

Testing multidimensional well-being among university community samples in Italy and Serbia

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Summary

Today well-being attracts the attention of public health professionals who are looking to explore life satisfaction as a whole and its specific domains. In order to contribute in moving the measurement of subjective well-being from a primarily academic activity to the sphere of intervention, we need to assess tools to measure multidimensional well-being (MWB) adopting state-of-the-art statistical techniques. Through structural equation modelling our goal was to test a MWB model among Italian and Serbian university students and to further observe its relationships with measures of life goals' pursuing. This cross-sectional pilot study was conducted on a consecutive sample of 86 Italian (45% female; $M_{age} = 24.20$, $SD = 2.02$) and 83 Serbian (55% female; $M_{age} = 23.52$, $SD = 2.48$) university students. Participants filled in an anonymous questionnaire investigating: self-perceived MWB, standardized control measures of well-being (life satisfaction and eudaimonic well-being), and commitment and stress regarding personal goal pursuing. Results evidenced how Serbians reported higher scores on MWB and on control measures than Italians. Moreover, the most frequently reported goals were to complete studies, to obtain job position and to be healthy. Exploratory and multi-group confirmatory factor analyses yielded a one-factor solution of MWB across Italian and Serbian sub-groups. MWB resulted positively associated with standardized control measures in both national groups. The results support the strength of our MWB model applied to samples of young university students in Italy and Serbia. Based on such findings, future studies may adopt this instrument in larger populations of university students in these two countries.

Key words: cross cultural, structural equation modelling, measurement, youth

INTRODUCTION

In recent years, the framework of well-being is under increasing attention of the scientific community and international organizations following the movement toward sustainable development and societal progress

(European Health Report, 2015; Whitmee *et al.*, 2015). Indeed, nowadays it is widely recognized that the meaning of progress is about improvements in the quality of people's lives and requires us to look not only at the

functioning of economic systems but also at the diverse experiences of individuals (O'Donnell *et al.*, 2014). Measuring well-being from a subjective perspective offers us the possibility of relying on something that goes beyond traditional indicators of progress and health in any given society. Subjective well-being is in fact a strong predictor of a variety of health outcomes, from life expectancy to mortality and to the occurrence of chronic diseases (Burstrom, 2001; Molarius and Janson, 2002). Thus, addressing these perceptions is not only of crucial importance for the credibility and accountability of public policies but also for the very functioning of society. More specifically, coordinated research actions are needed in order to contribute in moving the measurement of subjective well-being from a primarily academic activity to the sphere of official statistics.

Early studies focusing on operationalizations of well-being date back in the early 1980s, but publications on a yearly basis were limited and the focus was mainly descriptive and cross-sectional. On average during the 1990s, less than five articles were published each year on this topic but by 2008 this increased to over fifty (OECD, 2013) while in 2012 this number substantially increased to about 12,000, with a specific interest in longitudinal models (Diener, 2013). One of the reasons for this outstanding production boost can be found in the raised attention given to the living conditions of individuals in different contexts following the financial and economic crisis of the past years (Welsch and Kühling, 2015). The amplified concerns regarding the most affected portions of the population such as young people in search of the first occupation or elderly living alone, have often suggested to look at subjective well-being outcomes to better understand individuals' resilience to negative life events. More recently, the focus on well-being has been indicated by the United Nations as one of the sustainable development goals (SDGs), with proposed interventions by 2030 (United Nations, 2015). Because of this renovated interest, nowadays we see how evidence about this construct comes from several different standpoints: economists and psychologists are improving the measures of subjective well-being (Krueger and Stone, 2014), while questions about the influence of different determinants of psychological well-being are growing (Anderson and Jane-Llopis, 2011). Moreover, many new dimensions are encompassed by this field: nutritionists cooperate on defining the field of nutritional well-being (Manafò *et al.*, 2013), sociologists utilize the definition of community well-being (Eden and Lowndes, 2013), while other scientists analyse all these features in different age groups (Velasco-Gonzalez and

Rioux, 2013; Whitesell *et al.*, 2015). Overall, these works represent a reflection of the complex and contested nature of well-being.

