

RESEARCH ARTICLE

Measurement Invariance of the Satisfaction with Life Scale in Roma Minority and Romanian Majority Adolescents in Romania

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Abstract

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is one of the most widely used scales for the measurement of subjective well-being. Yet, its measurement invariance and factor structure have not been investigated across culturally diverse samples in Romania. This study addressed this gap in a sample of Roma minority ($n = 378$), and Romanian majority adolescents ($n = 465$) in Romania. We found support for scalar invariance, indicating similar patterns and strengths in factor loadings, means and intercepts across samples. SWLS mean comparisons did not show group differences in life satisfaction. We conclude that the SWLS is a brief and valid measure of life satisfaction that can be used for cultural comparison with samples from Romania.

Keywords

measurement invariance, confirmatory factor analysis, SWSL, Roma, Romania

Acknowledgements

The authors would like to acknowledge the support by a COFAS FORTE (Swedish Research Council for Health, Working Life and Welfare) Marie Curie Grant (Forte Projekt 2013-2669) to the first author. We are also extremely grateful to Dr. Eva Jecheva and the National Agency for Child Protection in Bulgaria, all schools and teachers and in particular Neli Filipova, Ivanina Noncheva, Radka Kostandinova, Albena Damianova, Stoyka Jekova, Svetla Atanasova, Neli Kiuchukova, Ani Angelova, Lilia Stoyanova, Tianka Kardjilova, Zvetan Terziev, Elena Ianeva, Venizslav Chobanov, Kamelia Mateva, Petko Petkov, dr. Gospova, dr. Velianova, Elena Chergova, Antoaneta Hristova, Venizslav Jordanov, dr. Stamatov, dr. Kukusheva, dr. Ahrianova, Alina Bobeica, Simona Steluța Marți, and Mr. Bashev for their help in carrying out the study.

This paper addresses the increasing interest into the investigation of subjective well-being so as to provide a better understanding of what makes people feel well in relation to their own values and standards (Diener, Oishi, & Lucas, 2003). This interest

also mirrors current guidelines of the World Health Organization (WHO) urging today's researchers to shift from a deficit health classification and adopt a positive oriented perspective toward health and well-being (World Health Organization, 2013). In fact, the relevance of measuring psychological well-being across and within nations has been emphasized in recent years, and life satisfaction and happiness have been proposed as major indicators of well-being (Diener, 2000; Diener, Kesebir, & Lucas, 2008). In line with this research and current thinking, we examined life satisfaction in a group of youth of Roma and Romanian origin in Romania, a post-communist country in Eastern Europe where many Roma suffer mental ill-health, devastating well-being outcomes, and lack of access to adequate social and educational services (Amnesty International, 2013). Therefore, investigating well-being in such a disadvantaged group is theoretically and practically relevant for both community services and professionals working with Roma in the broader social, organizational and work settings. In addressing these relevant issues, the purpose of this study is to first, provide a sound methodological evidence for a life satisfaction scale in Romania and second, explore well-being in a Romanian ethnic minority with Roma background.

Life satisfaction has been identified as a major component of well-being and a distinct construct of a cognitive and global evaluation of the quality of one's life as a whole (Diener, Suh, Lucas, & Smith, 1999; Pavot & Diener, 1993). In fact, subjective well-being is generally conceptualized as multifaceted construct with both affective (positive and negative affect) and cognitive components (life satisfaction). A major achievement in measurement of life satisfaction has been the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The scale is one of the most widely applied measures on life satisfaction and extant research applications have documented its good psychometric properties in various countries and ethnic groups, including Germany (Glaesmer, Grande, Braehler, & Roth, 2011), Norway (Vitterso, Biswas-Diener, & Diener,

2005), the Netherlands (Arrindell, Meeuwesen, & Huyse, 1991), Spain (Atienza, Pons, Balaguer, & Garcia-Merita, 2000), the Czech Republic (Lewis, Shevlin, Sme'kal, & Dorahy, 1999), Israel (Anaby, Jarus, & Zumbo, 2010), Lebanon (Ayyash-Abdo & Alamuddin 2007), Bulgaria (Ponizovsky, Dimitrova, Schachner, & van de Schoot, 2012), China (Bai, Wu, Rui-Zheng, & Ren, 2011), and the United States (Pavot & Diener, 1993).

