

ANXIETY SENSITIVITY AS A PREDICTOR OF ACADEMIC SUCCESS OF MEDICAL STUDENTS AT THE UNIVERSITY OF MOSTAR

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SUMMARY

Higher education students comprise a particularly vulnerable group for the development of anxiety symptoms and disorders. The aim of our research was to examine the impact of anxiety sensitivity on the success of medical students at the University of Mostar, and to establish the differences between students depending on their sex and the year of study. One hundred students in their first and fifth year of medical school were interviewed using the ASI questionnaire, 7 days prior to their final exams. Here we demonstrate a positive correlation between anxiety sensitivity and academic success. We did not find any significant differences between the first and fifth-year medical students, nor between participants based on their sex. We conclude that anxiety can have a positive impact on the academic achievement of higher education students.

Key words: medical students – anxiety – teaching - achievement

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BACKGROUND

Anxiety sensitivity is described as a fear of anxiety and anxiety-related bodily sensations, which emerges from the belief that these symptoms or bodily sensations may have negative physical, psychological and social consequences (Taylor 1998, Vulić-Prtorić et al. 2008). Regardless of the anxiety disorder type, symptoms of anxiety manifest in four main ways: physical, emotional, cognitive and behavioral (Schmidt et al. 1997, Vulić-Prtorić 2006). Anxiety sensitivity refers to the fears of feeling anxious and explains the wider motivational function of these fears (McNally 2002). A person may be frightened of being nervous because she/he interprets it as a loss of control over cognitive processes, as a sign of an upcoming physical illness or as a risk that other people will notice that she/he feels anxious leading to a negative evaluation. Research in this area has enabled development of the Anxiety Sensitivity Index (Reiss et al., 1986). Although some researchers have been pointing out the possibility that anxiety sensitivity represents only a manifest of latent anxiety as a personality trait (Lilienfeld et al., 1993), a number of recent studies have shown that these are two interrelated but distinct constructs (Jurin et al. 2011). In other words, a person may exhibit a tendency of an anxious response to a variety of different stimuli and stressors without the existence of fear of anxiety itself and vice versa.

Anxiety as a personality trait refers to the relatively stable individual differences in the tendency to experience

symptoms of anxiety, while anxiety sensitivity indicates the differences with respect to the tendency to respond frightfully to these symptoms. Although these two concepts may seem to have a major overlap, it has been demonstrated that the correlation between anxiety sensitivity and anxiety is relatively low (Isyanov & Calamari 2004). Additionally, high scores on the anxiety sensitivity measurements were a better predictor of panic attacks even in those individuals who did not have a marked history of anxiety nor history of panic attacks (Schmidt et al. 2006).

According to the present understanding, it is clear that anxiety sensitivity could be a very useful construct for understanding the development and long-term maintenance of various psychiatric disorders. According to the theory of expectation and sensitivity, individuals with an elevated level of anxiety sensitivity are more likely to respond to anxiety symptoms with anxiety, thus entering a vicious cycle that can even culminate in a panic attack. Therefore, it is assumed that anxiety sensitivity is an important factor increasing vulnerability to panic disorders, and probably for the other anxiety disorders as well (Cox et al. 2001).

Anxiety sensitivity was originally conceived as a one-dimensional construct, and it was operationalized through the Anxiety Sensitivity Index (ASI) (Reiss et al., 1986). ASI is the most famous and most widely used instrument for measuring anxiety sensitivity, which provides self-assessment of fear from the various symptoms of anxiety (Schmidt et al. 2006).

Studies have shown that the higher education students are a particularly vulnerable group for the development of anxiety symptoms and disorders. The rates of mental health problems are significantly higher among higher education students than their peers who are not enrolled in a higher education program (Stallman 2010). Although most of the students (about 75%) have relatively mild and transient disturbances in the form of anxiety and tension, it is concerning that a significant number of students are faced with long-lasting and serious psychological problems (Jokić-Begić et al. 2009). Sources of anxiety within the student population may be diverse. For example, separation, social, examination and generalized anxiety as well as problems with panic are frequent. Interestingly, problems with anxiety have a tendency to increase as students go from first into the second year of study, while in the later years its intensity significantly decreases (Živčić-Bećirević et al. 2011).

