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THE RELATIONSHIP BETWEEN PERSONALITY TRAITS AND ANXIOUSNESS

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Abstract

Anxiety is a subjectively perceived negative feeling, which may be experienced by many students throughout their study. It is usually affected by many factors and often has a negative impact on the functioning of an individual. The objective of this study is to analyse the relationship between anxiousness and personality traits among students of teacher training courses. The Ten Item Personality Inventory and State-Trait Anxiety Inventory were used. The research sample consisted of 343 university students (41 males, 302 females). The results for the whole sample showed a significant correlation between anxiousness and all personality traits ($r = -.116$ to $-.473$). The strongest relationships were observed in emotional stability ($r = -.473$) and openness to experience ($r = -.427$). Males proved significant correlations in terms of extraversion, emotional stability, and openness to experience ($r = .024$ to $-.638$). Openness to experience significantly predicted the level of anxiousness (LoA). Females showed significant correlations in terms of all personality traits ($r = -.129$ to $-.465$). Emotional stability and openness to experience significantly predicted the LoA. Regarding the type of the study, full-time students showed significant correlations in terms of all personality traits except conscientiousness ($r = -.100$ to $-.520$). Emotional stability and openness to experience significantly predicted the LoA. Combined students showed significant correlations in terms of all personality traits ($r = -.210$ to $-.367$). Agreeableness and openness to experience significantly predicted the LoA. The observed strong relationships between personality and anxiousness emphasize the need for further investigation of this topic.

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Keywords: Personality, anxiety, university students, teaching profession.

1. Introduction

1.1. Anxiety

Generally speaking, anxiety is a negative emotional state characterized by increased activation of the autonomic nervous system, subjective feelings of tension and thought involving concerns and worries (Kazdin, 2000). This can be manifested as a situational and transitional state (state anxiety) of currently experienced anxiety, or as a personality trait (trait anxiety), which is also described as anxiousness, and represents a more permanent personality characteristic, manifested by a tendency to anxious perception, thinking and behaviour (Vymětal et al., 2007).

Anxiety affects human behaviour and perception in a number of areas and in different ways. In most situations, this effect is negative, i.e. worse perception and experiencing of a situation, decreasing performance, mental abilities and coping skills. However, in some cases (especially weaker state anxiety) it may have a positive effect and act as a motivating and activating factor.

Anxiety and anxiousness have a negative effect on academic performance. This includes test anxiety which represents 'the set of phenomenological, physiological and behavioural responses that accompany concerns about possible negative consequences or failure in an exam or similar evaluative situation' (Zeidner, 1998, p. 17). State anxiety has a negative effect on test and exam performance (McIlroy, Bunting, & Adamson, 2000). Similarly, trait anxiety has a negative effect on performance and the process of learning (Shomoossi, Kassaian, & Ketabi, 2009). It is because anxiety affects most cognitive functions such as attention (Edwards, Edwards, & Lyvers, 2015), memory and the learning process, working memory (Owens, Stevenson, Hadwin, & Norgate, 2014), thinking and cognitive task processing (Basten, Stelzel, & Fiebach, 2012; Coy, O'Brien, Tabaczynski, Northern, & Carels, 2011; Owens et al., 2014), etc. A number of studies emphasise a relatively frequent occurrence of anxiety during the course of study. According to Macher et al., 15-20% of students encounter anxiety-related problems during their study (Macher et al., 2013); Ozen et al. state that 30-37% of students are affected by higher levels of state and trait anxiety (Ozen, Ercan, Irgil, & Sigirli, 2010). Taking this into account, the issue of anxiety among students tends to be underestimated.

Regarding the negative effect of anxiety on academic performance, it is important to understand the factors that influence anxiousness in students, because the general predisposition to respond anxiously to life (and study) situations represents a greater risk for academic achievement than situational anxiety. One of the fundamental factors affecting anxiousness is the student's personality.

