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Personality traits, level of anxiety and styles of coping with stress in people with asthma and chronic obstructive pulmonary disease – a comparative analysis

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Summary

Introduction. Chronic obstructive pulmonary disease (COPD) and asthma are a challenge to public health, with the sufferers experiencing a range of psychological factors affecting their health and behavior.

Aim. The aim of the present study was to determine the level of anxiety, personality traits and stress-coping ability of patients with obstructive lung disease and comparison with a group of healthy controls.

Material and methods. The research was conducted on a group of 150 people with obstructive lung diseases (asthma and COPD) and healthy controls (mean age = 56.0 ± 16.00). Four surveys were used: a sociodemographic survey, NEO-FFI Personality Inventory, State-Trait Anxiety Inventory (STAI), and Brief Cope Inventory. Logistic regression was used to identify the investigated variables which best differentiated the healthy and sick individuals.

Results. Patients with asthma or COPD demonstrated a significantly lower level of conscientiousness, openness to experience, active coping and planning, as well as higher levels of neuroticism and a greater tendency to behavioral disengagement. Logistic regression found trait-anxiety, openness to experience, positive reframing, acceptance, humor and behavioral disengagement to be best at distinguishing people with lung diseases from healthy individuals.

Conclusions. The results indicate the need for intervention in the psychological functioning of people with obstructive diseases.

Key words: **personality profile, anxiety, coping with stress**

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Introduction

Chronic obstructive pulmonary disease (COPD) and asthma are pulmonary diseases which are a serious problem for public health [1, 2]. The number of people diagnosed with asthma has tripled in the last three decades [3] with the highest incidence rate found in highly-developed countries [3, 4]. In Poland, asthma affects 5.4% of the adult population [5, 6], and COPD is present in 27.7% of males and 16.6% of females over the age of 45 [7]. European studies indicate the presence of COPD in 8 to 10% of people over 30 years of age [8].

Statistical data confirms the increasing number of hospitalizations due to pulmonary diseases in the last three decades [8, 9], which generate indirect costs associated with payment of social benefits, and result in lower productivity and premature death [7, 10–12]. Being diagnosed with asthma or COPD requires strict observance of medical recommendations concerning medicine, check-ups, rehabilitation and proper diet by the patient. Avoiding these procedures may lead to worsening of both somatic and mental condition [13], and vice versa: a depressed mood or psychological problems experienced by the patients may have a negative influence on observing medical recommendations, quality of life, number and duration of hospitalizations and even life span [14–16].

People suffering from asthma and COPD perceive the experienced symptoms as oppressive, causing anxiety and increasing the level of stress [17]. The above mentioned negative experiences may lead to the development of depression or post-traumatic stress disorder [17–21]. However, it should be noted that despite some disturbances and mental illnesses, only a small group of patients with pulmonary diseases is subjected to psychiatric treatment, psychotherapy or psychoeducational activities [14, 15, 22, 23].

Aim

The aim of the study is to identify any relationship between anxiety level, coping styles and personality traits in patients with asthma and COPD and compare the findings with those of a group of people without respiratory disorders. The choice of these variables was based on the fact that patients with pulmonary diseases are known to experience higher levels of anxiety and stress, manifested in the quality of emotional functioning. Studies confirm the existence of a correlation between these variables and poorer coping with the disease in case of exacerbations as well as increased mortality [19, 24, 25]. It should be also emphasized that the psychological adaptation to a disease is determined not so much by the severity of the stress experienced by a sick person, but also by the methods of coping with stress. In case of long-term diseases, including pulmonary conditions, changes in personality traits have been noted [25], these being the parent category determining individual differences.

Material

The study was conducted on 150 people (85 females and 65 males) ranging in age from 18 to 88 (M = 56 years, SD = 16.00). These included 50 people with COPD (26 males and 24 females; M = 63.6 years, SD = 10.36) and 50 people with asthma (20 males and 30 females; M = 54.7 years, SD = 17.39). Severity of a disease in patients from both groups was moderate or serious. The remaining 50 people (19 males and 31 females; M = 48.5 years, SD = 14.32) were healthy subjects included as a reference group. Qualification to the reference group was based on a verbal declaration about a lack of any diagnosed chronic illness and not being treated in any specialist clinic.

