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The psychometric properties of the Italian Satisfaction with Life Scale (SWL-3): Relationship to mental well-being and distress

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Abstract

Background: Happiness and life satisfaction are core dimensions of subjective well-being. The 3-item Satisfaction With Life Scale (SWLS-3) was developed as a brief alternative to the original 5-item SWLS (SWLS-5) but lacks validation in Italian samples.

Objective: To evaluate the psychometric properties, reliability, and construct validity of the Italian SWLS-3 versus the SWLS-5.

Methods: A community sample of 504 Italian adults (*M*_{age} = 35.15, *SD* = 12.31; ~82% female) completed the SWLS-5, SWEMWBS, and DASS-12 online. Confirmatory factor analyses examined unidimensionality; internal consistency employed Cronbach's α and McDonald's ω . Convergent and discriminant validity were tested via correlations and HTMT ratios.

Results: Both scales showed excellent fit; the SWLS-3 was slightly superior (*CFI* = 0.972, *RMSEA* = 0.069) to the SWLS-5 (*CFI* = 0.963, *RMSEA* = 0.070). Reliability was high for both (α = 0.881–0.897; ω = 0.876–0.896). The SWLS-3 correlated strongly with the SWLS-5 (r = .949), positively with mental well-being (r = .654), and negatively with distress (r = -.483). HTMT values supported discriminant validity.

Conclusion: The Italian SWLS-3 demonstrates excellent psychometric performance and is recommended as a time-efficient screening tool in clinical and large-scale epidemiological research, though some researchers may still prefer the full version.

Keywords: satisfaction with life scale; italian validation; subjective well-being; stress; confirmatory factor analysis; reliability

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Introduction

Happiness and Satisfaction with Life

Happiness is a multidimensional construct related to economic, personal, and social dimensions, representing a key aspect of human life (de Almeida Cardoso et al., 2023; Diener, 1985). By encompassing the quality of personal, interpersonal, social, and working life, happiness is also closely linked to active citizenship processes (Albanesi et al., 2007; Fenn, et al., 2024). In fact, the 1998 Nobel Prize winner for economics, Amartya Sen, defined happiness as a pre-existing condition that enables individuals to achieve and maintain a satisfactory level of quality of life, including mental well-being, health, nutrition, longevity, education, freedom of speech, and physical integrity (Dang, 2014). Consequently, policies for fundamental rights, social bonds, and social participation should be accurately based on what satisfies people. Consequently, the investigation into happiness has increased substantially in recent decades (Diener et al., 2018; Ibrahim & Nadif, 2025). Happiness as a global assessment of one's existential state is often operationalized as Subjective Well-Being (SWB), which can be considered a measure of hedonic well-being, i.e., pleasure-seeking and increased positive moods (Lambert et al., 2015). SWB consists of two main dimensions: affective and cognitive components. The affective component refers to positive affect (such as feeling energetic and alert) and the absence of negative affect (such as states of anxiety, stress, depression and nervousness). Conversely, the cognitive component corresponds to general and specific life satisfaction (Satisfaction with Life, [SWL]), that is the subjective evaluation of one's existence according to personal criteria (Busseri et al., 2018; Diener et al., 2003; Diener et al., 2018; Shin & Johnson, 1978).

Pavot and Diener (2008) emphasized the importance of measuring SWL in the context of happiness, as it allows individuals to identify the parameters, they consider significant in assessing their well-being, and to assign them subjective weight in their decision-making processes. Moreover, several studies have demonstrated that high levels of SWL are associated with improved mental well-being, enhanced psychological resilience, academic success, and better social functioning (Bielinis, 2019; McLaughlin et al., 2011). In contrast, low life satisfaction is often linked to depressive symptoms, high levels of perceived stress, and increased vulnerability to anxiety, suggesting a dynamic interaction between SWB and psychopathological determinants (Stier-Jarmer, 2021). Chronic stress and persistent levels of anxiety and depression can impair subjective perceptions of quality of life, reducing the ability to experience positive emotions and intensifying sensitivity to negative affective states (Hwang & Oh, 2024). Moreover, the cognitive strategies underlying emotional regulation are closely associated with depressive and anxiety symptoms (McLaughlin et al., 2011; Schäfer et al., 2017). Therefore, research on SWL is crucial for developing personalized strategies that can promote well-being, as they are related to personal and societal benefits (Diener & Ryan, 2009).

Satisfaction with Life Scale (SWLS)

Currently, the Satisfaction with Life Scale (SWLS; Diener et al., 1985) is one of the most widely used instruments for evaluating

the cognitive component of happiness (e.g., Dimitrova & Dominguez, 2015; Di Fabio, 2020; Di Fabio & Busoni, 2009; Pavot & Diener, 2008). The SWLS comprises five statements to assess the overall SWL. Previous research has demonstrated that the SWLS-5 possesses adequate psychometric properties (Diener et al., 1985; Pavot, 2014). Most studies have confirmed its unidimensional factor structure (Emerson et al., 2017; Neto, 1993; Pavot & Diener, 2008). Consequently, the SWLS has been adopted in many countries worldwide (Neto, 1993; Neto & Neto, 2024) and has been applied across diverse populations, including adolescents, adults, older adults, and people from different national and cultural backgrounds (Pavot & Diener, 2008; Swami et al., 2025).