1.2. Anxiety and personality traits

The relationship between anxiety/anxiousness and personality was investigated in a number of studies. The findings suggest that anxiousness is generally correlated with those traits that are associated with emotional and behavioural inhibition, i.e. low extraversion, emotional stability and neuroticism (Brandes & Bienvenu, 2006; Booth, Murray, Marples, & Batey, 2013; Gramstad, Gjestad, & Haver, 2013; Vreeke & Muris, 2012). On the contrary, a high degree of extraversion functions as a protective factor against the development of anxiousness (Gramstad et al., 2013). Weaker negative correlations were

also observed between anxiousness and conscientiousness, and openness to experience and conscientiousness (e.g. Kaplan, Levinson, Rodebaugh, Menatti, & Weeks, 2015).

2. Problem Statement

Anxiety and anxiousness have a negative effect on students' academic performance in the process of learning and in the context of meeting their requirements and exams. One of the factors affecting the level of anxiousness as well as the probability and seriousness of situational anxiety episodes is personality traits, especially higher neuroticism and low extraversion.

In the context of Czech schools and universities this issue has not been sufficiently explored and the effect of anxiety and anxiousness on students' academic performance is still underestimated in education and counselling. One of the causes is missing information about this issue in a sample of Czech students.

3. Research Questions

On the basis of previous studies, the following research questions and assumptions concerning the relationships between personality traits and anxiousness were defined.

Research question 1: What are the relationships between personality traits and anxiousness in a sample of university students of teacher training courses?

Hypothesis 1: Extraversion is negatively correlated with the degree of anxiousness.

Hypothesis 2: Emotional stability is negatively correlated with the degree of anxiousness.

Research question 2: What are the relationships between personality traits and anxiousness in the context of students' gender? Does the strength of the relationship between personality traits and anxiousness differ between men and women?

Hypothesis 3: The strength of the relationship between personality and anxiousness significantly differs between genders.

Research question 3: What are the relationships between personality traits and anxiousness in the context of the form of study? Does the strength of the relationship between personality traits and anxiousness differ between full-time students and students in the combined form of study?

Hypothesis 4: The strength of the relationship between personality and anxiousness does not differ by the form of study.

4. Purpose of the Study

The objective of the study is to explore the relationships between anxiousness as a personality predisposition and personality factors (according to the Big Five) among students at the Faculty of Education, including the effect of gender and form of study. The findings should provide initial information about this issue in the Czech environment and define the theoretical background for practical interventions aimed at university students in order to decrease the negative effect of anxiety on academic performance.

5. Research Methods

5.1. Research sample

The research sample consisted of 343 university students aged 19-54 years (average age = 25.89, SD 7.05), of which 41 were men (average age = 26.41, SD = 6.87, range = 19-49) and 302 were women (average age = 25.32, SD = 7.32, range = 19-48).

5.2. Methods

Two research methods were used. The Ten Item Personality Measure (TIPI, Gosling, Rentfrow, & Swann, 2003) is a short 10-item questionnaire aimed at the measurement of personality traits. It is based on the Big Five concept and focuses on the following five personality traits: extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience. The questionnaire showed acceptable psychometric properties (Gosling et al., 2003; Vorkapić, 2016).

The State-Trait Anxiety Inventory, Trait version (STAI-T; Spielberger, 1983) is a 20-item instrument designed to measure individual differences in anxiousness as a personality trait. The items are assessed on a 4-point Likert scale. The resulting score ranges from 20 to 80; a higher score indicates higher anxiousness. The reliability of the questionnaire achieves very good values α = .88 (Lim, Lee, & Kim, 2005).

The data were analysed by means of SPSS 21 using correlation and linear regression analyses, Fisher's Z-score transformation and inference test.

6. Findings

Table 1 shows mean values for the questionnaires.

Table 01. Mean values and SD

	Total		Gender				Form of study			
			Male		Female		Full-time		Combined	
N	343		41		302		254		89	
	M	SD	M	SD	M	SD	M	SD	M	SD
EX	4.25	1.53	4.11	1.63	4.27	1.52	4.17	1.56	4.49	1.44
AG	4.35	0.92	4.28	1.00	4.36	0.91	4.23	0.89	4.71	0.92
CO	5.30	1.20	5.11	1.03	5.33	1.22	5.36	1.21	5.13	1.13
ES	4.21	1.46	4.54	1.35	4.16	1.47	4.21	1.45	4.21	1.49
OE	5.26	1.16	5.18	1.30	5.26	1.15	5.15	1.16	5.56	1.13
Anxiousness	39.30	13.44	39.95	12.60	39.21	13.56	40.24	13.84	36.61	11.88

Notes: EX – extraversion, AG – agreeableness, CO – consciousness, ES – emotional stability, OE – openness to experience, M – mean, SD – standard deviation

The relationship between anxiousness and personality traits was first analysed by means of the correlation analysis (see Table 2).

