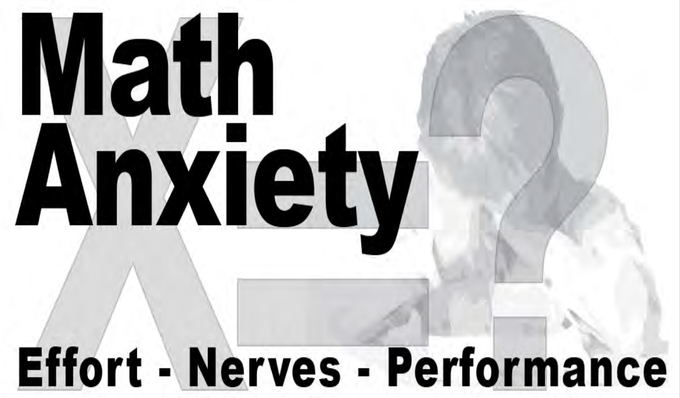

Math Anxiety: A Mixed Method Exploratory Study of Data Collected from Northern New Mexico College Students In Upper and Lower Levels of Math Classes To Examine Whether Taking More Math Classes Increased Or Decreased Math Anxiety

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Abstract

The purpose of this research is exploratory. Presented in this poster will be functional for students and professionals to learn how to help decrease the affects of stress one will undergo during their collage career.

Statement of the Problem

Many college students experience some sort of stress during their college career. Students struggling with math anxiety, while seeking STEM degrees such as biology, may have to take many more math classes than a non-stem.

Theory

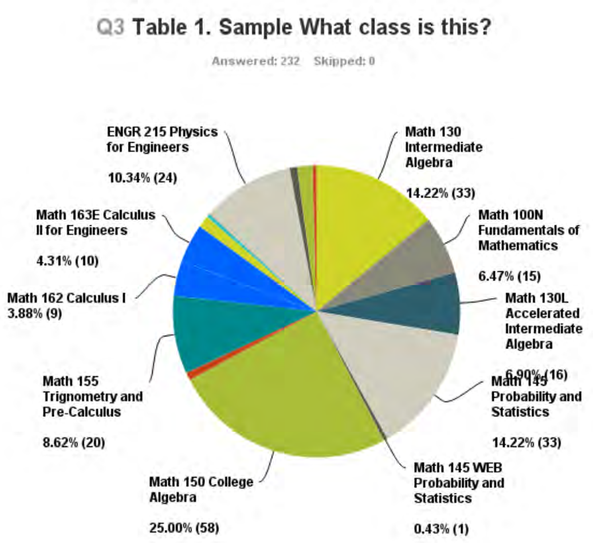
The theory is that math anxiety may prevent college students from pursuing stem degrees such as biology and psychology, because of the math load. Math anxiety is probably higher in stem degree majors than non degree majors. College students may be unaware of their stress levels. Methods to reduce stress by students often include effective time management, social support, positive reappraisal, and engagement in leisure pursuits (Blake & Vandiver, 1988; Mattlin, Wethington, & Kessler, 1990).

Hypotheses

My hypothesis is that more math classes will reduce anxiety. The null hypothesis would suggest that math anxiety and number of math classes are not related. Another hypothesis is to consider is whether fewer math classes will increase feeling of anxiety in math classes.

Data Collection & Methods

The research that was collected was from a census of math classes for math anxiety, also collected a sample from ten entering freshmen declaring biology majors. The math and biology students varied from educational level, ethnicity, and gender. The pie chart below represents the classes that were sampled within the Northern New Mexico College campus.



Analysis & Findings

The analysis method that is being used in Table 2 is univariate distributions. The reason univariate dispersion is being used is because this is the first descriptive stages of the research and is an analysis of the results of one question at a time.

The Likert Scale represents responses to the dependent variable from the students at Northern New Mexico College.

Responding to a variety of questions with a seven point scale which has allowed them to express what may cause math anxiety and how anxious they feel about math.

	not at all	somewhat	moderately	quite a bit	very much	Total	Weighted Average
Being given a homework assignment of many difficult problems which is due the next class meeting.	9.38% 9	18.75% 18	28.13% 27	18.75% 18	25.00% 24	96	3.31
Thinking about an upcoming math test one day before.	14.58% 14	12.50% 12	23.96% 23	30.21% 29	18.75% 18	96	3.26
Taking an examination in a math course.	10.42% 10	25.00% 24	18.75% 18	22.92% 22	22.92% 22	96	3.23
Being given a "pop" quiz in a math class.	10.53% 10	23.16% 22	28.42% 27	13.68% 13	24.21% 23	95	3.18
Overall, How anxious are you about math?	20.21% 19	22.34% 21	27.66% 26	15.96% 15	13.83% 13	94	2.81
Starting a new chapter in a math book.	30.53% 29	26.32% 25	29.47% 28	5.26% 5	8.42% 8	95	2.35
Watching a teacher work an algebraic equation on the blackboard.	41.67% 40	23.96% 23	18.75% 18	5.21% 5	10.42% 10	96	2.19
Listening to a lecture in math class.	54.17% 52	17.71% 17	14.58% 14	7.29% 7	6.25% 6	96	1.94
Listening to another student explain a math formula.	46.32% 44	28.42% 27	15.79% 15	5.26% 5	4.21% 4	95	1.93
Having to use the tables in the back of a math book.	47.31% 44	23.66% 22	22.58% 21	3.23% 3	3.23% 3	93	1.91
next class meeting.	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0	0.00

•The analysis method being used to analyze the data (see Table 5) is Qualitative Content Analysis known as "The study of recorded human communications" (Babie 2010).

•Qualitative methods provide more detail to explain the options that students have in regard required math classes.

•Stem students include engineering, biology, psychology as for the non-stem students which includes business administration, elementary education, business management, nursing, substance abuse and the others fall into the category of undecided and unclassified.

•Math anxiety is probably higher in stem degree majors than non degree majors.

Analysis & Findings

Qualitative Content Analysis of Respondents Answers to the Question: "What is Your Major?"

Themes	Subthemes	Meaning Units	Frequency (%)
STEM		"electrical/mechanical"	3 (3.85%)
		"engineering"	15 (19.23%)
		"biology"	2 (2.56%)
		"psychology"	5 (6.41%)
Non_STEM		"Business Administration"	2 (2.56%)
		"elementary education"	2 (2.56%)
		"business management"	2 (2.56%)
		"Nursing"	11 (14.10%)
		"N/A maybe substance abuse"	2 (2.56%)
undecided		"dont have one" (1)	
unclassified		"wild loud fire" (1)	

Conclusion

My conclusion states that having to taken more math classes suggest that increases will occur in math anxiety. Therefore I will have to reject my null hypothesis, which suggests that math anxiety and the number of math classes are not related. My results were suggestive rather than confirmatory due to the small sample size of classes surveyed at Northern New Mexico College.

Ethics

The proposed research was administered by me the researcher. I have completed an online research ethics course through the National Institutes of Health. My research has informed all participants regarding Human Subjects' rights.

Acknowledgements

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References:

Babbie, Earl. *The Practice of Social Research, 13th edition, Belmont, CA: Wadsworth, 2011,* Cannella & Scoloveno 2003: Grant, Wardle & Steptoe 2009: Mowad 2004; Yarcheski, & Cannella 2004, Blake & Vandiver, 1988; Mattlin, Wethington, & Kessler, 1990