Recently, an important debate has emerged regarding the development of shorter forms of SWLS. One reason for the growing interest in shorter scales may be the evolving nature of modern psychological research. As research questions become increasingly complex, and involve a growing number of constructs, shorter scales offer a practical advantage for data analysis (Ziegler et al., 2014). Moreover, shorter scales can be more easily employed in large-scale research context, such as surveys, pre-screening packages, longitudinal studies, and experience sampling studies (Gosling et al., 2003). Furthermore, brief screening instruments provide many practical advantages in professional counseling (Shields et al., 2021).

Satisfaction with Life Scale (SWLS) 3 item version

Kjell and Diener (2021) recently proposed the first three items of the SWLS ("1. In most ways, my life is close to my ideal"; "2. The conditions of my life are excellent"); and "3. I am satisfied with my life.") were the most suitable to form an abbreviated version (SWLS-3) from both prior selection "as they arguably are most directly tapping into the targeted construct" (Kjell & Diener, 2021). Psychometrically, the first three items present the strongest factor loadings (Diener et al., 1985). Kjell and Diener (2021) also showed that the SWLS-3 presented excellent reliability, fit indices. Additionally, the SWLS-3 showed identical validity to the SWLS-5 as it produced identical associations with other evaluations of well-being measures. Theoretically, the first three items of the SWLS also make the most sense. Furthermore, empirical data indicate that items 4 ("So far I have gotten the important things I want in life") and 5 ("If I could live my life over, I would change almost nothing") are substantially different from the others as they are more strongly related to aging and retrospective evaluation (Pavot & Diener, 2008). In the Italian context, the 5-item version of the SWL has demonstrated good psychometric properties (e.g., Di Fabio et al., 2009), whereas the 3-item version has yet to be examined. Examining the three-item version of the SWLS in the Italian context is important because it addresses both practical needs and methodological issues central to well-being research. On an operational level, an extremely short scale facilitates the inclusion of the measure in large-scale surveys, longitudinal studies with many repeated measurements, ecological studies, and mobile device surveys, reducing the burden on participants and the risk of dropout or response fatigue (Hoerger, 2010; Kost et al., 2018; Yang et

al., 2019). On a theoretical and psychometric level, however, reducing the number of items may alter the representativeness of the construct and its internal consistency, as well as changing its relationships with related constructs (Hoerger, 2010; Kost et al., 2018; Yang et al., 2019). Validating the SWL-3, therefore, makes it possible to assess whether the short version retains the expected unidimensional structure, maintains adequate reliability and stability, and demonstrates comparable convergent and discriminant validity comparable to the full version. Additionally, a 3-item scale has pragmatic value for medical and health professionals who have limited time for screening, as the sum of the 3 items can be easily calculated. Hence, a fast life satisfaction evaluation might be helpful in a more complex diagnosis or health evaluation (Neto, 2024; Allen, 2022; Kjell & Diener, 2021).

The Present Study

To fill this gap (i.e., the absence of validation of the 3-item version of SWL), the present study aims to examine in depth the psychometric properties and construct validity of the SWLS-3 in an adult Italian sample and to compare its performance with the full five-item version (SWLS-5).

Moreover, the decision to shorten an existing scale is not only practical but also theoretically and methodologically grounded: on one hand, a 3-item version reduces respondent burden and facilitates inclusion of the measure in surveys incorporating multiple instruments; on the other hand, shortening may compromise internal reliability, construct coverage, and discriminative capacity. Shrout & Yager (1989) provide classic evidence that arbitrary item deletion can reduce the reproducibility of measurements and alter validity indices, indicating the need for direct empirical comparisons between versions. Rammstedt & Beierlein (2014) complete the picture by noting that very short versions can be practicable, but only if developed and validated with rigorous procedures — involving careful item selection and the use of techniques such as CFA to verify item quality and information.

To address these concerns concretely, the present study proposes targeted analyses: comparison of CFA fit for the SWLS-3 versus the SWLS-5; classical and modern reliability estimates (Cronbach's α and McDonald's ω); and convergent and discriminant validity with related measures (e.g., mental well-being). These procedures directly respond to the risks highlighted by Shrout & Yager (1989) and to the practical recommendations of Rammstedt & Beierlein (2014), allowing an informed judgment about whether the SWLS-3 is appropriate for use in Italian contexts (Rammstedt & Beierlein, 2014; Shrout & Yager, 1989).

Therefore, the primary objective is to determine whether a more parsimonious measure can be adopted in Italian research and applied settings without compromising psychometric quality or the relationships that the full version demonstrates with theoretically related constructs such as mental well-being and psychological distress. To this end, the internal structure of both versions will be evaluated using confirmatory factor analyses (CFAs), and internal reliability will be estimated using Cronbach's alpha (α) and McDonald's omega (ω). Convergent

and discriminant validity will be investigated by comparing the correlation patterns of the SWLS-3 and SWLS-5 with relevant external measures and by assessing whether those correlations are substantially equivalent. If the SWLS-3 demonstrates a unidimensional structure, adequate reliability, and external correlation patterns not meaningfully different from those of the five-item version, its use will be recommended as a valid short instrument for large-scale research, ecological measures, and screening contexts that require brevity; if meaningful psychometric losses are observed, continued use of the full version or further revision of the short form are advised.

This study aimed to test the psychometric properties of SWLS-3. We expected to identify a one-dimensional factorial structure and satisfactory internal consistency (Hypothesis 1; H1). The second aim was to study the construct validity of the SWLS-3 through associations with theoretically associated scales. More specifically, we hypothesized a positive association with mental well-being (Hypothesis 2, H₂); and a negative association with psychological distress (Hypothesis 3, H₃).

