



# A Psychometric Evaluation of the Lithuanian Version of the 14-Item Resilience Scale (RS-14)

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**Abstract.** Resilience is an ability to adapt successfully to adversities in life. One of the measures to assess trait resilience is the Resilience Scale and its short version, the 14-Item Resilience Scale (RS-14). The aim of this study is to investigate the psychometric properties of the Lithuanian version of the RS-14. **Methods.** The RS-14, the World Health Organization well-being index (WHO-5), the Revised Life Orientation Test (LOT-R) and the Trauma Screening Questionnaire (TSQ) were administered to 980 Lithuanian adults, 42% males and 58% females, between 18 to 86 years old. **Results.** The Lithuanian version of the RS-14 demonstrated good reliability and validity. Cronbach's *alpha* was .90 and CFA indices suggested a fair-to-good model fit of a one-factor RS-14 solution. There was no significant effect of age on the RS-14 scores, but males scored significantly higher than females. **Conclusions.** The study confirms that the Lithuanian version of the RS-14 is a valid and reliable instrument to measure resilience.

**Keywords.** 14-Item Resilience Scale, Lithuanian version, psychometric properties, resilience.

## Introduction

The description of resilience, given by various authors, may be somewhat different, integrating biological, emotional, and psychological processes; however, they all share fundamental similarities among them. In general, resilience is an individual's ability to adapt successfully to adversities in life (Wagnild, 2011). There is still some debate whether resilience is a fixed and stable personality trait, or a state – a dynamic process within the context of adversity (Luthar, Cicchetti, & Becker, 2000). Yet a growing research finding on significant contributions of both genetics and environment to resilience (Haglund, Nestadt, Cooper, Southwick, & Charney, 2007) indicate that resilience may be influenced by both trait and state.

One of the valid and reliable measures to assess trait resilience is the Resilience Scale (RS). The RS, first published in 1993 by Wagnild and Young, was developed based on grounded-theory research results that identified five underlying characteristics of trait resilience: a purposeful life, perseverance, equanimity, self-reliance, and existential aloneness. A short version – the 14-Item Resilience Scale (RS-14) – was developed to reduce participant burden and increase response (Wagnild, 2011). Both RS and RS-14 demonstrated good reliability and construct validity in various studies and have already been translated from the original English version into several languages (Abiola & Udofia, 2011; Damásio, Borsa, & da Silva, 2011; Girtler et al., 2010; Lei et al., 2012; Leppert, Gunzelmann, Schumacher, Strauß, & Brähler, 2005; Losoi et al., 2013; Lundman, Strandberg, Eisemann, Gustafson, & Brulin, 2007; Nishi, Uehara, Kondo, & Matsuoka, 2010; Portzky, Wagnild, De Bacquer, & Audenaert, 2010; Ruiz-Párraga, López-Martínez, & Gómez-Pérez, 2012; Wagnild, 2011).

The relationship between resilience and demographic characteristics is somewhat unclear. Original authors of the RS found significant positive association between the RS scores and age, resilience increasing with age (Wagnild, 2011). Similar results were replicated in studies by Lundman and colleagues (2007), Portzky and colleagues (2010), Damásio and colleagues (2011), Losoi and colleagues (2013). Original authors of the RS and RS-14 found ambiguous results of gender effect on resilience: there was no gender differences in the original RS study, but a later study on the RS-14 found that males scored significantly lower than females (Wagnild, 2011). However, studies by Leppert and colleagues (2005), Portzky and colleagues (2010), Lei and colleagues (2012) with RS and by Abiola & Udofia (2011) with RS-14 indicated the contrary – males scoring significantly higher on resilience than females. Yet studies by Damásio and colleagues (2011), Ruiz-Párraga and colleagues (2012), Losoi and colleagues (2013) with RS-14 found no gender differences at all.

