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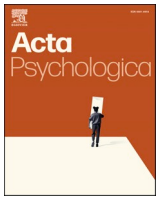

The Arabic Satisfaction with Life Scale (SWLS) and its three-item version: Factor structure and measurement invariance among university students

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ABSTRACT

Background: University students face numerous challenges, which may adversely influence their mental/physical well-being and academic performance. Satisfaction with life implicates the psychological, social, and educational functioning of students—justifying its use for clinical screening and monitoring of treatment outcomes.
Objective: Given the growing interest in the equivalence of this construct across cultures, this study assessed the structure and invariance of the Satisfaction with Life Scale (SWLS) and its three-item version (SWLS-3).
Methods: In this cross sectional study, data collected from two samples of Saudi students (N = 422 and 979, females % = 75.6 and 65.9 %) were analysed using exploratory and confirmatory factor analysis.
Results: In exploratory factor analysis, a single factor with eigenvalue >1 explained 69.0 % and 80.6 % of the variances in the SWLS and the SWLS-3. The fit of both the one- and two-factor structures of the SWLS (χ^2 (4) = 10.10, CMIN/DF = 2.5, p = 0.040, CFI = 0.994, TLI = 0.985, RMSEA = 0.060, SRMR = 0.017) as well as the unidimensional SWLS-3 (χ^2 (4) = 91.35, CMIN/DF = 2.34, p = 0.001, CFI = 0.977, TLI = 0.968, RMSEA = 0.056, SRMR = 0.030) was good. Multigroup confirmatory factor analysis depected invariance of the three models at the configural, metric, and scalar levels across groups of gender, age, area of specialty, and academic degree. In both samples, the SWLS-3 followed the non-normal distribution of the SWLS; it had similarly high reliability (Cronbach's alpha = 0.86, 0.88), convergent validity (item-total correlation range = 0.73–0.75 and 0.76–0.77), and predictive validity (correlation with the SWLS = 0.93 and 0.94). The SWLS and the SWLS-3 expressed adequate concurrent validity by positively correlating with positive affect and negatively correlating with negative affect and somatic complaints.
Conclusion: The Arabic SWLS-3 is a unidimensional ultra-brief measure, which demonstrates measurement invariance along with high internal consistency, convergent validity, and predictive validity similar to the parent scale. It may mirror other constructs of well-being (e.g., positive affect) and psycho-pathogenicity (negative affect and somatic complaints).

1. Introduction

Different levels of people's reactions to objective life circumstances are largely influenced by their subjective evaluations, which comprise processes that are biological such as those associated with the nervous system and psychosocial in nature such as own goals, values, and culture (Al-Attiyah & Nasser, 2016; Nima et al., 2024). Meanwhile, objective-list-based models that specify all possible core ingredients necessary for individuals to have a good life are not alternative approaches for measuring subjective well-being (Nima et al., 2024). Life satisfaction is

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the cognitive component of subjective well-being, which entails judgments of individuals' life in relation to a psychological self-imposed ideal (Diener et al., 1985; Weber et al., 2015). It has gained central importance as a criterion measure and a determinant of optimal well-being and adaptive life outcomes including health, longevity, quality relationships, and vocational success. In line, it has a wide application in multiple research areas such as mental health, gerontology, positive psychology, quality of life, and social indicators research as well as many practical applications in clinical settings, schools, and business (Aljaberi et al., 2018; Weber et al., 2015).

Life satisfaction and academic performance may suffer due to challenges inherent in the transition from childhood to adulthood among university students, which involve attending university, adapting to the new university life, taking on new academic responsibilities, being burdened with the payment of tuition fees and own housing, preparing for future employment, and tackling serious consequences of their actions (Ali et al., 2021; Aljaberi et al., 2021; Slavinski et al., 2021). Therefore, many students who are dissatisfied with their life and education may experience serious mental conditions (e.g., depression and suicidal ideation) for extended periods (Ali et al., 2025; Al-Jaberi et al., 2020; Slavinski et al., 2021). Life satisfaction influences students' social life, mental well-being, and health-related behaviors e.g., exercise and dietary intake. It also impacts their sustainable growth and academic performance as they get more firmly involved in their education (Gavín-Chocano et al., 2020; Proctor et al., 2009; Slavinski et al., 2021). Because of its enormous implications, research has been more focused on evaluating youths' perceptions of life satisfaction as a core indicator of their subjective wellbeing (Al-Dossary et al., 2025; Ali et al., 2025). Among many scales of life satisfaction that have been used among university students, the Satisfaction with Life Scale (SWLS) is a reliable tool, with moderate stability that can be completed in group or individual formats within two minutes. It demonstrates strong external validity as it has correlated with numerous measures of psychological well-being such as Fordyce Global Happiness Scale and Bradburn Positive Affect Scale, other similar measures such as the Life Satisfaction Index-A, as well as with measures of divergent constructs such as loneliness, social anxiety, and shyness (Proctor et al., 2009).