Above the wide variety of publications dedicated to this topic, debates about comprehensive definition are still evident. Ryff and Keyes (1995) have been the first to stress that existing conceptions of well-being are not rooted in theories. More recently, it has been argued that the question of how well-being should be defined has found no comprehensive answers so far since previous definitions were too broad (Seligman *et al.*, 2011). Indeed, the OECD (2013) reports that no agreement exists around a common definition and that the terms 'well-being', 'quality of life' and 'life satisfaction' could also be considered as synonyms. Nevertheless, experts have agreed that the framework of well-being should include 'satisfaction with life' as a whole and its specific domains, such as health, economic situation and relationships (Huppert and So, 2011). Broadly speaking, we can distinguish between two schools of thought regarding how to describe subjective well-being: the eudaimonic and the hedonic (Kahneman *et al.*, 2004). The first conceptualization stresses out in particular the aspects of an individual's life related to pursuing meaning and purpose rather than merely focusing on positive emotions (Prince *et al.*, 1999). On the other hand, hedonism refers to maximizing happiness and reducing pain (Kovess and Beaudet, 2001). A common way of measuring hedonism for example is to take an overall summary approach (e.g. overall life satisfaction) without focusing on different personal areas of an individual's life. Around these two main conceptualizations, a wide range of self-reported instruments have been developed. A very recent review of self-reported well-being measurement scales by Lindert *et al.* (2015) listed 60 unique tools, the majority of which are multidimensional but do not pay enough attention to cultural sensitivity. In sum, any new tool or measure should keep in mind that well-being is a higher order construct that is prone to cultural biases.

Based on the experience of previous surveys, the Belgrade-Turin Study (BETOS) presented here has two main goals: (1) to develop and validate an instrument for assessing multidimensional well-being (MWB) among university students in Italy and Serbia, and (2) to evidence the role of protective and risk factors referring to health-related behaviours. Our objectives are closely related to some of the major challenges currently present in the field of well-being research. Firstly, several studies pointed out at the importance of targeting different age groups in separate assessments of MWB (Keyes, 2005; González *et al.*, 2009), and in general there is a lack of

surveys targeting young people and their MWB (Keys, 2007). Secondly, given the importance of subjective well-being to healthy living (Deasy *et al.*, 2015) we need to bridge across different research traditions in order to understand the dimensional structure of this construct and its relationship to various health indexes. With regard to this, the operationalization framework adopted here includes a set of domains wide enough to cover the field of well-being, but not so broad that the domains are not interrelated. Our structure assimilates overall well-being and five more domains: interpersonal, community, occupational, physical and psychological. Interpersonal or social well-being regards the dynamics of social relationships and strongly correlates with several positive outcomes, such as longevity (Buettner, 2008), resilience (Cacioppo *et al.*, 2011), physical health (Rath and Harter, 2010) and overall well-being (Prilleltensky and Prilleltensky, 2006). Community well-being is related to the degree of satisfaction with one's community and is connected to mental health, sense of belonging and community participation (Peterson *et al.*, 2007). Occupational well-being mirrors the state of gratification with one's job and has been identified as one of the central dimensions of well-being (Rath and Harter, 2010). Physical wellness is the state of fulfillment with one's overall health and is related to overall well-being (Olivera, 2015). Psychological well-being relates to the level of satisfaction with one's emotional life and correlates with higher physical wellness (Chiappero-Martinetti and von Jacobi, 2012) and lower mental illness (WHO, 2012). Finally, overall well-being positively correlates and sums up with these specific features of well-being (Deeming, 2013).

Here we will discuss the results from the pilot stage of BETOS referring to the first of our goals, namely the construction and the validation of a MWB model. Since our methodological approach is cross-national we were particularly aware of the challenge of measuring well-being from different cultural angles. Nevertheless, comparing two different national groups of university students we expected to observe some similarities in the way in which young adults from Italy and from Serbia experience life during this educational phase. Considering the motivational theory of life-span development (Haase *et al.*, 2012), we know that striving to achieve important life goals is positively related to well-being (Lee *et al.*, 2001). Therefore, while cross-nationally assessing a MWB model, we were further interested in how measures of personal goal appraisals correlated with our model of well-being. We did so expecting that Italian and Serbian young adult university students would strive for similar personal goals mainly

related to their transition from education to work. Thus, we specifically focused on testing construct and convergent validity of our MWB model and observing its relationship with personal goal appraisals across university students in Italy and in Serbia.