Table 02. Correlation analysis of the relationship between personality traits and anxiousness

	EX	AG	CO	ES	OE
Anxiousness	-.290**	-.310**	-.116*	-.473**	-.427**

Notes: EX – extraversion, AG – agreeableness, CO – consciousness, ES – emotional stability, OE – openness to experience, * - significant at level of .05, ** - significant at a level of .01

The results suggested significant negative relationships between all personality traits and anxiousness. The strongest relationships (with moderate effect size) were observed in emotional stability, openness to experience and (with a small margin) extraversion.

The multiple regression analysis (Stepwise method) suggested that the significant model ($F_{(2, 340)}$ = 71.240, $p < .001$) predicted 29.5% of anxiousness variability (Adj. R^2 = .291). The model was affected by two predictors: lower emotional stability (β = .363, t = -7.373, $p < .001$) and lower openness to experience (β = .290, t = -5.883, p = .001) were significantly associated higher anxiousness. Other personality traits were excluded from the model.

In the context of gender, the correlation analysis suggested certain differences (see Table 3).

Table 03. Correlation analysis of the relationship between personality traits and anxiousness in the context of gender

		EX	AG	CO	ES	OE
Anxiousness	**Male**	-.478**	-.233	.024	-.573**	-.638**
	Female	-.265**	-.321**	-.129*	-.465**	-.399**

Notes: EX – extraversion, AG – agreeableness, CO – consciousness, ES – emotional stability, OE – openness to experience, * - significant at level of .05, ** - significant at a level of .01

Among men, negative correlations were observed between anxiousness and extraversion, and emotional stability and openness to experience. At the same time, these relationships were very strong (moderate to strong effect size). Among women, negative correlations were observed in relation to all personality traits. In comparison with men, these relationships were weaker (small to moderate effect size), but included more personality traits. The strongest correlation was again observed in emotional stability and openness to experience. However, the inference test did not confirm any significant differences of correlation coefficients in either gender (see Table 4).

Table 04. Analysis of significance of correlation coefficients in the context of gender (Z)

	EX	AG	CO	ES	OE
Anxiousness	-1.45	0.55	0.89	-0.86	-1.93

Notes: EX – extraversion, AG – agreeableness, CO – consciousness, ES – emotional stability, OE – openness to experience

The multiple regression analysis among men suggested that the significant model ($F_{(1, 39)}$ = 26.709, $p < .001$) predicted 40.6% of anxiousness variability (Adj. R^2 = .391). The model was affected by one predictor: lower openness to experience (β = -.638, t = -5.168, $p < .001$) was significantly associated with higher anxiousness. Other personality traits were excluded from the model.

Among women the regression analysis suggested that the significant model (F (2, 299) = 58.446, p < .001) predicted 28.1% of anxiousness variability (Adj. R^2 = .276). The model was affected by two predictors: lower emotional stability (β = .372, t = -7.126, p < .001) and lower openness to experience (β = .271, t = -5.191, p = .001) were significantly associated higher anxiousness. Other personality traits were excluded from the model.

There were also some differences concerning the form of study (see Table 5).

Table 05. What are the relationships between personality traits and anxiousness in the context of the form of study?

		EX	AG	CO	ES	OE
Anxiousness	Full-time	-.303**	-.271**	-.100	-.520**	-.447**
	Combined	-.210*	-.367**	-.222*	-.339**	-.314**

Notes: EX – extraversion, AG – agreeableness, CO – consciousness, ES – emotional stability, OE – openness to experience, * - significant at level of .05, ** - significant at a level of .01

Among full-time students, negative correlations were observed in all personality traits except conscientiousness. Emotional stability and openness to experience showed the strongest relationship (moderate effect size); in the case of extraversion and agreeableness the strength of the relationship was smaller. Compared with full-time students, correlation strength among combined students is generally weaker. Compared with full-time students however, a significant relationship between anxiousness and all personality traits was confirmed. At the same time, combined students showed a slightly stronger relationship with agreeableness (compared with daily students). However, neither in the context of the form of study did the inference test confirm significant differences of correlation coefficients (see Table 6).