Various studies using the RS or its short version RS-14 indicated significant negative associations between resilience and depression, anxiety, and post-traumatic stress disorder (PTSD) symptoms (Abiola & Udofia, 2011; Damásio et al., 2011; Girtler et al., 2010; Lei et al., 2012; Nishi et al., 2010; Wagnild, 2011) and positive associations between resilience and optimism, self-esteem, self-efficacy, life satisfaction, social support, and self-reported health status (Damásio et al., 2011; Girtler et al., 2010; Nishi et al., 2010; Wagnild, 2011).

The aim of the present study was to evaluate the reliability and validity of the Lithuanian version of the RS-14, developed with the cooperation of the original authors.

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## 1. Methods

### 1.1. Participants

The total sample consisted of 980 adults, 42.45% males and 57.55% females, from 18 to 86 years old ( $M = 43.87$ ,  $SD = 16.78$ ), with secondary or lower education (51.8%) and higher education (48.2%), residing at both urban (69.87%) and rural (30.13%) areas of Lithuania. There were no significant differences in age between men and women ( $M = 42.92$ ,  $SD = 15.96$  and  $M = 44.55$ ,  $SD = 17.34$  respectively;  $t(921.36) = -1.52$ ,  $p = .130$ ) and between urban and rural subsamples ( $M = 43.68$ ,  $SD = 16.75$  and  $M = 44.20$ ,  $SD = 16.82$  respectively;  $t(554.75) = -0.45$ ,  $p = .653$ ).

### 1.2. Measures

**The 14-Item Resilience Scale (RS-14)** is a short version of the Resilience Scale (Wagnild, 2011) aimed to measure overall trait resilience. The short version consists of 14 items rated on a 7-point Likert scale with two anchoring statements from 'strongly disagree' (1) to 'strongly agree' (7). The possible total scores of the RS-14 range from 14 to 98. Higher scores are indicative of resilience. Scores of 56 and below are considered to reflect very low resilience, scores from 57-64 low, 65-73 on the low end, 74-81 moderate, 82-90 moderately high and 91-98 high resilience (Wagnild, 2011). Permission was obtained from the original author to proceed with the translation and use of the tool for research purposes. RS was translated into Lithuanian by three independent translators. Then, by a briefing between the translators, a re-conciliated Lithuanian version was made. It was back-translated into English by another translator who had no knowledge of the original instrument. The back-translation was sent to the original author for comparison and her suggestions were incorporated into the final Lithuanian version.

**The World Health Organization Well-being Questionnaire (WHO-5)** is an instrument to assess the presence of several aspects of well-being over the last two weeks (World Health Organisation, 1998). It consists of five items rated on a 6-point Likert scale from 'at no time' (0) to 'all the time' (5). The sum of all items is multiplied by 4 to represent 100% of possible well-being (the total scores of the WHO-5 range from 0 to 100). The WHO-5 demonstrates good internal consistency; Cronbach's  $\alpha$  of the current study was .86.

**The Revised Life Orientation Test (LOT-R)** evaluates the dispositional optimism (Scheier, Carver, & Bridges, 1994). The original LOT-R has 10 items of which six are scored; therefore, the Lithuanian version of LOT-R included only those six items. The items are rated on a 5-point Likert scale from 'strongly disagree' (0) to 'strongly agree' (4). Negatively worded items are reversed and all item scores added; the total scores of the LOT-R range from 0 to 24, higher scores indicate greater optimism. Cronbach's  $\alpha$  of the Lithuanian version of the LOT-R indicated adequate internal consistency,  $\alpha = .71$  (Mažulytė et al., 2014). Cronbach's  $\alpha$  of the current study .69.