The SWLS was developed by Diener et al. as a unidimensional measure that would detect global aspects of satisfaction with life or perceived quality of life (Diener et al., 1985). Strict unidimensionality occurs when scale items measure only one latent variable, while essential unidimensionality occurs when the items capture some additional secondary minor latent variables, which represent unavoidable non-error noise intrinsic to behavioral measurement of psychologically important traits in real life data (Slocum-Gori et al., 2009). In many studies the SWLS does not meet the standards of strict unidimensionality (Clench-Aas et al., 2011; Hultell & Petter Gustavsson, 2008; Slocum-Gori et al., 2009; Weber et al., 2015). In an analysis of 27 studies on the invariance of the SWLS, configural invariance was maintained for the unidimensional structure in most studies, with limited support for metric invariance i.e., equivalent factor loadings. While scalar invariance was maintained in over half of the gender invariance analyses, scalar invariance was maintained across culture and age groups only in 1 out of 11 and 1 out of 9 analyses (Emerson et al., 2017). A central focus of validity research is that combined items that create one scale score measure one latent variable (Slocum-Gori et al., 2009; Weber et al., 2015). Accordingly, the inferences made from the SWLS' total score may be largely questionable (Clench-Aas et al., 2011; Hultell & Petter Gustavsson, 2008; Slocum-Gori et al., 2009; Weber et al., 2015). As such, previous studies implemented remedial actions such as correlating the error terms of some items (Clench-Aas et al., 2011), testing a bidimensional structure (Hultell & Petter Gustavsson, 2008), and eliminating items resulting in a three-item shortened version (SWLS-3), which displays a cleaner factor structure (Espejo et al., 2022; Kjell & Diener, 2021).

The displacement of Arabs in large numbers into Europe and other parts of the world secondary to wars and poor economic conditions in the Arab world has resulted in increased global interest in the validation of psychological measures in Arabic (Elshahat & Newbold, 2021; Zeinoun et al., 2022). Until now, the structure of the Arabic SWLS has been preliminarily investigated only through component analysis in a sex-segregated community (Al Khatib, 2013). Accordingly, the current study employed more robust techniques to examine the structure, measurement invariance, concurrent validity, reliability, convergent validity, and criterion validity of the Arabic SWLS and the SWLS-3.

2. Methods

2.1. Participants

The current cross-sectional investigation included two convenience samples of Saudi students recruited from Qassim University, Saudi Electronic University (N = 979), and Umm Al-Qura University (N = 422).

2.2. Instruments

To stimulate student participation, items assessing the sociodemographic characteristics were limited (gender, area of specialty, and academic degree (N = 422) or gender and age (N = 979)). Both samples were administered a questionnaire comprising two measures:

2.2.1. Diener's Satisfaction with Life Scale (SWLS)

SWLS comprises five statements "my life is close to my ideal, conditions in my life are excellent, satisfied with my life, got the important things I want in life; and if I could live my life over, I would change almost nothing", which prompt individuals to rate the extent to which each statement applies to their life on a 7-point rating scale (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neither agree or disagree, 5 = slightly agree, 6 = agree, and 7 = strongly agree). The total scale score ranges from 5 to 35, and it may be interpreted based on defined thresholds: 5–9 extremely dissatisfied, 10–14 dissatisfied, 15–19 slightly dissatisfied, 20 neutral, 21–25 slightly satisfied, 26–30 satisfied, 31–35 extremely satisfied (Diener et al., 1985; Proctor et al., 2009). The internal consistency of the SWLS in both samples was excellent (Cronbach's alpha = 0.87, 0.88).

2.2.2. The Center for Epidemiological Studies Depression Scale Eight-Items (CESD-8)

CESD-8, as the name implies, comprises eight statements, which capture the symptoms of negative affect "e.g., depressed, lonely, sad", somatic complaints "e.g., could not sleep, could not get going", and positive affect "e.g., enjoyed life, felt happy". The participants are prompted to rate their experience of each symptom during the last two weeks on a 4-point scale (0 = rarely or none of the time (<1 day) 1 = some or a little of the time (1–2 days), 2 = occasionally or moderate amount of time (3–4 days), and 3 = most of or all the time (5–7 days)). A reverse code is used for positive affect items (Ali et al., 2025; Karim, Weisz, Bibi, & ur Rehman, S., 2015). The internal consistency of the CESD-8 in both samples was excellent (Cronbach's alpha = 0.84, 0.86).

2.3. Procedure

Study measures were translated from English into Arabic by two bilingual experts. The scales were then back-translated from Arabic into English by another independent bilingual expert. Minimal issues appeared during the translation, and they were resolved through an open discussion among the three experts.

Data were gathered through an anonymous online survey conducted in Google Forms. The study was conducted following the principles of the Declaration of Helsinki. On the first page of the survey, students were informed about the aim of the study, reassured that participation is

voluntary, assured about the confidentiality of their data, and granted the right to withdraw from the study at any time before completing the survey. The link to contribute to the study was shared through the student mailing lists in the three universities during the peak of the COVID-19 pandemic (from December 25, 2020, to January 21, 2021). Students who completed the survey did not receive any compensation. The study protocol was approved by The Research Ethics Committee of Ha'il University (No. 16784/5/42. November 5, 2020).

2.4. Statistical analysis

The normality of the SWLS, its items/subscales, and the SWLS-3 was explored through the Kolmogorov Smirnov test. Exploratory factor analysis (EFA), with a maximum-likelihood method of extraction and direct Oblimin rotation, was conducted for the SWLS and the SWLS-3 among 979 students. The suitability of the participant-to-item ratio and sample size for EFA were investigated through Kaiser–Meyer–Olkin (KMO) and Bartlett's tests (Ali et al., 2022).