Subjects were patients of the Provincial Center of Lung Diseases and Rehabilitation in Lodz and the Outpatient Clinic of Lung Diseases and Respiratory Allergy in Lodz. All the patients participating in the study were volunteers. Participants gave their consent in writing.

Methods

For the purposes of the study, a survey was prepared to collect basic sociodemographic data and information concerning the course and characteristics of the disease. In addition, the three following psychological tests were used to evaluate the psychological variables: the NEO-FFI Personality Inventory, developed by P.T. Costa and R.R. McCrae [26], the State-Trait Anxiety Inventory (STAI) developed by C.D. Spielberger, R.L. Gorsuch and R.E. Lushene [27], and the Brief Cope Inventory, developed by C.S. Carver [28].

In the NEO-FFI, higher scores indicate greater severity of a given personality trait [26]. Although anxiety is one of the components of neuroticism, i.e., one of personality traits evaluated in the NEO-FFI, only two questions are related to it. The STAI was chosen to supplement the subscale concerning anxiety used in the NEO-FFI, which has been found to be inadequate by many studies on the importance of anxiety in pulmonary diseases. In the STAI, higher scores indicate higher level of trait anxiety in the patient [27]. For the Brief Cope Inventory, higher scores in a scale indicate a higher tendency to use a certain strategy [28].

Statistical analyses were carried out using the IBM SPSS 20.0 statistics package. Links between personality traits, trait anxiety and styles of coping with stress were carried out using an intercorrelation analysis. Depending on the type of distribution of the studied variables, the groups were compared using either the Kruskal-Wallis ANOVA test (for neuroticism, extraversion, agreeableness) or the Brown-Forsythe test (for trait anxiety, openness, conscientiousness and for all variables describing styles of coping with stress). When significant differences were found between the studied groups for a given variable, post hoc tests were performed i.e., the Tamhane test (for trait anxiety, state anxiety and behavioral disengagement), and the LSD test (for neuroticism, openness to experience, conscientiousness, active coping and planning).

Because the study included a number of variables, the analysis of variance was supplemented with logistic regression analysis with forward selection. This procedure

allowed significant predictors to be included, and to give an overall picture of the differences between subjects with pulmonary diseases and those without such conditions.

Due to the limited group size, some variables indicated by the analysis of variance to not differ significantly between the groups were omitted: turn to religion, substance use, self-distraction, self-blame, venting and agreeableness. Variables in the moderate relation were left in the model to decide which one is superior in describing differences between the group with pulmonary diseases and the group without chronic conditions. This procedure is not at odds with the basic assumptions of logistic regression, which state that the risk of measurement error increases in the presence of very strong intercorrelations between independent variables [29].

The statistical analysis omitted the state anxiety variable because this variable was evaluated in relation to the use of this inventory in the study. The design of the study did not include the evaluation of state anxiety in relation to any significant somatic variables, such as exacerbation of breathlessness, or specific situational states, e.g. the typical anxiety reaction during incident of exacerbation.

Differences at the level of $p < 0.05$ were considered to be significant.

Results

The correlations between the examined variables in all tested subjects, including people with and without diagnosed pulmonary diseases, showed some relations. A moderate positive relationship was found between trait anxiety and neuroticism ($r = 0.655$, $p = 0.000$), use of emotional and instrumental support ($r = 0.650$, $p = 0.000$), as well as between active coping and planning ($r = 0.638$, $p = 0.000$). Rather weak relationships occurred between active coping and openness to experience ($r = 0.400$, $p = 0.000$), and between planning and positive reframing ($r = 0.400$, $p = 0.000$) (additional table in the Appendix).

Significant differences between groups were found regarding trait anxiety – the average level of this variable was significantly lower in the group of healthy people than in the group of patients with COPD and asthma. No significant difference regarding the average level of trait anxiety was found between the patients with asthma and patients with COPD (Table 1).