The objective of this process is intended to enhance the instrument's simplicity and effectiveness satisfaction with life construct in the Italian context.

Methods

Ethics

The present research was conducted in accordance with the Declaration of Helsinki for medical research involving human participants and received approval from the Niccolò Cusano University (05/10/25). All participants provided informed consent to take part in the study. The participants' identities were anonymous, and the collected data were stored in an encrypted online archive, to which only the authors of the current study had access.

Participants and Procedure

Between January and February 2025, a link to an online questionnaire was distributed via Italian digital platforms and social networking sites (e.g., Facebook, WhatsApp, etc.). Inclusion criteria included: (I) being 18 years of age or older; (II) fluent in Italian language; (III) providing informed consent to participate; and (iv) being currently employed (either full-time or part-time). A total of 504 participants completed the questionnaire (*Age* = 35.15 years; *SD* = 12.31), of whom 82.38% were female (*n* = 416) and 17.62% were male (*n* = 88). Further demographic characteristics are presented in Table 1.

Following previous research on item reductions (e.g., Soraci et al., 2025a) and considering gender imbalance, independent samples *t*-tests (Student's *t*) were conducted to compare the two groups on three variables used in the CFA models: SWLS-5, SWLS-3 and SMWBS. The complete results are displayed below (mean difference = Female – Male). For SWLS-5, no significant difference was observed between the gender: $t_{(499)} = -0.038$, $p = 0.970$; mean difference = -0.030 , $SE = 0.781$,

95% CI = [-1.564, 1.504]; Cohen's $d = -0.004$, $SE(d) = 0.115$. For SWLS-3, no significant difference was observed: $t_{(500)} = -0.711$, $p = 0.478$; mean difference = -0.328 , $SE = 0.462$, 95% CI = [-1.236, 0.580]; Cohen's $d = -0.082$, $SE(d) = 0.115$. No significant difference was observed for SMWB: $t_{(474)} = -1.337$, $p = 0.182$; mean difference = -1.454 , $SE = 1.088$, 95% CI = [-3.592, 0.684]; Cohen's $d = -0.159$, $SE(d) = 0.119$. It can be deduced that gender does not appear to have a significant effect on the measures considered.

Tab. 1. Sociodemographic Characteristics of the Sample (N = 504)

Variable	Category	n	%
Gender	Female	412	81.7
	Male	92	18.3
Educational level	PhD or other postgraduate degree	26	5.2
	Master's degree	76	15.2
	High school diploma (upper secondary)	276	55.2
	Bachelor's degree	120	24.0
	Middle school diploma (lower secondary)	2	0.4
Main activity	Worker	117	23.2
	Student	387	76.8

Sample Size

Determining the appropriate sample size is of critical importance in confirmatory factor analysis to ensure accurate parameter estimates and a reliable model fit. Therefore, a comprehensive Monte Carlo simulation was conducted to empirically evaluate the number of participants required for stable and well-fitting models. To evaluate the optimal sample size for confirmatory factor analysis (CFA), a Monte Carlo simulation was conducted using the lavaan 0.6-20 package (Rosseel, 2012) in R (R Core Team, 2021), with 1000 replications per sample size. The population model comprised two correlated latent factors, the first measured by five indicators (SWLS-5) and the second by ten indicators (SMBWS) (see Model 2 in Statistical analysis section for details), all with factor loadings set to 0.50 and independent residuals. Five percent of the data were randomly designated as missing. For each replication, the root mean square error of approximation ($RMSEA$), comparative fit index (CFI), standardized root mean square residual ($SRMR$), and the proportion of statistically significant factor loadings were computed. The primary performance criterion was defined as the percentage of replications exhibiting $RMSEA$ below 0.08 (Browne & Cudeck, 1993). The study's findings demonstrated that, with a sample size of 100 participants, the majority of replications satisfied the $RMSEA$ criterion ($RMSEA < 0.08$; % $RMSEA < 0.08 = 92.3\%$), with all factor loadings proving to be statistically significant and convergence rates approaching 100%. The increased sample size of 200 participants resulted in the vast majority of replications attaining conventional fit standards (e.g., $RMSEA < .08$; % $RMSEA < .08 = 97.6\%$, $CFI > .90$, $SRMR < .06$). Further increases to 300 or 500 participants yielded only marginal improvements in fit indices (e.g., $RMSEA < .08$; % $RMSEA < .08 = 99.9\%$, $CFI > .90$, $SRMR < .06$), thereby demonstrating stable estimation of the model parameters. Using the same procedure, we estimated the number required for the model with SWLS-3 and SMWB (see Model 1 in Statistical analysis section for details), which

was optimal with $N = 200$ (e.g., $RMSEA < 0.08$; % $RMSEA < .08 = 96\%$, $CFI > .90$, $SRMR < .06$). Consequently, a sample size of at least $N = 200$ participants is deemed adequate to ensure both reliable fit indices and statistically significant factor loadings, with larger samples providing minimal additional benefit for both models (Browne & Cudeck, 1993). CFA analysis, descriptive statistics, HTMT matrix, and correlations were performed using JASP 0.19 software (JASP Team, 2025).