Three structures of the SWLS were tested through confirmatory factor analysis (CFA) in the second sample ($N = 422$), because it contained more data on the demographic characteristics of the students, which may aid in invariance analysis. The first structure comprised a unidimensional model, which allowed error correlations (Clench-Aas et al., 2011). The second structure was the bidimensional model reported in the literature: satisfaction with present life "items 1 to 3" and satisfaction with past life "items 4 and 5" (Emerson et al., 2017; Hultell & Petter Gustavsson, 2008; Slocum-Gori et al., 2009; Weber et al., 2015). The third model included only the first dimension of the second model (satisfaction with present life, which is covered by items 1, 2, and 3)—previously reported in American and Colombian samples as the Three-Item Version of the SWLS (Espejo et al., 2022; Kjell & Diener, 2021). This shortened SWLS-3 version was anchored to the three dimensions of the CESD8 in a latent variable model to avoid model saturation and produce degrees of freedom Ali et al., 2025. The presence of the CESD8 in the model also promoted concurrent validity testing. Model fit was decided as good if the chi square index (χ^2) was non-significant, CMIN/DF < 3, along with Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI) >0.95, with root mean square error of approximation (RMSEA) and standardized root-mean-square residual (SRMR) <0.06 (Ali et al., 2023; El-Gazar et al., 2024; Sabah et al., 2024). Multigroup CFA tested measurement invariance of the three models across gender, age, area of specialty (theoretical vs practical), and academic degree (undergraduate vs postgraduate). Four nested models were tested to explore configural, metric, scalar, and strict invariance. Criteria for invariance involve non-significant changes in absolute fit indices: ΔCFI and ΔTLI <0.02 with ΔRMSEA <0.015 (Aljaberi et al., 2023; Khatatbeh et al., 2024; Noureddine et al., 2025).

Differences in life satisfaction between the groups used in multigroup CFA were investigated by Mann Whitney *U* test as indicated by normality tests. The concrrent validity of the scale was examined through spearman rank correlations with the subscales of the CESD-8. The reliability and convergent validity (items to scale) of the three versions of the SWLS were tested by Cronbach's alpha and item total correlations. The analyses were performed in SPSS (version 22) and Amos (version 26). Significance was determined at a probability level < 0.05 in two-tailed tests.

3. Results

Among students from Umm Al-Qura University ($N = 422$), females and undergraduates constituted a majority ($n = 319$ (75.6 %) and $n = 301$ (71.3 %), repectively). Most students had a theoretical area of specialty, such as Sharia and language ($n = 280$ (66.5 %)), while the rest had practical backgrounds such as pharmacy, nursing, engineering, etc. In the second sample ($N = 979$), most students were females (n = 319 (75.6 %)). Age was assessed as a categorical variable in this sample, and students aged 20–29 years were a majority ($n = 646$ (66.0 %)) while the age of the rest of the students was >29 years.

Participant-to-item ratio and sample size were adequate for EFA of the SWLS and the SWLS-3 (KMO = 0.87, 0.74; Bartlett's $\chi^2(10,3) = 2680.33, 1554.82$; all p values <0.001). EFA shows that the SWLS and the SWLS-3 uncover a single factor with eigenvalues >1 (Fig. 1), which explained 69.0 % and 80.6 % of the variances in the SWLS and the SWLS-3, respectively. Item communalities ranged from 0.38 to 0.67 and 0.57 to 0.60, respectively.

The fit of the three tested models was excellent, with no differences between the unidimensional and bidimensional structures of the SWLS (Table 1). In the latent variable model, the SWLS-3 positively predicted positive affect and negatively predicted somatic complaints. Contrary to expectations, it did not significantly predict negative affect (Fig. 2, c). However, somatic complaints mediated the strong indirect effects of the SWLS-3 on negative affect and positive affect (β = −0.442, 0.146; 95% CI: −0.626 to −0.342, 0.088 to 0.238, $p = 0.004$, 0.010, respectively). Spearman rank correlations indicated strong correlations of the SWLS, satisfaction with present life (SWLS-3), and satisfaction with past life with positive affect ($r = 0.541$, 0.568, 0.414), negative affect ($r = -0.385$, −0.412, −0.265), and somatic complaints ($r = -0.332$, −0.354, −0.222), respectively—all p values <0.01.

Multigroup CFA shows that both structures of the SWLS and the SWLS-3 were invariant at all levels across all groups (Table 2 to Table 5), albeit strict non-invariance was evident for the unidimensional and bidimensional SWLS only across groups of academic level (Table 4). The SWLS-3 scores were significantly higher among males (U = 64,394.0, z = −2.87, p = 0.004), while the differences in the SWLS and satisfaction with past life between genders were non-significant (U = 65,514.0, 67,182.0; z = −1.82, −0.27; $p = 0.069$, 0.790). Comparisons of the differences in the SWLS, SWLS-3, and satisfaction with past life between the two academic levels revealed significantly higher levels of satisfaction among postgraduate students (U = 58,714.0, 59,577.0, 58,588.0; z = −0.437, −3.62, −4.50; all p values <0.01, respectively). Older students had higher scores on the SWLS and SWLS-3 than younger students (U = 308,064.5, 306,763.0; z = −2.02, −2.34; $p = 0.043$, 0.019), with no difference in satisfaction with past life (U = 311,155.5, z = −1.29, $p = 0.197$). No differences were detected in the three measures according to the area of specialty (all p values >0.05).