Table 06. Analysis of significance of correlation coefficients in the context of form of study (Z)

	EX	AG	CO	ES	OE
Anxiousness	-0.80	0.86	1.00	-1.79	-1.25

Notes: EX – extraversion, AG – agreeableness, CO – consciousness, ES – emotional stability, OE – openness to experience

The multiple regression analysis among full-time students suggested that the significant model (F (2, 251) = 63.363, p < .001) predicted 33.5% of anxiousness variability (Adj. R^2 = .330). The model was affected by two predictors: lower emotional stability (β = .404, t = -7.149, p < .001) and lower openness to experience (β = .280, t = -4.963, p = .001) were significantly associated higher anxiousness. Other personality traits were excluded from the model.

Among combined students the regression analysis suggested that the significant model (F (2, 86) = 9.347, p < .001) predicted 17.9% of anxiousness variability (Adj. R^2 = .159). The model was affected by two predictors: lower agreeableness (β = .298, t = -2.899, p= .001) and lower openness to experience (β = .220, t = -2.139, p= .035) were significantly associated higher anxiousness. Other personality traits were excluded from the model.

7.   Conclusion

The results of the study clarified the relationship between personality traits and anxiousness. The strongest relationship was observed between emotional stability (neuroticism) and openness to experience. This to a large extent confirms previous studies emphasising the effect of neuroticism on anxiousness (Kaplan et al., 2015; Levy & Lounsbury, 2011; Vreeke & Muris, 2012; Watson, Gamez, & Simms, 2005). Emotional instability associated with worse behavioural inhibition and greater susceptibility to negative emotional perception clearly shares a number of common features with anxiousness. This relationship is understandable regarding the fact that neuroticism as a personality trait is associated with a worse reaction to stressors, perceiving situations as threatening, and susceptibility to negative emotions such as concerns, fear, frustration, anger, etc. (Jeronimus, Kotov, Riese, & Ormel, 2016; Thompson, 2008). This finding confirms hypothesis 1.

An interesting finding was a strong negative correlation between anxiousness and openness to experience. This relationship is referred to in other studies, but usually as weaker in comparison with the effect of neuroticism and extraversion (Kaplan et al., 2015). The relationship is understandable because low openness to experience is associated with greater perseveration or even dogmatism, conservatism, and preference of a stable predictable environment (Matthews, Deary, & Whiteman, 2003). When combined with greater neuroticism as susceptibility to negative feelings and a worse ability to cope with stressors, it can be assumed that the university environment will be challenging (regarding study requirements, expectations of performance, required independence, etc.) It is clear that a worse ability to adapt to changes and requirements is associated with a greater degree of anxiousness and more frequent acute manifestations of anxiety (Larsen & Ketelaar, 1991). The authors of the present study believe that the strength of this relationship is affected by the specific characteristics of Czech students and their previous education, which emphasizes a stable or even conservative approach to study and does not support the ability to cope with changes, uncertainty, etc.

A significant relationship was also confirmed between anxiousness and a low degree of extraversion (i.e. introversion), as suggested by hypothesis 2. This negative correlation is consistent with previous studies confirming the effect of for example study-related socially demanding situations (Naragon-Gainey, Rutter, & Brown, 2014; Uliaszek et al., 2010). A certain role is definitely played by a greater focus on internal mental processes in introverted persons associated with increased sensitivity to emotional (in this case negative) conditions (Larsen & Ketelaar, 1991). Similarly, the previously mentioned negative correlation between anxiousness and agreeableness is consistent with previous studies (e.g. Afshar et al., 2015). The authors of the present study believe that a role is played by the social effect of agreeableness characterized by positive interpersonal behaviour, where good social relationships act as protective factors against negative anxiety emotions (for example through social support and sharing of concerns).