METHODS

Participants and procedure

The sample adopted here was collected adopting a consecutive sampling procedure and consisted of 86 Italian (45% female; $M_{\text{age}} = 24.20$, $SD = 2.02$) and 83 Serbian (55% female; $M_{\text{age}} = 23.52$, $SD = 2.48$) university students. Each student of the selected study groups was personally invited after undergraduate and postgraduate classes by one of the junior authors to fill the online-based, self-administered, anonymous questionnaire. After submitting their email addresses, students willing to take part to the study received a link to the online questionnaire. Participants were provided online with an information form stating the purpose of the study, their research rights and the procedures for completing the survey. The completion of the questionnaire took approximately 15-20 minutes. Data collections took place in the city of Turin (Italy) and Belgrade (Serbia), each lasting approximately one month.

Developing the instrument and selecting measures of well-being

An extensive literature review of well-being served as a base to develop the questionnaire (Wiese, 2007; Nikitin and Freund, 2008; Sheldon and Cooper, 2008; Proctor *et al.*, 2009; Lindert *et al.*, 2015) that contains three parts: socio-demographic characteristics, MWB's questions, standardized control variables for well-being and personal goal appraisals. The Italian and the Serbian versions of the scales included in the questionnaire were created by translating and back translating them by native speakers. As a pre-test a small number of Italian ($n = 5$) and Serbian ($n = 5$) university students were shown the entire questionnaire and asked whether each item and question were relevant in Italy and in Serbia and whether they encountered any difficulty in proper understanding what was asked them. As a result of this preliminary cultural check no item was excluded or modified.

Socio-demographic characteristics

In addition to their age (coded continuously) and gender (coded 0 = male and 1 = female), participants were asked about their marital status (1 = single, 2 = married,

3 = *divorced/separated*, 4 = *widowed*), housing condition (1 = *living with parents*, 2 = *living without parents in a family owned house*, 3 = *living without parents in a rented house*, 4 = *living in a residence for students*), self-rated family income ('How would you rate the economic conditions of your family?', scoring 1 = *not good at all*, 2 = *not so good*, 3 = *average*, 4 = *good*, 5 = *very good*) and minimum wage of their parents ('What do you think is your parents' minimum monthly per capita income?', scoring on a 5-points scale adjusted in both countries accordingly to per capita income distributions in the population and ranging from 1 = *lowest per capita income* to 5 = *highest per capita income*).

MWB

We used an adapted shortened version of the interpersonal, community, occupational, physical, psychological, and economic scale (I COPPE; Prilleltensky *et al.*, 2015) to measure self-reported well-being in the following domains: (1) overall life situation, (2) relationships, (3) community, (4) occupation, (5) physical health and (6) psychological health. For each domain participants were asked to rate on a scale from 0 = *worst possible* to 10 = *best possible* their current situation regarding each specific domain (e.g. 'The number ten represents the best your life can be. The number zero represents the worst your life can be. When it comes to relationships with important people in your life, on which number do you stand now?'). The I COPPE scale taps more dimensions of well-being than other widely adopted standardized measures in the field, such as for example the Gallup Corporation (Rath and Harter, 2010) and the International Wellbeing Group (2006) and it has previously shown convergent validity in its full version on a sample of U.S. adults (Prilleltensky *et al.*, 2015). As described in the results section, in the current study exploratory and confirmatory techniques were adopted to analyse the factor structure of this instrument in its shortened version adopted here on our Italian and Serbian sample groups.

Standardized control variables for well-being

Reading from the guidelines on measuring subjective well-being redacted by OECD (2013), we included the following two standardized measures of well-being in our questionnaire in order to test for convergent validity of our MWB model: *life satisfaction* ('How satisfied are you with your life as a whole?', scoring from 0 = *lowest* to 10 = *highest*) and *eudaimonic well-being* (6 items, e.g. 'I'm always optimistic about my future', scoring on a scale from 0 = *disagree completely* to 10 = *agree*

completely). The latter scale yielded a satisfactory inter-rater consistency in both national groups (Cronbach's $\alpha = 0.84$ and 0.80 for Italians and Serbians, respectively).

