

The Psychology of Math Anxiety, Data Collected on Students Taking a Math Course in Spring 2017: An Exploratory Examination

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Abstract

This is a study to analyze the affects of math anxiety on students. In theory the research suggests that math anxiety does affect student performance. The hypothesis for this study is that students with higher math anxiety are more likely to have lower grades or dropout. My null hypotheses would suggest that math anxiety and performance are unrelated. My number of respondents or n would equal to 43 students who took part in the survey. Of those 43, 67% or 29 of them were in Math 150 College Algebra and the remaining 32% or 14 were taken from Math 130 Intermediate Algebra. Out of a total of 57 students in the combined courses, I had a high response rate with only 14 students missing or not filling out a survey with a total of 43 complete. This analysis consists of univariate distributions which is studying anxiety using qualitative and quantitative data.

Statement of the Problem

The purpose of this study would exploratory in understanding how math anxiety affects a college student over the time they are enrolled in a math class in a semester. It is known that students crack under pressure but it needs to be understood how math anxiety causes this and, find if there are ways to prevent it. A study was done on Freshman students at a University and results showed standardized test scores and math had a negative relationship and there were also negative results between math anxiety and final grades. (Andrews, Amanda, and Jennifer Brown, 'The Effects of Math Anxiety,' 2015:362-370). By preventing math anxiety this could help math students focus on classes more, have less stress from school, become better learners, etc. without having to hold back because of the fear math is giving them that they are going to fail.

Theory

•The theory I have for this study is that math anxiety should not affect a students performance in their math course or in any other courses. By studying the impact math anxiety has on students it should help in understanding where there can be improvement to help them

Hypotheses

•The hypotheses I have is that students with higher math anxiety are more likely to have lower grades in their classes or dropout. The null hypothesis would suggest that math anxiety and performance are unrelated.

Data Collection and Methods

I was unable to use a random sample due to our smaller sample size at NNMC so, using purposive and convenience sampling, I was able to choose the math courses I wanted to study. After choosing I handed out surveys to three different classrooms. One class was Math 130 and the other two were Math 150.

Data Analysis and Finding

Students appear to have higher anxiety when they are presented with any kind of test, quiz, or homework assignment that they perceive is of higher difficulty than assignments or problems that are assigned and explained in the classroom. There is a mixed response of anxiety when students are listening to the teacher explain a problem but have very little anxiety when a fellow student is explaining instead.

•Table 2. Dependent Variable Responses to "How anxious do you typically feel when:"

	not at all	somewhat	moderately	quite a bit	very much	Total	Weighted Average
Being given a "pop" quiz in a math class.	11.90% 5	14.29% 6	19.05% 8	26.19% 11	28.57% 12	42	3.45
Taking an examination in a math course.	7.14% 3	26.19% 11	16.67% 7	21.43% 9	28.57% 12	42	3.38
Being given a homework assignment of many difficult problems which is due the next class meeting.	16.67% 7	11.90% 5	19.05% 8	23.81% 10	28.57% 12	42	3.36
Thinking about an upcoming math test one day before.	9.52% 4	26.19% 11	16.67% 7	23.81% 10	23.81% 10	42	3.26
Overall, How anxious are you about math?	16.67% 7	16.67% 7	26.19% 11	14.29% 6	26.19% 11	42	3.17
Watching a teacher work an algebraic equation on the blackboard.	26.19% 11	23.81% 10	30.95% 13	11.90% 5	7.14% 3	42	2.50
Starting a new chapter in a math book.	23.81% 10	35.71% 15	23.81% 10	9.52% 4	7.14% 3	42	2.40
Having to use the tables in the back of a math book.	36.89% 15	17.07% 7	34.15% 14	7.32% 3	4.88% 2	41	2.27
Listening to a lecture in math class.	42.86% 18	16.67% 7	23.81% 10	11.90% 5	4.76% 2	42	2.19
Listening to another student explain a math formula.	42.86% 18	14.29% 6	30.95% 13	9.52% 4	2.38% 1	42	2.14

Data Analysis and Findings,

Trying to understand the student and how they feel towards math has helped to understand what methods the teachers, mentors, and college could be adding to help students who are struggling. We can see that most students feelings towards the college itself, it was seen as a supportive place for them to be. We can see that the students here have a mostly supportive set of people around them which can help easing them of anxiety.