Table 1. **Level of trait anxiety in the group of patients with COPD, asthma and the group of healthy people**

Trait	Group under Study	Mean ± SD	F*	p^1	p^2		
					1–2	1–3	2–3
A-Trait	COPD (1)	49.1 ± 8.1	16.84	0.000	0.721	0.000	0.000
	Asthma (2)	47.4 ± 10.36					
	Healthy (3)	39.7 ± 7.18					

F* – Brown-Forsythe test; p^1 – probability shown by the Brown-Forsythe test; p^2 – probability shown by post hoc test; A-Trait – trait anxiety; 1 – COPD; 2 – asthma; 3 – healthy people

In the analysis of severity of personality traits, significant differences between the groups under study were found in the level of neuroticism, openness to experience and conscientiousness. The average level of neuroticism was significantly higher and the level of openness to experience was significantly lower in patients with both COPD and asthma in comparison with the reference group. Significantly lower level of conscientiousness, compared with the reference group, was found only in the group of patients with asthma. No significant differences were found in the average levels of personality traits between patients with COPD and patients with asthma (Table 2).

Table 2. **Personality profile in the group of patients with COPD, asthma and the group of healthy people**

Trait	Group under study	Mean ± SD	F*	F	p^1	p^2		
						1–2	1–3	2–3
Neuroticism	COPD (1)	21.6 ± 7.67	-	5.811	0.004	0.83	0.005	0.003
	Asthma (2)	21.9 ± 8.29						
	Healthy (3)	17.1 ± 7.80						
Extraversion	COPD (1)	26.3 ± 5.29	-	2.227	0.112	-	-	-
	Asthma (2)	28.3 ± 6.76						
	Healthy (3)	28.5 ± 5.39						
Openness to experience	COPD (1)	± 6.06	4.326	-	0.015	0.786	0.018	0.008
	Asthma (2)	25.2 ± 6.36						
	Healthy (3)	28.3 ± 5.14						
Agreeableness	COPD (1)	30.8 ± 5.12	-	0.283	0.745	-	-	-
	Asthma (2)	31.4 ± 5.50						
	Healthy (3)	31.6 ±5.65						
Conscientiousness	COPD (1)	33.3 ± 6.85	5.102	-	0.007	0.171	0.072	0.002
	Asthma (2)	31.4 ± 7.86						
	Healthy (3)	35.8 ± 5.88						

F* – Brown-Forsythe test; F – ANOVA test value; p^1 – probability shown by the Brown-Forsythe or ANOVA test; p^2 – probability shown by post hoc test; 1 – COPD; 2 – asthma; 3 – healthy people

Significant differences between groups were found in the frequency of using active coping, planning and behavioral disengagement. Patients with asthma and COPD were not significantly different in their styles of coping with stress. However, compared to the reference group, both patients with asthma and those with COPD showed a significantly lower level of active coping and planning. Both groups also showed a significantly greater tendency to use behavioral disengagement (Table 3).

Table 3. **Stress coping in the group of patients with COPD, asthma and the group of healthy people**

Trait	Group	Mean ± SD	F*	p^1	p^2		
					1–2	1–3	2–3
Active coping	COPD (1)	4.0 ± 1.46	5.62	0.004	1	0.004	0.004
	Asthma (2)	4.0 ± 1.44					
	Healthy (3)	4.8 ± 1.22					
Planning	COPD (1)	3.7 ± 1.53	3.997	0.020	0.644	0.009	0.031
	Asthma (2)	3.8 ± 1.65					
	Healthy (3)	4.5 ± 1.33					
Positive reframing	COPD (1)	3.4 ± 1.58	0.787	0.457	-	-	-
	Asthma (2)	3.3 ± 1.68					
	Healthy (3)	3.6 ± 1.32					
Acceptance	COPD (1)	4.3 ± 1.43	1.792	0.170	-	-	-
	Asthma (2)	4.3 ± 1.37					
	Healthy (3)	3.9 ± 1.14					
Humor	COPD (1)	1.9 ± 1.24	1.540	0.218	-	-	-
	Asthma (2)	2.1 ± 1.61					
	Healthy (3)	1.6 ± 1.23					
Turn to religion	COPD (1)	2.3 ± 2.06	0.461	0.632	-	-	-
	Asthma (2)	5.6 ± 2.07					
	Healthy (3)	2.1 ± 2.42					
Use of emotional support	COPD (1)	3.6 ± 1.90	0.412	0.633	-	-	-
	Asthma (2)	3.7 ±1.63					
	Healthy (3)	3.4 ± 1.49					
Use of instrumental support	COPD (1)	3.3 ± 1.68	0.145	0.865	-	-	-
	Asthma (2)	3.4 ± 1.59					
	Healthy (3)	3.3 ± 1.34					
Self-distraction	COPD (1)	3.3 ± 1.62	0.122	0.885	-	-	-
	Asthma (2)	3.5 ± 1.46					
	Healthy (3)	3.5 ± 1.51					
Denying	COPD (1)	2.0 ± 1.78	1.876	0.157	-	-	-
	Asthma (2)	1.9 ± 1.72					
	Healthy (3)	1.4 ± 1.41					