Personal goal appraisals

A modified version of Little's (2005) Personal Project Analysis was used. Participants were asked to write down one of their personal projects and to appraise each project along two statements, using a 7-point Likert scale (1 = *low*, 7 = *high*). These statements pertained to *commitment* ('To what extent are you committed to realizing this project?'), and *stress* ('To what extent is it stressful to attain the goal?'). Two coders independently classified each goal into one of the 15 categories reported by Salmela-Aro *et al.* (2001): *education* (e.g. 'finish my Master's degree'), *work* (e.g. 'find a good job'), *their own family* (e.g. 'find a partner and have children'), *parents and relatives* (e.g. 'keep a close relationship with my parents'), *friends* (e.g. 'find new friends'), *property and financial issues* (e.g. 'buy a house'), *hobbies* (e.g. 'learn to play the guitar'), *daily routines* (e.g. 'water the plants'), *health* (e.g. 'take care of my health'), *self and personality* (e.g. 'grow as a person'), *travel* (e.g. 'travel abroad'), *politics and society* (e.g. 'participate in political life'), *life philosophy* (e.g. 'live a happy life'), *change of residence* (e.g. 'move to a new city'), *tobacco, alcohol and drugs* (e.g. 'quit smoking'). Inter-coder reliability was calculated by the means of Cohen's k and was equal to 0.81 which is considered an indication of almost perfect agreement between independent observers (Landis and Koch, 1977).

Data analyses

Analyses were performed using SPSS 22.0 and AMOS Graphics 20.0 (SPSS Inc., Chicago, IL, USA). Before proceeding to analyse the data, all items' scores were examined for accuracy of data entry and detecting and replacing missing values. Given the low rates of missing values on each item (< 5%), the expectation maximization algorithm for imputing missing data was employed. This decision was also made since no systematic correlation between missing values and the scores of other variables among subjects was detected ($r < |0.20|$). To check the means and frequencies of the variables representing background characteristics (*i.e.* age, gender and family income) across the two national groups, *t*-tests for independent samples and chi square test were performed. An exploratory factor analysis (EFA) was then employed in order to assess the dimensional structure of the adapted shortened version of the I COPPE scale in the present

samples. The EFA was performed using varimax rotation. The number of factors to be retained was decided on the basis of eigenvalues, looking at the screen plot, and the interpretability of the factor solution. Next, we proceeded to further assess measurement invariance of the selected factor solution across Italian and Serbian groups. First, we tested the factor structure of the scale within each of the two national groups separately. To assess how well the confirmatory factor analysis (CFA) models represented the data, the following criteria were used as cutoffs for good fit: CFI ≥ 0.90 (with ≥ 0.95 being ideal), RMSEA and SRMR ≤ 0.08 (with ≤ 0.05 being ideal) (Kennedy, 2015). Thus, after establishing the fit of the model within each of the two groups, we used multi-group confirmatory factor analysis (MG-CFA) to examine measurement invariance across national groups. Factorial invariance tests were done in a hierarchical fashion by conducting an initial analysis (Model 1) in which the only invariance constraint was that the same parameters exist for both groups (configural invariance). Then, additional constraints were imposed on the factor loadings (Model 2, metric invariance), item intercepts (Model 3, scalar invariance) and finally on residual variances (Model 4, strict invariance). For testing metric invariance, a change of CFI greater than or equal to -0.01 between consecutive models, supplemented by a change of ≥ 0.02 in RMSEA or a change ≥ 0.03 in SRMR was considered indicative of non-invariance; for testing scalar or strict invariance, a change of ≥ -0.01 in CFI, ≥ 0.02 in RMSEA or a change of ≥ 0.01 in SRMR would indicate non-invariance (Vandenberg and Lance, 2000; Chen, 2007). As further investigation of construct validity, the next step of the analysis was to investigate the relationship of the selected of MWB factor solution with the standardized control variables for well-being (*i.e.* life satisfaction and eudaimonic well-being). Finally, hierarchical multiple regression analysis was implemented to assess the effect of personal goal appraisals (*i.e.* commitment and stress) on MWB while controlling for age, gender and family income. All continuous variables included in these final regression models were standardized to have a mean of zero and a standard deviation of 1 to facilitate interpretation. MWB was used as dependent variable. Age, gender and subjective economic situation were entered as covariates in the first step while variables describing personal goals' importance (*i.e.* commitment and stress) were entered in the second step. The data were screened for violation of assumptions of independent errors and absence of multicollinearity prior to analysis. Regression models were run on Italian and Serbian groups separately and on the overall sample. In this latter model, nationality was

included among the control variables in the first step. We hypothesized that personal goal appraisals would make a significant contribution to MWB. The null hypotheses tested were that the multiple R^2 was equal to 0 and that regression coefficients (*i.e.* the slopes) were equal to 0.

