



## Psychometric evaluation of the short version of the Defense Style Questionnaire on Serbian healthy adult men

Psihometrijska procena kratke verzije Upitnika mehanizma odbrane na uzorku zdravih muškaraca u Srbiji

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### Abstract

**Background/Aim.** The most famous instrument for measuring psychological mechanisms of defense is the Defense Style Questionnaire (DSQ-40), which has been increasingly used in our country. In Serbia empirical norms for male adolescent population and for elderly male adults were established. The aim of this study was psychometric evaluation of the short version of the DSQ-40 on a Serbian male middle-age non-clinical sample. **Methods.** Internal consistency, factor structure and discriminant and concurrent validity of the DSQ-40 were studied in 284 high selected male professional military personnel aged 23 to 53 years ( $35.09 \pm 7.21$  years). **Results.** The Cronbach alpha coefficient revealed a high internal consistency for the entire scale, which confirms the compactness and high reliability of this questionnaire [Intraclass correlation coefficient (ICC) = 0.724;  $p < 0.01$ ]. **Conclusion.** Evaluation of Serbian version of DSQ-40 confirms intraclass highly significant coefficients of correlation. The present findings support the applicability of the Serbian version of DSQ-40.

### Key words:

defense mechanisms; military personnel; male; adult; surveys and questionnaires; psychological tests; serbia.

### Apstrakt

**Uvod/Cilj.** Najpoznatiji instrument za merenje psiholoških mehanizama odbrane je Upitnik za procenu mehanizama odbrane (DSQ-40), koji se sve više koristi u našoj zemlji. U Srbiji su ustanovljene empirijske norme za muško adolescentno stanovništvo i za starije muške odrasle osobe. Cilj ove studije bio je psihometrijska procena kratke verzije upitnika za mehanizme odbrane (DSQ-40) na nekliničkom uzorku muškaraca srednjeg životnog doba u Srbiji. **Metode.** Interna konzistentnost, struktura faktora i diskriminacija i istovremena validnost DSQ-40 su proučavani kod 284 visoko selektovanih profesionalnih vojnih lica muškog pola, starosti od 23 do 53 godine ( $35,09 \pm 7,21$  godina). **Rezultati.** Cronbach-ovi alfa koeficijenti ukazali su na veliku unutrašnju konzistenciju za celu skalu, što potvrđuje kompaktnost i visoku pouzdanost ovog upitnika [Intraclass correlation coefficient (ICC) = 0.724;  $p < 0.01$ ]. **Zaključak.** Evaluacija srpske verzije DSQ-40 potvrdila je veoma značajne međuklasne koeficijente korelacije. Sadašnji nalazi podržavaju primenljivost srpske verzije DSQ-40.

### Ključne reči:

odbrambeni mehanizmi; vojna lica; muškarci; odrasle osobe; ankete i upitnici; psihološki testovi; srbija.

### Introduction

A psychoanalytic concept of defence mechanisms originated by Sigmund Freud, has been recognized as one of the most important contributions in bringing together the psychoanalytic theory and empirical research. Ego defence mechanisms are defined by Anna Freud as “the ways and means by which the ego wards off unpleasure and anxiety, and exercises control over impulsive behaviour, affects and instinctive urges”<sup>1</sup>.

Ego defenses are regarded to function at an unconscious level to preserve homeostasis and prevent excessive anxiety forcing its way into consciousness, whether the anxiety occurs from conflict between the person and the outside environment or within the person, guarding personal self-esteem and affecting on the whole way of acting personality in relation to the environment. Defence mechanisms represent a relatively steady aspect of personality, so that a set of defence mechanisms that one person uses points to the psychological profile of the personality. After the age of 25 years a

set of defence mechanisms that a person uses becomes relatively stable<sup>2,3</sup>.

Measuring psychological defence mechanisms is very difficult and quite unreliable, so only a few instruments for evaluating these characteristics have been developed.

There are several versions of the instrument: Defense Style Questionnaire-88, (DSQ-88), Defence Style Questionnaire-60 (DSQ-60), and Defence Style Questionnaire-40 (DSQ-40). The most famous instrument of this kind in the world is the DSQ-40, which in recent years is increasingly used<sup>4</sup>.

The DSQ-40 is the 40-item version derived from the original questionnaire developed in 1983 by Bond et al.<sup>5</sup>.

Bond et al.<sup>5</sup> proposed the DSQ, a self-administered questionnaire developed to assess defence styles, which relies on the subject's self-report of conscious derivatives of defence (coping) and it is vulnerable to the subject's response distortions<sup>4,6</sup>. Bond et al.<sup>5</sup> stated, although "it would be impossible to conclude anything about isolated defence mechanisms, we hoped that we could approximate the measure of groups of defence mechanisms that we call defence styles"<sup>5,6</sup>.

