

# THE BRIEF RESILIENCE SCALE – A ROMANIAN-LANGUAGE ADAPTATION

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**Abstract:** The purpose of this article is to present the adaptation of the Brief Resilience Scale developed by Smith et al. to the Romanian language. The scale was applied in two different samples at different times. In the first study, conducted on a sample composed of 198 military students, factor analysis revealed the presence of a single factor, weakly charged with five of the six items of the scale. The internal validity coefficient of the scale is low, but convergent validity is well supported by strong correlations between the level of resilience and other measured constructs (perceived stress, self-efficacy and self-regulation). In the second study, conducted on one sample made up of 166 employees in the Romanian military system, all items satisfactorily loaded on a single factor and Cronbach's alpha value indicated good internal consistency of the scale. The staff resilience level was positively correlated with skill use and social support at work and negatively with perceived stress. The t-test highlighted a strong association between professional status of respondents and their level of resilience, military personnel obtaining higher average than civilian personnel as well as a weak association between the respondents' gender and their level of resilience, men achieving higher average than women. Students have lower resilience scores than staff whilst also reporting higher stress levels. Although BRS did not prove satisfactory psychometric properties for the sample of military students, it proved suitable for the sample of employees of the Romanian military system.

**Keywords:** Brief Resilience Scale, reliability, validity

## **Introduction**

The word resilience came in Romanian psychology mainly through English language literature. Romanian authors have taken this term and have included it in their research work of clinical psychology, psychotherapy, psychopathology, developmental psychology etc.

The term *mental strength* was used in Romanian for a long time, defined as the limit of the human psyche beyond which it loses its ability to adapt successfully, from a functional point of view, to environmental demands. This term denotes what English literature defines as the term *hardiness*.

The term used in Romanian military psychology is that of *psychophysical strength* defined as „the human capacity (of the military, of the fighter) to engage in activities as long as possible with maximum efficiency, under the assumption of the resisting to the influence of a variable number of physical and psychosocial factors, internal and external” (Totolici, 1994: 82). Equivalent to the above term is the *psychophysical stability* as the ability of the human body to maintain physical and mental strength to an optimum level under the influence of disturbing factors having extreme values. If we consider these two terms, we see that they correspond in English literature to those definitions that focus on the adaptive aspect of resilience such as, for example, the definition of Allison et al.: „the capacity to develop a high degree of competence in spite of stressful environments and experiences” (Meredith et al., 2011: 77).

But resilience in the sense understood by Earvolino-Ramirez, as the capacity of the individual „to bounce back from stressful experience quickly and efficiently, just as resilient metals bend but not break” or in

the basic sense studied by Smith et al.: "the ability to bounce or spring back" and Carver: "the homeostatic return to a prior condition" (Meredith et al., 2011: 77-79) is not found in the Romanian military literature. The focus is placed on resistance to the stress generated by military activities, on types of psychophysical strength (muscular, cardio, mental) on the relationship between psychophysical strength and energy burn-up. In terms of mental strength, military studies discuss about sensorial and emotional strength. The accent is placed on factors that determine the dynamics of psychophysical military strength: physical, psychosocial and individual factors, environmental factors, those related to fighting techniques, to specific tasks and to the battlefield. Widely discussed are ways to increase psychophysical resistance: appropriate professional selection, intensive and prolonged training, appropriate psychological, medical and physical training assistance, adequate mental preparation for combat and military life in general. Particular emphasis is given to moral issues in military actions, a field in which studies are more numerous.

However, discussions rely more on adaptation to risk and extreme events and less on the return to optimum functioning and adaptation to normal life of the military after he/she experienced it. This is due mainly to the fact that for a long time - the period between the Second World War and Romania's entry into NATO, in which we must also include the „endless” years of communism - the Romanian army did not participate and was not involved in open conflicts. Only after numerous missions to different parts of the world, as part of the alliance, the Romanian Army began to face the consequences of being exposed to risk and specific combat situations. These situations were true tests Romanian military psychological training programs had to pass.