RESULTS

Descriptive analyses

Table 1 reports the descriptive statistics along with results of *t*-tests for independent samples and chi square test for every variable included in the analyses across the two national groups. We did not observe significant differences between Italian and Serbian groups regarding age composition, $t(168) = -1.96$, $p > 0.05$, gender composition, $\chi^2(1, 168) = 1.71$, $p > 0.05$, or family income, $t(168) = -0.63$, $p > 0.05$. Accordingly, no bias between the two groups should be expected in our results according to these socio-demographic characteristics.

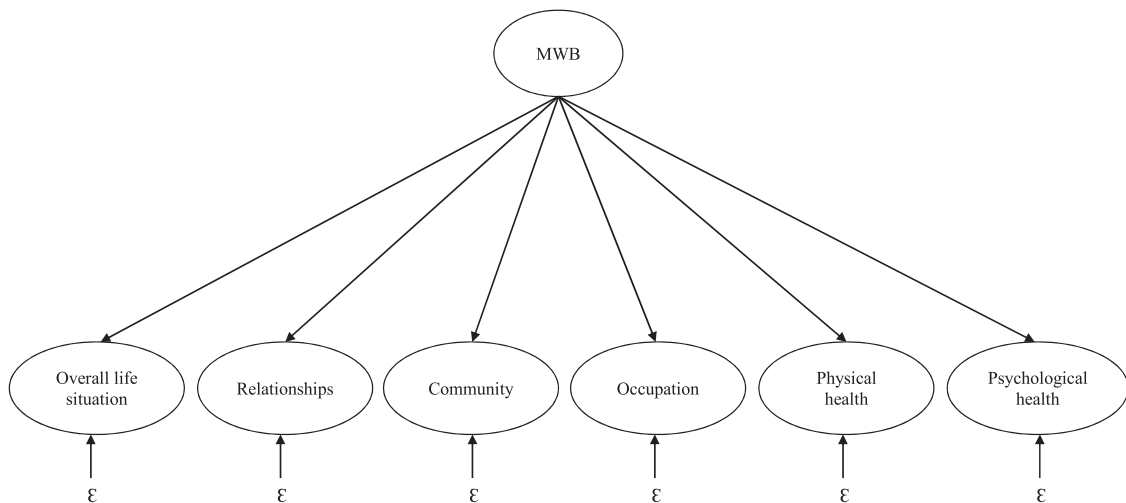
The three most frequently mentioned goals across Italian and Serbian participants were: to complete studies (e.g. getting a degree) (50% of the Italian participants and 49% of the Serbian participants), to obtain the job position (e.g. finding a fulfilling job) (31–25%), and to be in a good health (e.g. being healthy) (4–4%). As it can be noted from these descriptive results, Italian and Serbian participants reported very similar personal goals with a specific emphasis on finishing education and finding a job. Such similar trends across national groups reflect the similarity of the individual personal life experiences of modern Italian and Serbian young adult university students.

Testing MWB factor solution and measurement invariance across countries

Results of EFA reported a one-factor solution of MWB in both Italian (56.81% of total variance explained) and Serbian (57.74% of total variance explained) groups. This model consisted of a one-factor solution of well-being from a multidimensional perspective comprehending six personal domains of self-perceived well-being: (1) overall life situation, (2) relationships, (3) community, (4) occupation, (5) physical health and (6) psychological health (see Figure 1). This one-factor model of MWB was further tested through CFA in both national groups. To identify the one-factor scale model we fixed the factor loading of the first item to one. The hypothesized model fit the data well, implying adequate construct validity of the model in the Italian, $\chi^2(9, 86) = 11.98$, $p > 0.05$, SRMR = 0.96, CFI = 0.98,