**The Trauma Screening Questionnaire (TSQ)** is a brief measure aimed to the current post-traumatic stress reactions after a traumatic event (Brewin et al., 2002). The TSQ was used along with the list of potentially traumatic events (PTE) in the current study. Only those study participants who indicated the experience of at least one PTE were asked to fill in the TSQ. TSQ scores of those study participants who indicated no experience of PTEs was equalled to zero – i.e., no current post-traumatic stress reactions. The TSQ consist of 10 items measuring Post-Traumatic Stress Disorder (PTSD) symptoms felt at least twice during the past week. The total scores of TSQ range from 0 to 10; six or more positive responses indicate clinically significant PTSD reactions. The Lithuanian version of the TSQ demonstrated a good internal consistency, Cronbach's  $\alpha$  .84 (Mažulytė et al., 2014). Cronbach's  $\alpha$  of the current study .85.

### 1.3. Procedures

Study participants were recruited to reflect the main characteristics of age, gender, education and residential area of Lithuanian population. The research was approved by the Vilnius University Psychological Research Ethics Committee and written informed consent was obtained from all of the study participants.

Data analysis was performed using R (version 3.3.1) – a software environment for statistical computing and graphics.

## 2. Results

The RS-14 total score varied from 19 to 98 ( $M = 74.54$ ,  $SD = 13.13$ ). Single-item means varied from 4.8 to 5.8 (see Table 1). Proportions of persons in resilience categories were the following: 9.4% in a very low resilience group, 10.6% in low, 21.2% in the low end, 26.9% in moderate, 22.1% in moderately high, and 9.8% in high resilience groups.

Cronbach's  $\alpha$  for the RS-14 was .90 and the removal of any of the items did not improve the alpha coefficient (see Table 1). A confirmatory factor analysis (CFA) with diagonally weighted least squares (DWLS) estimation was

used to determine the model fit of the RS-14 one-factor solution. The DWLS is a robust estimator which provides the best option for modelling ordinal data (Brown, 2006). Chi-square goodness of fit index indicated the model as not acceptable,  $\chi^2(77) = 413.76$ ,  $p < .001$ . The relative chi-square value (chi-square index divided by the degrees of freedom) was 5.37. The Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) were used to evaluate the model. The CFI of .990 and TLI of .988 suggested a good model fit and the RMSEA of .069 with 90% confidence interval of .062 – .075 indicated a fair fit. CFA factor loadings varied from .47 to .82 (see Table 1). A total 40% of the variance in the RS-14 was explained by this one-factor solution.

**Table 1.** Single item descriptive, reliability and validity characteristics of the Lithuanian version of the RS-14

| RS-14 items  | M   | SD  | Range |     | r   | $\alpha$ | Factor loading |
|--|-----|-----|-------|-----|-----|----------|----------------|
|  |     |     | Min   | Max |     |          |                |
| 1. I usually manage one way or another<br><i>Vienaip ar kitaip dažniausiai man pavyksta susitvarkyti</i>   | 5.5 | 1.3 | 1     | 7   | .67 | .89      | .68            |
| 2. I feel proud that I have accomplished things in life<br><i>Didžiuojuosi tuo, ką pasiekiau gyvenime</i>  | 5.1 | 1.5 | 1     | 7   | .66 | .89      | .66            |
| 3. I usually take things in stride<br><i>Dažniausiai gyvenimo įvykius priimu ramiai</i>  | 4.9 | 1.5 | 1     | 7   | .59 | .89      | .58            |
| 4. I am friends with myself<br><i>Gerai sutariu su savimi</i>  | 5.3 | 1.5 | 1     | 7   | .69 | .89      | .70            |
| 5. I feel that I can handle many things at a time<br><i>Jaučiu, kad galiu tvarkytis su daug dalykų vienu metu</i>  | 4.8 | 1.6 | 1     | 7   | .66 | .89      | .65            |
| 6. I am determined<br><i>Esu ryžtingas(-a)</i>   | 5.0 | 1.5 | 1     | 7   | .73 | .89      | .73            |
| 7. I can get through difficult times because I've experienced difficulty before<br><i>Galiu susitvarkyti sunkiais momentais, nes esu patyręs(-usi) sunkumų ir anksčiau</i> | 5.4 | 1.5 | 1     | 7   | .70 | .89      | .72            |
| 8. I have self-discipline<br><i>Esu disciplinuotas(-a)</i>   | 5.2 | 1.6 | 1     | 7   | .51 | .90      | .47            |
| 9. I keep interested in things<br><i>Aš nuolat kuo nors domiuosi</i>   | 5.4 | 1.4 | 1     | 7   | .63 | .89      | .62            |
| 10. I can usually find something to laugh about<br><i>Paprastai sugebu įžvelgti ką nors juokinga</i>   | 5.3 | 1.5 | 1     | 7   | .53 | .90      | .50            |
| 11. My belief in myself gets me through hard times<br><i>Tikėjimas savimi man padeda susitvarkyti sunkiais momentais</i>   | 5.5 | 1.4 | 1     | 7   | .73 | .89      | .75            |
| 12. In an emergency, I'm someone people can generally rely on<br><i>Ištikus nelaimėi esu tas(-a), kuriuo(-ia) žmonės paprastai gali pasikliauti</i>                        | 5.8 | 1.3 | 1     | 7   | .60 | .89      | .62            |
| 13. My life has meaning<br><i>Mano gyvenimas yra prasmingas</i>  | 5.6 | 1.5 | 1     | 7   | .72 | .89      | .76            |
| 14. When I'm in a difficult situation, I can usually find my way out of it<br><i>Atsidūręs(-usi) sudėtingoje situacijoje dažniausiai galiu rasti išeitį</i>                | 5.6 | 1.3 | 1     | 7   | .77 | .89      | .82            |