The DSQ is a widely used self-report, simple and economical (cost-effective) instrument that estimates groups of defences called defensive styles according to Vaillant's<sup>7-9</sup> continuum ranging from immature (maladaptive) defences to mature (adaptive) defences<sup>10</sup>. The DSQ measures defensive styles rather than defence mechanisms separately, because measuring defences is not reliable.

It is used in many studies including different mental disorders like psychosis<sup>11</sup>, anxiety, depression<sup>12</sup>, addictions<sup>13</sup>, etc. or to test whether specific defence styles could predict psychopathology in adolescents<sup>14-16</sup>.

The DSQ has been translated in numerous languages in different countries including Brazil<sup>17,18</sup>, Turkey<sup>19</sup>, Japan<sup>20</sup>, Romania<sup>21</sup>, Pakistan<sup>22</sup>, France<sup>23,24</sup>, Ireland<sup>25</sup>, Finland<sup>26</sup>.

Based on statistical analysis and comparison of results with appropriate norms obtained in foreign studies, it has been found that the defensive style and structure of defense psychological mechanisms influence certain socio-demographic and cultural characteristics of the respondents, so that the DSQ-40 must be adapted to a particular population, which does not diminish its practical value and applicability for diagnostic and selection purposes.

In our country, Čabarkapa and Dedić<sup>27</sup> presented development of the DSQ-40, its basic characteristics and empirical norms obtained on our population. Examination included two examined groups in military population of male sex only: soldiers of the adolescent age (n = 400) and officers of the adult age (n = 165). In their investigation, psychometric evaluation of the DSQ-40 was not done.

The aim of this study was psychometric evaluation of the DSQ-40 on a Serbian male non-clinical sample.

## Methods

### *Participants and procedure*

Study was conducted in September 2016 in the three barracks of infantry units of the Serbian Armed Forces, in

which all professional military personnel (PMP) were exposed to approximately the same professional burden.

A total of 284 randomly selected male PMP (officers, non-commissioned officers and professional soldiers) were included in this study. Obviously, this group involved PMP who were highly selected, psychophysically healthy persons and homogenized by gender (exclusively male), age (23 to 53 years;  $35.09 \pm 7.21$  years on average) and education (60% with 12 years of schooling).

The sample size was determined based on the formula for determining sample size. This number was added 10%, because of the possibility that the questionnaire will not be fully filled and, in this way, we received a sample size of 284 respondents, with a previous decision that the alpha error level is 0.05, and the beta level at the limit of 0.01 giving a 90% strength of the study<sup>28</sup>.

The participants gave their informed consent to participate in the study. The questionnaire was completed during class time: It was anonymous and no compensation was offered.

This study was conducted with approval by the Ethics Committee of the Faculty of Medal Sciences, University of Kragujevac. The General Staff of the Serbian Armed Forces approved this study. The Ministry of Defence gave a special permit for the research in the Serbian Armed Forces units.

### *Instruments*

The DSQ-40 is a psychological test consisting of 40 claims about personal attitudes related to 20 defense mechanisms, where each defence mechanism is represented with two questions. Eight questions are related to mature, as well as neurotic mechanisms, while 24 questions are addressed to immature mechanisms. Using a scale of 9 degrees, each respondent is asked to indicate how much he/she agrees with the particular one with the assertion where the degree of agreement increases with the number (1 = I disagree, 9 = I completely agree). A result related to Defensive style represents an average score obtained from the sample.

Answers to all questions of the same set are gathered, while the score for each the individual defence mechanism calculates as the average response to the questions that make up this defense mechanism<sup>9</sup>.

The DSQ-40 measures three factors (styles) of defense mechanisms: 1) Mature defense style (humor, anticipation sublimation and suppression), 2) Neurotic defense style (pseudoaltruism, reactive formation undoing and idealization), and 3) Immature defense style (autistic fantasy, projection, dissociation, somatization, rationalization, displacement, isolation, acting-out, devaluation denial, passive aggression, splitting).

### *Statistical analyses*

Statistical analysis was carried out using Statistical Package for the Social Sciences (IBM SPSS) software version 20.0.