table continued on the next page

Venting	COPD (1)	2.6 ± 1.40	0.797	0.453	-	-	-
	Asthma (2)	2.9 ± 1.54					
	Healthy (3)	2.6 ± 1.15					
Substance use	COPD (1)	0.3 ± 0.92	1.646	0.197	-	-	-
	Asthma (2)	0.7 ± 1.37					
	Healthy (3)	0.6 ± 0.99					
Behavioral disengagement	COPD (1)	1.9 ± 1.27	8.934	0.000	1	< 0.05	0.002
	Asthma (2)	1.9 ± 1.6					
	Healthy (3)	0.9 ± 1.04					
Self-blame	COPD (1)	3.0 ± 1.69	1.315	0.272	-	-	-
	Asthma (2)	2.5 ± 1.63					
	Healthy (3)	2.7 ± 1.34					

F* – Brown-Forsythe test; p^1 – probability shown by Brown-Forsythe test; p^2 – probability shown by post hoc test; 1 – COPD; 2 – asthma; 3 – healthy people

The results obtained in the logistic regression allowed us to confirm the differences in the intensity of the variables obtained in the analysis of variance but examined separately. Because the differences between the groups of patients were not significant, it was decided to combine them. The final regression model which best (80.7% of correctly classified observations) explained the differentiation between study and control group, consisted of six predictors (Table 4).

Table 4. **Logistic regression model with forward selection**

	B	Standard error	Wald test	df	p	Exp(B)
Openness to experience	-0.102	0.042	5.838	1	0.016	0.903
Trait anxiety	0.158	0.033	22.418	1	< 0.0005	1.171
Positive reframing	-0.442	0.189	5.488	1	0.019	0.643
Acceptance	0.637	0.199	10.308	1	0.001	1.891
Humor	0.681	0.204	11.105	1	0.001	1.977
Behavioral disengagement	0.430	0.204	4.431	1	0.035	1.537
Constant	-6.204	1.879	10.902	1	0.001	0.002
Rejected variables: neuroticism, extraversion, conscientiousness, active coping, planning, use of instrumental support, use of emotional support, denying; Exp(B) – odds ratio						

The difference in the level of neuroticism between individuals with lung disease and those without chronic conditions identified by the one-way ANOVA was found to be associated with variations in the trait of anxiety. This proved to be a factor distinguishing the study group from the reference group. Furthermore, these results confirm that

patients with pulmonary diseases differ from healthy controls in their style of coping with stress: higher level of acceptance, humor and behavioral disengagement, as well as a weaker tendency for positive reframing.

Discussion

The level of trait anxiety was significantly higher in the group of patients with COPD and asthma than in the group of healthy people.

Trait anxiety is permanent and refers to the general tendency to interpret various life situations as threatening and react to them with anxiety. The difference seems interesting and can be explained by the Regulative Theory of Temperament [30] which assumes that an individual can experience secondary changes in physiological mechanisms of temperament e.g., as a result of a long-lasting illness, which may influence the way of experiencing, feeling and regulating tension.

