Coping Mechanism on Math Anxiety Among Freshman College Students of Mindanao State University-Sulu

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ABSTRACT

This study examined the extent of coping mechanisms for math anxiety among freshman college students at Mindanao State University-Sulu. A descriptive-correlational research design was employed, involving 105 student-respondents selected through purposive sampling. The study assessed coping mechanisms in three dimensions: behavioral, cognitive, and somatic, while considering demographic variables such as gender, age, academic program, parents' average monthly income, and parents' educational attainment. Findings revealed that the majority of respondents were female, aged 18–20 years old, and evenly distributed across academic programs. Most students came from low-income families, with a significant percentage having parents who were college graduates. Students generally employed coping mechanisms at a moderate level, with behavioral, cognitive, and somatic strategies rated as "Partially Agree." No significant differences were found in behavioral and cognitive coping mechanisms across demographic factors, except for somatic responses, which were significantly higher among female students. Additionally, students' cognitive and somatic coping mechanisms varied significantly based on parents' average monthly income, suggesting that financial constraints may exacerbate math-related stress. Significant positive correlations were found among all three coping mechanisms, highlighting their interconnected nature. The study recommends stress management workshops, metacognitive training, and financial assistance programs at Mindanao State University-Sulu. Teachers may integrate anxiety-reducing strategies, parents may foster positive math attitudes, and students may develop self-regulation techniques. Peer and community support may help reduce stigma and promote collaboration. Future research may explore long-term interventions and technology-based solutions for math anxiety.

Keywords: Coping mechanism, math anxiety

INTRODUCTION

Math anxiety, a pervasive challenge among students, significantly impacts academic performance and emotional well-being. Research reveals that nearly half of U.S. middle and high school students experience math anxiety (Ashcraft & Ridley, 2005), a phenomenon that often persists into college. For freshmen, the transition to higher education amplifies this issue, as they navigate the demands of rigorous coursework, unfamiliar academic environments, and heightened expectations.

The transition to college is a significant milestone, filled with both excitement and apprehension. For many freshmen, the prospect of tackling challenging academic courses, especially mathematics, can trigger a wave of anxiety. At Mindanao State University – Sulu (MSU-Sulu), where academic excellence is a priority, understanding and addressing math anxiety among freshmen is crucial for their success. This a comprehensive exploration of coping mechanisms for math anxiety, specifically tailored for the unique experiences of freshmen at Mindanao State University – Sulu. We will delve into the root causes of this common struggle, examine its impact on academic performance and well- being, and ultimately, offer practical strategies for navigating these challenges. Math anxiety can become a debilitating condition, making it impossible for students to engage with the subject, leading them to avoid it entirely. (Hombree 1990) When math anxiety takes hold, it can paralyze students, making them desperately want to escape any interaction with mathematics.

According to a 2019 study, nearly half of all U.S. middle and high school students suffer from math anxiety—a problem that usually persists when they get to college. This phenomenon, in which anxiety and panic about math disrupts math performance, is well known as a hindrance to educational achievement (Ashcraft & Ridley, 2005). It can be more difficult for the freshmen college students, particularly if they are entering a new academic world like Mindanao State University-Sulu with all its attendant pressures from the demands of higher education and demanding professors.

Coping mechanisms are effective in reducing the negative effect of math anxiety. For managing anxiety and academic performance, studies have shown cognitive reframing, time management, seeking social support, and relaxation techniques to be among the important tools (Ramirez et al., 2013). When it comes to MSU-Sulu, knowing these mechanisms is essential for creating an academic environment conducive to mathematics and the overall success of students alike.

The present study seeks to discover the coping strategies that freshman college students at Mindanao State University-Sulu use to deal with math anxiety. This study will enhance understanding of the strategies students utilize, perhaps illuminating how academic institutions can support their learners and help them overcome challenges related to mathematics while building confidence in their academic journey.

Higher education is frequently fraught with difficulties, and math anxiety can be a major barrier for many freshmen students. This study explores the complex realm of coping methods used by Mindanao State University -Sulu freshmen, illuminating their distinct approaches to negotiating the maze of numbers. We can learn a great deal about the intricate relationship between academic pressure, personal resiliency, and the strength of support networks by comprehending the various strategies these students employ to cope with their fears. In addition to laying the groundwork for upcoming interventions, this investigation demonstrates how the human spirit can adapt and flourish in the face of adversity.

Addressing math anxiety among freshmen at Mindanao State University-Sulu is critical, as it not only affects individual academic trajectories but also reflects broader concerns about the accessibility and effectiveness of education in the region. By exploring this issue, the study highlights the importance of fostering an environment that supports both academic achievement and emotional resilience.

Statement of the Problem

This study investigated the coping mechanisms for math anxiety among freshmen college students at Mindanao State University-Sulu. Thus, this study sought to answer the following questions:

1. What was the demographic profile of freshmen college students in Mindanao State University-Sulu in terms of:

1.1   Gender,

1.2   Age,

1.3   Program taken,

1.4   Parents' Average Monthly Income, and

1.5   Parents' Educational Attainment?

2. What was the extent of coping mechanisms on math anxiety among freshman college students at Mindanao State University-Sulu in terms of:

2.1   Behavioral

2.2   Cognitive

2.3   Somatic

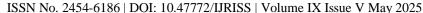3. Was there a significant difference in the extent of coping mechanisms on math anxiety among freshman college students at Mindanao State University-Sulu when data are grouped according to demographic profile?