The psychometric properties of the SWLS in a culturally diverse sample from Romania have not been extensively examined. Although the SWLS has been translated and administered in Romanian populations (Cazan, 2014; Runcan & Iovu, 2013; Stevens, Constantinescu, Lambru, Butucescu, Sandu, & Uscatescu, 2012) and psychometric properties have been shown to be good, measurement invariance across minority and majority populations in Romania has not been tested. Specifically, this invariance has not been investigated in samples with Roma and Romanian background in Romania, although Romanian samples of young people have been included in large international and cross-national comparisons of well-being (Currie et al., 2012).

We choose to compare Roma and Romanians because Roma are the largest minority group in Romania accounting for nearly 2 million people (European Commission, 2011). Roma constitute the largest ethnic minority group typically associated with unwanted distribution of social benefits and economic threat. They are frequently subjected to hate speech or violent attacks by right-wing groups and they are facing discrimination in all important aspects of life such as education, employment, and health services (Amnesty International, 2013). Therefore, among the key influences shaping the quality of life in Roma population today in Romania are their experiences of life satisfaction and well-being. Research on life satisfaction in Romania 12 years after the collapse of communism in December 1989, reports that life satisfaction of the population was much lower than in Western European countries, although life satisfaction was

positively associated with housing standard, health status, economic situation, education, trusting other people, living in the countryside, and being employed (Andren & Martinsson, 2003). Additional studies conducted in Romania (e.g., Mărginean, Precupețu, & Preoteasa, 2002; Bălțătescu, 2004, 2007) investigated how Romanians evaluate their life satisfaction, especially after the fall of the Iron Curtain. For example, using national data available from 1997-1999 (ICCV, 1990-1999), Bălțătescu (2007) found that life satisfaction was quite stable along this period but showed a decrease in 1998. The major contributor to level of well-being among Romanians was income, followed by leisure time activities, and life achievements.

Additionally, Bălțătescu (2014) explored age and gender effects in subjective well-being during 1990-2005 in Romania. The results conveyed a picture where men seemed to be more satisfied with their life than women. Living standards and conditions were major elements in shaping happiness and youth were happier than elder Romanians from 1999 so far, feeling healthier and safer than their parents (Bălțătescu 2003). Importantly, Romanian adolescents and youth showed a high score of subjective well-being, when compared with other population segments (Bălțătescu, 2003).

Using data from the World Bank Development Indicators (2001-2004) and Eurobarometer (2005-2008), Bălțătescu (2007) analyzed happiness among post-communist countries. His main findings showed that Romania, a new European Union country, has increased its level of life satisfaction once becoming an EU member and due to the national wealth development. Nowadays, life satisfaction of Romanians seems to be at the same level as the European average, with lower scores reported by the parts of the population that face poverty or social exclusion (Eurostat, 2015). Therefore, providing solid instruments for valid ethnic group comparisons in Romanian context is of utmost importance to document well-being in these under-researched populations. We set out to test the measurement invariance of SWLS across two ethnic contexts hardly

investigated in prior work. The purpose is to test the original factor structure, and then test for measurement invariance of SWLS across samples with Roma and Romanian background. If measurement invariance could be shown, then the SWLS factor structure would be common across these groups, indicating that all participants respond in the same way (Dimitrov, 2010; van de Schoot, Lugtig, & Hox, 2012). Provided that measurement invariance could be shown, we therefore compared mean scores on the SWLS factor for the two groups.

Life Satisfaction of Roma Minority and Romanian Majority Groups in Romania

Several studies conducted with Romanian samples were focused on the psychometric properties of SWLS. Stevens and colleagues (2012) reported high test-retest and internal consistency reliability, convergent validity, and factorial validity of the SWLS based on a convenience sample of 72 adults in Romania. Additionally, Cazan (2014) found that the SWLS has good psychometric properties based on a study with 342 Romanian students. Additional information on Romanians' life satisfaction can be drawn from European Commission Reports (e.g., Eurostat, 2015). The overall life satisfaction of Romanians increased from 6.5 in 2007, to 6.7 in 2012, and 7.1 in 2015 (life satisfaction was measured on an 11 point scale, from 0 "not satisfied at all" to 10 "fully satisfied"). As reported by the European Quality of Life Survey (Eurostat, 2015), there is a marginal gender effect on life satisfaction (women recording slightly lower scores than men), but a significant effect of age (younger people reporting higher levels of life satisfaction). The same survey shows that unemployment has the most negative impact, as the unemployed reported the lowest level of overall life satisfaction.