The obtained results confirm those of other studies [30–35]. The higher level of anxiety and higher frequency of occurrence of anxiety disorders observed in patients with pulmonary diseases may be associated with their psychosocial functioning, their being aware of the irreversibility and progress of the disease and their perception of their own limitations [36]. Dyspnea with accompanying hypoxia, which is characteristic of COPD and asthma, can also increase the feeling of anxiety [16, 34]. During the study, the patients often reported that dyspnea was accompanied by fear and anxiety. In addition, it has been found that intensified anxiety and accompanying depression or alexithymia lead to difficulties in expressing emotions, which may further lead to somatic disturbances [37].

The conducted studies reveal significant differences in the level of neuroticism, openness to experiences and conscientiousness in the study groups. Neuroticism, measured with the NEO-FFI test, developed by Costa and McCrae, refers to the tendency of the studied individual to experience emotional lability and negative emotional states, such as anxiety, tension, worrying, hostility and anger [26, 38]. Neuroticism from the tripartite personality theory of Eysenck is similar. Małaszczyk et al. also determined that somatically ill people were characterized by a higher level of neuroticism than those of a somatically healthy reference group [25]. In addition, higher results on the scale of neuroticism may be understood as a consequence of a long-lasting somatic illness. The authors suggest that the very fact of being aware of the illness and of the necessity of treatment may have an influence on the level of this trait and increase susceptibility to mental disturbances and problems. It is important to note the so-called trait effect or the influence of the reverse effect, also known as the effect of a depression state, when the apparent disturbance in mood results in lowered self-evaluation and sense of agency, and the perception of oneself as neurotic [39].

The one-way ANOVA allowed determining size and significance of the differences in anxiety, personality traits and styles of coping with stress between the groups. In addition, a deeper interpretation of the results was made possible by the use of the regression model that accounted for significant predictors. People with lung diseases were characterized by higher levels of trait anxiety, which is likely to affect the level

of neuroticism. Hence, the subjects with COPD and AO may have a higher neuroticism level because they have a higher level of anxiety. However, this conclusion must be treated with caution because of the clear correlation of these two variables, which cause the problem of the unambiguous interpretation of the results of logistic regression analysis and does not allow a clear determination of whether the level of neuroticism differed between healthy and ill subjects.

The difference in the level of conscientiousness can also be understood as an effect of state. However, here it is important to note that the study participants suffered from moderate and serious forms of asthma and COPD. This group, because of their lower respiratory parameters, is restricted in their range of planned action, efficient realization of tasks. Therefore, it is difficult to determine whether people with pulmonary diseases are less conscientious, or whether the lower results in this sphere stem from the limitations associated with the disease leading to a lower possibility of a fully satisfactory functioning. Additionally, the progress of the disease, reducing their abilities to engage in professional activities and other challenges, can decrease their sense of competence, understood as a belief in their ability to cope. Bonsaksen et al. [40] showed that the increased emotional response to lifestyle limitations associated with COPD is accompanied by a reduced conviction of one's own effectiveness. Our study confirms the presence of this emotional response (higher neuroticism and increased trait anxiety in both groups of patients) and an observed difference in the level of conscientiousness in patients with asthma.

Slightly lower openness to experience among asthma patients has been confirmed in other studies [41] and may be associated with difficulty in positively valuing their own life events due to their experience of chronic disease.

Both groups of patients in the present study were characterized by a greater tendency to use behavioral disengagement and a lower tendency to use active coping and planning than the group of healthy people. Although coping styles focused on a problem are considered to be adaptation styles, the circumstances enabling the use of task strategies are not always present [26, 42]. As a result of adaptation to a chronic disease, the study participants tend to more frequently use behavioral disengagement and preservation of resources strategies when experiencing negative effects of task coping. The result of regression analysis that indicated the importance of such forms of coping as acceptation and a sense of humor provides additional confirmation of preservation of resources hypothesis.

Although the cross-sectional character of our study represents a limitation, a reference group of patients without pulmonary disorders was included to strengthen the credibility of the results and raise its internal validity. Moreover, the risk of insincere results and the effect of the researcher's influence was minimized by ensuring full anonymity for the participants.