Measures

Satisfaction With Life Scale 5 item (SWLS-5, Diener et al., 1985, Italian version di Fabio & Palazzeschi, 2012): The five-item SWLS was used to assess life satisfaction. Participants rated each statement on a seven-point response format (1 = *strongly disagree* to 7 = *strongly agree*). An example item is "Most aspects of my life are as I want them to be." Scores on the five items were summed to produce a total score ranging from 5 to 35 (5 items $\times$ 1–7), with higher values indicating greater life satisfaction. Internal consistency in the present sample was very good (Cronbach's $\alpha = .89$ McDonald's $\omega = .89$).

Satisfaction With Life Scale 3 item (SWLS-3, Diener et al., 1985, Italian version di Fabio & Palazzeschi, 2012): Participants completed the five-item SWLS. Scores for the three-item version (SWLS-3) were derived from the SWLS-5 by summing Items 1–3, so participants were not required to complete the SWLS-3 separately.

Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS, Tennant et al., 2007, Italian version Soraci et al., 2024): The seven-item short version of the Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS) was used to assess mental well-being. Participants responded to each item using a five-point response format (1 = *never*; 5 = *always*). An example item is 'I have been thinking clearly'. The total score, which is indicative of overall mental well-being, is obtained by adding up the seven items (with a possible range of 7–35): higher values correspond to greater well-being. Internal reliability within the study was very good (Cronbach's $\alpha = 0.890$; McDonald's $\omega = 0.866$).

Depression Anxiety Stress Scale-12 (DASS-12, Monteiro et al., 2023 Italian version Soraci et al., 2025b): The DASS-12 was used to measure psychological distress. Respondents rated each item on a four-point scale (from 0 to 3) relating to three areas: depression (e.g. lack of enthusiasm), anxiety (e.g. feelings associated with panic attacks) and stress (e.g. difficulty relaxing). Scores for each domain range from 0 to 21, while the overall score, which is obtained by adding the three domain scores together and is representative of overall psychological distress, ranges from 0 to 36. Higher values indicate a greater level of distress. In this study, internal reliability was found to be very high (Cronbach's $\alpha = 0.95$; McDonald's $\omega = 0.95$).

Data analysis

Because CFA models that include ultra-short factors are often just-identified (for a factor with three indicators the model has 0 degrees of freedom and yields $\chi^2 = 0$), they provide no testable fit information and prevent meaningful estimation of

some construct-validity indices. To address this identification issue, we anchored the three-item life satisfaction factor to a conceptually related multi-item mental-wellbeing factor. Specifically, we estimated a two-factor CFA (maximum likelihood estimation, ML) including the 3-item SWLS factor and the multi-item SMWBS factor and allowed the two latent factors to correlate; the multi-item factor therefore supplies the additional information required for model identification and permits estimation of factor loadings, average variance extracted (AVE), and reliability for the ultra-short SWLS measure (Brown, 2015; Czerwiński & Atroszko, 2023; Kline, 2016). This approach also allows a direct test of convergent validity: a strong and coherent covariance between the anchored three-item SWLS factor and the mental-wellbeing factor would support the interpretation that the ultra-short scale captures the intended construct despite its brevity. Finally, anchoring to a well-validated, conceptually adjacent construct preserves interpretability and generalizability of the short measure within the broader latent measurement model (Brown, 2015; Czerwiński & Atroszko, 2023; Kline, 2016). In addition, we conducted a formal comparison with an alternative model in which SWL is represented by the full five-item version (two-factor model: SWLS 5-item + SMWBS) to evaluate convergence, differences in fit, and consistency of estimates between the ultra-short and full versions (Diener et al., 1985; Tennant et al., 2007). The model with the 5-item version of the SWLS was designated as Model 2, while the one with the 3-item SWLS was designated as Model 1. See Figures 1 and 2 for details.

The normality of the data was assessed following the recommendations of Muthén and Kaplan (1985): it was considered desirable that item skewness and kurtosis indices ideally fall within ± 1 , while wider thresholds were accepted as non-critical limits (up to ± 2 for skewness and ± 7 for kurtosis), in line with recent methodological considerations (Kline, 2016, 2023). Subsequent analyses included descriptive statistics for the SWLS-3 (means, standard deviations) and the assessment of internal consistency using Cronbach's alpha (α), McDonald's omega (ω) and composite reliability (CR), adopting a reference value of ≥ 0.70 to define acceptable reliability (Cronbach, 1951; Cheung et al., 2024; McDonald, 1999).

Model fit was evaluated with multiple indices: the χ^2 test (ideally non-significant at $p > .05$), while acknowledging its sensitivity to sample size — particularly for $N > 200$ — was accompanied by the χ^2/df ratio (values ≤ 2 considered very good, values up to ≈ 3.5 generally acceptable and up to ≈ 5 tolerable; Kline, 2023), the *TLI* and *CFI* (conventional thresholds $\geq .95$ for excellent fit, .90 as a minimum acceptable value), the *RMSEA* (values $\leq .08$ regarded as reasonable, with 0.10 as a maximum acceptable limit; 95% confidence intervals are always reported) and the *SRMR* (values $\leq .06$ preferable, up to .08 acceptable), according to established criteria (Hu & Bentler, 1999; Kline, 2016, 2023). Finally, to ensure the structural robustness of latent factors, the magnitude of factor loadings (λ) and the average variance extracted (AVE) were considered, with ideal values close to .50 and a minimum acceptable value around .40 (Hu & Bentler, 1999; Kline, 2016, 2023).