Compared to the military psychology literature of the countries in the NATO alliance, in Romania less is written in this area and studies that relate to post-deployment consequences of participating in NATO missions are even fewer.

Our interest focuses on resilience as an integrating concept whose operationalization should allow the creation of advanced training programs for militaries under conditions of social and military context in modern times. An important first step is to clearly define resilience to reflect both literature and military culture. A clear definition of the concept is the essential starting point for those who have the responsibility to create, implement and evaluate programs to increase the resilience of soldiers.

We believe that the way Rutter (2006) defines the concept of resilience is best suited for the type of activities carried out by the military and can be more easily operationalized for this area: „Essentially, resilience is an interactive concept that is concerned with the combination of serious risk experiences and a relatively positive psychological outcome despite those experiences.” (Rutter, 2006:2).

Rutter discusses two types of research that have generated significant results for the notion of resilience for the purposes set out above. First, he refers to the large number of studies which indicate the relationship between inter-individual differences and how people react to environmental disasters; but, before making inferences about resilience out of these differences, Rutter shows that:

*there are two major methodological artifactual possibilities that have to be considered. To begin with, apparent resilience might be simply a function of variations in risk exposure. This possibility means*

*that resilience can only be studied effectively when there is both evidence of environmentally mediated risk and a quantitative measure of the degree of such risk. The other possible artifact is that the apparent resilience might be a consequence of measuring too narrow a range of outcomes. The implication is that the outcome measures must cover a wide range of possibly adverse sequelae. (Rutter, 2006: 2).*

Secondly, we must bear in mind that exposure to stressful or risk situations often increases resistance to this type of stressors. Conditions under which those situations increase human strength compared to the ones leading to its decrease should be studied. Rutter shows that such research is rare enough but research already carried out indicates the presence of effective coping mechanisms that may include elements of physiological adaptation, psychological habits, feelings of self-efficacy, the use of coping strategies and the cognitive ability to redefine life experiences.

The creation of programs to develop resilience and the assessing of their efficiency require standardized instruments to measure it and the features, factors and associated mechanisms. A milestone in the study of military resilience is to identify and validate those measuring instruments suitable and relevant for this domain. In this respect, the scale constructed by Smith and his colleagues seemed appropriate as a starting point because it is an understandable scale, easy to apply and interpret and relates to the basic meaning of resilience: the ability "to bounce or spring back" or to recover from stress.

The authors examined the psychometric characteristics of this scale using data obtained by applying the scale in four samples, including

two student samples and samples with cardiac and chronic pain patients. In their study, BRS demonstrated good internal consistency and test-retest reliability. The results of statistical analyzes indicated the connection between resilience and personal characteristics, social relations, coping, and health in all samples. BRS was positively correlated with other resilience measures, with optimism, purpose in life, social support, active coping, positive reframing, positive affect and with exercise days per week in a cardiac rehabilitation sample; it was also negatively correlated with pessimism, alexithymia, negative interactions, behavioral disengagement, denial, self-blame, perceived stress, anxiety, depression, negative affect and physical symptoms and also with fatigue in a cardiac sample and with fatigue and pain in a sample of middle-aged women.

Based on these results the authors concluded that the “The BRS is a reliable means of assessing resilience as the ability to bounce back or recover from stress and may provide unique and important information about people coping with health-related stressors”. (Smith et al, 2008: 194)

Amet, Subhan, Jaafar, Mahmud and Johari (2014) examined the psychometric status of BRS in a sample consisting of 120 international students studying in a public university in Malaysia. Through factor analysis, the authors have established the presence of one single factor with eigenvalues greater than 1.0, responsible for 73.54% of the total variance. Cronbach's alpha coefficient was .93, which indicates a good reliability of the scale.