Working life is a core component of human existence. It is not surprising therefore that there is a growing attention paid by scholars to well-being in the workplace and to the relationship between life satisfaction and job satisfaction. The literature is predicated on

three models: the spillover model – job and life satisfaction are positively related; the compensatory model – job and life satisfaction are negatively correlated; and the segmentation model – job and life satisfaction are not correlated. Of these, the positive spillover model received the largest empirical support (Judge, 1994; Zhao, Qu, & Ghiselli, 2011). The investigation of life satisfaction has also relevant implications for job satisfaction, pointing to the utility of the current study for supporting future inquiry based on SWLS in relation to general satisfaction in work settings within Romanian organizations.

The available literature on SWLS with samples from Romania has addressed the topic of life satisfaction within Roma ethnic minority. For instance, Kamberi, Martinovic, and Verkuyten (2014) used a Regional Roma Survey dataset consisting of 11,997 participants (Roma $n = 8,399$, non-Roma $n = 3,598$) to measure life satisfaction in Central and Southeastern Europe. They found that Roma experience lower subjective well-being mostly due to their low educational status, followed by quality of housing, household income, and health. Based on the same dataset provided by the United Nations Development Program (UNDP/WB/EC Regional Roma survey, 2011), we found a similar pattern for Romanian population (Roma $n = 445$, non-Roma $n = 584$). Thus, 37.9% of mainstreamers declared themselves as “not at all happy” or “not very happy”, while a large Roma population of 53.3% reported similar answers. Whereas 51% of Roma declared that they have no employment experience, only 26% of mainstreamers declared the same.

In this context, investigating measurement invariance in Roma and non-Roma populations in Romania might be useful for scholars and professionals in both social policy and organizational intervention programs. As far as we know, in the Romanian organizational context, little research has been done on the link between life satisfaction and different work parameters. For example, Stefanel, Răulea, and Stef (2013) analyzed the incidence and the sources of burnout within a Romanian medical organization and revealed

that the internalization of psychosocial attitudes more than the organizational and occupational factors lead to emotional work exhaustion. More precisely, subjective well-being seemed to influence to a great extent depersonalization, reduced personal accomplishment, and emotional exhaustion of medical staff in Romania. Therefore, life satisfaction requires more attention not only from scholars but also from practitioners involved in human services, in order to prevent and reduce work stress, improve life quality and organizational strategies.

Measurement Invariance of SWLS

The SWLS is extensively studied across nations and cultural groups as testified by extant research documenting its good psychometric properties including factorial validity, internal consistency, and test–retest reliability (Diener et al., 1985; Lucas, Diener, & Suh, 1996; Pavot & Diener, 1993; Pavot, Diener, Colvin, & Sandvik, 1991). However, important and as yet unaddressed issues regard the invariance of the scale and its psychometric properties in culturally diverse samples in Romania. The issue of measurement invariance is crucial for studies that investigate cultural/group differences and specifically for purposes of comparisons as done in the present study. Meaningful (cultural) group comparisons assume invariance of the elements of the measurement structure of a measure (i.e., SWLS factor loadings and intercepts) (Van de Vijver & Leung, 1997). Measurement invariance refers to the degree to which a scale (SWLS) administered in different groups exhibit identical psychometric properties (Meade, Johnson, & Braddy, 2008). The presence of measurement invariance indicates that the same underlying construct of interest (life satisfaction) is measured across comparison groups (i.e., Roma and Romanian). Failure to provide measurement invariance indicates that group comparisons may not be valid and the subsequent interpretations and conclusions incorrect.

Invariance testing across groups is usually performed by means of a multigroup

confirmatory factor analyses (MGCFA) (Billiet, 2002; Jöreskog, 1971) by comparing more restricted with less restricted models in three levels of invariance: configural invariance (all items are associated with SWLS), metric invariance (all items are associated with SWLS in the same way), and scalar invariance (the regression function linking item scores to SWLS has the same intercept in all groups) (van de Vijver & Leung, 1997). This paper illustrates the application of invariance testing to the SWLS using this method across two ethnic groups in Romania.

The Present Study

This study set out to evaluate the factorial structure and measurement invariance of SWLS across two hardly investigated cultural groups and compare SWLS mean differences among samples in Roma and Romanian youth. To the best of our knowledge, the current study presents the first effort to investigate this measure in the context of these samples. We addressed the following research questions: 1) Examine if the SWLS factorial structure is invariant across groups; 2) Evaluate if the SWLS shows mean similarities or differences in adolescent samples with Roma and Romanian background.