Convergent and discriminant validity were examined using Pearson's correlation. Specifically, based on methodological literature and guidelines for effect interpretation, the following

operational thresholds were adopted: $r \geq 0.40$ to indicate correlations of substantive relevance (and therefore potential evidence of convergence), with a practical upper reference of 0.80 beyond which excessive overlap between constructs is considered likely (Campbell & Fiske, 1959). To more stringently assess discriminant validity between life satisfaction (SWLS-3 and SWLS-5), mental well-being (SMWBS) and psychological distress (DASS-12), the Heterotrait–Monotrait ratio (HTMT) was calculated. An operational threshold of HTMT $< .80$ was adopted as the criterion for discriminant validity: values below this threshold indicate sufficient distinction between constructs, whereas values approaching or exceeding 0.80 suggest potential overlap. HTMT values for each pair of constructs are reported (Fornell & Larcker, 1981). Furthermore, to compare the goodness of fit of two models, a χ^2 difference test ($\Delta\chi^2$) was performed. CFA analysis, descriptive statistics, HTMT matrix, and correlations were performed using JASP 0.19 software (JASP Team, 2025). Missing data were treated using the FIML technique.

Open Science

Research data and code are available, publicly: https://osf.io/qw694/overview?view_only=1be40f9e2999495e84a7e9fcd64190a9. It was not possible to share the questionnaire administered to participants as it contains other tests that will be used for other ongoing projects.

Results

Descriptive Analysis

The descriptive statistics indicated that the mean score on the (i) SWLS-5 was 23.15 out of 35.00 ($SD = 6.72$), (ii) DASS-12 was 24.66 out of 36.00 ($SD = 5.36$), (iii) SMWBS was 21.18 out of 35.00 ($SD = 4.76$), (vi) SWLS-3 was 14.08 out of 21.00 ($SD = 4.00$). See Table 2 for further details.

Tab. 2. Descriptive Statistics of the main measure used

	<i>M</i>	<i>SD</i>	Skewness	<i>SE</i>	Kurtosis	<i>SE</i>
SWLS-5	23.150	6.762	-.337	.109	-.542	.218
SWLS-3	14.080	4.003	-.407	.109	-.281	.218
DASS-12	24.660	5.365	.438	.113	-.702	.225
SMWB	21.180	4.764	-.523	.111	.065	.222

Note. SD= Standard deviation. SE= Standard Error. SWLS-5= Satisfaction With Life 5 item version, DASS-12= Depression, Anxiety, Stress Scale 12 item version, SWEMWBS = Short Warwick-Edinburgh Mental Well-being Scale, SWLS-3 = Satisfaction With Life 3 item version

Correlation and Heterotrait-Monotrait ratio Analysis

Significant associations were found among the variables under study. In particular, SWLS-3 and SWLS-5 were strongly and positively correlated. Furthermore, SWLS-3 showed a significant positive correlation with SMWB and a significant negative correlation with DASS-12. SWLS-5 was positively

associated with SMWB and negatively correlated with DASS-12. Finally, SMWB was inversely correlated with DASS-12. As regards the Heterorait-Monotrait ratio, all values are below the threshold of 0.85. See Table 3 and 4 for further details.

Tab. 3. Pearson's Correlations among the main measures used

Variable	1	2	3	4
1. SWLS-3	—			
2. SWLS-5	.949***	—		
3. SMWB	.654***	.652***	—	
4. DASS-12	-.483***	-.502***	-.596***	—

Note. *** $p < 0.001$. SWLS-5= Satisfaction With Life 5 item version, DASS-12= Depression, Anxiety, Stress Scale 12 item version, SWEMWBS = Short Warwick-Edinburgh Mental Well-Being Scale, SWLS-3 = Satisfaction With Life 3 item version

Tab. 4. Heterotrait-Monotrait ratio

	SWLS-3	SMWBS	DASS-12
SWLS-3	1.000		
SMWBS	.728	1.000	
DASS-12	.462	.547	1.000

Note: DASS-12= Depression, Anxiety, Stress Scale 12 item version, SWEMWBS = Short Warwick-Edinburgh Mental Well-Being Scale, SWLS-3 = Satisfaction With Life 3 item version

Confirmatory Factor Analysis

We conducted two confirmatory factor analyses to examine the factorial structure combining the SWMBS with two versions of the SWLS: a 3-item version (Model 1: SWLS-3 + SWMBS) and a 5-item version (Model 2: SWLS-5 + SWMBS). Model 1 (SWLS-3 + SWMBS): The model yielded the following fit indices: $\chi^2 = 112.149$, $df = 34$, $p < .01$ ($\chi^2/df = 3.30$); $CFI = .972$; $TLI = .962$; $RMSEA = .069$ (90% $CI = .060; .075$); $SRMR = .036$; $GFI = .957$; $AIC = 12,248.964$; $BIC = 12,336.744$; $ECVI = .319$.

Model 2 (SWLS-5 + SWMBS): The model produced the following fit indices: $\chi^2 = 177.649$, $df = 53$, $p < .01$ ($\chi^2/df = 3.35$); $CFI = .963$; $TLI = .954$; $RMSEA = .070$ (95% $CI = .065; .085$); $SRMR = .037$; $GFI = .942$; $AIC = 15,457.529$; $BIC = 15,561.978$; $ECVI = .472$.

Regarding convergent validity, the Average Variance Extracted (AVE) was .743 for Model 1 and .654 for Model 2, while the Composite Reliability (CR) was .882 for both Model 1 and Model 2. See Table 5 for details.

Furthermore, the difference between the two models was significant, $\Delta\chi^2(19) = 65.50$, $p < .001$. This indicates that the two models provided statistically different fits: Model 1 ($\chi^2(34) = 112.15$) showed a significantly better fit than Model 2 ($\chi^2(53) = 177.65$).