As shown in Table 6, the ratings of all the scale items were significantly >4 (neither agree or disagree), the mid-point of the rating scale. Only respondents of the large sample rated item 5 "If I could live my life over, I would change almost nothing" slightly below the mid-point. According to the reported thresholds of the SWLS (Proctor et al., 2009), the participants in both samples were slightly satisfied with life. The descriptive statistics of the SWLS, SWLS-3, and the second factor of the SWLS (satisfaction with past life) for the samples ($N = 422$ and $N = 979$) are presented in Table 7. The reliability of the five-item SWLS and its shortened version (SWLS-3, satisfaction with present life) was excellent and almost the same. The reliability of the satisfaction with past life subscale was acceptable (Cronbach's alpha = 0.70, 0.69), with good item-total correlations ($r = 0.56$, 0.53), respectively. The correlations of the SWLS with its subscales were considerably high ($r = 0.93$, 0.89, and 0.94, 91, all p values <0.01), indicating adequate convergent validity of the whole scale and adequate predictive validity of the SWLS-3. Kolmogorov-Sminov test indicates that the items of the whole scale, the shortened version, and the second factor followed the same non-normal distribution in both samples (Table 6). The same was true for the total scores of the parent scale, SWLS-3, and the satisfaction with past life subscale (Table 7).

4. Discussion

To our knowledge, this study is the first to test the construct validity of the Arabic SWLS through integral validation methodologies (e.g., EFA, CFA, and multigroup CFA)), which entail that an item should load

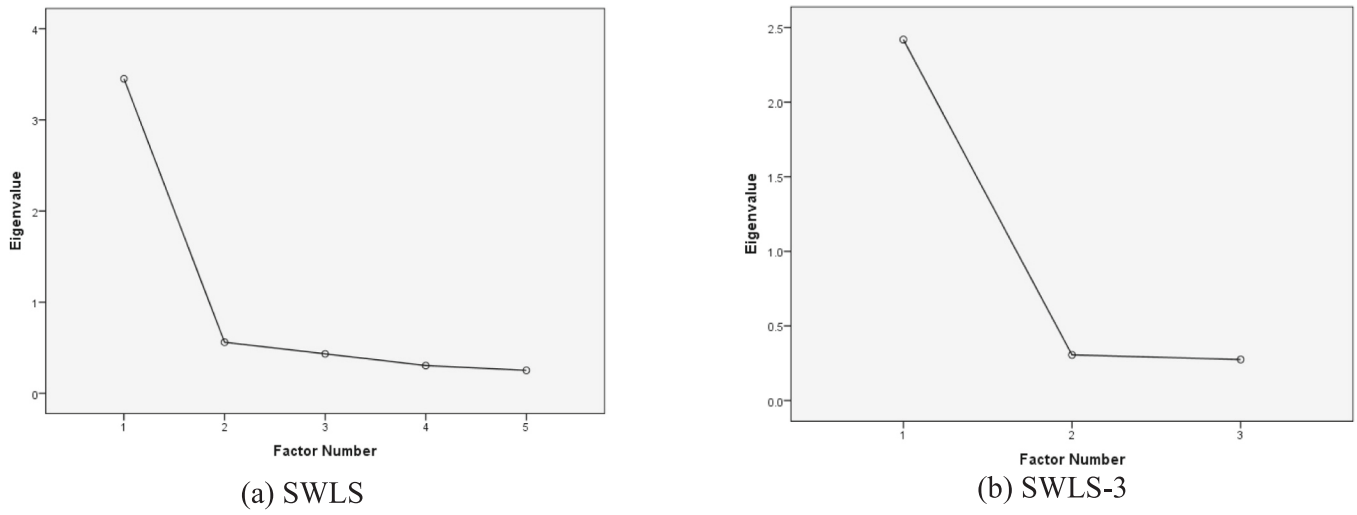

Fig. 1. Exploratory factor analysis of the Satisfaction with Life Scale (SWLS, a) and three-item version (SWLS-3, b) among Saudi university students.

Table 1
Goodness-of-fit of the confirmatory factor analysis models representing the Satisfaction with Life Scale (SWLS) among Saudi students ($N = 422$).

Models	χ^2	*p*	*DF*	CMIN/DF	CFI	TLI	RMSEA	RMSEA 90 % CI	SRMR
Model 1 (SWLS 1F)	10.10	0.040	4	2.50	0.994	0.985	0.060	0.011 to 0.107	0.0172
Model 2 (SWLS 2F)	10.10	0.040	4	2.50	0.994	0.985	0.060	0.011 to 0.107	0.0172
Model 3 (SWLS 3 items 1F)	91.35	0.001	39	2.34	0.977	0.968	0.056	0.041 to 0.072	0.0297

Abbreviations: 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; SWLS, Satisfaction with Life Scale.

on one, and only one latent construct (Slocum-Gori et al., 2009). It is also the first testing of the three-item version (SWLS-3) in Arabic. The unidimensional and bidimensional structures of the SWLS expressed similar fit and invariance across genders, age, area of specialty, and academic levels. The shortened version (SWLS-3) expressed adequate construct validity, measurement invariance, reliability, convergent validity, and criterion validity. It detected differences in satisfaction with life between men and women, while the parent scale failed to do so. Therefore, the SWLS-3 may be reliably used to elicit a greater and more accurate response in population-based surveys when combined with more measures in large test batteries.