In line with the first research question and the purpose of the measurement invariance analyses, we treated SWLS as the latent variable and the five SWLS items as indicators. We implemented and tested this model in the Analysis of Moment Structure program (AMOS; Arbuckle, 2009) by means of structural equations modeling (SEM), more specifically confirmatory factor analysis (CFA). CFA within the framework of SEM is one of the most rigorous methodological approaches to test the validity of the factor structure of an instrument. By convention, in SEM representations, measured or observed variables are shown in rectangles and unobserved or latent variables in ellipses or circles. We therefore specified a model with one latent variable of SWLS and five observed

items. These observed variables serve as indicators of their respective latent factor of SWLS. The arrows in the model represent structural regression coefficients that indicate the impact of one variable on another. Accordingly, one way arrows leading from the SWLS factor to its set of items suggest that scores of this factor are “caused” by each of the related factors and that these regression coefficients are the factor loadings.

In testing our model, we followed a procedure (van de Schoot, Lugtig, & Hox, 2012) by first, specifying adequate model of the instrument for each group separately via confirmatory factor analyses (CFA; configural invariance). We then checked the adequacy of the best fitting model by testing whether the factor loadings are equal across groups (metric invariance), and whether the intercepts/thresholds are equal across groups. Next, we examined whether both the factor loadings and intercepts/thresholds are similar across groups (scalar invariance). In line with the second research question, we compared SWLS scores across groups, provided that invariance of the SWLS underlying structure across groups is ensured.

Method

Sample and Procedure

This study was carried out in a community setting as part of a larger cross-cultural study on adolescent well-being. Data were collected from 843 participants (age: $M = 14.64$ years, $SD = 3.08$, age range 8 to 18 years old), comprising Roma minority ($n = 378$) and Romanian majority youth ($n = 465$) (Table 1). Recruitment occurred in public schools with the help of local research assistants. Students were approached via their teachers and informed about the purpose and methods of the study. Upon consent, study participants completed self-report on life satisfaction during regular teaching time. Data collection took approximately 5 to 20 minutes. Roma and Romanian groups did differ in their distribution of age and gender (Table 1).

Table 1. *Samples*

	Roma minority (<i>n</i> = 378)	Romanian majority (<i>n</i> = 465)	Group comparisons
Gender			
Male (%)	38	37	$\chi^2(N = 720) = .858, ns$
Female (%)	62	63	
Age, <i>M</i> (<i>SD</i>)	14.71 (3.15)	14.58 (3.01)	$F(1, 813) = .400, ns$
SWLS, <i>M</i> (<i>SD</i>)	5.13 (1.25)	5.25 (1.12)	$F(1, 842) = 1.60, ns$
Cronbach's alpha	.83	.75	

Note: SWLS = Satisfaction with Life Scale, α = Cronbach's alpha.

Measures

Sociodemographic data. All participants provided data on socio-demographic variables of ethnic background, gender, and age.

The Satisfaction with Life Scale (SWLS; Diener et al., 1985) was used to measure life satisfaction with five items (“In most ways my life is close to my ideal”, “The conditions of my life are excellent”, “I am satisfied with my life”, “So far I have gotten the important things I want in my life”, and “If I could live my life over, I would change almost nothing”). Each item is answered on a five point Likert scale rated from 1 (*strongly disagree*) to 5 (*strongly agree*). An average score for SWLS factor is computed with higher scores indicating higher life satisfaction. The SWLS was translated from English into Romanian to assure adherence to the standard guidelines for linguistic equivalence (van de Vijver & Leung, 1997). The internal consistency coefficients of SWLS were satisfactory (Table 1) (Cicchetti, 1994).

Results

Analytic Plan

First, we specified our model in AMOS (Arbuckle, 2009) by including all five items in an unidimensional model of SWLS. Second, we tested our model in a Multigroup Confirmatory Factor Analysis (MGCFA) simultaneously across groups. We assessed

goodness of fit for the models with most widely applied absolute and relative alternative fit indices (AFIs) (Meade et al., 2008): the root-mean-square error of approximation (RMSEA; recommended < .08) and the comparative fit index (CFI) with recommended value greater than .95. Finally, model fit was tested by the change in CFI and RMSEA; a recommended change in both fit statistics less or equal to .010 indicates acceptable model fit (Hu & Bentler, 1999).