The aim of our study was to examine the impact of anxiety sensitivity on the academic success of medical students at the University of Mostar and to compare this effect between the students first and fifth-year students. We also aimed to explore whether there is a difference in the way anxiety sensitivity influences the academic success of the medical students based on their sex.

SUBJECTS AND METHODS

The study included first and fifth year medical students at the University of Mostar. Out of 100 respondents, 61 were first-year students and 39 were fifth-year students. Students diagnosed with any physical and/or psychiatric disorders (cardiovascular, respiratory, neurological, metabolic, mental etc.) or experiencing symptoms that may affect their level of anxiety were excluded from the study. The study was conducted at the University of Mostar Medical School, from June 1, 2017 to June 8, 2017, one week before the final exams for the first and the fifth year students. For the purpose of this study, we used the Anxiety Sensitivity Index (ASI) questionnaire. This questionnaire consists of 16 items examining the fear of having anxiety symptoms rooted in the belief that these symptoms will have serious future consequences. The participants were instructed to express their degree of agreement on the Likert scale containing five degrees ranging from "1 - slightly" to "5 - strongly". The possible range of the score was between 0 and 64, where a higher score indicated a higher degree of anxiety sensitivity. Students were instructed to fill out the ASI questionnaire seven days before the exam during a break between the lectures. Data were analysed on the basis of insight received from the completed ASI questionnaires. Based on the results of this questionnaire, anxiety sensitivity was categorised as high (>30), intermediate (12-29) and low (<12). Additionally, the respondents were asked to

state their sex, age, year of study and the grade point average for the current academic year rounded to two decimal places. As a measure of academic success, we used the grade point average for the current academic year. The respondents were also asked whether they were diagnosed with any conditions (physical or psychiatric) that could affect their level of anxiety. The data received for the anxiety sensitivity index, age, gender, current year of study and academic success of the students were entered in the MS Excel program and statistically processed. For statistical data calculation, we used the χ^2 test, and for the analysis of the statistical data we used either SPSS for Windows (version 17.0, SPSS Inc., Chicago, Illinois, USA) or Microsoft Excell (version 11. Microsoft Corporation, Redmond, WA, USA).

RESULTS

Participant students were divided into three groups based on their current grade point average: students with low grade point average (≤ 3.4), students with intermediate grade point average (3.5-4.1) and students with high grade point average (≥ 4.2). 36 students had a grade point average ≥ 4.2 and 20 students had a grade point average of 3.4 or lower. The largest number of students (44) was in the intermediate group with a grade point average of 3.5-4.1. The difference was statistically significant $\chi^2=8.960$; $s.s=2$; $p=0.011$.

Based on the ASI questionnaire results, 22 of the participants had a low score for anxiety sensitivity, 48 participants had an intermediate score, and 30 participants had a high score. The difference in the number of students based on their ASI score also proved to be statistically significant ($\chi^2=10.64$; $ss=2$; $p=0.005$).

Table 1. shows the differences in the investigated variables relative to the ASI degree. Using the chi-squared test, no significant differences in the degree of anxiety sensitivity were observed between the sexes, nor between the first and fifth-year students. Significant difference was calculated for the grade point average based on the ASI degree. Participants who belonged to a group with a high ASI score had a significantly higher percentage of grade point average of 4.2 and above.

In order to determine the independent predictive values of the results achieved on the ASI scale towards the academic success on the final exam, ie. the grade point average, we used a binary logistic regression analysis. The regression model with all the predictors was statistically significant as a whole, it completely explained between 43.8 and 69.3% of the variance and correctly classified 90% of the cases. As shown in Table 2, the score on the ASI scale had significant positive predictive values for the probability of better success on the final exam, ie for a higher grade point average, after adjustment for sex and the current year of study.