3.1   Gender,

3.2   Age,

3.3   Program Taken,

3.4   Parents' average Monthly Income, and

3.5   Parents' Educational Attainment

4. Was there a significant correlation among the sub-categories subsumed under the extent of coping mechanisms on math anxiety among freshman college students at Mindanao State University-Sulu?

METODOLOHIYA

The method of research employed in this study was the descriptive-correlational method. According to Gay (1976, p. 69), descriptive-correlational design involved the collection of data in order to test the hypothesis and to answer questions concerning the current status of the subject of study. In relation to this research, the descriptive-correlational method was utilized because it was the most appropriate to gather data in order to answer the specific questions raised and to test the hypotheses related to this research as well. This study was conducted in Jolo, Sulu. Specifically, at MSU-Sulu 100 freshmen college students from three different colleges of MSU-Sulu selected through purposive sampling technique with the approval of the institutions head and target collegies deans.

Moreover, a survey questionnaire in a checklist form was used in this study comprised of two sectios, and it was adopted, patterned, and revised from Tobias' (1999) conceptualization of math anxiety and the Mathematics Anxiety Rating Scale (MARS) by Richardson and Suinn (1972), this questionnaire was subjected to the perusal of at least two experts from among the faculty members of the Graduate Studies of Sulu State College. The collected data were analyzed usins statistical tools such: frequency distribution and percentage, utilized mean and standard deviation, utilized t-test for gender and Analysis of Variance (ANOVA) for the rest of the profile to determine the significant difference. A Pearson product-moment correlation to determined the significant correlation among sub-categories on the extent of coping mechanisms.

RESULTS

The results based on the data gathered for this study. It provides insights into the coping mechanisms for math anxiety among freshmen college students at MSU-Sulu. Additionally, it examines the demographic profiles of student-respondents, including their gender, age, program taken, parents' average monthly income, and parents' educational attainment. The chapter also explores the extent of coping mechanisms on math anxiety among freshman college students at Mindanao State University-Sulu in terms of Behavioral, Cognitive, and Somatic. Furthermore, it investigates the significant correlations and differences in these sub-categories when classified according to the respondents' demographic profiles.

The presentations, analyses, and interpretations of results are based on the proper scoring and statistical treatment of the data, corresponding to each of the research questions outlined in this study.

1. What is the demographic profile of freshmen college students in MSU-Sulu in terms of: 1.1 Gender, 1.2 Age, 1.3 Program Taken, 1.4 Parents' Average Monthly Income, and 1.5 Parents' Educational Attainment?

In terms of Gender

Table 1.1 presents the demographic profile of freshman college students at MSU-Sulu based on gender. The data show that out of 105 respondents, 26 (24.8%) are male, while 79 (75.2%) are female.

Table 1.1 Demographic Profile of Freshmen College Students in Mindanao State University-Sulu by Gender

Gender	Number of respondents	Percent
Male	26	24.8
Female	79	75.2
Total	**105**	**100%**

In terms of Age

Table 1.2 presents the demographic profile of freshman college students at MSU-Sulu based on age. The data show that out of 105 respondents, 7 (6.7%) are aged 17 years old and below, 84 (80.0%) are aged between 18–20 years old, and 14 (13.3%) are aged 21 years old and above.

Table 1.2 Demographic Profile of Freshmen College Students in Mindanao State University-Sulu by Age

Age	Number of respondents	Percent
17 years old and below	7	6.7
18-20 years old	84	80.0
21 years old and above	14	13.3
Total	**105**	**100%**

In terms of Program Taken

Table 1.3 presents the demographic profile of freshman college students at MSU-Sulu based on the program they are enrolled in. The data show that out of 105 respondents, an equal number of students are enrolled in the College of Arts and Sciences (CAS) with 35 (33.3%), the College of Business Administration and Accountancy (CBAA) with 35 (33.3%), and the College of Education (COED) with 35 (33.3%).

Table 1.3 Demographic Profile of Freshmen College Students in Mindanao State University-Sulu by Program Taken

Program Taken	Number of respondents	Percent
CAS	35	33.3
CBAA	35	33.3
COED	35	33.3
Total	**105**	**100%**

In terms of Parents' Average Monthly Income

Table 1.4 presents the demographic profile of freshman college students at Mindanao State University-Sulu based on their parents' average monthly income. The data show that out of 105 respondents, 57 (54.3%) come

from families with a monthly income of ₱5,000 and below, 28 (26.7%) have parents earning between ₱5,001–₱10,000, and 20 (19.0%) belong to families with a monthly income of ₱10,001 and above.

Table 1.4 Demographic Profile of Freshmen College Students in Mindanao State University-Sulu by Parents' Average Monthly Income

Parents' Average Monthly Income	Number of respondents	Percent
5,000 pesos and below	57	54.3
5,001-10,000 pesos	28	26.7
10,001 pesos and above	20	19.0
Total	**105**	**100%**

In terms of Parents' Educational Attainment

Table 1.5 presents the demographic profile of freshman college students at Mindanao State University-Sulu based on their parents' educational attainment. The data show that out of 105 respondents, 31 (29.5%) have parents who are college graduates, 26 (24.8%) have parents who completed elementary education, 24 (22.9%) have parents who are high school graduates, 20 (19.0%) have parents with no formal education, and 4 (3.8%) have parents with post-graduate degrees.