We tested measurement invariance across groups by means of successive multigroup CFAs. To determine significant differences between models, we followed Chen's (2007) recommendations on $|\Delta CFI| \leq .010$ and $|\Delta RMSEA| \leq .010$ as indicators of invariance. Full scalar invariance was supported, as shown by the fit of the measurement intercepts model indicating that the structure of the scale and pattern of loadings is similar across groups, $\chi^2(17, N = 843) = 32.33, p < .014, RMSEA = .030, CFI = .988$. As shown in Table 3, ΔCFI and $\Delta RMSEA$ suggested invariance. Standardized factor loadings for each sample are reported in Figure 1. We also compared mean scores across groups by means of univariate analyses of covariance (ANCOVA) with group as independent variable and average scores of SWLS as dependent variable. Results showed that cultural groups did not differ with respect to overall life satisfaction, $F(1, 842) = 1.60, p = .198$ (Table 1).

Table 3. Invariance Models and Goodness-of-Fit Indexes of the Multigroup Analysis

Model	Model fit			Model comparisons		
	χ^2 (df)	RMSEA	95 % CI RMSEA	CFI	Δ RMSEA	Δ CFI
Configural invariance	17.18 (8)	.034	.011-.056	.993	-	-
Metric invariance	25.05 (12)	.033	.014-.051	.990	-.001	-.003
Scalar invariance	32.33 (17)	.030	.013-.046	.988	-.003	-.002

Note: χ^2 = Chi-Square; df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; 95 % CI = 95 % Confidence interval; Δ = Change in the parameter.

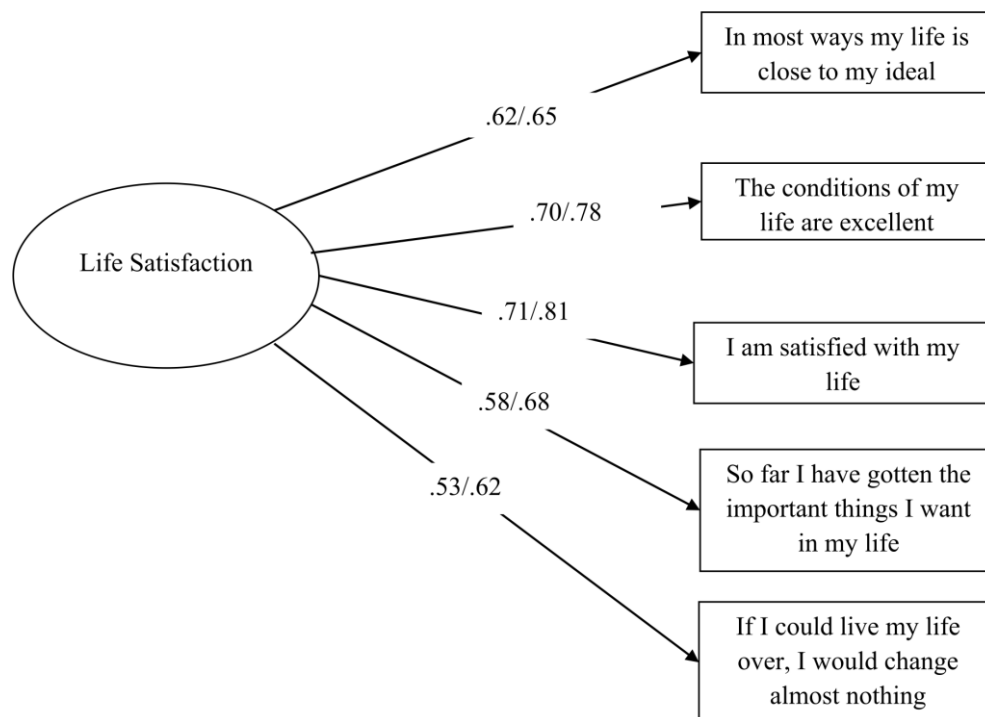


Figure 1. Standardized Solution of the One-factor Model of the SWLS

Note. All factor-loadings represent standardized coefficients for the measurement intercepts model and are significant at $p < .001$. The standardization was performed by fixing the variance of the latent factor at 1. First coefficient on the arrow refers to the Romanian sample, followed by second coefficient referring to the Roma sample, respectively.