Conclusions

People with COPD and asthma slightly differ in terms of experienced anxiety, personality traits and coping styles, while there are significant differences between

patients with pulmonary diseases and healthy individuals. Hence, greater efforts should be made to take psychiatric, psychotherapeutic or psychoeducational actions to improve their quality of life.

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Appendix

Additional table. **Correlations between variables in the whole study group**

Intercorrelations																					
N=150		N	E	O	A	C	A – Trait	AC	PLAN	PR	ACC	H	TR	UES	UIS	SD	D	V	SU	BD	SB
N	r	1	-.392**	-.146	-.194*	-.238**	.655**	-.251**	-.239**	-.065	-.109	-.127	.197*	-.103	-.015	.213**	.246**	.271**	.010	.272**	.287**
	p		.000	.075	.018	.003	.000	.002	.003	.432	.184	.121	.016	.208	.858	.009	.002	.001	.908	.001	.000
E	r	-.392**	1	.143	.224**	.225**	-.335**	.308**	.262**	.233**	.088	.207*	-.048	.038	.027	.135	.007	-.027	.018	-.171*	-.126
	p	.000		.082	.006	.006	.000	.000	.001	.004	.283	.011	.562	.643	.741	.101	.928	.744	.828	.037	.125
O	r	-.146	.143	1	.044	.093	-.133	.400**	.381**	.182*	.076	.092	-.149	.016	.041	.003	-.199*	.091	-.007	-.235**	.068
	p	.075	.082		.595	.257	.105	.000	.000	.026	.353	.260	.068	.848	.622	.967	.014	.270	.935	.004	.406
A	r	-.194*	.224**	.044	1	.199*	-.129	-.004	.032	-.012	.171*	-.153	.031	.178*	.103	.129	-.220**	-.190*	-.047	-.123	-.026
	p	.018	.006	.595		.015	.115	.957	.695	.888	.036	.061	.703	.030	.211	.115	.007	.020	.568	.133	.753
C	r	-.238**	.225**	.093	.199*	1	-.229**	.308**	.319**	.229**	.051	-.166*	.122	.090	.088	.074	.008	.040	-.185*	-.262**	-.173*
	p	.003	.006	.257	.015		.005	.000	.000	.005	.536	.043	.137	.271	.282	.371	.927	.629	.023	.001	.034
A-Trait	r	.655**	-.335**	-.133	-.129	-.229**	1	-.213**	-.264**	-.158	-.110	-.194*	.117	-.017	-.005	.180*	.140	.314**	-.064	.321**	.186*
	p	.000	.000	.105	.115	.005		.009	.001	.053	.182	.017	.154	.834	.947	.027	.088	.000	.437	.000	.023
AC	r	-.251**	.308**	.400**	-.004	.308**	-.213**	1	.638**	.393**	.231**	.036	.113	.141	.197*	.194*	-.020	.192*	-.097	-.208*	.093
	p	.002	.000	.000	.957	.000	.009		.000	.000	.004	.660	.168	.085	.016	.018	.806	.019	.239	.011	.255
PLAN	r	-.239**	.262**	.381**	.032	.319**	-.264**	.638**	1	.503**	.254**	.239**	.167*	.175*	.279**	.202*	-.029	.107	-.210**	-.221**	.059
	p	.003	.001	.000	.695	.000	.001	.000		.000	.002	.003	.042	.032	.001	.013	.727	.193	.010	.007	.476
PR	r	-.065	.233**	.182*	-.012	.229**	-.158	.393**	.503**	1	.269**	.350**	.240**	.146	.205*	.337**	.286**	.224**	-.079	.010	.124
	p	.432	.004	.026	.888	.005	.053	.000	.000		.001	.000	.003	.074	.012	.000	.000	.006	.339	.902	.131
ACC	r	-.109	.088	.076	.171*	.051	-.110	.231**	.254**	.269**	1	.198*	.040	.239**	.223**	.085	.025	.031	-.250**	.061	.133
	p	.184	.283	.353	.036	.536	.182	.004	.002	.001		.015	.625	.003	.006	.302	.763	.704	.002	.461	.105