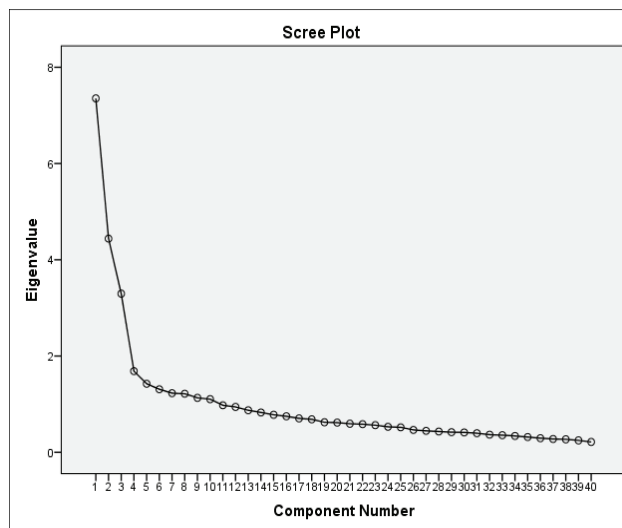
For each examined variable the mean value and the standard deviation are calculated (SD).

An exploratory factor analysis (EFA) was performed on 40 items (principal components extraction with Varimax rotation). A solution was selected on the basis of the scree test. For analysis of the DSQ-40 scale reliability, the value of the Cronbach alpha coefficient was used. Analysis of the connection between all segments of the defenses mechanisms mutually and their correlations with total score was done.

## Results

An analysis of the DSQ-40 scale reliability [Intraclass correlation coefficient (ICC)], with the value of the Cronbach alpha coefficient being high, 0.795, and analysis of changes in the coefficient by eliminating individual issues showed that this part of the questionnaire proved to be very consistent and reliable, and that there were no issues whose elimination would significantly increase the reliability of whole scale coefficient. Also, the value of ICC was highly significant confirming the compactness and high reliability of this questionnaire (ICC = 0.724;  $p < 0.01$ ) (Table 1).

Scree plot is shown on Figure 1.



**Fig. 1 – A line plot of eigenvalues of principle components in an analysis of the Serbian version of the Defense Style Questionnaire (DSQ-40).**

An exploratory factor analysis performed on 40 items (principal components extraction with Varimax rotation) of the DSQ-40, identified 10 significant factors explaining approximately 61% of the variability of the entire model (Table 2).

The first factor consisted of 8 DSQ questions: 3, 5, 59, 61, 68, 81 and 84, which built four mature defenses: humor, anticipation, sublimation and suppression. The first factor was called mature defense style.

The second factor consisted of 5 DSQ questions: 13, 37, 38, 58 and 63, which built four neurotic defenses: pseudo-altruism, reactive formation, undoing and idealization. The second factor was called neurotic defense style.

Factors from 3 to 10 consisted of questions that built immature defenses mechanisms. They were called common immature defense style.

**Table 1  
Cronbach's alfa coefficients of the Defense Style Questionnaire (DSQ-40)**

Questions (number)	Cronbach's alpha
DSQ1	0.792
DSQ3	0.805
DSQ5	0.803
DSQ6	0.794
DSQ8	0.796
DSQ12	0.790
DSQ13	0.797
DSQ16	0.790
DSQ23	0.784
DSQ24	0.783
DSQ27	0.788
DSQ28	0.789
DSQ29	0.792
DSQ31	0.786
DSQ37	0.787
DSQ38	0.786
DSQ40	0.789
DSQ42	0.786
DSQ43	0.786
DSQ45	0.787
DSQ51	0.784
DSQ53	0.789
DSQ54	0.788
DSQ58	0.795
DSQ59	0.799
DSQ61	0.799
DSQ62	0.785
DSQ63	0.780
DSQ66	0.787
DSQ68	0.798
DSQ69	0.791
DSQ71	0.790
DSQ73	0.791
DSQ76	0.785
DSQ81	0.805
DSQ82	0.784
DSQ83	0.786
DSQ84	0.803
DSQ86	0.793
DSQ88	0.787

The third factor consisted of 4 DSQ questions: 12, 54, 66 and 69 (projection, passive aggression, displacement), the fourth factor consisted of 3 DSQ questions: 16, 23 and 24 (denial, dissociation, devaluation), the fifth factor consisted of 2 DSQ questions: 31 and 40 (fantasy), the sixth factor consisted of 3 DSQ questions: 42, 53 and 73 (splitting); the seventh factor consisted of 2 DSQ questions: 27 and 28 (acting out), the eighth factor consisted of 2 DSQ questions: 43 and 45 (splitting); the ninth factor consisted of 2 DSQ questions: 51 and 62 (somatization) and the tenth factor consisted of 3 DSQ questions: 1, 6 and 8 (rationalization).

DSQ questions 29, 71 and 76 did not include any of 10 components of our model, which can be seen in Table 2.

An analysis of connection between questions regarding the mature defense style showed a positive and statistically significant correlation ( $p < 0.001$ ) between all segments of the mature defense with each other and with total score. That means that an increase in any segment of the mature defenses is accompanied by the increase in other segments and total

score of this part of the DSQ-40, and vice versa, a reduction of any segment of the Mature defenses is accompanied by the reduction of all others.