Table 1.5 Demographic Profile of Freshmen College Students in MSU-Sulu by Parents' Educational Attainment

Parent's Educational Attainment	Number of respondents	Percent
No Formal Education	20	19.0
Elementary Graduate	26	24.8
High School Graduate	24	22.9
College Graduate	31	29.5
Post-Graduate	4	3.8
Total	**105**	**100%**

What is the extent of coping mechanisms on math anxiety among freshman college students at MSU-Sulu in terms of: 2.1 Behavioral, 2.2 Cognitive, and 2.3 Somatic?

In the context of Behavioral

Table 2.1 presents the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu in terms of behavioral responses. The data show that the total weighted mean is 3.1610, with a standard deviation of 0.48208, corresponding to an overall rating of "Partially Agree." This suggests that students employ behavioral coping mechanisms to some extent when dealing with math anxiety.

Among the statements, the highest-rated is "To hear my teacher's explanations of the mathematics materials, I always want to be seated in the front row" (Mean = 3.97, S.D. = 1.130), indicating that students generally agree that sitting in the front row helps them cope with their anxiety by improving their understanding of the lesson. Another highly rated statement is "If there is anything in mathematics that I do not understand, I always question my teacher" (Mean = 3.70, S.D. = 1.001), suggesting that many students actively seek clarification when struggling with mathematical concepts. Conversely, the lowest-rated statement is "I usually skip school when there is a mathematical topic, especially if geometry is being studied and requires a lot of computations" (Mean = 2.11, S.D. = 1.325), rated as "Disagree." This indicates that most students do not resort to avoiding school as a coping mechanism for math anxiety.

Table 2.1 Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu in Terms of Behavioral

	Statements	Mean	S.D	Rating
1	I usually skip school when there is a mathematical topic, especially if geometry is being studied and requires a lot of computations.	2.11	1.325	Disagree
2	I always give presentations in math class since I think math is a difficult subject particularly when it comes to geometry and numerous computations.	3.38	1.041	Partially Agree
3	I like to sit in the very back row of every math class since the teachers cannot see who is seated there, so I can be sure I won't be chosen to stand up	2.54	1.271	Partially Agree
4	To hear my teacher's explanations of the mathematics materials, I always want to be seated in the front row.	3.97	1.130	Agree
5	If there is anything in mathematics that I do not understand, I always question my teacher.	3.70	1.001	Agree
6	Math questions are tough for me, so I never respond to them.	2.84	1.153	Partially Agree
7	I always attempt to answer math questions, no matter how challenging they may be.	3.61	.995	Agree
8	I always take care while calculating the numbers, thus I often get asked questions about geometrical volume.	3.62	.955	Agree
9	I have no difficulty in doing questions about geometrical volume because I am always careful in calculating the numbers.	3.11	1.146	Partially Agree
10	I always refuse every time the teacher appoints me to go forward to answer about mathematics problem in front of the class because I am afraid that my friends will laugh at me if my answer is wrong.	2.72	1.275	Partially Agree
	Total Weighted Mean	**3.1610**	**.48208**	**Partially Agree**

Legend: (5) 4.50-5.00=Strongly Agree; (4) 3.50-4.49=Agree; (3) 2.50- 3.49=Partially Agree; (2) 1.50-2.49=Disagree; (1) 1.00- 1.49=Strong Disagree

In the context of Cognitive

Table 2.2 presents the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu in terms of cognitive responses. The data show that the total weighted mean is 3.3543, with a standard deviation of 0.51198, corresponding to an overall rating of "Partially Agree." This suggests that students moderately engage in cognitive coping mechanisms when dealing with math anxiety.

Among the statements, the highest-rated is "I always focus when working on all mathematics questions" (Mean = 3.67, S.D. = 0.906), indicating that students generally agree that maintaining focus while solving math problems is an essential cognitive strategy they use. Another highly rated statement is "I am not sure that my answers to mathematics problems are correct" (Mean = 3.52, S.D. = 0.991), suggesting that many students experience self-doubt in their mathematical computations. Conversely, the lowest-rated statement is "My chest feels tight when a friend teases me because of the mistake I made when answering math problems" (Mean = 3.04, S.D. = 1.263), rated as "Partially Agree." This suggests that while some students experience anxiety due to peer reactions, it is not a dominant cognitive response.
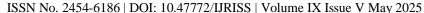
Table 2.2 Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu in Terms of Cognitive

	Statements	Mean	S.D	Rating
1	When working on a mathematics problem, I remember another thing making the time run out.	3.23	1.187	Partially Agree
2	Mathematics is a difficult subject, so the geometry formula is hard to remember.	3.30	1.009	Partially Agree
3	I always remember the things that I have to do even though the learning material is difficult to understand.	3.59	.885	Agree
4	I cannot focus working on mathematics problems that I do not understand.	3.33	1.132	Partially Agree
5	I always focus when working on all mathematics questions.	3.67	.906	Agree
6	I am not sure that my answers to mathematics problems are correct.	3.52	.991	Agree
7	My chest feels tight when a friend teases me because of the mistake I made when answering math problems	3.04	1.263	Partially Agree
8	I feel calm every time the teacher asks me to explain the answers to mathematics questions in front of the class	3.11	1.187	Partially Agree
9	I feel calm every time the teacher asks me to explain the answers to mathematics questions in front of the class	3.21	1.214	Partially Agree
10	My chest feels when I get a math score below 7	3.54	1.169	Agree
	Total Weighted Mean	**3.3543**	**.51198**	**Partially Agree**

