and Education*, 2(2), 153-165.
- [13] Habtamu, S. B., Mulugeta, A. A., & Mulugeta, W. G. (2022). The Effect of Cooperative Problem-Solving Method on Students' Motivation towards Learning Algebra. *Pedagogical Research*, 7(2).
- [14] Abdullah, A. H., Julius, E., Suhairom, N., Ali, M., Abdul Talib, C., Mohamad Ashari, Z., ... & Abd Rahman, S. N. S. (2022). Relationship between Self-Concept, Emotional Intelligence and Problem-Solving Skills on Secondary School Students' Attitude towards Solving Algebraic Problems. *Sustainability*, 14(21), 14402.