The most important component of the total score of the mature defenses was sublimation, and the smallest one that contributed was humor, both being statistically significant ( $p < 0.001$ ) (Table 3).

Table 2

Rotated Component Matrix

Question number	Component									
	1	2	3	4	5	6	7	8	9	10
DSQ1	0.002	0.296	-0.108	0.089	0.058	0.120	0.079	-0.059	0.141	<b>0.668</b>
DSQ3	<b>0.664</b>	-0.381	0.028	-0.179	-0.025	0.031	0.145	0.008	0.148	0.092
DSQ5	<b>0.724</b>	-0.037	-0.045	0.065	-0.146	0.210	-0.163	0.045	-0.014	-0.038
DSQ6	-0.106	0.416	-0.038	0.155	0.019	-0.223	-0.131	-0.055	-0.024	<b>0.586</b>
DSQ8	0.391	-0.109	-0.035	0.192	-0.098	-0.120	-0.133	-0.076	-0.088	<b>0.508</b>
DSQ12	0.215	0.035	<b>0.580</b>	0.187	0.061	-0.075	0.243	-0.175	0.088	-0.276
DSQ13	-0.107	<b>0.423</b>	0.007	0.279	-0.328	0.408	-0.103	-0.204	0.121	0.008
DSQ16	-0.002	0.112	0.106	<b>0.674</b>	-0.055	0.088	-0.075	-0.030	0.071	0.197
DSQ23	-0.008	0.151	0.052	<b>0.772</b>	0.173	0.036	0.056	0.116	0.137	0.012
DSQ24	-0.082	0.253	0.174	<b>0.515</b>	0.078	-0.191	0.383	0.141	-0.103	0.118
DSQ27	-0.061	-0.037	0.208	0.036	0.057	0.026	<b>0.799</b>	0.183	0.044	0.067
DSQ28	0.052	0.032	0.245	0.016	0.180	0.053	<b>0.614</b>	-0.054	0.266	-0.242
<i>DSQ29</i>	<i>-0.361</i>	<i>0.225</i>	<i>0.333</i>	<i>0.122</i>	<i>0.141</i>	<i>-0.316</i>	<i>0.109</i>	<i>-0.148</i>	<i>-0.001</i>	<i>0.293</i>
DSQ31	-0.051	0.002	0.205	0.145	<b>0.772</b>	-0.074	0.114	0.104	0.085	0.045
DSQ37	-0.054	<b>0.685</b>	0.113	0.181	-0.113	-0.098	-0.018	0.070	0.049	0.153
DSQ38	-0.037	<b>0.722</b>	-0.001	0.312	0.083	-0.126	0.010	0.073	-0.022	-0.135
DSQ40	-0.090	0.020	0.199	0.022	<b>0.748</b>	0.043	0.055	0.087	0.166	-0.064
DSQ42	-0.193	0.296	0.131	0.412	0.296	<b>-0.513</b>	0.139	0.027	0.110	-0.039
DSQ43	0.101	0.171	0.097	0.145	0.101	0.041	-0.025	<b>0.768</b>	0.205	-0.048
DSQ45	0.080	-0.037	0.192	-0.019	0.154	-0.017	0.369	<b>0.691</b>	0.187	-0.113
DSQ51	-0.013	0.148	0.164	0.222	0.170	-0.089	0.070	0.164	<b>0.671</b>	0.047
DSQ53	-0.252	0.188	0.372	0.160	0.180	<b>-0.527</b>	0.057	0.106	0.144	0.028
DSQ54	-0.061	0.142	<b>0.560</b>	-0.018	0.159	-0.021	-0.064	0.032	0.430	-0.107
DSQ58	-0.071	<b>0.517</b>	-0.238	0.187	0.081	-0.056	0.060	-0.292	0.211	0.104
DSQ59	<b>0.624</b>	0.124	-0.283	-0.011	-0.072	0.011	0.156	-0.016	-0.177	0.040
DSQ61	<b>0.747</b>	0.062	-0.161	0.179	-0.021	-0.115	-0.229	-0.074	-0.014	-0.084
DSQ62	-0.093	0.023	0.269	0.052	0.063	-0.038	0.345	0.279	<b>0.591</b>	0.044
DSQ63	-0.082	<b>0.611</b>	0.345	0.163	0.136	-0.061	0.123	0.063	0.025	0.132
DSQ66	-0.113	0.047	<b>0.699</b>	0.134	0.177	-0.099	0.159	0.004	0.093	-0.073
DSQ68	<b>0.492</b>	0.098	-0.036	-0.014	-0.327	0.039	0.057	0.221	-0.148	0.272
DSQ69	-0.152	-0.100	<b>0.579</b>	-0.016	-0.055	0.232	0.054	0.152	0.197	0.085
<i>DSQ71</i>	<i>-0.124</i>	<i>0.031</i>	<i>0.263</i>	<i>-0.071</i>	<i>0.330</i>	<i>0.222</i>	<i>0.236</i>	<i>-0.009</i>	<i>0.307</i>	<i>0.112</i>
DSQ73	0.222	-0.071	0.100	0.264	0.188	<b>0.642</b>	0.146	0.110	-0.018	-0.050
<i>DSQ76</i>	<i>-0.083</i>	<i>0.251</i>	<i>0.249</i>	<i>0.218</i>	<i>0.372</i>	<i>0.235</i>	<i>0.074</i>	<i>0.351</i>	<i>-0.239</i>	<i>0.124</i>
DSQ81	<b>0.651</b>	-0.260	-0.092	-0.159	0.163	0.377	0.010	0.149	-0.039	-0.080
DSQ82	-0.089	0.179	<b>0.654</b>	0.026	0.181	-0.103	0.171	0.182	0.061	-0.042
DSQ83	-0.119	-0.044	<b>0.573</b>	0.112	0.308	0.057	0.247	0.248	-0.123	0.009
DSQ84	<b>0.626</b>	-0.343	0.116	-0.288	0.081	0.194	0.118	0.031	0.066	0.029
DSQ86	-0.152	<b>0.677</b>	0.014	-0.156	-0.080	0.005	-0.024	0.096	0.086	0.148
DSQ88	0.182	<b>0.550</b>	0.117	-0.103	0.258	0.424	0.036	0.136	-0.035	0.025