Legend: (5) 4.50-5.00=Strongly Agree; (4) 3.50-4.49=Agree; (3) 2.50- 3.49=Partially Agree; (2) 1.50-2.49=Disagree; (1) 1.00- 1.49=Strong Disagree

In the context of Somatic

Table 2.3 presents the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu in terms of somatic responses. The data show that the total weighted mean is 3.2619, with a standard deviation of 0.55286, corresponding to an overall rating of "Partially Agree." This suggests that students experience moderate physical manifestations of math anxiety, such as nervousness, rapid heartbeat, and difficulty sleeping before tests.

Among the statements, the highest-rated is "I am aware of my failure in the previous mathematics test, and I will try to get a better score in the future" (Mean = 4.09, S.D. = 1.128), indicating that students generally agree that they use self-awareness and motivation as a coping mechanism to improve their future performance. Another highly rated statement is "My heart beats rapidly every time the teacher asks me to explain my answer to a mathematics problem in front of the class" (Mean = 3.52, S.D. = 1.119), suggesting that many students experience heightened anxiety in situations that require public mathematical explanations. Conversely, the lowest-rated statement is "I often go back and forth to the toilet to pee because I am worried that I will not be able to solve mathematical problems in the test tomorrow" (Mean = 2.36, S.D. = 1.153), rated as "Partially Agree." This suggests that while some students may experience physical symptoms of anxiety, such as frequent urination due to stress, it is not a dominant response among most students.

Table 2.3 Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu in Terms of Somatic

	Statements	Mean	S.D	Rating
1	I do not feel nervous when teacher appoint me to answer mathematics problem.	2.97	1.105	Partially Agree

2	If there is mathematics test tomorrow, then tonight, it will difficult to sleep because I will be thinking about the questions that will come out on the test tomorrow.	3.50	.932	Agree
3	I will sleep even though tomorrow there will be a mathematics test.	2.96	1.270	Partially Agree
4	I often back and forth to the toilet to pee because I am worried that I will not be solve mathematical problems in the test tomorrow.	2.36	1.153	Partially Agree
5	My heart beats rapidly every time the teacher distributes marked test papers.	3.49	1.084	Partially Agree
6	My heart beats rapidly every time the teacher asks me to explain my answer to mathematics problem in front of the class.	3.52	1.119	Agree
7	My feet tremble every time the teacher asks me to clarify the answer to mathematics questions in front of the class.	3.32	1.148	Partially Agree
8	I answered the questions in front of the class with confidence even though my answer was wrong. By doing so, I came to understand how to do it correctly.	3.39	1.042	Partially Agree
9	I always hide question papers from friends and papers when the score is below 70.	3.01	1.297	Partially Agree
10	I am aware of my failure in the previous mathematics test and I will try to get a better score in the future.	4.09	1.128	Agree
	Total Weighted Mean	**3.2619**	**.55286**	**Partially Agree**

Legend: (5) 4.50-5.00=Strongly Agree; (4) 3.50-4.49=Agree; (3) 2.50- 3.49=Partially Agree; (2) 1.50-2.49=Disagree; (1) 1.00- 1.49=Strong Disagree

Is there a significant difference in the extent of coping mechanisms on math anxiety among freshman college students at Mindanao State University-Sulu when data are grouped according to: 3.1 Gender, 3.2 Age, 3.3 Program Taken. 3.4 Parents' Average Monthly Income, and 3.5 Parents' Educational Attainment?

According to Gender

Table 3.1 presents the differences in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu when data are grouped according to gender. The table shows the mean, standard deviation, mean difference, t-values, and significance values (Sig.) for the behavioral, cognitive, and somatic coping mechanisms.

For behavioral coping mechanisms, the mean score for male students is 3.112 with a standard deviation of 0.40232, while for female students, it is 3.177 with a standard deviation of 0.50686. The computed t-value is -0.601, with a Sig. value of 0.549, which is above the alpha level of 0.05. This indicates that there is no significant difference in the extent of behavioral coping mechanisms between male and female students.

For cognitive coping mechanisms, male students have a mean score of 3.265 and a standard deviation of 0.50115, while female students have a mean score of 3.384 with a standard deviation of 0.51526. The t-value is -1.02, and the Sig. value is 0.310, which is also above 0.05, indicating that there is no significant difference in cognitive coping mechanisms between male and female students.

However, for somatic coping mechanisms, male students have a mean score of 3.058 with a standard deviation of 0.43283, while female students have a mean score of 3.329 with a standard deviation of 0.57360. The computed t-value is -2.21, and the Sig. value is 0.029, which is below the alpha level of 0.05, indicating a significant difference in somatic coping mechanisms between male and female students. This suggests that

female students experience significantly higher somatic responses to math anxiety, such as nervousness, increased heart rate, and sleep disturbances, compared to male students.