Tab. 5. CFA of Model 1 and Model 2.

Index	Model 1 (SWLS-3+SWMBS)	Model 2 (SWLS-5+SWMBS)
χ^2	112.149	177.649
DF	34	53
CFI	.972	.963
TLI	.962	.954
AIC	12 248.964	15 457.529
BIC	12 336.744	15 561.978

Index	Model 1 (SWLS-3+SWMBS)	Model 2 (SWLS-5+SWMBS)
RMSEA	.069	.070
CI 90%	.060; .075	.065; .085
SRMR	.036	.037
GFI	.957	.942
ECVI	.319	.472

Note: Model 1= SWLS-3+SWMBS, Model 2= SWLS-5+SWMBS; χ^2 = chi-square; DF = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; $RMSEA$ = root mean square error of approximation; CI = confidence interval; $SRMR$ = standardized root mean residual.

Fig. 1. Model 2 (SWLS-5 + SMWBS)

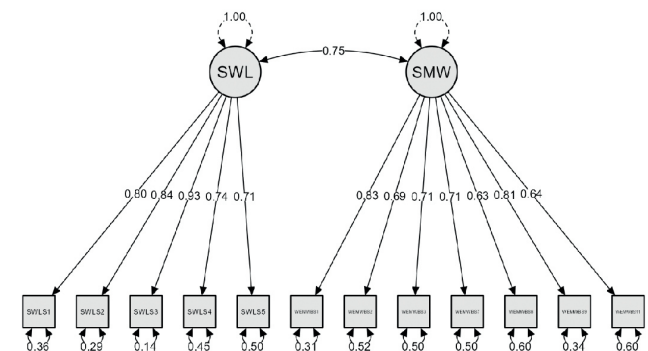
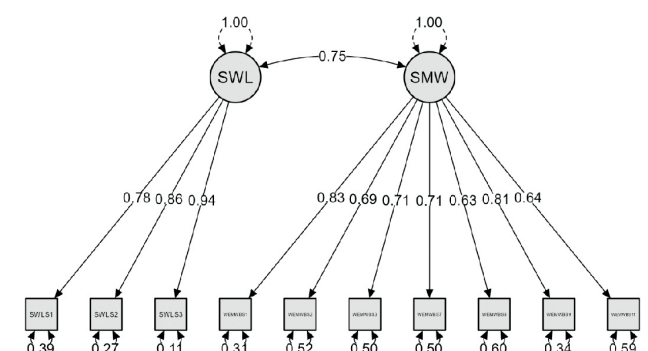


Fig. 2. Model 1 (SWLS-5 + SMWBS)



Reliability

The results indicate that both model versions exhibited high internal consistency. For the individual scales, the ω coefficients ranged from .876 to .896 and the α coefficients from .881 to .897, with all values well above the acceptable threshold ($\geq .70$). The overall measure showed excellent reliability in both models ($\omega = .932/.935$; $\alpha = .905/.913$). The differences between Model 1 and Model 2 were marginal and did not alter the general conclusion of good to excellent scale reliability. See Table 5 for details.

Tab. 6. Reliability: ω and α coefficients for Model 1 (SWLS-3 + SWMBS) and Model 2 (SWLS-5 + SWMBS)

Scale	Model 1		Model 2	
	ω	α	ω	α
SWLS	.896	.892	.888	.897
SMWBS	.877	.881	.876	.881
Total	.932	.905	.935	.913

Note. ω = McDonald's omega; α = Cronbach's alpha. SWLS= Satisfaction With Life, SWEMWBS = Short Warwick-Edinburgh Mental Well-Being Scale. Model 1= SWLS-3+SWMBS, Model 2= SWLS-5+SWMBS

Discussion

The main objective of this study was to examine the psychometric properties of the 3-item version of the SWL through CFA, reliability analysis, and convergent and discriminant validity analysis. Model 1 fits the data more accurately and efficiently than Model 2, indicating that the 3-item SWLS performs at least as well as, and arguably better than, the 5-item version when combined with the mental well-being factor. More specifically, from the results of the CFA, comparing the two models (i.e., Model 1 with SWLS-3/SMWBS, and Model 3 with SWLS-5/SMWBS) it is clear that Model 1 offers a better fit: firstly, despite having fewer degrees of freedom, its chi-square value is substantially smaller than that of Model 2, indicating a smaller discrepancy between the observed and the model-implied matrices. Likewise, all incremental indices systematically exceed those of Model 2, corroborating a greater explanatory capacity relative to the baseline model. Finally, RMSEA and SRMR indicate acceptable fit for both models. The comparison between the two models using the chi-square difference test showed a better fit for Model 1 than Model 2. This result indicates that the increased complexity of Model 2 does not lead to a significant improvement in the goodness of fit to the data, suggesting that Model 1 represents the most parsimonious and statistically adequate solution.