## **Design**

The adaptation process of BRS followed the steps recommended in the literature. Thus, during the first stage, there was conducted a review of national and international databases to identify the possible adaptation/uses of the scale. During the second stage, two translators performed a translation and back-translation of the scale. Two English teachers independently translated the scale from English into Romanian. This translation was analyzed by the author together with two psychologists employed in the military structures. The back-translation was performed independently by two professional translators. The final version of the scale was analyzed again by psychologists after which it was submitted to testing on a group of 74 military students who completed the scale again at a distance of 4 weeks from the initial testing.

The final version of the scale was validated on two independent samples, being included in two different questionnaires containing other scales for testing convergent validity.

In both studies, the primary analyses assessed the factor structure, reliability, and validity of the BRS. The factor structure was examined by principal components analyses (PCA) with a varimax rotation retaining eigenvalues  $>1$ . Internal consistency was examined using Cronbach's alpha. Convergent validity was assessed by correlations between the BRS and other measures. Also, the differences between the two samples were tested by statistical t- test.

### **Study no.1**

#### *Participant Sample.*

The sample investigated in the first study consists of 198 military students, all male. The average age is 20.4 years (s.d. = 1.8). In addition

to age there were also considered the academic year and the graduated high school type: military (46.5%) or civil (53.5%). The students completed tests voluntarily in their spare time.

### *Measures*

1. *The Brief Resilience Scale (BRS)* is an instrument designed to assess the ability to bounce back or recover from stress. The scale consists of six items. Items 1, 3, and 5 are positively worded, and items 2, 4, and 6 are negatively worded. Items 2, 4 and 6 should be reverse coded. The BRS is scored by finding the mean of the six items. The following instructions are used to administer the scale: "Please indicate the extent to which you agree with each of the following statements by using the following scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree."

2. *The Perceived Stress Scale (PSS; Cohen, Kamark, Mermelstein, 1983)* is an instrument designed to measure the degree to which people perceive their life situations as stressful. It contains 14 items responded to on a 5-point scale. PSS scores are obtained by summing all the 14 items, after reversing the scores on the seven positive items.

3. *The General Self-Efficacy Scale (Jerusalem and Schwartz, 1981)* is designed to assess optimism as a self-belief that one's actions are responsible for successful outcomes; therefore, the optimism measured by this scale is explicitly related to personal agency. In our study we used the Romanian version of the scale translated by Băban, Schwartz and Jerusalem in 1996. The scale has 10 questions and the possible score for each question ranges from 1 to 4. Higher scores indicate that the person has strong beliefs in his or her self-efficacy.

4. *Self-Regulation Scale (Schwarzer, Diehl, & Schmitz, 1999)* refers to the self-regulation processes (attention-regulation and emotion-



regulation) of individuals who are in the phase of goal-pursuit and face difficulties in maintaining their action. In such cases, is required to focus attention on the task at hand and to keep a favorable emotional balance. The scale consist of 10 items and the score for each item ranges from 1 to 4; items 5,7 and 9 has to be reversed.

## Results

The specific statistical tests indicated that the structure of the questionnaire is suitable for factorial analysis: KMO = 0.668., Bartlett's Test of Sphericity:  $\chi^2 (15) = 131,634$ ,  $p < .0001$ .

The table below presents the six items of the questionnaire and the factor loadings. As it can be seen, item no. 6 does not exceed the significant threshold of .40. The identified factor is responsible for 34.48% of total variance.

**Table 1.**  
**The Brief Resilience Scale: Items and Factor Loadings (Study 1)**

| Items of BRS   | Loadings |
|--|----------|
| 1 I tend to bounce back quickly after hard times                   | .69      |
| 2. I have a hard time making it through stressful events (R)       | .58      |
| 3. It does not take me long to recover from a stressful event      | .69      |
| 4. It is hard for me to snap back when something bad happens (R)   | .71      |
| 5. I usually come through difficult times with little trouble      | .48      |
| 6. I tend to take a long time to get over set-backs in my life (R) | .11      |

Cronbach's coefficient is .56 for the scale with 6 items. After removing the item no. 6, the coefficient increased to 0.63, indicating poor internal consistency of the scale.