Table 3.1 Difference in the Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu When Data are Grouped According to Gender

Variables	Grouping	Mean	S.D	Mean Difference	t	Sig.	Description
Behavioral	Male	3.112	.40232	-.06568	-.601	.549	Not Significant
	Female	3.177	.50686				
Cognitive	Male	3.265	.50115	-.11816	-1.02	.310	Not Significant
	Female	3.384	.51526				
Somatic	Male	3.058	.43283	-.27142*	-2.21	.029	Significant
	Female	3.329	.57360				

Note. * Significant at alpha 0.05

According to Age

Table 3.2 presents the differences in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu when data are grouped according to age. The table shows the sum of squares, degrees of freedom (df), mean square, F-values, and significance values (Sig.) for behavioral, cognitive, and somatic coping mechanisms.

For behavioral coping mechanisms, the sum of squares between groups is 0.089, with a mean square of 0.044 and an F-value of 0.188. The corresponding Sig. value is 0.829, which is above the alpha level of 0.05, indicating that there is no significant difference in behavioral coping mechanisms among students of different age groups.

For cognitive coping mechanisms, the sum of squares between groups is 0.182, with a mean square of 0.091 and an F-value of 0.343. The Sig. value is 0.710, which is also above 0.05, indicating that there is no significant difference in cognitive coping mechanisms across age groups.

Similarly, for somatic coping mechanisms, the sum of squares between groups is 0.257, with a mean square of 0.129 and an F-value of 0.416. The Sig. value is 0.661, which is again above 0.05, confirming that there is no significant difference in somatic coping mechanisms among students of different ages.

Table 3.2 Difference in the Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu When Data are Grouped According to Age

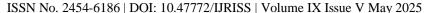| Sources of Variation		Sum of squares	df	Mean Square	F	Sig.	Description
Behavioral	Between Groups	.089	2	.044	.188	.829	Not Significant
	Within Groups	24.081	102	.236			
	Total	24.170	104				
Cognitive	Between Groups	.182	2	.091	.343	.710	Not Significant
	Within Groups	27.078	102	.265			
	Total	27.261	104				
Somatic	Between Groups	.257	2	.129	.416	.661	Not Significant
	Within Groups	31.530	102	.309			
	Total	31.788	104				

Note. * Significant at alpha 0.05

According to Program Taken

Table 3.3 presents the differences in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu when data are grouped according to the program taken. The table includes the sum of squares, degrees of freedom (df), mean square, F-values, and significance values (Sig.) for behavioral, cognitive, and somatic coping mechanisms.

For behavioral coping mechanisms, the sum of squares between groups is 0.385, with a mean square of 0.193 and an F-value of 0.826. The corresponding Sig. value is 0.441, which is above the alpha level of 0.05, indicating that there is no significant difference in behavioral coping mechanisms among students from different programs.

For cognitive coping mechanisms, the sum of squares between groups is 0.299, with a mean square of 0.149 and an F-value of 0.565. The Sig. value is 0.570, which is also above 0.05, indicating that there is no significant difference in cognitive coping mechanisms across different academic programs.

Similarly, for somatic coping mechanisms, the sum of squares between groups is 0.332, with a mean square of 0.166 and an F-value of 0.538. The Sig. value is 0.586, which is again above 0.05, confirming that there is no significant difference in somatic coping mechanisms among students enrolled in different programs.

Table 3.3 Difference in the Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu When Data are Grouped According to Program Taken

Sources of Variation		Sum of squares	df	Mean Square	F	Sig.	Description
Behavioral	Between Groups	.385	2	.193	.826	.441	Not Significant
	Within Groups	23.785	102	.233			
	Total	24.170	104				
Cognitive	Between Groups	.299	2	.149	.565	.570	Not Significant
	Within Groups	26.962	102	.264			
	Total	27.261	104				
Somatic	Between Groups	.332	2	.166	.538	.586	Not Significant
	Within Groups	31.456	102	.308			
	Total	31.788	104				

Note. * Significant at alpha 0.05

According to Parents' Average Monthly Income

Table 3.4 presents the differences in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu when data are grouped according to parents' average monthly income. The table includes the sum of squares, degrees of freedom (df), mean square, F-values, and significance values (Sig.) for behavioral, cognitive, and somatic coping mechanisms.

For behavioral coping mechanisms, the sum of squares between groups is 0.704, with a mean square of 0.352 and an F-value of 1.53. The corresponding Sig. value is 0.221, which is above the alpha level of 0.05, indicating that there is no significant difference in behavioral coping mechanisms among students from different income groups.

For cognitive coping mechanisms, the sum of squares between groups is 1.969, with a mean square of 0.984 and an F-value of 3.97. The Sig. value is 0.022, which is below the 0.05 threshold, indicating a significant difference in cognitive coping mechanisms when students are grouped based on their parents' income. This

suggests that students from different income brackets employ varying cognitive strategies in dealing with math anxiety.

Similarly, for somatic coping mechanisms, the sum of squares between groups is 2.227, with a mean square of 1.113 and an F-value of 3.84. The Sig. value is 0.025, which is also below 0.05, confirming a significant difference in somatic coping mechanisms among students from different income levels. This suggests that students from different economic backgrounds experience varying levels of somatic responses to math anxiety.