Table 1: Descriptive statistics and results of t-tests chi-square tests for detecting significant differences across Italian and Serbian groups

	Range	Italian (<i>n</i> = 86)		Serbian (<i>n</i> = 83)		P-value
		M	SD	M	SD	
Gender (% females)		45		54		.220
Age		24.20	2.02	23.52	2.48	.052
Family income	1–5	2.78	1.24	2.65	1.40	.528
Multidimensional well-being						
Overall life situation	0–10	6.57	1.94	6.90	1.77	.245
Relationships	0–10	7.32	1.84	7.83	1.99	.083
Community	0–10	6.02	1.71	7.34	1.83	<.001
Occupation	0–10	6.00	2.31	7.08	2.18	.002
Physical health	0–10	6.84	1.71	7.24	1.92	.151
Psychological health	0–10	6.30	2.03	7.30	2.02	.002
Standardized control measures of well-being						
Life satisfaction	0–10	6.33	2.36	7.36	1.81	.002
Eudaimonic well-being	0–10	6.00	1.93	7.42	1.42	<.001
Personal goal appraisals						
Commitment	1–7	5.41	1.21	5.78	.76	.020
Stress	1–7	4.88	1.55	4.91	1.24	.858

**Fig. 1:** Diagrammatical representation of the structural one-factor solution model of MWB.

RMSEA = 0.06, with a 90% CI = 0.00–0.15, as well as in the Serbian group, $\chi^2(9, 83) = 4.95$, $p > 0.05$, SRMR = 0.98, CFI = 1.00, RMSEA = 0.00, with a 90% CI = 0.00–0.09. All standardized factor loadings were statistically significant ($p < 0.001$), ranging from 0.47 to 0.83 in the Italian group and from 0.48 to 0.88 in the Serbian group thus supporting each item as adequately tapping the MWB factor. A composite mean score of MWB was calculated for each participant

yielding a good internal validity score (Italian Cronbach's $\alpha = 0.84$; Serbian Cronbach's $\alpha = 0.85$). T-test for independent samples indicated that Italian participants reported significant lower scores on MWB ($M = 6.51$, $SD = 1.45$) than Serbians ($M = 7.28$, $SD = 1.47$), $t(168) = 3.45$, $p < 0.001$. This result is concordant with the significant differences between the two groups on the control measure of well-being (see Table 1).

Table 2: Tests of measurement invariance across national groups

Model	χ^2	$\Delta\chi^2$	df	Δdf	RMSEA (90% CI)	Δ RMSEA	SRMR	Δ SRMR	CFI	Δ CFI
Single-group solutions										
Italian (<i>n</i> = 86)	11.98		9		0.06 (0.00–0.15)		0.96		0.98	
Serbian (<i>n</i> = 83)	4.95		9		0.00 (0.00–0.09)		0.98		1.00	
1. Configural invariance	29.47		18		0.06 (0.01–0.10)		0.95		0.97	
2. Metric invariance	37.58	8.11	23	5	0.06 (0.02–0.10)	0.00	0.93	–0.02	0.96	–0.01
3. Scalar invariance	37.60	0.02	24	1	0.06 (0.01–0.09)	0.00	0.93	0.00	0.97	0.01
4. Strict invariance	51.92	14.32	30	6	0.07 (0.03–0.10)	0.01	0.91	–0.02	0.94	–0.03

Notes. $\chi^2 = \chi^2$ goodness of fit; *df* = degrees of freedom; RMSEA = root mean square error of approximation; 90% CI = 90% confidence interval for RMSEA; SRMR = Standardized Root Mean Square Residual; CFI = comparative fit index; $\Delta\chi^2 = \chi^2$ goodness of fit difference; Δdf = degrees of freedom difference; Δ CFI = CFI difference; Δ SRMR = SRMR difference; Δ RMSEA = RMSEA difference.