**Table 2.**  
**The Brief Resilience Scale: Cronbach's Alpha if item deleted (Study 1)**

|        | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--------|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| Item 1 | 18.85                      | 10.769                         | .374                             | .491                             |
| Item 2 | 19.23                      | 11.306                         | .390                             | .491                             |
| Item 3 | 18.80                      | 11.512                         | .364                             | .502                             |
| Item 4 | 18.91                      | 10.966                         | .407                             | .481                             |
| Item 5 | 19.10                      | 11.827                         | .286                             | .531                             |
| Item 6 | 19.10                      | 11.178                         | .132                             | .637                             |

The following table presents the correlations between BRS and perceived stress, general efficacy and self-regulation. Resilience is positively correlated with self-efficacy and self-regulation and negatively correlated with perceived stress.

**Table 3.**  
**Correlations of the Brief Resilience Scale, Perceived Stress, Self - efficacy and Self-regulation**

|            | Perceived Stress | Self- Efficacy | Self- Regulation |
|------------|------------------|----------------|------------------|
| Resilience | -.285**          | .424**         | .220**           |
|            | .000             | .000           | .002             |
|            |                  |                |                  |

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The t-test application to highlight significant differences between subgroups of the sample indicates differences between students based on the graduated high school. Thus, students who graduated from a military school ( $m_1 = 3.04$ ,  $s.d. = 0.39$ ) reported lower levels of resilience compared to students who have graduated from a civilian school ( $m_2 = 3.17$ ,  $s.d. = 0.47$   $t = - 2.15$ ,  $df = 196$ ,  $p = 0.33$ ). The effect size index  $\omega^2 =$

0.018 indicates a low association between resilience and type of graduated high school.

The high correlation coefficient between resilience and self-efficacy prompted us to test the relationship between these two constructs. Therefore, in the first stage we achieved a simple linear regression which indicated a positive relationship of medium level ( $r = 0.42$ ,  $p < 0.001$ ) between resilience and self-efficacy ( $\beta = 0.42$ ,  $t(198) = 6.54$ ,  $p < 0.001$ ). The prediction accuracy of scores for resilience increases by 17% if the prediction is based on the scores of the self-efficacy scale ( $r^2 = 0.179$ ).

We also tested the possibility of a moderated relationship between perceived stress and the resilience level, from the part of the general self-efficacy level of the students surveyed. To this end, in a first stage, the means were centered for the resilience level (as independent variable) and for the overall self-efficacy level (as moderating variable) and then, in the second step, there was generated a new variable by multiplying the centered averages. This new variable (interaction variable) quantifies the interaction between the independent variable and the moderating one. We accomplished a hierarchical regression in which the level of the stress perceived by students entered as the dependent variable. The level of resilience and that of self-efficacy were placed in block 1 of the regression, and the interaction variable was introduced in block 2. The  $R^2$  change value for the interaction model is 0.044, being statistically significant ( $F(1,194) = 14.947$ ,  $p < 0.001$ ). This result indicates that the general self-efficacy moderates the relationship between resilience and the stress perceived by students. The moderating effect is still quite low and is manifested by diminishing the relationship between resilience and perceived stress level when the feeling of self-efficacy increases.

## **Study no. 2**

*Participant Sample.* The sample investigated in the second study consists of 166 employees of the Romanian military system, military (53%) and civilians (47%), men (64.55%) and women (35.5%). The average age is 41.3 years (s.d. = 8.07). The employees voluntarily completed the test in their own time.