DSQ – Defence Style Questionnaire.

**Table 3****Correlations of mature defense mechanisms**

Defense mechanisms		Humor	Anticipation	Suppression	Sublimation
Anticipation	r	0.458			
	p	0.001			
	N	284			
Suppression	r	0.473	0.592		
	p	0.001	0.001		
	N	284	284		
Sublimation	r	0.440	0.662	0.655	
	p	0.001	0.001	0.001	
	N	284	284	284	
Total	r	0.669	0.842	0.846	0.880
	p	0.001	0.001	0.001	0.001
	N	284	284	284	284

r – correlation coefficient; N – total number; p – significance.

**Table 4****Correlations of neurotic defense mechanisms**

Defense mechanisms		Pseudo-altruism	Reaction formation	Undoing	Idealization
Reaction formation	r	0.406			
	p	0.001			
	N	284			
Undoing	r	0.242	0.272		
	p	0.001	0.001		
	N	284	284		
Idealization	r	0.336	0.369	0.241	
	p	0.001	0.001	0.001	
	N	284	284	284	
Total	r	0.728	0.746	0.601	0.701
	p	0.001	0.001	0.001	0.001
	N	284	284	284	284

r – correlation coefficient; N – total number; p – significance.

An analysis of the connection between questions regarding the neurotic defense segment of the DSQ-40 showed that there was positive and statistically significant correlation ( $p < 0.001$ ) between all segments of the neurotic defense mechanisms with each other and with total score. That means that increase in any segment of the neurotic defenses was accompanied by an increase in other segments and total score of this part of the DSQ-40, and vice versa, a reduction of any segment of the neurotic defense style was accompanied by reduction of all others.

The most important component of the neurotic defense style was the segment of reactive formation, and the least one contributing to the cancellation was undoing, both of them highly statistically significant ( $p < 0.001$ ) (Table 4).

An analysis of the connection between questions regarding immature defense mechanisms of the DSQ-40 showed that there was a positive and statistically significant correlation ( $p < 0.001$ ) between the majority of segments of the immature defenses with each other and with total score. That means that an increase in any segment of the immature defenses was accompanied by an increase in other segments and total score of this part of the DSQ-40, and vice versa, re-

duction of any segment of the immature defenses is accompanied by the reduction of all others.

The only negative, but significant correlation was recorded between scores of the rationalization and displacement.

Exceptions of this rule were scores of segments that were not significantly correlated ( $p > 0.01$ ), such as splitting, denial, devaluation from one side, and displacement on the other side, as well as acting out and rationalization. Also, there was no significant correlation between scores of rationalization and somatization, scores of rationalization and projection, and scores of displacement and dissociation.

The most important components of the total score of the immature defenses were devaluation, passive aggression and splitting, and the smallest one was displacement; they all were statistically significant ( $p < 0.001$ ) (Table 5).