Table 3.4 Difference in the Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu When Data are Grouped According to Parents' Average Monthly Income

Sources of Variation		Sum of squares	df	Mean Square	F	Sig.	Description
Behavioral	Between Groups	.704	2	.352	1.53	.221	Not Significant
	Within Groups	23.466	102	.230			
	Total	24.170	104				
Cognitive	Between Groups	1.969	2	.984	3.97*	.022	Significant
	Within Groups	25.292	102	.248			
	Total	27.261	104				
Somatic	Between Groups	2.227	2	1.113	3.84*	.025	Significant
	Within Groups	29.561	102	.290			
	Total	31.788	104				

Note. * Significant at alpha 0.05

Table 3.4.1 presents the results of a Post Hoc Analysis using Tukey's test to identify pairwise differences in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu, when data are grouped according to parents' average monthly income. The analysis highlights significant differences in cognitive and somatic coping mechanisms across income groups.

Cognitive Coping Mechanisms

- The mean difference between students from families earning ₱5,000 and below and those from families earning ₱10,001 and above is -0.30518, with a significance value of 0.45 (p > 0.05).

- Since the p-value is greater than 0.05, this difference is not statistically significant, indicating that cognitive coping strategies are not significantly influenced by parental income levels.

Somatic Coping Mechanisms

- The mean difference between students from families earning ₱10,001 and above and those earning ₱5,000 and below is -0.57714, which is significant at the 0.05 level (Sig. = 0.026). This suggests that students from higher-income families experience significantly lower somatic (physiological) responses to math anxiety compared to those from lower-income families.

- Similarly, the mean difference between students from families earning ₱10,001 and above and those earning ₱5,001–₱10,000 is -0.68000, also significant at the 0.05 level (Sig. = 0.006). This means that students from the highest-income bracket show significantly fewer physical symptoms of math anxiety compared to middle-income students.
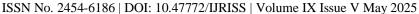
Table 3.4.1 Multiple Comparison in the Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at Mindanao State University-Sulu When Data are Grouped According to Parents' Average Monthly Income

Dependent Variable	(I) Grouping by Parents' Average Monthly Income	(J) Grouping by Parents' Average Monthly Income	Mean Difference (I-J)	Std. Error	Sig.
Cognitive	5,000 pesos and below	10,001 pesos and above	-.30518*	.12275	0.45
Somatic	10,001 pesos and above	5,000 pesos and below	-0.57714*	0.20142	0.026
		5,001-10,000 pesos	-0.68*	0.20142	0.006

Note. * The mean difference is significant at the 0.05 level

According to Parents' Educational Attainment

Table 3.5 presents the differences in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu, when data are grouped according to parents' educational attainment. The table includes the sum of squares, degrees of freedom (df), mean square, F-values, and significance values (Sig.) for behavioral, cognitive, and somatic coping mechanisms.

For behavioral coping mechanisms, the sum of squares between groups is 1.164, with a mean square of 0.291 and an F-value of 1.265. The corresponding Sig. value is 0.289, which is above the alpha level of 0.05, indicating that there is no significant difference in behavioral coping mechanisms among students from different parental educational backgrounds.

For cognitive coping mechanisms, the sum of squares between groups is 1.372, with a mean square of 0.343 and an F-value of 1.324. The Sig. value is 0.266, which is also greater than 0.05, indicating that there is no significant difference in cognitive coping mechanisms when students are grouped based on their parents' educational attainment. This suggests that students from different parental education levels employ similar cognitive strategies when dealing with math anxiety.

Similarly, for somatic coping mechanisms, the sum of squares between groups is 1.686, with a mean square of 0.422 and an F-value of 1.400. The Sig. value is 0.239, which is also above 0.05, confirming that there is no significant difference in somatic coping mechanisms among students from different parental education levels. This suggests that students, regardless of their parents' education, experience similar levels of somatic responses to math anxiety.

Table 3.5 Difference in the Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at MSU-Sulu When Data are Grouped According to Parents' Educational Attainment

Sources of Variation		Sum of squares	df	Mean Square	F	Sig.	Description
Behavioral	Between Groups	1.164	4	.291	1.265	.289	Not Significant
	Within Groups	23.006	100	.230			
	Total	24.170	104				
Cognitive	Between Groups	1.372	4	.343	1.324	.266	Not Significant
	Within Groups	25.889	100	.259			
	Total	27.261	104				

Somatic	Between Groups	1.686	4	.422	1.400	.239	Not Significant
	Within Groups	30.102	100	.301			
	Total	31.788	104				

Note. * Significant at alpha 0.05

Is there a significant correlation among the subcategories subsumed under the extent of coping mechanisms on math anxiety among freshman college students at MSU-Sulu?

As shown in table 4. The degrees of correlation among the subcategories are as follows:

1. A high positive correlation (r = 0.630, Sig. = 0.000) is observed between behavioral and cognitive coping mechanisms, suggesting that students who exhibit strong behavioral coping strategies also tend to engage in cognitive coping mechanisms.
2. A high positive correlation (r = 0.523, Sig. = 0.000) is observed between behavioral and somatic coping mechanisms, indicating that students who adopt behavioral coping strategies also tend to experience physical (somatic) responses to math anxiety.
3. A high positive correlation (r = 0.565, Sig. = 0.000) is observed between cognitive and somatic coping mechanisms, implying that students who employ cognitive coping strategies also experience physiological reactions related to math anxiety.