In general terms, the results suggest that anxiousness in students of teacher training courses is affected especially by neuroticism and small openness to experience. This is also confirmed by the regression analysis. A certain role is also played by greater introversion and smaller agreeableness among students. Regarding the characteristics of individual personality traits the authors of the present study believe that all these traits affect the degree of anxiousness in mutual interaction.

Another objective of the study was to analyse the relationship between personality traits and anxiousness in the context of gender. A number of studies have confirmed gender differences (e.g. Craske, 2003; Muris et al., 2009), emphasising greater emotionality among women and their predisposition to more intense perception of anxiety. To a certain extent, the present results confirm this trend. Men and women differ in the distribution and degree of correlation coefficients. Among women a relationship was confirmed with multiple personality traits (including agreeableness and conscientiousness). On the contrary, in men a stronger effect of selected personality traits on anxiousness was observed. These differences were also confirmed by subsequent regression analyses with a greater degree of explained variance in men and, conversely, the effect of multiple personality traits in women. It can be assumed that in women (due to a lower level of explained variance) anxiousness is also affected by other personality characteristics not included in this study. However, the inference test of the differences of correlation coefficients did not confirm these differences to be significant. This is consistent with some previous studies (e.g. Vreeke & Muris, 2012). The results might have been affected by the different sample sizes and especially by the small number of men. As a result, hypothesis 3 was not confirmed but other results suggest certain differences.

Some differences were also observed in terms of the form of study. The correlation and regression analyses suggested that among full-time students, the most significant aspect was neuroticism (low emotional stability) and lower extraversion. Students in the combined form of study, who do not take part on a daily basis and their study is to a large extent based on self-study and their own responsibility, were also affected by conscientiousness (as a personality trait associated with self-control, organization and performance of one's own activity), where a worse ability to control one's behaviour (lower conscientiousness) was correlated with greater anxiousness. In other words, a worse ability to control one's self-study in a responsible way, which logically leads to worse academic results and a higher risk of exam failure, supported a great degree of anxiousness as well as the probability of more frequent situational attacks of anxiety during exams (Marchant, Morris, & Gibbs, 2004; Muris, Meesters, & van Asseldonk, 2018). However, according to the authors of the present study, this is a two-way relationship, which means that higher anxiousness has a negative effect on real mental content associated with conscientiousness (Blankstein, Toner, & Flett, 1989).

The present study has some limitations. The first one is the cross-sectional design of the study capturing only the current status. Regarding the nature of the effect of anxiousness on study and the effect of personality on students' anxiousness, it would be desirable to carry out the study in a longitudinal manner and to capture the variables throughout the course of study. Another limitation is the focus on a narrow spectrum of variables (personality traits and anxiousness). Regarding the findings mentioned above, the design of the study should include other variables, especially a detailed view of anxiety and anxiousness, factors associated with social aspects of study and students' emotionality, and variables that relate to academic performance. In the context of results analysis, a certain limitation (especially in relation to gender) is the relatively small sample of men, which could have influenced the results of the inference test.

The authors of the present study believe that the results concerning Czech university students have a good potential for practical use. The results from other countries have been confirmed that a certain

personality setting predisposes students to greater general anxiousness and increases the risk of anxiety attacks, which are associated with study requirements and which may compromise academic performance. Regarding the fact that personality traits are relatively invariable due to their biological roots, the results of the present study imply some recommendations for teachers and school psychological counsellors. In the first place, they provide guidelines on quick identification of students negatively affected by anxiety. At the same time, they highlight the areas that should be challenged in working with these students; this includes especially the abilities and skills that have the potential to reduce the adverse effect of personality traits on anxiousness and academic performance. This includes for example the development and training of effective coping strategies, ability to handle anxiety attacks, awareness about their causes, building a supportive social network, training of effective ways of study, its organization and management, etc.

In conclusion, the present study confirmed a strong relationship between personality traits and anxiousness in students. The most significant relationship was observed between anxiousness, neuroticism, low extraversion (introversion), and openness to new experience. At the same time, it appears that these personality traits affect anxiousness in students in mutual interaction. This study significantly enriches the body of knowledge about the relationship between personality and anxiety in the context of Czech schools, which is an issue that lacks adequate research attention. The findings of the present study emphasise the need for further research in this area while focusing on the issue of anxiety in counselling work with students.

Acknowledgments

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