Table 3: Bivariate correlations among variables included in the regression models and control variables for well-being

	1	2	3	4	5	6	7	8
1. MWB	–	0.49**	0.47**	–0.01	0.05	0.17	0.23*	0.16
2. Life satisfaction	0.75**	–	0.71**	–0.21	0.03	0.14	–0.03	–0.04
3. Eudaimonic well-being	0.71**	0.79**	–	0.06	–0.10	–0.02	0.05	–0.09
4. Age	0.06	–0.10	–0.11	–	–0.165	–0.05	0.04	–0.09
5. Gender	–0.02	–0.06	–0.06	–0.05	–	–0.09	–0.05	0.14
6. Family income	0.20	0.15	0.22*	–0.06	–0.24*	–	–0.19	0.01
7. Commitment	0.34**	0.25*	0.33**	0.19	0.09	0.16	–	0.29**
8. Stress	–0.39**	–0.35**	–0.36**	0.07	–0.01	0.01	0.08	–

Notes. Correlations pertaining to the Italian group are displayed below the diagonal. Correlations pertaining to the Serbian group are displayed above the diagonal. Gender was coded 0 = male and 1 = female. Nationality was coded 0 = Serbian and 1 = Italian.

p* < 0.05, *p* < 0.01.

Tests of measurement invariance across national groups are summarized in Table 2. Based on the change in CFI values and other indices of practical fit, we conclude that Model 1 (configural invariance), Model 2 (metric invariance), Model 3 (scalar invariance) and Model 4 (strict invariance) result in similar empirical fit, each providing acceptable fit to the data. Finally, χ^2 difference tests were statistically not significant given our small sample size (see Kline, 2005).

Hierarchical multiple regression analysis

Based on the results of the MGCFA, in the following hierarchical multiple regression models we analysed Italian (*N* = 86; 45% female; *M*_{age} = 24.20, *SD* = 2.02) and Serbian (*N* = 83; 55% female; *M*_{age} = 23.52, *SD* = 2.48) groups separately as well as together (*N* = 169, 50% female; *M*_{age} = 23.86, *SD* = 2.28). Table 3 displays bivariate correlations among all variables included in the regression model and control variables for well-being for the two national groups

separately. The strong positive relationship between MWB from a side and life satisfaction and eudaimonic well-being from the other side in both national groups is an indication of construct validity for our MWB model. In addition, the strengths of the correlations among all variables suggest that the assumption of independent errors for conducting regression analyses was met. As further evaluation of the independence of errors Durbin-Watson statistic was computed and ranged from 1.64 to 2.01 across models, which is considered acceptable. Hierarchical multiple regression results with personal goal appraisals entered in the second step are presented in Table 4. As it was expected, together personal goals variables significantly contributed to explain variance of MWB scores among Italian, $\Delta R^2 = 0.29$, *p* < 0.001, and Serbian participants, $\Delta R^2 = .08$, *p* < 0.05. Consistently across national groups, higher participants' scores on personal goal's commitment (Italian: *t* = 4.06, *p* < 0.001; Serbian: *t* = 2.17, *p* < 0.05) predicted higher scores on self-reported MWB. Conversely, higher scores on personal

Table 4: Results of hierarchical multiple regression for variables predicting MWB.

Predictors	Italian (<i>n</i> = 86)		Serbian (<i>n</i> = 83)		Total sample (<i>N</i> = 169)	
	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1: Control variables	0.05		0.03		0.10**	
Age		0.02		0.01		-0.01
Gender		-0.05		0.07		0.02
Family income		0.15		0.22		0.18*
Nationality		-		-		-0.19**
Step2: Personal goal appraisals	0.29***		0.08*		0.12***	
Commitment		0.39***		0.25*		0.33***
Stress		-0.41***		0.08		-0.18*

Notes. Gender was coded 0 = *male* and 1 = *female*. Nationality was coded 0 = *Serbian* and 1 = *Italian*.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

goal's stress predicted lower scores on self-reported MWB only among Italian ($t = -4.54$, $p < 0.001$). On the other hand, the results of the hierarchical regression model applied to the overall sample stressed out the linear relationship between personal goal's commitment ($t = 4.53$, $p < 0.001$) and stress ($t = -2.49$, $p < 0.05$) with MWB after controlling for nationality. These results indicate that although in general personal goal appraisals are linearly correlated with MWB across national groups, different specificities emerged in the Italian and in the Serbian national groups, particularly referring to stress in achieving personal goals. While Italians appeared to be strongly affected by their stress related to their personal goals when reporting their MWB, Serbians showed positive linear association with their MWB only regarding their commitment toward personal goals. Nevertheless, in the third model the respectively positive and negative association of commitment and stress with MWB hold true after controlling for nationality.