Table 4 Correlations among the Sub-categories Subsumed Under the Extent of Coping Mechanisms on Math Anxiety Among Freshman College Students at Mindanao State University-Sulu

Variables		Pearson *r*	Sig.	N	Description
Dependent	**Independent**				
Behavioral	**Cognitive**	.630**	.000	105	High
	Somatic	.523**	.000	105	High
Cognitive	**Somatic**	.565**	.000	105	High

Note. **Correlation coefficient is significant at alpha .01

Correlation Coefficient Scales Adopted from Hopkins, Will (2002):

0.0-0.1 = Nearly Zero; 0.1-0.3 = Low; 0.3-0.5 = Moderate; 0.5-0.7 = High; 0.7-0.9 = Very High; 0.9-1 = Nearly Perfect.

DISCUSSION

The discussion provides insights into the coping mechanisms for math anxiety among freshmen college students at MSU-Sulu. Additionally, it examines the demographic profiles of student-respondents, including their gender, age, program taken, parents' average monthly income, and parents' educational attainment. The chapter also explores the extent of coping mechanisms on math anxiety among freshman college students at MSU-Sulu in terms of Behavioral, Cognitive, and Somatic. Furthermore, it explained the significant correlations and differences in these sub-categories when classified according to the respondents' demographic profiles.

The demographic profile of freshmen college students in Mindanao State University-Sulu in terms of: 1.1 Gender, 1.2 Age, 1.3 Program Taken, 1.4 Parents' Average Monthly Income, and 1.5 Parents' Educational Attainment.

The demographic profile of the freshman college students at Mindanao State University – Sulu reveals that the majority are female, aged between 18 and 20, and enrolled across all three colleges. Most students come from

low-income households, with over half reporting a monthly family income of ₱5,000 or below. Regarding parental education, a significant portion completed only elementary or high school, while a small percentage have parents with post-graduate degrees. These findings suggest that many students face economic challenges and may lack academic support at home, which could impact their educational experiences and outcomes.

The extent of coping mechanisms on math anxiety among freshman college students at MSU-Sulu in terms of: 2.1 Behavioral, Cognitive, and Somatic.

The some students engage in positive coping behaviors, such as asking questions and positioning themselves strategically in class, others exhibit avoidance tendencies, such as avoiding participation in math-related activities. According to Ramirez et al. (2016), students with higher math anxiety often develop distinct coping strategies, where some actively seek support while others withdraw from participation, which can affect their overall learning experience. Developing intervention strategies, such as fostering a supportive learning environment and promoting self-efficacy, can help students manage math-related stress more effectively.

Freshman college students at MSU-Sulu generally partially agree with employing coping mechanisms for math anxiety across behavioral, cognitive, and somatic responses. Behaviorally, students engage in coping strategies to some extent. Cognitively, they moderately apply focus and self-regulation techniques. Somatically, students experience moderate physical symptoms such as nervousness and increased heart rate. These findings suggest that while students utilize coping strategies, their effectiveness varies across different aspects of anxiety management.

The students attempt to stay focused and recall mathematical concepts, they also experience uncertainty, difficulty in remembering formulas, and emotional responses when faced with math-related challenges. According to Maloney and Beilock (2015), math anxiety can impair cognitive processing, making it difficult for students to retrieve and apply learned information effectively. Interventions such as metacognitive strategies and relaxation techniques can help students develop stronger cognitive coping mechanisms for math anxiety.

The extent of coping mechanisms on math anxiety among freshman college students at MSU-Sulu when data are grouped according to respondent's demographic profile.

The gender does not significantly impact the extent of behavioral and cognitive coping mechanisms for math anxiety, but it does have a significant effect on somatic coping mechanisms. Therefore, the hypothesis stating that "There is no significant difference in the extent of coping mechanisms for math anxiety among freshman college students at Mindanao State University-Sulu when data are grouped according to gender" is accepted.

The students' behavioral, cognitive, and somatic coping mechanisms for math anxiety are not significantly influenced by their parents' educational attainment. This implies that freshman college students, regardless of whether their parents have no formal education, are elementary graduates, high school graduates, college graduates, or postgraduates, exhibit similar coping mechanisms for math anxiety. Therefore, the hypothesis stating that "There is no significant difference in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu when data are grouped according to parents' educational attainment" is accepted.

The students' cognitive and somatic coping mechanisms for math anxiety are significantly influenced by their parents' income, while behavioral coping mechanisms remain similar across different income groups. This may imply that students from lower-income families may experience higher cognitive stress and somatic symptoms due to financial constraints affecting their academic confidence and preparedness. Therefore, the hypothesis stating that "There is no significant difference in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu when data are grouped according to parents' average monthly income" is rejected.

The academic program taken does not significantly impact the extent to which students use behavioral, cognitive, or somatic coping mechanisms for math anxiety. This implies that freshman college students,

regardless of whether they are enrolled in the College of Arts and Sciences (CAS), College of Business Administration and Accountancy (CBAA), or College of Education (COED), tend to exhibit similar coping responses when dealing with math anxiety. Therefore, the hypothesis stating that "There is no significant difference in the extent of coping mechanisms for math anxiety among freshman college students at Mindanao State University-Sulu when data are grouped according to the program taken" is accepted.

Age does not significantly impact the extent to which students use behavioral, cognitive, or somatic coping mechanisms for math anxiety. This implies that freshman college students, regardless of age, tend to exhibit similar coping responses when dealing with math anxiety. Therefore, the hypothesis stating that "There is no significant difference in the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu when data are grouped according to age" is accepted.