Table 1. Differences in investigated variables with respect to ASI score

	ASI						χ^2	p
	Low (0-11)		Intermediate (12-29)		High (30+)			
	N	%	N	%	N	%		
Sex							5.357	0.369
Female	10	45.5	34	70.8	22	73.3		
Male	12	54.5	14	29.2	8	26.7		
Year of study							3.587	0.166
First year	14	63.6	25	52.1	22	73.3		
Fifth year	8	36.4	23	47.9	8	26.7		
Grade point average							68.450	<0.001
3.4-	17	77.3	3	6.3	0	0.0		
3.5-4.1	5	22.7	29	60.4	10	33.3		
4.2+	0	0.0	16	33.3	20	66.7		

Table 2. The predictive values of the ASI score on the grade point average of the participants

Variables	Grade point average						
	B	S.E.	Wald	p	95 % CI for the Probability Ratio		
					Lower	PR	Higher
ASI	0.284	0.066	18.320	<0.001	1.167	1.329	1.513
Sex	1.120	0.806	1.931	0.165	0.632	3.065	14.875
Year of study	1.497	0.871	2.952	0.086	0.810	4.469	24.657

$R^2=0.438$ (Cox & Snell); 0.693 (Nagelkerke); Model: $\chi^2 = 57.711$, $p < 0.001$

CONCLUSION

Contrary to most research, the results of this study show that anxiety sensitivity has a positive impact on the academic success of higher education students. We assume that the positive relationship between the degree of anxiety and academic success is a consequence of the greater preparation, desire for better outcome and fulfillment of societal expectations. Numerous studies confirm the negative correlation between anxiety and academic success (Seipp 1991, Frierson & Hoban 1987). While some authors find that anxiety as a condition is a negative predictor of academic success (Frierson & Hoban 1987), others find that in the models involving both self-efficacy and negative thoughts (Ozer & Bandura 1990) anxiety is not related to success. The reason for such contradiction in the results may be the poll timing in relation to the final examination dates. Differences in these results may also be explained by the difference in the year of study and the type of study of participants. Studies conducted in the final examination scenarios show that negative thoughts are positively associated with test anxiety, but the presence of negative thoughts, test anxiety or general concern was negatively correlated with the academic success (Diaz et al. 2001).

The outcome of this study showed that higher education students have equal levels of anxiety independent of their year of study, contrary to previous studies which found that anxiety shows a tendency to increase from the first to the second year of study, while in the later years there is a marked decrease in its

intensity (Živčić-Bećirević et al 2011, Bayram & Bilgel 2008, Alvi et al. 2010). An explanation of this observation may be the polling time in relation to the final examination itself, but also the difficulty of the exam before which the students were tested. Results from the studies looking at the correlation between the sexes of the participants and anxiety are inconclusive. Most of the studies show a greater degree of anxiety among female participants (Živčić-Bećirević et al. 2011, Bayram & Bilgel 2008, Alvi et al. 2010, Hersi et al. 2017), however we did not observe this effect in our study. Živčić-Bećirević et al. showed similar results in their study (Živčić-Bećirević et al. 2011). There was no significant difference in the degree of anxiety between the sexes, which was explained with the matching concern of parental dissatisfaction (Živčić-Bećirević et al. 2011).

As a shortcoming of our study, we identify the fact that we failed to include the third year students. 3rd year of medical studies is often considered as the most academically demanding year, hence the comparison between the experiences of students in their 3rd year to the other years of study would add value to our conclusions.

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Contribution of individual authors:

Amra Zalihić and Sabina Mešukić have contributed to the concept of the study.

Amra Zalihić, Sabina Mešukić and Marko Martinac were writing and drafting the work for intellectual content.

Bože Sušac and Katarina Knezović participated in the design of the study.

Marko Martinac, Sabina Mešukić and Katarina Knezović, participated in patient enrollment, questionnaire distribution, statistical analyses and interpretation of data.

Bože Sušac and Katarina Knezović made literature search.

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