Notes. The items are given in English and Lithuanian; M = mean; SD = standard deviation; Range = minimum and maximum single item scores; r = single item and total RS-14 score correlation;  $\alpha$  = Cronbach's alpha if item is deleted; Factor loading = CFA factor loadings on one-factor model of the RS-14.

There was a significant relationship between the RS-14 scores and gender,  $t(857.08) = 2.13$ ,  $p = .03$ , males scoring higher on resilience ( $M = 75.61$ ,  $SD = 12.76$ ) than females ( $M = 73.77$ ,  $SD = 13.35$ ). Also, resilience was associated with education,  $t(911.89) = -3.69$ ,  $p < .001$ , those with secondary or lower education ( $M = 73.01$ ,  $SD = 14.06$ ) were less resilient than those with higher education ( $M = 76.16$ ,  $SD = 11.90$ ). However, there was no significant effect of residential area,  $t(498.57) = -1.75$ ,  $p = .081$ , those living in urban areas ( $M = 74.05$ ,  $SD = 13.02$ ) had similar resilience as those living in rural areas ( $M = 75.72$ ,  $SD = 13.36$ ).

There was no significant relationship between the resilience and age,  $r = .05$ ,  $p = .17$ . The one-way ANOVA,  $F(4, 915) = 0.74$ ,  $p = .567$ , also demonstrated no statistically significant differences between the age groups. An average RS-14 score in the 18-29-year-old group ( $n = 234$ ) was 73.31 ( $SD = 12.38$ ); in the 30-39-year-old group ( $n = 148$ ), the score was 75.01 ( $SD = 13.50$ ); in the 40-49-year-old group ( $n = 211$ ), the score was 75.13 ( $SD = 13.81$ ); in the 50-59-year-old group ( $n = 113$ ), the score was 74.85 ( $SD = 12.30$ ); finally, in the 60-year-old or older group ( $n = 214$ ), the score was 74.97 ( $SD = 13.54$ ).