In former investigations of the SWLS among Swedish university students (Hultell & Petter Gustavsson, 2008) and Norwegian adults (Clench-Aas et al., 2011), the SWLS demonstrated sensitivity to age at the scalar level in a modified one-factor model, which correlated the residuals of items 4 and 5. Subsequent tests produced a better fit of a two-factor structure in which items 4 and 5 loaded on a satisfaction with past life factor and the rest of the items loaded on a satisfaction with present life factor (Hultell & Petter Gustavsson, 2008). In line, the results of our EFA and CFA show that the Arabic SWLS meets the standards of essential unidimensionality but not strict unidimensionality i.e., it elicits a dominant latent variable and another secondary minor latent variable (Slocum-Gori et al., 2009): 1) the variance explained by the SWLS-3 was greater than that explained by the SWLS (80.6 % vs 69.0 %), 2) the loadings of items 4 and 5 on the unidimensional SWLS were smaller than their loadings on their domain-specific factor (satisfaction with past life) in the bidimensional structure (Fig. 2: a, b), 3) it was necessary to correlate the error terms of both items in order to get a good fit of the unidimensional SWLS (Fig. 1, a), 4) the fit of the unidimensional and bidimensional SWLS was similar both in the basic model and multigroup CFA, and 5) the reliability of the SWLS-3 in both samples was almost the same as that of the SWLS while item-total correlations of items 4 and 5 with the total scale scores of the SWLS were smaller than the rest of the variables (Table 6). These findings denote a less important contribution of items 4 and 5 (which were removed to form the SWLS-3) to the latent construct detected by the SWLS, which is consistent with two previous studies (Espejo et al., 2022; Kjell & Diener, 2021). Thus, the SWLS-3 may purely communicate the core latent variable covered by the parent scale.

The reliability of the SWLS and the SWLS-3 was higher than that reported in student samples from other Arab countries e.g., the UAE and Qatar (Cronbach's alpha = 0.85) (Al Khatib, 2013; Al-Attiyah & Nasser, 2016), denoting its usefulness as a briefer version with high dependability of its items despite their small number (Ali et al., 2024; Alvarenga et al., 2024). Item total correlations and correlations of the dimensions of the SWLS with total scale scores support the convergent validity of the SWLS and the predictive validity of the SWLS-3. Consistent with studies associating life satisfaction with multiple psychological characteristics including depression, self-esteem, loneliness, among others (Al Khatib, 2013; Al-Attiyah & Nasser, 2016; Diener et al., 1985; Proctor et al., 2009; Slavinski et al., 2021), criterion validity tests (Fig. 2, c) and correlation analyses indicate the usefulness of the SWLS and its two dimensions as a key pillar of the tripartite construct of well-being, which comprises the phenomena of global judgments of life satisfaction (e.g., work, relationships) as well as emotional responses of both positive affect (e.g. joy and happiness) and negative affect (e.g. sadness), and behavioral efforts of mental harmony (e.g., positive coping) (Nima et al., 2024; Proctor et al., 2009). Accordingly, the SWLS /SWLS-3 may reliably reflect the effect of treatment on pathological symptoms (e.g., depression) and positive changes (e.g., emotional growth). Thus, our results support Diener's call for nations to include the measurement of life satisfaction as a core indicator in the ongoing development of national well-being indexes (Weber et al., 2015).

In our analysis, the two structures of the SWLS exhibited absolute invariance across all groups, but they failed to meet strict non-invariance at the academic level. Although strict non-invariance is largely ignored in validation research because it is rarely met (Ali et al., 2021; Ali et al., 2022), the SWLS-3 achieved invariance at all levels in all groups. It predicted a significant difference in satisfaction with life