### *Measures*

1. *The Brief Resilience Scale (BRS)*

2. *The Perceived Stress Scale (PSS; Cohen, Kamark, Mermelstein, 1983)*

3. *The Demand-Control-Support Questionnaire (DCSQ)*, is a shorter and modified version of Karasek's Job Content Questionnaire (JCQ). The 17-item J-DCSQ consists of three subscales: psychological demands (PD - assessed with 5 items), decision latitude (DL - 6 items) and social support (SS - 6 items). The DL scale includes decision authority (DA: 2 items) and skill use (SD: 4 items). For PD and DL items, the respondents chose one of the following four frequency-based options: 'often', 'sometimes', 'occasionally', and 'never or hardly ever' (scored as 4, 3, 2, and 1, respectively). For each SS item, the following options are offered as possible responses: 'completely true', 'true to some extent', 'slightly untrue', and 'completely untrue' (scored as 4, 3, 2, and 1, respectively). Subscale scores equal the sum of the scores of the relevant items. When calculating the subscale scores, the PD item number 4 (enough time) and DL item number 9 (repetitive work) should be reverse-scored. The greater the subscale scores, the higher the levels of PD, DL, and SS.

## **Results**

The specific statistical tests indicated that the structure of the questionnaire is suitable for factorial analysis: KMO = 0.79., Bartlett's Test of Sphericity:  $\chi^2(15) = 459.975, p < .0001$ .

The table below presents the six items of the questionnaire and the factor loadings. Item no.2 has the lowest load factor. The identified factor is responsible for 55.9 % of total variance.

**Table 4.**  
**The Brief Resilience Scale: Items and Factor Loadings (Study 2)**

| Items of BRS   | Loadings |
|--|----------|
| 1 I tend to bounce back quickly after hard times                   | .75      |
| 2. I have a hard time making it through stressful events (R)       | .59      |
| 3. It does not take me long to recover from a stressful event      | .82      |
| 4. It is hard for me to snap back when something bad happens (R)   | .73      |
| 5. I usually come through difficult times with little trouble      | .84      |
| 6. I tend to take a long time to get over set-backs in my life (R) | .70      |

Cronbach's coefficient is .83 for the scale with 6 items, indicating a good internal consistency of the scale.

**Table 5.**  
**The Brief Resilience Scale: Cronbach's Alpha if item deleted (Study 2)**

|        | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|--------|----------------------------|--------------------------------|----------------------------------|----------------------------------|
| Item 1 | 18.55                      | 14.383                         | .594                             | .815                             |
| Item 2 | 18.95                      | 14.827                         | .473                             | .840                             |
| Item 3 | 18.60                      | 13.891                         | .691                             | .796                             |
| Item 4 | 18.89                      | 13.472                         | .627                             | .809                             |
| Item 5 | 18.78                      | 13.241                         | .722                             | .788                             |
| Item 6 | 18.57                      | 14.696                         | .589                             | .816                             |

The following table presents the correlations between BRS and perceived stress, psychological demand of the job, skill use, decision latitude and social support at the working place.

Resilience is positively correlated with skill use and social support at the working place and negatively correlated with perceived stress.

**Table 6.**  
**Correlations of the Brief Resilience Scale and the subscales of DCSQ**  
**– Psychological Demands, Skill Use, Decision Latitude and Social Support**

|            | Perceived Stress | Psychological demands | Skill Use | Decision Latitude | Social Support |
|------------|------------------|-----------------------|-----------|-------------------|----------------|
| resilience | -.401**          | -.142                 | .191*     | .132              | .191           |
|            | .000             | .067                  | .014      | .089              | .014           |
|            |                  |                       |           |                   |                |

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The application of t-test revealed a significant difference between the averages obtained at the resilience scale measuring by men and women. Thus, the men ( $m_1 = 3.85$ ,  $s.d. = 0.72$ ) reported higher levels of resilience against women ( $m_2 = 3.53$ ,  $s.d. = 0.72$ ,  $t = 2.69$ ,  $df = 164$ ,  $p = 0.08$ ). The effect size index  $\omega^2 = 0.03$  indicates a low association between resilience and gender of the respondents.