Discussion

The current study set out to investigate the invariance of the SWLS in two under-researched ethnic groups in Romania. We were able to achieve invariance across these groups in that the SWLS unidimensional model works well across the samples under investigation. Moreover, in both groups, the internal consistency values were all above the acceptable cut-off. Our results join prior investigations on well-being in an international context (Park, Peterson, & Ruch, 2009; Seligman, 2002) by testing measurement invariance in an Eastern European country and ethnic groups, hardly considered in the empirical literature. We could confirm that the SWLS may be used in ethnic group comparisons of life satisfaction in Romania, which is particularly valuable due to the growing need to understand the psychosocial well-being of populations in a variety of contexts. Furthermore, the results can be used in organizational studies investigating the relationship between life satisfaction and organizational factors as commitment, turnover, job performance, job satisfaction.

In line with our first research question, we confirmed the presence of invariance across our ethnic groups of Roma and Romanians by building on earlier work testing for measurement invariance of life satisfaction across and within cultures (Ponizovksy et al., 2012). In line with our second research question, we evaluated mean level differences in the SWLS in our samples which did not show any differences, meaning that cultural groups do not differ in their scores of life satisfaction. This result, not consistent with previous studies (which showed a lower score for Roma population), might be due to the fact that the current sample was recruited in a local school. Arguably, the access to education and literacy may favor a good life satisfaction for Roma youngsters. On a similar note, multinational reports document positive psychological outcomes and well-being among Roma children in school, who also have good academic success in schools that provide appropriate conditions for learning (Rona & Lee, 2001). Possibly, similar

mechanisms may be at work in our sample, but further investigations are needed.

In addition, earlier work among student samples from Romanian public universities showed scores above the midpoint of the response scale when using the SWLS (Negovan, 2010). Further cross-country analyses on life satisfaction among Romanians in Romania and Greeks in Greece (Stefanel, 2012), revealed that Romanian registered higher scores than Greeks but significantly lower than the scores of Romanians in our study. The main difference between the high scores might be the age difference between the samples. In both cases Romanian and Greek samples were mainstream young adults compared to the ethnic minority sample of youth tested in the current paper. It may be that well-being is differently perceived and internalized (e.g., uncertainty at the beginning of family life and career) by different ages and ethnic groups, even within the same ethnic community. In fact, some studies show that satisfaction with life decreases with age (Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007; Uusitalo-Malmivaara, 2014).

Related research indicates that populations in different countries may differ with respect to their happiness in that a single ranking of nations/ethnic group may miss the complexity of psychological well-being (Park, Peterson & Ruch, 2009; Seligman, 2002). We acknowledge this line of reasoning while also speculating that diverse components of well-being have been reported in results across and within countries (Kuppens, Ceulemans, Timmerman, Diener, & Kim-Prieto, 2006), which partly may account for diversity in findings on mean level differences/similarities in well-being across ethnic groups. Hence, we find much similarity in life satisfaction among the samples investigated here and this should also be viewed in terms of a more balanced approach to well-being. Notably, it has been suggested that research based on cross-cultural and ethnic group comparison focuses heavily on differences over similarities, whereas a more balanced approach considering both similarities and differences in research on well-being is desirable (Park et al., 2009). It should also be noted that when

testing well-being among children, a developmental prospective should be envisaged. What satisfaction with life means for pupils in late childhood and adolescence who experience the transition to early adulthood is differently perceived by other age groups (Uusitalo-Malmivaara, 2014). Also satisfaction with life was measured as a self-perceived quality life, conditions, and achievements. Given the generality of the items used to measure life satisfaction, it is still difficult to estimate what it really means for youth to be satisfied with their life. Moreover, life satisfaction was not addressed in any specific area, such as education, family, local or social environment where differences in the quality of relations and in material and economic wealth occur.

To the best of our knowledge, this is the first study on measurement invariance of SWLS across samples in Romania. Yet, it is not without shortcomings. Future research may take into account country level characteristics such as education, affluence and opportunity, mode of government, concern with human rights, and religiousness (Inglehart, Foa, Peterson, & Weizel, 2008) and how they affect life satisfaction in Romanian general population. Additional extension of this study may focus on investigation of life satisfaction in other samples and cultural groups within and outside Romania to further confirm the generalizability of findings (Diener & Suh, 2000). We also missed the opportunity to capture the direction of causality and testing for longitudinal measurement invariance and future investigations should assess the temporal stability of SWLS (Pavot & Diener, 1993). Nevertheless, we were able to show that the concept of life satisfaction applies to youth with diverse ethnic background in Romania as the SWLS is a brief and valid measure of life satisfaction suitable for use in these samples. Our findings contribute to the increasing need to understand well-being domains in a variety of contexts by providing solid data for the usefulness of SWLS as a tool for testing life satisfaction in Romania.

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