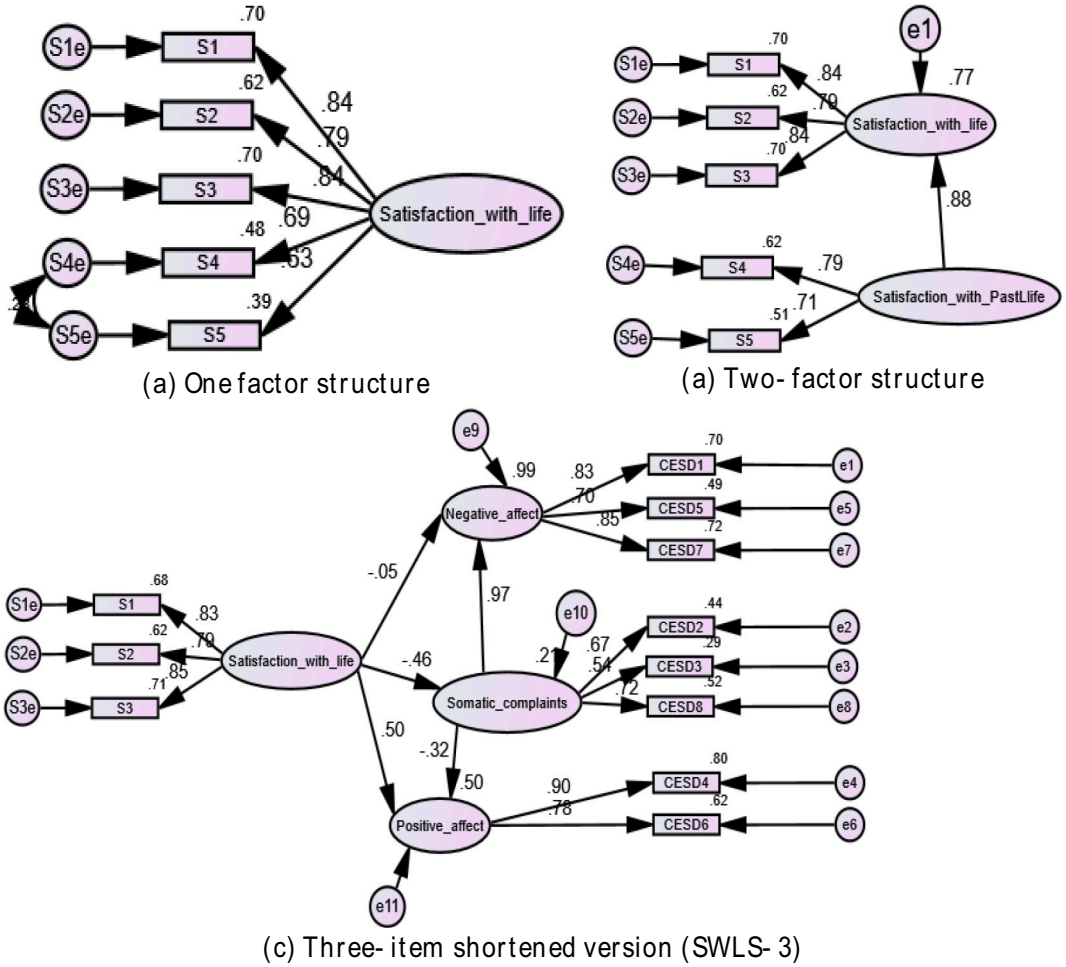

Fig. 2. Confirmatory factor structure of the Satisfaction with Life Scale (SWLS) and its shortened version among Saudi students ($N = 422$).

Table 2
Invariance of the three-factor structures of the Satisfaction with Life Scale (SWLS) across age among Saudi students (N = 979).

Model	Invariance levels	χ^2	DF	*P*	$\Delta\chi^2$	ΔDF	*p* ($\Delta\chi^2$)	CFI	ΔCFI	TLI	ΔTLI	RMSEA	ΔRMSEA	SRMR
Model 1 (SWLS 1F)	Configural	35.44	8	0.001				0.990		0.974		0.059		0.0299
	Metric	42.59	12	0.001	7.15	4	0.128	0.989	0.001	0.981	−0.007	0.051	0.008	0.0161
	Scalar	46.75	13	0.001	4.17	1	0.041	0.987	0.002	0.981	0.000	0.052	−0.001	0.0191
	Strict	75.45	19	0.001	28.70	6	0.001	0.979	0.008	0.978	0.003	0.055	−0.003	0.0186
Model 2 (SWLS 2F)	Configural	35.44	8	0.001				0.990		0.974		0.059		0.0136
	Metric	40.53	11	0.001	5.10	3	0.165	0.989	0.001	0.980	−0.006	0.052	0.008	0.0153
	Scalar	42.61	13	0.001	2.03	1	0.154	0.989	0.000	0.983	−0.003	0.048	0.004	0.0188
	Strict	75.45	19	0.001	27.01	5	0.001	0.979	0.010	0.978	0.005	0.055	−0.007	0.0186
Model 3 (SWLS 3items 1F)	Configural	160.17	78	0.001				0.986		0.980		0.033		0.0255
	Metric	165.99	85	0.001	5.52	7	0.561	0.986	0.000	0.982	−0.002	0.031	0.002	0.0300
	Scalar	185.34	91	0.001	5.37	1	0.021	0.984	−0.002	0.981	0.001	0.033	−0.002	0.0354
	Strict	264.47	105	0.001	75.98	11	0.001	0.972	0.012	0.971	0.010	0.039	−0.006	0.0299

Abbreviations: χ^2, chi-square; DF, degree 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; SWLS, Satisfaction with Life Scale.

between genders, while the SWLS and the dimension of satisfaction with past life failed to detect such a difference. Unlike reports of higher satisfaction with life among Serbian (Slavinski et al., 2021) and Qatari female students (Al-Attiyah & Nasser, 2016), females in our study had lower satisfaction with life than males. This finding is consistent with an Emirati investigation, in which lower satisfaction with life was higher among female students, and it was associated with higher depression scores (Al Khatib, 2013). For the same reason, our female students had lower satisfaction with life: depression, negative affect, and somatic complaints were significantly higher among female than male students (Ali et al., 2025). These variables, as indicated above, negatively correlated with satisfaction with life in both samples.

Relative to undergraduates, postgraduate students had higher scores on the SWLS, SWLS-3, and the dimension of satisfaction with past life—the latter was the highest among the three measures, and item 4 "I have gotten the important things that I want in life" was more expressed among postgraduates than item 5 "If I could live my life over, I would change almost nothing" (U = 13,030.0, z = −4.66 vs U = 14,364.5, z = −3.43, both *p* values = 0.001). The two-item dimension of the SWLS (satisfaction with past life) expressed acceptable reliability and item-

Table 3
Invariance of the three-factor structures of the Satisfaction with Life Scale (SWLS) across gender among Saudi students (N = 422).

Model	Invariance levels	χ^2	DF	*P*	$\Delta\chi^2$	ΔDF	*p* ($\Delta\chi^2$)	CFI	ΔCFI	TLI	ΔTLI	RMSEA	ΔRMSEA	SRMR
Model 1 (SWLS 1F)	Configural	23.64	8	0.003				0.985		0.962		0.068		0.0191
	Metric	28.40	12	0.005	4.76	4	0.313	0.984	0.001	0.973	−0.011	0.057	0.011	0.0197
	Scalar	31.24	13	0.003	1.84	1	0.092	0.982	0.002	0.972	0.001	0.058	−0.001	0.0222
	Strict	34.46	19	0.016	3.22	6	0.781	0.985	−0.003	0.984	−0.012	0.044	0.007	0.0243
Model 2 (SWLS 2F)	Configural	23.64	8	0.003				0.985		0.962		0.068		0.0191
	Metric	26.60	11	0.005	2.96	3	0.398	0.985	0.000	0.972	−0.010	0.058	0.010	0.0192
	Scalar	28.72	13	0.007	0.89	1	0.344	0.985	0.000	0.976	−0.004	0.054	0.004	0.0224
	Strict	34.46	19	0.016	3.16	5	0.675	0.985	0.000	0.984	−0.012	0.044	0.010	0.0243
Model 3 (SWLS 3items 1F)	Configural	139.27	78	0.001				0.973		0.962		0.043		0.0516
	Metric	142.17	85	0.001	2.90	7	0.894	0.975	−0.002	0.967	−0.005	0.040	0.003	0.0540
	Scalar	155.22	91	0.001	3.65	1	0.056	0.972	0.003	0.966	0.001	0.041	−0.001	0.0814
	Strict	166.94	105	0.001	11.19	11	0.428	0.973	−0.001	0.971	−0.005	0.037	0.004	0.0805

Abbreviations: χ^2, chi-square; DF, degree 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; SWLS, Satisfaction with Life Scale.