Also, there is a significant difference between the averages obtained when using the measuring scale of resilience by the military and civilian staff. Therefore, the military personnel ( $m_1 = 3.93$ ,  $s.d. = 0.70$ ) reported higher levels of resilience than civilian employees ( $m_2 = 3.52$ ,  $s.d. = 0.71$ ,  $t = -9.97$ ,  $df = 164$ ,  $p < 0.001$ ). The effect size index  $\omega^2 = 0.07$  indicates a medium level association between resilience and employment status.

Finally, we applied the t-test to find statistically significant differences between the two samples - students and staff - in terms of the level of resilience measured by BRS. As a result, the students ( $m_1 = 3.11$ ,  $s.d. = 0.44$ ) reported lower levels of resilience against staff ( $m_2 = 3.74$ ,  $s.d. = 0.73$ ,  $t = -9.57$ ,  $df = 362$ ,  $p < 0.0001$ ). The effect size index  $\omega^2 = 0.19$  indicates a significant association between resilience and the social status of the respondents. This difference correlates with the fact that students report higher levels of perceived stress ( $m_1 = 21.95$ ,  $s.d. = 5.84$ ) compared to employees ( $m_2 = 19.14$ ,  $s.d. = 4.34$ ,  $t = 5.24$ ,  $df = 364$ ,  $p < 0.0001$ ; the effect size index  $\omega^2 = 0.06$  indicates a medium level association between resilience and stress levels perceived by respondents)

## **Discussion**

The purpose of this article is to present the adaptation of BRS to the Romanian language. The Brief Resilience Scale is simple, easy to understand and apply, and therefore it was easily translated and adapted. The conceptual equivalence was investigated by literature review. The scale format was maintained, thus ensuring also the operational equivalence to the items. The semantic equivalence was provided during the process of translating the scale.

In the first study the scale was applied to a sample of military students. Factor analysis indicated that the first five items loaded satisfactorily one factor, while the sixth item does not pass the established threshold of 0.4. Moreover, the results of the first sample indicate poor internal consistency of the scale, which improved after removing item 6.

The level of resilience was positively correlated with the level of self-efficacy and emotional and cognitive self-regulation of students and differs significantly depending on the type of school completed by them: students who graduated from a civilian school reported higher levels of resilience than their peers who graduated from a military school, although it was expected that the latter, being accustomed to the environment, to obtain higher scores. However, in our study the association between resilience and the type of graduated school is poor.

Although in the first study the identified factor was poorly loaded by the items and the internal validity coefficient is low, however, convergent validity is well supported by strong correlations between the level of resilience and other constructs measured, in particular between resilience and self-efficacy. Therefore, we believe that the study of the scale can be deepened for this category of students.

The situation is, however, different in the second study in which the scale was applied to a sample of employees of the Romanian military system. All items loaded satisfactorily one factor and Cronbach's alpha value indicates good internal consistency of the scale. The level of staff resilience was positively correlated with the ability to use their skills at a high level at work and the social support felt from colleagues and superiors. Still, there is a strong association between the professional status of respondents and their level of resilience, the military personnel obtaining higher average than civilian staff. There is also a weak association between the respondents' gender and their level of resilience, men obtaining higher average than women.

In both studies, there was identified a negative correlation between the levels of resilience and the level of the stress perceived by the subjects. The two samples differ significantly from these two points of



view: students have lower resilience scores than staff whilst also reporting higher stress levels. It is possible that military students have not yet developed sufficient individual strategies to meet the challenges posed by both the preparation for the military profession and military academic requirements, which are numerous and demanding.

### **Conclusion**

Although this tool did not prove satisfactory psychometric properties for the sample of military students, it proved suitable for the sample of employees in the Romanian military system. Differences between the two samples suggest the possibility of a significant influence of age on the level of resilience, issue that deserves further investigation. It is possible that the ability to respond significantly to the scale depends on the individual's degree of self-knowledge and on the life experience gained by the time of the survey.

Also, further studies may reveal significant correlations between BRS and other instruments that measure the same construct or related constructs.

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