40% of our total students we surveyed do not work.

25% work part time.

32% work full time.

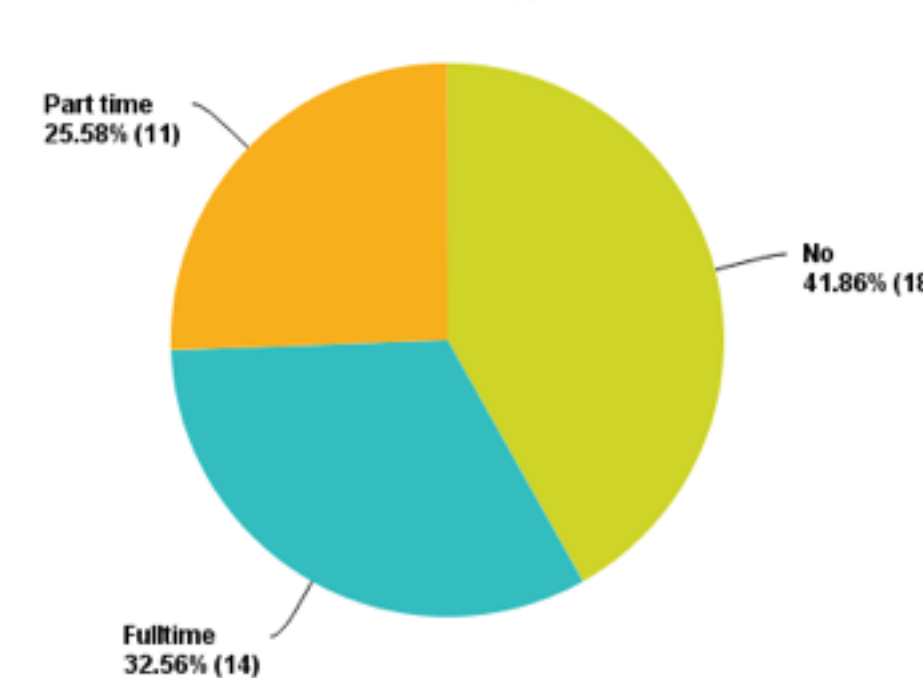
Looking at the amount of students who work helps to analyze where extra stress is coming from and if it is having an impact on their studies.

Table 3. Independent Predictions of Math Anxiety

	not at all supportive	a little bit supportive	somewhat supportive	very supportive	extremely supportive	Total	Weighted Average
the college is	0.00% 0	6.98% 3	20.93% 9	48.84% 21	23.26% 10	43	3.88
my friends are	2.33% 1	2.33% 1	30.23% 13	27.91% 12	37.21% 16	43	3.95
my mentors are	0.00% 0	0.00% 0	36.36% 4	27.27% 3	36.36% 4	11	4.00
my teachers are	0.00% 0	0.00% 0	11.63% 5	65.12% 28	23.26% 10	43	4.12
my parents are	2.44% 1	2.44% 1	4.88% 2	26.83% 11	63.41% 26	41	4.46
my family are	0.00% 0	2.33% 1	9.30% 4	27.91% 12	60.47% 26	43	4.47

Q8 Do you work?

Answered: 43 Skipped: 0



Conclusions

Although students do have anxiety in their math courses, It is not something that would affect them in other classes or cause them to drop out. Analyzing the data it shows what can spilke up the stress in students and how it may cause them to worry more in their math course but that does not affect anything outside of that class. With these findings I have to accept my null hypothesis that math anxiety and performance are not related.

Ethics

To ensure the data collected was ethical, I made it clear to each of the students that they did not have to take the survey it was their own choice to participate. Before handing out the surveys I made sure to inform the whole class of their rights and that all information they give me will be kept confidential from others and their instructors and will not be shared in any way. After receiving the surveys back they were counted and the data was collected then returned to my supervisor for safe keeping.

References

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Acknowledgements

For allowing me into their classrooms to collect the data I needed, I would like to thank Professor Ajit Hira and Professor Tommy Rockward for their time and patience for allowing me to use their class time and students for my project. A special thanks to the Student Success Center and staff for their help and, to my instructor Stephanie Amedeo Marquez for her guidance through this project.