Table 4
Invariance of the three-factor structures of the Satisfaction with Life Scale (SWLS) across academic level among Saudi students (N = 422).

Model	Invariance levels	χ^2	DF	*P*	$\Delta\chi^2$	ΔDF	*p* ($\Delta\chi^2$)	CFI	ΔCFI	TLI	ΔTLI	RMSEA	ΔRMSEA	SRMR
Model 1 (SWLS 1F)	Configural	13.47	8	0.097				0.994		0.986		0.040		0.0113
	Metric	16.47	12	0.171	2.99	4	0.559	0.995	−0.001	0.992	−0.006	0.030	0.010	0.0133
	Scalar	18.80	13	0.130	2.33	1	0.127	0.994	0.001	0.991	0.001	0.033	−0.003	0.0187
	Strict	44.76	19	0.001	25.97	6	0.001	0.973	0.021	0.973	0.018	0.057	−0.024	0.0148
Model 2 (SWLS 2F)	Configural	13.47	8	0.097				0.994		0.986		0.040		0.0113
	Metric	16.44	11	0.126	2.96	3	0.397	0.995	−0.001	0.990	−0.004	0.034	0.006	0.0133
	Scalar	19.53	13	0.108	1.63	1	0.202	0.994	0.001	0.990	0.000	0.035	−0.001	0.0197
	Strict	44.76	19	0.001	25.23	5	0.001	0.974	0.020	0.973	0.017	0.057	−0.022	0.0148
Model 3 (SWLS 3items 1F)	Configural	139.748	78	0.001				0.973		0.962		0.043		0.0323
	Metric	149.992	85	0.001	10.24	7	0.175	0.972	0.001	0.963	−0.001	0.043	0.000	0.0357
	Scalar	164.612	91	0.001	1.62	1	0.203	0.968	0.004	0.961	0.002	0.044	−0.001	0.0393
	Strict	222.43	105	0.001	56.94	11	0.001	0.949	0.021	0.946	0.015	0.052	−0.010	0.0447

Abbreviations: χ^2, chi-square; DF, degree 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; SWLS, Satisfaction with Life Scale.

Table 5
Invariance of the three-factor structures of the Satisfaction with Life Scale (SWLS) across area of specialty among Saudi students (*N* = 422).

Model	Invariance levels	χ^2	DF	*P*	$\Delta\chi^2$	ΔDF	*p* ($\Delta\chi^2$)	CFI	ΔCFI	TLI	ΔTLI	RMSEA	ΔRMSEA	SRMR
Model 1 (SWLS 1F)	Configural	33.66	8	0.001				0.977		0.954		0.075		0.0226
	Metric	38.18	12	0.001	4.53	4	0.339	0.976	0.001	0.966	−0.012	0.064	0.011	0.0341
	Scalar	39.42	13	0.001	1.23	1	0.267	0.976	0.000	0.968	−0.002	0.062	0.002	0.0361
	Strict	41.26	19	0.003	1.84	6	0.871	0.979	−0.003	0.979	−0.011	0.050	0.012	0.0388
Model 2 (SWLS 2F)	Configural	14.35	8	0.073				0.994		0.984		0.044		0.0169
	Metric	15.21	11	0.173	0.87	3	0.834	0.996	−0.002	0.993	0.001	0.030	0.014	0.0196
	Scalar	15.41	13	0.282	0.17	1	0.684	0.998	−0.002	0.996	−0.003	0.021	0.009	0.0228
	Strict	22.19	19	0.275	1.28	5	0.937	0.977	0.021	0.997	−0.001	0.020	0.001	0.0337
Model 3 (SWLS 3items 1F)	Configural	128.84	78	0.001				0.978		0.969		0.039		0.0346
	Metric	132.85	85	0.001	4.01	7	0.779	0.979	−0.001	0.973	−0.004	0.037	0.002	0.0369
	Scalar	142.30	91	0.001	6.42	1	0.268	0.978	0.001	0.973	0.000	0.037	0.000	0.0401
	Strict	154.01	105	0.001	11.60	11	0.394	0.979	−0.001	0.978	−0.005	0.033	0.004	0.0429

Abbreviations: χ^2, chi-square; DF, degree 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; SWLS, Satisfaction with Life Scale.

total correlations; it also correlated significantly with the parent scale as well as measures of somatic complaints and negative affect. It seems that this dimension may mirror environmental/social circumstances that may affect students' perceptions of satisfaction with life. Research associates life satisfaction with individuals' social status as well as living and work conditions (Al Khatib, 2013). Therefore, the differences between these two groups of students might be attributed to the fact that postgraduate students did not worry much about graduation, which paves the way for satisfactory future work opportunities among their undergraduate counterparts (Slavinski et al., 2021). Because they were older than undergraduate students (older students had significantly higher SWLS scores, as indicated above), more postgraduate students may likely have a job and be married. In support of this argument, Serbian students with low GPA expressed lower satisfaction with life, while students with a gainful employment were more satisfied (Slavinski et al., 2021). Similar studies in the UAE show that married students have less depression as well as greater life satisfaction and self-esteem than single students (Al Khatib, 2013). Future studies may investigate more sociodemographic factors, which might trigger these dynamics.