DISCUSSION

Working to develop and assess valid and comprehensive measures of subjective well-being is on the agenda of several countries and international organizations that strive to obtain reliable tools to compare and monitor progress across different contexts. In the present report, we particularly addressed one of the major challenges currently present in this field, namely to assess cross-cultural validity and sensitivity of a multidimensional model of well-being. We did so by focusing on young adults from two very distinctive contexts such as Italy and Serbia. Indeed, according to the 2015 World Happiness Report (Helliwell *et al.*, 2015),

Italy and Serbia ranked respectively 50th and 87th according to a comprehensive well-being index that took into account economic (*i.e.* Gross Domestic Product per capita), health (*i.e.* healthy life expectancy) and self-perceived (e.g. social support, generosity) country-specific characteristics. The results of our current pilot study will help us to move forward and evidence the role of health-related protective and risk factors targeting our MWB measure as outcome in future studies.

The MWB model tested here fills some gaps in the research literature of well-being measurements. First of all, it comprehends some aspects of well-being that are absent in other standardized and widely adopted measurement tools. Specifically, questions related to psychological well-being are not included in measures developed by the Gallup Corporation (Rath and Harter, 2010) or the Personal Wellbeing Index- Adult (2006), while physical well-being is absent from the Satisfaction with Life Scale created by Diener *et al.* (1985). In addition, occupational well-being is not directly measured by Gallup and it is absent from the Personal Wellbeing Index- Adult. Our aim was to develop a comprehensive but parsimonious model of well-being building upon existing research instruments rooted in relevant theoretical frameworks. Exploratory and confirmatory techniques gave important indications of good construct and convergent validity of the scale across the two national samples. The yielded one-factor solution is in accordance with the notion that, although well-being is a complex construct comprising multiple factors (Gallagher *et al.*, 2009), a synthesis of different aspects of an individual personal fulfillment in unidimensional models of well-being is plausible (Lindert *et al.*, 2015).

Consistent with previous research findings that focused on populations of university students (Ranta *et al.*, 2013; Piumatti and Rabaglietti, 2015), Italian and Serbian young adult university students in the current samples exhibited generally high self-perceived well-being in various domains of their lives. More specifically, by looking at the overall differences between the two national groups, it was evident that in general Serbians reported significant higher scores on well-being measures than Italians. Such results are in contradiction with national surveys representative of young people aged 18–30 in both countries, where Italians consistently showed higher levels of well-being than Serbians (Explained Eurostat Statistics, 2015). However, a closer look evidences how in the current samples Serbians performed better than Italians along three of the six dimensions of well-being (*i.e.* community, occupation and psychological well-being), while the two sub-groups did not significantly differ along the remaining ones (*i.e.* overall life situation, relationships and physical health). Such results must be considered with caution as the small sample size adopted here cannot be considered representative of the normal populations of reference.

Finally, the consistent significant contribution of motivational measures in explaining variability in MWB scores underlines how having an important life goal is positively related to well-being especially among youths (Sheldon and Cooper, 2008). In particular, only commitment toward personal goals in life, in contraposition to stress, showed a significant positive contribution to MWB scores across national groups. This last result is in accordance with research literature indicating that while the association between positive goal commitment measures and well-being is well-established (Lee *et al.*, 2001) relationship with negative facets of goals striving such as stress is less consistent (Brandtstadter and Rothermund, 2002).

Strengths, limitations and final remarks

This pilot study was not without limitations. First, the strict correlative nature of the analyses precludes causal inferences. Longitudinal research will overcome this issue. The second major limitation regards the fact that the small sample size adopted here is serving for the piloting of the instrument, and cannot be representative of the normal population in either of the two national contexts. Finally, a potential source of bias might be attributed to the fact that our data were collected during academic examination periods in Turin and Belgrade.

Despite these weaknesses, this study contributes to the research literature examining multifaceted aspects of

well-being by showing through a cross-national perspective how a MWB model is related to individual motivational aspects in youths attending university. The robustness of our conclusions is supported by the overall consistent significant levels in our relatively small but comparable samples of Italian and Serbian university students. Further research should test the validity and reliability of the current MWB model and evidence possible protective and risk factors.

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