In the comparison of factor loadings and the corresponding AVE, significant differences emerge for the “satisfaction with life (SWLS)” construct and a substantial equivalence is observed for “mental well-being (SMWBS)”. For satisfaction with life (SWLS), Model 1 displays three very high and homogeneous loadings whereas Model 2, which comprises five loadings, although two are high, also includes lower values and therefore slighter variability. This consistency in Model 1 is reflected in the AVE, which is higher in model 1 than in model 2. For mental well-being (SMWBS), both models show seven loadings that are almost identical and the same AVE, confirming that the convergent validity of this construct is equivalent in Model 1 and Model 2. Overall, with respect to indicator convergence, Model 1 is preferable for satisfaction with life (SWLS), while no relevant differences emerge for mental well-being (SMWBS). Our findings are consistent with previous research showing that the 3-item version of the Satisfaction With Life Scale (SWLS-3) performs comparably to, or even better than, the original 5-item version. For example, Ali et al. (2025) found that the SWLS-3 outperformed several alternative structures of the original scale in terms of psychometric validity among individuals with and without acquired movement disabilities. Similarly, Kjell and Diener (2021) reported that the abbreviated 3-item version of the SWLS demonstrated strong measurement invariance and psychometric robustness relative to the full version. In the same vein, Neto and Neto (2024) observed that correlations between the 3-item and 5-item forms with well-being indicators were virtually identical, suggesting that the shorter version retains predictive power and external validity.

With regard to Composite Reliability (CR), both models demonstrate excellent internal reliability of the factors, with values well above the reference threshold. For satisfaction with life (SWLS) construct, Model 2 attains a CR marginally

higher than Model 1. For mental well-being (SMWBS), the two models achieve almost identical CR values, confirming that in both cases the seven indicators provide an equivalent and robust level of internal reliability. In summary, although Model 2 is marginally more performant for satisfaction with life (SWLS), both models overall yield latent measures with excellent internal consistency. In conclusion, Model 1 offers an optimal balance between fit quality and complexity, making it the preferred choice both for theoretical interpretation and for future generalizability. The reliability results provide useful information for the overall interpretation of the models in the context of the study. Both versions (Model 1 with SWLS-3 and Model 2 with SWLS-5) show high internal consistency. These results indicate that the items consistently measure the proposed constructs and that the sum of the items provides a stable internal scale in the two models analyzed. The differences observed between Model 1 and Model 2 are marginal: the SWLS-3 has a slightly higher ω in the Model 1 scenario, while the SWLS-5 shows a slightly higher α , but these deviations do not compromise the conclusion of good reliability. The SMWBS scale is essentially unchanged between the two specifications, suggesting that the inclusion of the two additional SWL items does not significantly alter the overall internal consistency. From a practical point of view, these results support the use of the scales as reliable tools for measuring subjective well-being in the sample considered (H_1 supported). Regarding correlations, using both the short version of the SWLS (three items) and the five-item version, the associations with mental well-being (SMWB) and psychological distress (DASS-12) remain substantially overlapping, indicating that there has been no significant loss of information regarding life satisfaction and related constructs. Specifically, SWL-3 and SWL-5 are strongly correlated with each other, sharing approximately 90% of the variance; both versions show moderate-high correlations with SMWB and moderate negative correlations with DASS-12. These relationships, consistent with previous literature (e.g., Neto & Neto, 2024), reinforce the convergent validity of the three-item version of the SWL (H_2 and H_3 supported). Finally, the very high association between the 3-item and 5-item versions (i.e., $r > 0.90$) indicates that both measures essentially the same construct (life satisfaction) and, since the SWL-3 showed good fit in CFA analyses and satisfactory levels of internal reliability, the results support its use as an efficient alternative to the SWL-5; This approach is consistent with previous studies (e.g., Neto & Neto, 2024) and further supports convergent validity. Regarding the discriminant validity of the scale, the HTMT matrix reported values below the threshold of 0.85, thus indicating good discriminant validity of the SWLS-3 scale. Regarding the associations found in this study, the positive association between the SWLS and mental well-being, together with its negative association with psychological distress, suggests that a more favorable cognitive appraisal of one's life is associated with lower levels of anxiety and depressive symptoms. This pattern, observed in both cross-sectional and longitudinal studies (e.g., Chang et al., 2023; Hinz et al., 2025), implies that the SWLS not only captures current subjective perceptions but may also signal prognostic trends in mental functioning over time. Higher levels of subjective life satisfaction may facilitate the mobilization of

protective resources. Conversely, individuals with greater psychosocial resources may concurrently report higher life satisfaction and lower distress (e.g., Chang et al., 2023; Hinz et al., 2025). Taken together, these studies support the conclusion that, when carefully constructed and validated, the SWLS-3 represents a psychometrically sound and efficient alternative to the original 5-item form — a pattern further confirmed by the present findings in an Italian sample, similar to other study (e.g., Kjell and Diener, 2021). The present study extends this evidence by providing a systematic comparison of the 3-item and 5-item SWLS in an adult Italian sample, combining confirmatory factor analysis with multiple indices of reliability (α and ω), convergent and discriminant validity, and variance-explained statistics (AVE/CR). By doing so, we test both the practical appeal of a briefer instrument (reduced respondent burden) and the methodological requirement that parsimony should not compromise construct coverage and validity.

In conclusion, the present findings confirm that the 3-item version of the Satisfaction With Life Scale (SWLS-3) represents a psychometrically sound and more parsimonious alternative to the full 5-item version. Methodologically, the SWLS-3 demonstrated a more favorable model fit (lower relative chi-square, superior incremental indices, and higher AVE for the life satisfaction construct), highlighting greater homogeneity of factor loadings and more consistent indicator convergence compared to the extended form. Although composite reliability remained excellent for both forms, the stability of loadings and reduced internal variability observed for the SWLS-3 indicate measurement precision advantages when a compact estimate of the construct is required.