Resilience was significantly positively associated with well-being,  $r = .53$ ,  $p < .001$ , and optimism,  $r = .47$ ,  $p < .001$ . There was also a slightly negative correlation between resilience and PTSD symptoms, but not statistically significant,  $r = -.06$ ,  $p = .06$ . Average RS-14, WHO-5 and LOT-R scores in resilience categories are presented in Figure 1. The number of persons with clinically significant PTSD symptoms in resilience categories were as follows: 12 in a very low resilience group, 8 in low, 14 on the low end, 18 in moderate, 11 in moderately high, and 8 in high resilience groups. Average RS-14 scores of participants without clinically significant PTSD symptoms ( $M = 74.93$ ,  $SD = 12.79$ ) was slightly higher than of the participants with clinically significant PTSD symptoms ( $M = 71.46$ ,  $SD = 16.30$ ); however, the difference was not statistically significant,  $U = 32516$ ,  $p = .118$ .



**Figure 1.** Average well-being (WHO-5), optimism (LOT-R) and post-traumatic stress reaction (TSQ) scores in resilience categories.

### 3. Discussion

The aim of this study was to evaluate the psychometric properties of the Lithuanian version of the RS-14. As expected, the mean score of the RS-14 in Lithuanian population fell in the category of moderate resilience, similarly as in other studies (Abiola & Udofia, 2011; Losoi et al., 2013; Wagnild, 2011). Only in the Japanese version of the RS-14 the mean score fell just below the moderate category (Nishi et al., 2010). The vast majority of the current sample's resilience levels were from the low end to moderately high resilience, similarly as in the original RS-14 study (Wagnild, 2011). However, these are the author's suggested resilience levels based on the sample of the original research and caution in applying these levels to other populations should be kept in mind.

The results of this study showed good reliability and validity of the Lithuanian version of the RS-14. The Cronbach's *alpha* coefficient of internal consistency was similar to the original English version of the RS-14 (Wagnild, 2011) and even higher than any of the other language versions (Abiola & Udofia, 2011; Damásio et al., 2011; Losoi et al., 2013; Nishi et al., 2010). Construct validity was evaluated using the CFA, loading all RS-14 items on one factor, as suggested by the original authors (Wagnild, 2011). Although the Chi-square goodness of fit index indicated the model as not acceptable, the chi-square is known to be highly influenced by the sample size (Brown, 2006). Other CFA indices (CFI, TLI and RMSEA) indicated a fair-to-good model fit. Therefore, the one-factor solution for the RS-14, found in previous studies (Damásio et al., 2011; Nishi et al., 2010; Wagnild, 2011), was supported by Lithuanian data.

Support for convergent validity was shown by significant positive correlations of the RS-14 with well-being and optimism, but not with PTSD symptoms. Optimism is a construct closely related to trait resilience, hence the strong positive correlation between the RS-14 and LOT-R are expected. The WHO-5 measure may be seen not only as a measure of well-being, but also of the absence of depression (World Health Organisation, 1998). Therefore, the strong association between the RS-14 and WHO-5 scores verify the findings of other research that found negative association between resilience and depression symptoms (Abiola & Udofia, 2011; Damásio et al., 2011; Lei et al., 2012; Nishi et al., 2010; Wagnild, 2011). Contrary as expected, the results of the current study did not reveal a significant negative relationship between resilience and PTSD symptoms, as it was found in the study by Lei and colleagues (2012). However, the latter correlation was only of moderate level and current results also revealed a trend that individuals with more PTSD symptoms score lower on resilience, even though the difference is not statistically significant. The current study involved a sample from the general Lithuanian population; therefore, future studies involving clinical samples may explain this relationship or absence of it better.