table continued on the next page

H	r	-.127	.207*	.092	-.153	-.166*	-.194*	.036	.239**	.350**	.198*	1	-.054	-.015	.043	.120	.140	-.024	.123	.069	.129
	p	.121	.011	.260	.061	.043	.017	.660	.003	.000	.015		.512	.852	.601	.143	.088	.768	.134	.404	.116
TR	r	.197*	-.048	-.149	.031	.122	.117	.113	.167*	.240**	.040	-.054	1	.185*	.367**	.181*	.164*	.271**	-.052	.134	.024
	p	.016	.562	.068	.703	.137	.154	.168	.042	.003	.625	.512		.024	.000	.026	.045	.001	.528	.102	.772
UES	r	-.103	.038	.016	.178*	.090	-.017	.141	.175*	.146	.239**	-.015	.185*	1	.650**	.140	.045	.134	-.035	-.049	.091
	p	.208	.643	.848	.030	.271	.834	.085	.032	.074	.003	.852	.024		.000	.087	.586	.101	.672	.554	.268
UIS	r	-.015	.027	.041	.103	.088	-.005	.197*	.279**	.205*	.223**	.043	.367**	.650**	1	.247**	.086	.200*	-.055	-.002	.074
	p	.858	.741	.622	.211	.282	.947	.016	.001	.012	.006	.601	.000	.000		.002	.298	.014	.501	.985	.369
SD	r	.213**	.135	.003	.129	.074	.180*	.194*	.202*	.337**	.085	.120	.181*	.140	.247**	1	.292**	.272**	-.207*	-.026	.081
	p	.009	.101	.967	.115	.371	.027	.018	.013	.000	.302	.143	.026	.087	.002		.000	.001	.011	.748	.322
D	r	.246**	.007	-.199*	-.220**	.008	.140	-.020	-.029	.286**	.025	.140	.164*	.045	.086	.292**	1	.287**	-.035	.309**	.321**
	p	.002	.928	.014	.007	.927	.088	.806	.727	.000	.763	.088	.045	.586	.298	.000		.000	.670	.000	.000
V	r	.271**	-.027	.091	-.190*	.040	.314**	.192*	.107	.224**	.031	-.024	.271**	.134	.200*	.272**	.287**	1	.023	.126	.032
	p	.001	.744	.270	.020	.629	.000	.019	.193	.006	.704	.768	.001	.101	.014	.001	.000		.780	.124	.701
SU	r	.010	.018	-.007	-.047	-.185*	-.064	-.097	-.210**	-.079	-.250**	.123	-.052	-.035	-.055	-.207*	-.035	.023	1	.074	.048
	p	.908	.828	.935	.568	.023	.437	.239	.010	.339	.002	.134	.528	.672	.501	.011	.670	.780		.371	.563
BD	r	.272**	-.171*	-.235**	-.123	-.262**	.321**	-.208*	-.221**	.010	.061	.069	.134	-.049	-.002	-.026	.309**	.126	.074	1	.190*
	p	.001	.037	.004	.133	.001	.000	.011	.007	.902	.461	.404	.102	.554	.985	.748	.000	.124	.371		.020
SB	r	.287**	-.126	.068	-.026	-.173*	.186*	.093	.059	.124	.133	.129	.024	.091	.074	.081	.321**	.032	.048	.190*	1
	p	.000	.125	.406	.753	.034	.023	.255	.476	.131	.105	.116	.772	.268	.369	.322	.000	.701	.563	.020	

** Correlation is significant at the level of 0.01; * Correlation is significant at the level of 0.05; N – neuroticism; E – extraversion; O – openness to experience; A – agreeableness; C – conscientiousness; A-Trait – trait anxiety; AC – active coping; PLAN – planning; PR – positive reframing; ACC – acceptation; H – humor; TR – turn to religion; UES – use of emotional support; UIS – use of instrumental support; SD – self-distraction; D – denying; V – venting; SU – substance use; BD – behavioral disengagement; SB – self-blame