No significant differences were found in the extent of behavioral and cognitive coping mechanisms for math anxiety among freshman college students at Mindanao State University-Sulu when grouped by gender, age, academic program, and parents' educational attainment. However, a significant difference was observed in somatic coping mechanisms based on gender, with female students experiencing higher physiological responses to math anxiety. Additionally, students' cognitive and somatic coping mechanisms varied significantly based on parents' average monthly income, suggesting that students from lower-income families may experience greater math-related stress.

Moreover, findings indicate that coping mechanisms for math anxiety remain largely consistent across demographic factors, except for gender differences in somatic responses and the influence of financial constraints on cognitive and somatic coping mechanisms. This supports research emphasizing that math anxiety is influenced more by self-efficacy, learning strategies, and environmental factors rather than demographic variables (Ramirez et al., 2016; Pizzie & Kraemer, 2019).

The correlation among the subcategories subsumed under the extent of coping mechanisms on math anxiety among freshman college students at MSU-Sulu.

Table 4 presents the correlations among the subcategories subsumed under the extent of coping mechanisms for math anxiety among freshman college students at Mindanao State University-Sulu. The computed Pearson correlation coefficients (r) between these variables indicate statistically significant relationships at an alpha level of 0.01 for all subcategories. Therefore, the hypothesis stating that "There is no significant correlation among the subcategories subsumed under the extent of coping mechanisms for math anxiety among freshman college students at MSU-Sulu" is rejected.

These suggested that all three coping mechanisms—behavioral, cognitive, and somatic—are significantly interconnected, with students who rely on one strategy often exhibiting the other two as well. According to Mammarella et al. (2023) mathematics anxiety encompasses various dimensions, including behavioral, cognitive, emotional, and psychophysiological aspects. These components collectively influence how individuals experience and cope with anxiety related to mathematical tasks. Understanding these dimensions is crucial for developing effective interventions.This supports the notion that math anxiety is a multidimensional experience, affecting thoughts, behaviors, and physical responses simultaneously. Furthermore, these results align with existing research emphasizing that math anxiety is a multidimensional experience, affecting thoughts, behaviors, and physiological responses simultaneously (Ramirez et al., 2018).

The implication of this study is that addressing math anxiety among freshmen at MSU-Sulu requires a multifaceted approach that considers behavioral, cognitive, and somatic coping mechanisms. The findings indicate that while students employ various strategies to manage math anxiety, their effectiveness varies across different aspects. Notably, gender influences somatic responses, with female students reporting higher physiological symptoms, while parental income significantly affects cognitive and somatic coping strategies. These insights suggest that interventions should be tailored to address the specific needs of students, incorporating strategies that enhance self-efficacy, provide emotional support, and promote positive coping mechanisms. By adopting a holistic approach, educators can better support students in overcoming math anxiety, leading to improved academic performance and overall well-being.
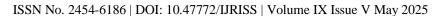
CONCLUSION

The study concludes that:

1. The demographic profile of freshman college students at Mindanao State University-Sulu shows a predominance of female students, those aged 18–20 years old, and an even distribution across academic programs. A significant portion of students come from low-income families, with many having parents who are college graduates, suggesting that socioeconomic background may influence academic engagement and learning opportunities.

2. Students partially agree with employing coping mechanisms for math anxiety, utilizing behavioral, cognitive, and somatic strategies to varying degrees.

3. The extent of coping mechanisms remains consistent across demographic factors, except for gender differences in somatic responses, where female students experience higher physiological symptoms of math anxiety. Additionally, students from lower-income families demonstrate higher cognitive and somatic stress.

4. Significant positive correlations were found among behavioral, cognitive, and somatic coping mechanisms, reinforcing the interconnected nature of math anxiety.

5. These findings highlight the importance of targeted support programs, such as stress management workshops, metacognitive training, and financial assistance, in helping students develop more effective coping strategies for math anxiety at Mindanao State University-Sulu.

RECOMMENDATIONS

This study recommends the following:

1. School administrators at Mindanao State University-Sulu may develop and implement targeted support programs, including stress management workshops, metacognitive training, and financial assistance programs, to help students develop effective coping strategies for math anxiety.

2. Teachers may integrate anxiety-reducing techniques into their instruction, such as growth mindset activities, relaxation techniques, and confidence-building exercises, to help students manage math-related stress.

3. Parents of students at Mindanao State University-Sulu may take an active role in supporting their children's emotional and academic well-being by fostering a positive attitude toward mathematics at home, providing encouragement, and reinforcing healthy study habits.

4. Students may take personal responsibility for developing coping mechanisms, such as time management, self-regulation, and peer support, to enhance their confidence in math. They may actively seek help from teachers, peers, and academic resources when struggling with math anxiety and engage in study groups to improve their learning experience.

5. Peers and the local community in Sulu may help create a supportive learning environment by reducing math-related stigma and promoting a culture of encouragement and academic collaboration. Peer mentoring programs and community-led academic initiatives may be established to help students struggling with math anxiety build confidence and resilience.

6. Future research in Mindanao State University-Sulu and other educational institutions in Sulu may also investigate the role of technology-assisted interventions, such as math anxiety reduction apps, gamified learning, and virtual peer tutoring, in helping students develop effective coping strategies.

Ethical Standards

Ethical considerations are crucial in this research to ensure the protection and respect of participants. Researchers prioritized participants' well-being, obtain informed consent, maintain confidentiality, and avoid harm. These principles are foundational in guiding research practices and safeguarding the integrity of the study.

ACKNOWLEDGEMENT

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