An analysis of an interconnection of questions of the DSQ-40 segments showed that there was a positive and statistically significant correlation ( $p < 0.001$ ) between segments of immature and neurotic total scores. That means that an increase in the total score of any immature defense mechanisms was accompanied by an increase in the neurotic de-

fense mechanisms scores of the DSQ-40, and, vice versa, a reduction of any of them led to a decrease in other scores.

If the relationships between the mature and other defense mechanisms were observed, they were negative and highly statistically significant ( $p < 0.001$ ). This could be explained by the fact that an increase in scores in e mature de-

fense mechanisms led to a decrease in scores in the immature and neurotic defense mechanisms, and vice versa (Table 6).

We present the basic characteristics and empirical norms obtained on non-clinical population of male professional military personnel. Items referred to a defense mechanism are done, too (Table 7).

**Table 5**

**Correlations of immature defense mechanisms**

Defense mechanisms		Autistic fantasy	Projection	Dissociation	Somatization	Rationalization	Displacement	Isolation	Acting out	Devaluation	Denial	Passive aggression	Splitting
Projection	r	0.344											
	p	0.001											
	N	284											
Dissociation	r	0.153	0.185										
	p	0.010	0.00										
	N	284	284										
Somatization	r	0.365	0.403	0.139									
	p	0.001	0.001	0.019									
	N	284	284	284									
Rationalization	r	0.113	0.069	0.572	-0.008								
	p	0.052	0.246	0.001	0.887								
	N	284	284	284	284								
Displacement	r	0.237	0.259	0.098	0.282	-0.117							
	p	0.001	0.001	0.101	0.001	0.050							
	N	284	284	284	284	284							
Isolation	r	0.411	0.342	0.253	0.301	0.118	0.330						
	p	0.001	0.001	0.001	0.001	0.050	0.001						
	N	284	284	284	284	284	284						
Acting Out	r	0.312	0.368	0.116	0.531	-0.030	0.308	0.383					
	p	0.001	0.001	0.051	0.001	0.618	0.001	0.001					
	N	284	284	284	284	284	284	284					
Devaluation	r	0.287	0.299	0.490	0.275	0.385	0.060	0.345	0.212				
	p	0.001	0.001	0.001	0.001	0.001	0.315	0.001	0.001				
	N	284	284	284	284	284	284	284	284				
Denial	r	0.253	0.270	0.558	0.172	0.464	0.013	0.247	0.115	0.563			
	p	0.001	0.001	.001	0.004	0.001	0.828	0.001	0.051	0.001			
	N	284	284	284	284	284	284	284	284	284			
Passive aggression	r	0.372	0.528	.247	0.473	0.137	0.241	0.461	0.360	0.309	0.302		
	p	0.001	0.001	0.001	0.001	0.021	0.001	0.001	0.001	0.001	0.001	.001	
	N	284	284	284	284	284	284	284	284	284	284	284	
Splitting	r	0.336	0.349	0.313	0.334	0.272	0.091	0.368	0.387	0.406	0.396	0.453	
	p	0.001	0.001	0.001	0.001	0.001	0.126	0.001	0.001	0.001	0.001	0.001	0.001
	N	284	284	284	284	284	284	284	284	284	284	284	284
Total	r	0.582	0.604	0.600	0.590	0.444	0.371	0.641	0.564	0.678	0.632	0.678	0.675
	p	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	N	284	284	284	284	284	284	284	284	284	284	284	284

r – correlation coefficient ; N – total number; p – significance.

**Table 6**

**Correlations of total scores of defense mechanisms**

Defense mechanisms		Total neurotic	Total immature
Total immature	r	0.513	
	p	0.001	
	N	284	
Total neurotic	r	-0.286	-0.213
	p	0.001	0.001
	N	284	284

r – correlation coefficient; N – total number; p – significance.

Table 7

## Defense mechanisms in Serbian healthy adult men (n = 284)

Defense mechanism	Item	Mean	SD
Mature		6.48	1.66
humor	8, 61	7.72	1.41
anticipation	68, 81	5.91	2.07
suppression	3, 59	6.43	2.11
sublimation	5, 84	5.87	2.49
Neurotic		4.26	1.36
pseudo-altruism	1, 86	5.70	2.07
reaction formation	13, 63	4.10	2.03
undoing	71, 88	3.09	1.76
idealization	51, 58	4.19	1.95
Immature		3.47	1.12
autistic fantasy	31, 40	2.37	1.81
projection	12, 66	2.54	1.61
dissociation	23, 37	4.16	1.97
somatization	28, 62	2.77	1.80
rationalization	6, 38	5.67	2.00
displacement	69, 73	2.71	1.63
isolation	76, 83	3.33	1.97
acting out	27, 46	3.18	1.96
devaluation	24, 29	4.49	2.21
denial	16, 42	3.73	1.96
passive aggression	54, 82	2.76	1.78
splitting	43, 53	3.95	2.04

SD – standard deviation.