Table 6
Item level statitics and convergent validity of the Satisfaction with Life Scale (SWLS) and the SWLS-3 among Saudi students.

Items	N = 422						N = 979					
		Five-item SWLS		Three-item SWLS			Five-item SWLS			Three-item SWLS		
	Median (Q1-Q3)	ITC	Alpha if item deleted	ITC	Alpha if item deleted	Kolmogorov-Sminov	Median (Q1-Q3)	ITC	Alpha if item deleted	ITC	Alpha if item deleted	Kolmogorov-Smirnov
My life is close to my ideal	5 (4–6)	0.76	0.82	0.73	0.81	0.17	5 (3–6)	0.81	0.84	0.77	0.82	0.20
The conditions of my life are excellent	5 (4–6)	0.69	0.84	0.73	0.81	0.19	5 (4–6)	0.75	0.85	0.76	0.84	0.21
I am satisfied with my life	6 (5–7)	0.74	0.83	0.75	0.79	0.22	6 (5–7)	0.74	0.85	0.77	0.83	0.21
I have gotten the important things that I want in life	5 (4–6)	0.62	0.87	–	–	0.18	5 (3–6)	0.71	0.86	–	–	0.20
If I could live my life over, I would change almost nothing	4 (2–6)	0.68	0.84	–	–	0.14	3 (1–5)	0.61	0.89	–	–	0.16

SWLS, Satisfaction with Life Scale; ITC, Item-total correlations; all ITC and Kolmogorov-Sminov values were significant ($p < 0.01$).

Table 7
Descriptive statistics, reliability, and distribution of the Satisfaction with Life Scale (SWLS) and its subscales among Saudi students.

	N = 422			N = 979		
	Median (Q1-Q3)	Cronbach's alpha	Kolmogorov-Sminov	Median (Q1-Q3)	Cronbach's alpha	Kolmogorov-Sminov
SWLS	25 (20−30)	0.87	0.07	24 (18–29)	0.88	0.08
Three-item SWLS	16 (13–18)	0.86	0.12	16 (12–18)	0.88	0.14
SWLS past life	9 (6–11)	0.71	0.09	8 (5–10)	0.69	0.08

SWLS, Satisfaction with Life Scale; all Kolmogorov-Sminov values were significant ($p < 0.01$).

4.1. Strengths, implications, and limitations

This study is the first to robustly examine the characteristics of the Arabic version of the SWLS. The findings have implications for research and practice: 1) the SWLS comprises two dimensions, with minor contribution of items 4 and 5 to the overall quality of the SWLS, 2) the SWLS/SWLS-3 can indirectly reflect other dimensions of well-being (e.g., positive and negative emotional responses and somatic complaints), 3) the scores of SWLS/SWLS-3 can be credibly compared between gender and age groups, and 4) the SWLS-3 may be better used to save time and cost of data collection (e.g., on phone interviews and population-based surveys). The study has some limitations, such as the use of a cross-sectional design during a specific period (the peak of the COVID-19 pandemic). Now the pandemic has been announced by the WHO as no longer a public global health emergency while new and highly contagious variants of the virus are still erupting, albeit not highly lethal (Rahman et al., 2023). Therefore, reports in this study may divert from the current emotional situation, calling for additional future research that counts on longitudinal and more recent cross-sectional designs in which refreshment samples may confirm our findings. Online surveying and convenience samples imply a risk of selection bias. Females comprised a large proportion of the participants in both samples. Moreover, the samples may not represent the target population as they were collected from three cities in a single Arab country, necessitating studies that examine the differences in the SWLS/SWLS-3 among Arabs from different locations. Because the variables used in criterion validity tests "depressive symptoms" were self-reported, future research should include objective assessment of such conditions in order to address this potential bias.

5. Conclusion

The Arabic SWLS is a reliable brief measure, which detects a dominant dimension of global satisfaction with life. It also comprised a minor dimension of satisfaction with past life. This minor construct was not different between groups of gender, age, and area of specialty, but it uncovered differences between undergraduate and postgraduate students. The SWLS-3 was comparable or even superior to the parent scale in all aspects of psychometric quality, favoring its use in frequent screening to obtain a greater response, especially when used in long test batteries.

CRediT authorship contribution statement

Amira Mohammed Ali: Writing – review & editing, Project administration, Methodology, Formal analysis, Conceptualization. **Saeed A. Al-Dossary:** Validation, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization. **Musheer A. Aljaberi:** Writing – original draft, Validation, Software, Data curation. **Maha Atout:** Writing – original draft, Resources. **Rasmieh Alamer:** Writing – original draft, Resources. **Mohamed M.H. Suliman:** Writing – original draft, Resources, Investigation, Conceptualization. **Feten Fekih-Romdhane:** Writing – review & editing, Visualization, Methodology, Formal analysis.

Consent for publication

Informed consent has been obtained from the participants for the publication of the findings of this study.

Institutional review board statement and consent statement

The ethical approval for conducting this study has been obtained from the Research Ethics Committee of Ha'il University (No. 16784/5/42. November 5, 2020). This study was conducted following the Declaration of Helsinki and its subsequent amendments. Informed consent was obtained from all subjects involved in the study.

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Declaration of competing interest

The authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.actpsy.2025.104867.

Data availability

Data will be made available on request.

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