From a practical standpoint, the SWLS-3 offers important benefits: it reduces respondent burden, shortens administration time (critical in large-scale surveys or lengthy assessment batteries), and facilitates repeated monitoring in longitudinal and clinical settings where time is limited. These operational advantages do not entail meaningful information loss: the very high correlation between the two forms ($r > .90$) shows that both measures essentially the same construct and that the abbreviated form retains strong convergent and predictive validity with well-being and distress indicators.

We recommend the SWLS-3 for applications prioritizing efficiency (e.g., epidemiological studies, rapid clinical screening, assessments of vulnerable populations, or when the test battery is extensive). However, if the primary goal is comprehensive domain coverage for item-level analyses or theoretical investigations that require maximal content breadth, the 5-item version remains appropriate. Finally, we encourage future research to further test the SWLS-3's robustness across clinical samples, cross-cultural contexts, and digital administration modes to consolidate operational guidance for its use.

Furthermore, the practical implications concern both assessment and intervention: the SWLS, in either its short or full form, can be a useful tool for identifying individuals at risk and for monitoring clinically meaningful change over time. Likewise, interventions aimed at increasing life satisfaction (for example, cognitive restructuring, resilience training, or enhancement of social support) could have beneficial effects on mental well-being.

Limitation and Future Directions

The present study provides solid evidence supporting the psychometric validity of the Italian three-item version of the Satisfaction with Life Scale (SWLS-3); however, several limitations should be acknowledged.

First, the cross-sectional nature of the research design limits causal inference and prevents the examination of temporal stability. Therefore, future studies are encouraged to employ longitudinal methodologies to assess test-retest reliability and to track potential fluctuations in life satisfaction across different time periods and life circumstances and we recommend complementing CFA with item response theory (IRT) analyses in future research to examine item information functions and to identify the scoring range in which the three items provide maximal discrimination.

Second, the study sample lacked demographic balance, with an overrepresentation of women and employed adults. Although this pattern is typical of online survey research, future investigations should aim for greater demographic diversity and representativeness, including balanced gender proportions, diverse occupational categories, and a broader age range encompassing both younger and older participants. Invariance testing across age, gender, and educational subgroups should be routinely reported to ensure the measure's fairness across strata. Addressing these points will clarify the conditions under which the SWLS-3 is interchangeable with the SWLS-5.

Third, the use of self-report measures introduces the potential for systematic response biases, such as social desirability and common method variance. Consequently, future research could benefit from multi-informant or mixed-method approaches, incorporating peer assessments, behavioral indicators, or objective data to enhance the construct validity of life satisfaction measures.

Fourth, although the study examined SWLS-3 in relation to relevant psychological constructs (mental well-being and psychological distress), it did not include external behavioral or clinical benchmarks. Future validation efforts may therefore integrate objective indicators of life quality and perform measurement invariance analyses across different demographic and cultural groups to ensure cross-group stability.

Finally, another limitation of the present study is that the 3-item scale was scored from the 5-item version rather than being administered independently. Although deriving abbreviated forms from longer instruments is a common and accepted practice in psychometric research (e.g., Neto & Neto, 2024), this embedded scoring introduces statistical dependency between the two measures. As noted by Ziegler et al. (2014) and Greiff and Iliescu (2017), such dependency may lead to an overestimation of concordance and association indices, as observed correlations may partly reflect overlapping item content and a shared response context rather than true equivalence between independently administered forms. Future research should therefore validate the abbreviated version through independent administration and/or apply psychometric approaches such as multi-group confirmatory factor analysis, or method-factor models to explicitly model and adjust for dependency-related bias. Until such validation is available, comparisons between the 3- and 5-item versions

should be interpreted with caution. In addition, the criterion validity of the 3-item form requires more thorough evaluation: studies should examine convergent and discriminant correlations with established external measures, predictive validity via longitudinal or outcome-prediction analyses (e.g., regression, AUC/sensitivity–specificity when appropriate) and known-groups comparisons to assess whether the short form discriminates clinically or practically meaningful groups.

In summary, future research should build upon these findings by examining the Italian SWLS-3 within longitudinal and cross-cultural contexts, thereby ensuring the instrument's sustained psychometric reliability and conceptual alignment with the original construct of life satisfaction.

Conclusion

The findings of this study strongly support the psychometric validity of the Italian version of the SWLS-3. The short form demonstrated excellent reliability, a clear one-dimensional structure, and convergent and discriminant validity comparable to that of the full five-item version. Notably, the high correlation between the SWLS-3 and SWLS-5 suggests that the abbreviated form does not significantly sacrifice informational value. Practically, the SWLS-3 offers a concise and efficient alternative to the longer version. Its brevity makes it useful for large-scale or multidisciplinary research, where adding more items could increase costs and participant burden. Additionally, the short format can be beneficial in clinical and applied settings, particularly for individuals with attentional challenges, cognitive fatigue, or limited tolerance for lengthy questionnaires. In these situations, the SWLS-3 can provide a reliable assessment while minimizing dropout and keeping respondents engaged.

Ethical Approval

This study was approved by the Niccolò Cusano University ethics committee. Informed consent was obtained from all participants involved in the study.

Data Availability Statement

Research data are available upon reasonable request to the corresponding author

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Conflict of Interests

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The authors declare that there are no conflicts of interest.

Author Contributions

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Supplementary material

Research data and code are available publicly at: https://osf.io/qw694/overview?view_only=1be40f9e2999495e84a7e9fcd64190a9.

Declaration about the use of generative AI and AI-assisted technologies in the writing process

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