### Discussion

In the present study, we provided an evidence for the appropriateness of the DSQ-40 version for use in male middle age population (23 to 53 years old;  $35.09 \pm 7.21$  years on the average). Our evaluation of Serbian version of DSQ-40 confirmed highly significant intraclass correlation coefficients as well as the compactness and high reliability of this questionnaire.

In our country, Čabarkapa and Dedić<sup>27</sup> established the empirical norms for male adolescent population (n = 400, 19–27 years old,  $20.40 \pm 1.44$  years, on the average) and for elderly adults (n = 165) divided into two groups: A-group (n = 80 respondents, 38–45 years old, mean =  $42.64 \pm 3.16$  years) and B-group (n = 85 respondents, 45–56 years old,  $49.32 \pm 2.39$  years, on the average)<sup>27</sup>. In this way, our research completed the gape for empirical norms for the middle age male population, between adolescence and the elderly population. Besides, in mentioned investigation of Čabarkapa and Dedić<sup>27</sup>, a psychometric evaluation of the DSQ-40 was not done, which is the advantage of our investigation. On the other hand, we showed that the DSQ-40 could be used in investigations, not only in clinical, but also in nonclinical settings.

Using the DSQ-40 is an easy and economical way to determine defense mechanisms, as well as hierarchically grouping defense mechanisms into defensive styles in a respondent population. The advantages of the DSQ-40 are that it saves time and does not require highly trained professionals to use it, that is, it is easy to process results. In military

psychology and psychiatry, the DSQ-40 has the significance of defining a defensive style that describes the behavior of professional military personnel in the unit, as the degree of their adaptation to the military environment.

Deviations from standard values and empirical norms obtained on our sample of respondents can serve as a measure of psychopathology, which can help doctors in assessing psychopathology. Adaptive style measurement using the DSQ-40 can be useful as a measure of psychopathology and can help in risk assessment, treatment planning and assessment of treatment course. Also, it can be used in assessing a disease remission, as well as in assessing vulnerability to possible diseases<sup>11–16</sup>.

### Limitation

The study was conducted among male professional military personnel. The sample was homogeneous regarding gender, and social, cultural, economic and educational characteristics. However, further investigations require the validation of the DSQ-40 on a female sample, too.

The factor structure of the Serbian version needs further exploration, regarding the immature defenses factors. Dispersion of immature defense mechanisms, included in 7 factors, was expected, because our respondents were mental and somatic healthy military personnel, mostly with mature personal organization using mature defenses mechanisms.

However, the factor structure of the Serbian version of the DSQ-40 needs further exploration. Further research

should also consider the validation of the DSQ-40 both on a larger non-clinical sample and on a clinical sample.

In further work, a focus should be put on improving psychometric characteristics of the DSQ-40 and additional correlation and factor analyses, an individual and associated defense mechanisms and, more accurately, it should estimate differences that can exist with respect to defense mechanisms in subjects that differ in age, gender and psychological sta-

tus, which would confirm our standardization of this instrument in the Serbian population.

### Conclusion

Psychometric evaluation of the short version of the DSQ-40 performed on the Serbian middle age healthy men supports its applicability in non clinical settings.