Concerning the impact of the demographic variables on the distribution of the RS-14, there was no significant effect of age, but males scored significantly higher on resilience than females. The results of the current study did not support previous findings on a significant relationship between resilience and age (Damásio et al., 2011; Losoi et al., 2013; Lundman et al., 2007; Portzky et al., 2010; Wagnild, 2011). It can be argued that the RS and its shorter version, the RS-14 is a measure aimed at trait resilience, which is supposed to be a stable person characteristic; therefore, no effect of age is understandable. Nevertheless, as other studies did observe, the relationship of RS-14 and age as well

as cultural differences cannot be ruled out. As for the association with gender, the results of the current study supported the findings of previous studies (Abiola & Udofia, 2011; Lei et al., 2012; Leppert et al., 2005; Portzky et al., 2010). Yet no obvious explanation seems available to explain this, as other studies did not find such an association (Damásio et al., 2011; Losoi et al., 2013; Ruiz-Párraga et al., 2012). Also, the current study revealed significant association between resilience and education, with more educated persons scoring higher on resilience, than those with lower education level. A similar result was found in the Dutch sample; the authors argue that successfully mastering higher education is likely to increase self-esteem, which is an integral part of resilience (Portzky et al., 2010).

The results from this study showed that the Lithuanian version of the RS-14 is a valid and reliable instrument which can be used to measure the concept of trait resilience in Lithuanian population. However, the lack of association between resilience and PTSD symptoms found in the current study require additional in-depth investigation. Future research involving clinical samples, especially people with PTSD diagnosis, may shed more light into the relationship between trait resilience and traumatic reactions.

## Conclusions

The Lithuanian version of the 14-Item Resilience Scale (RS-14) appears to be a valid and reliable instrument to measure trait resilience and is ready to be applied in research and practice in Lithuanian population.

- Cronbach's *alpha* was .90 and CFA indices indicated a fair to good model fit of the one-factor solution of the RS-14. A total 40% of the variance in the RS-14 was explained by this one-factor solution.
- Support for convergent validity was shown by significant positive correlations of the RS-14 with well-being and optimism, but not with PTSD symptoms.
- There was no significant effect of age, but males scored significantly higher on resilience than females. Also, the current study revealed significant association between resilience and education, with more educated persons scoring higher on resilience than those with a lower education level.

## Acknowledgements

The current study is a part of a larger research project funded by the European Social Fund under the Global Grant measure (no. VP1-3.1ŠMM-07-K-02-023). I would like to thank the supervisor prof. habil. dr. Danutė Gailienė and other researchers of the project for their valuable contributions to this study. Also, I would like to thank dr. Monika Skerytė-Kazlauskienė, Jonas Eimontas, Gintė Gudzevičiūtė and Ieva Molienė for their help in the scale translation process.

# Trumposios psichologinio atsparumo skalės (RS-14) lietuviškos versijos psichometrinės charakteristikos

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**Santrauka.** Psichologinis atsparumas – tai gebėjimas prisitaikyti prie gyvenime išskylančių sunkumų. Vienas iš būdų įvertinti psichologinį atsparumą yra Psichologinio atsparumo skalė ir jos trumpoji versija (RS-14). Šio tyrimo tikslas yra pristatyti RS-14 lietuviškos versijos psichometrinės charakteristikas. **Metodika.** Iš viso 980 Lietuvos suaugusiųjų, 42 proc. vyrų ir 58 proc. moterų, nuo 18 iki 86 metų amžiaus, užpildė RS-14, Pasaulio sveikatos organizacijos geros savijautos rodiklį (WHO-5), Gyvenimo orientacijos testą (LOT-R) ir Traumos simptomų klausimyną (TSQ). **Rezultatai.** Lietuviška RS-14 versija pasižymėjo gerais patikimumo ir validumo rodikliais. Cronbach'o *alpha* buvo 0,90 ir patvirtinamosios faktorių analizės rezultatai pagrindė RS-14 vieno faktoriaus modelio tinkamumą. RS-14 balai nebuvo susiję su tyrimo dalyvių amžiumi, tačiau vyrų psichologinio atsparumo balai buvo reikšmingai didesni, nei moterų. **Išvados.** Tyrimo rezultatai patvirtina lietuviškos RS-14 versijos patikimumą ir validumą.

**Pagrindiniai žodžiai.** Psichologinio atsparumo skalės trumpoji versija RS-14, lietuviška versija, psichometrinės charakteristikos, atsparumas.

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