### R E F E R E N C E S

1. Freud A. The ego and the mechanisms of defense. New York, NY, USA: International University Press; 1966.
2. Andrews G, Pollock C, Stewart G. The determination of defense style by questionnaire. *Arch Gen Psychiatry* 1989; 46(5): 455–60.
3. Andrews G, Singh M, Bond M. The Defense Style Questionnaire. *J Nerv Ment Dis* 1993; 181(4): 246–56.
4. Cramer P. Defense mechanisms: 40 years of empirical research. *J Pers Assess* 2015; 97(2): 114–22.
5. Bond M, Gardner ST, Christian J, Sigal JJ. Empirical study of self-rated defense styles. *Arch Gen Psychiatry* 1983; 40(3): 333–8.
6. Bond MP, Vaillant JS. An empirical study of the relationship between diagnosis and defense style. *Arch Gen Psychiatry* 1986; 43(3): 285–8.
7. Vaillant GE. Theoretical hierarchy of adaptive ego mechanisms: A 30-year follow-up of 30 men selected for psychological health. *Arch Gen Psychiatry* 1971; 24(2): 107–18.
8. Vaillant GE. Natural history of male psychological health: V. The relation of choice of ego mechanisms of defense to adult adjustment. *Arch Gen Psychiatry* 1976; 33(5): 535–45.
9. Vaillant GE, Bond M, Vaillant CO. An empirically validated hierarchy of defence mechanisms. *Arch Gen Psychiatry* 1986; 43(8): 786–94.
10. Hyphantis T. The Greek version of the Defense Style Questionnaire: Psychometric properties in three different samples. *Compr Psychiatry* 2010; 51(6): 618–29.
11. Ciocca G, Collazzone A, Limoncin E, Franchi C, Mollaioli D, Di Lorenzo G, et al. Defence mechanisms and attachment styles in paranoid ideation evaluated in a sample of non-clinical young adults. *Riv Psichiatr* 2017; 52(4): 162–7.
12. Colovic O, Lecic Tosevski D, Perunicic Mladenovic I, Milosavljevic M, Munjiza A. Defense Mechanisms in "Pure" Anxiety and "Pure" Depressive Disorders. *J Nerv Ment Dis* 2016; 204(10): 746–51.
13. Inavicka K, Gerbant A, Olajossy M. Psychopathological symptoms, defense mechanisms and time perspectives among subjects with alcohol dependence (AD) presenting different patterns of coping with stress. *Peer J* 2017; 5: e3576.
14. Pour SG, Nezhad M, Sabooni M, Mir Ahmadi H. Can defense styles predict psychopathology in adolescents? *Proc Soc Behav Sci* 2011; 30: 590–5.
15. Lewis AJ, White J. Brief report: The defense mechanisms of homophobic adolescent males: A descriptive discriminant analysis. *J Adolesc* 2009; 32(2): 435–41.
16. Muris P, Winands D, Horselenberg P. Defense styles, personality traits and psychopathological symptoms in nonclinical adolescents. *J Nerv Ment Dis* 2003; 191(12): 771–8.
17. Blaya C, Kipper L, Heldt E, Isolan L, Ceitlin LH, Bond M, et al. Brazilian-Portuguese version of the Defense Style Questionnaire (DSQ-40) for defense mechanisms measure: a preliminary study. *Rev Bras Psiquiatria* 2004; 26(4): 255–8. (Portuguese)
18. Blaya C, Dornelles M, Blaya R, Kipper L, Heldt E, Isolan L, et al. Brazilian-Portuguese version of Defensive Style Questionnaire-40 for the assessment of defense mechanisms: construct validity study. *Psychother Res* 2007; 17(3): 261–70.
19. Yılmaz N, Gençöz T, Ak M. Psychometric properties of the defense style questionnaire: a reliability and validity study. *Turk Psikiyatri Derg* 2007; 18(3): 244–53. (Turkish)
20. Hayashi M, Miyake Y, Minakawa K. Reliability and validity of the Japanese edition of the Defense Style Questionnaire 4. *Psychiatry Clin Neurosci* 2004; 58(2): 152–6.
21. Cașan AM, Clinciu AI. Psychometric evaluation of the short version of the Defense Style Questionnaire on a Romanian non-clinical sample. *Proc Soc Behav Sci* 2015; 187: 408–12.
22. Parekh MA, Majeed H, Khan TR, Khan AB, Khalid S, Khwaja NM, et al. Ego defense mechanisms in Pakistani medical students: a cross sectional analysis. *BMC Psychiatry* 2010; 10: 12.
23. Chabrol H, Rousseau A, Rodgers R, Callaban S, Pirlot G, Szulman H. A study of the face validity of the 40 item version of the Defense Style Questionnaire (DSQ-40). *J Nerv Ment Dis* 2005; 193(11): 756–8.
24. Saint-Martin C, Valls M, Rousseau A, Callaban S, Chabrol H. Psychometric evaluation of a shortened version of the 40-item Defense Style Questionnaire. *Int J Psychol Psychol Ther* 2013; 13(2): 215–24.
25. Wilkinson WW, Ritchie TD. The dimensionality of defense-mechanism parcels in the Defense Style Questionnaire-4. *Psychol Assess* 2015; 27(1): 326–31.
26. Ruutu T, Pelkonen M, Holli M, Karlsson L, Kiviruusu O, Heilä H, et al. Marttunen M. Psychometric properties of the Defense Style Questionnaire (DSQ-40) in adolescents. *J Nerv Ment Dis* 2006; 194(2): 98–105.
27. Čabarkapa M, Dedić G. Development, basic characteristics and empirical norms of psychological test DSQ-4. *Vojnosanit Pregl* 2002; 59(5): 507–14. (Serbian)
28. Erić-Marinković J, Dotlić R, Janošević S, Kocov N, Gajić M, Ille T, et al. Statistics for researchers in the field of medical sciences. Belgrade: Faculty of Medicine, University of Belgrade; 2011. (Serbian)

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