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Psychometric properties of the Arabic versions of the perceived social competence scale and the prosociality scale

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Abstract

Background Prosocial behaviors refer to a variety of voluntary actions intended to benefit others and the society. They have consistently proven their capacity to promote individuals' well-being and personal development. Nevertheless, these constructs remain largely underexplored in the Arab world. Providing validated measures of prosocial behaviors in the Arabic language for the Lebanese population could direct research attention towards assessing these behaviors and their promoting factors, thereby enhancing positive psychology. In this regard, we aimed to psychometrically validate the Standard Arabic-translated versions of the Perceived Social Competence scale (PSCS) and Prosociality Scale (PS) among a sample of Lebanese adults.

Methods A total of 403 Lebanese adults (27% men and 73% women) completed an online questionnaire containing the PSCS and PS, as well as the Buss–Perry aggression questionnaire-short form, the Jong-Gierveld loneliness scale, and the depression anxiety stress scale.

Results Both of the PSCS and PS yielded a unidimensional factor structure and demonstrated high levels of composite reliability, with McDonald ω values of 0.83 and 0.95, respectively. The analysis also supported configural, metric, and scalar invariance across gender for the two scales. Convergent validity was evidenced by a high correlation between the PSCS and PS, both measuring prosocial behaviors. In addition, weak and/or non-significant relations between prosocial behaviors and non-theoretically relevant variables (i.e., aggression, loneliness, and psychological distress) provided evidence for the divergent validity of both scales.

Conclusion Our study cautiously suggested that the Standard Arabic versions of the PSCS and PS are psychometrically valid for measuring prosocial behaviors. This study should prompt further research in the field of social competence/prosocial behaviors for the sake of promoting positive psychological interventions in Lebanon. Future research should prioritize the inclusion of more diverse samples, encompassing a wider range of

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sociodemographic characteristics, in order to enhance the generalizability of these findings to the broader Lebanese population.

Keywords Prosocial behaviors, Prosociality, Positive psychology, Adults, Psychometric properties, Cultural adaptation

Introduction

Prosocial behaviors are a crucial concept in social and biological sciences [1]. They are defined as a constellation of admirable and voluntary actions intended to aid others, such as lending a hand, showing empathy, and offering comfort [2–4]. These activities are also referred to as social competence and prosociality [1, 5], as they are usually executed for the sake of benefiting the society, whether for reasons of altruism, donation, charity, compassion, or disaster management [2]. Within the literature, prosocial behaviors have consistently proven their capacity to promote individuals' well-being [6]. Some theorists actually argue that individuals' meaning in life, which is critical to their flourishing and well-being, stems from the rewards they receive while contributing to their community through prosocial acts (i.e., altruistic and cooperative behaviors) [6]. According to some concepts, individuals also experience a reflexive reward when they witness others receiving reward outcomes, which in turn remarkably impacts their social [7, 8] and prosocial [9, 10], behaviors. Stronger representations of others' benefits may in fact enable people to relate to the joyful experiences of others, resulting in greater visceral responses of reward [11–15]. As such, individuals tend to engage in prosocial behaviors [16–18] for promoting their well-being and assuaging psychological distress.

Moreover, prosocial activities are able to strengthen interpersonal communication, hence bolstering interpersonal harmony [19]. In line with this perspective, fostering prosocial behaviors may attenuate aggressiveness and antisocial behaviors while also aiding in individuals' social adaptation and healthy self-development [20]. Therefore, youth education and social work practice have always been placing a high importance on strategies advancing social competency [21–23]. For instance, recent research indicates that empathic concern and moral identity are positively correlated with prosocial behaviors among medical students [24]. Additionally, cultivating these traits in medical students may enhance their prosocial tendencies, suggesting potential avenues for future educational interventions [24].

Taking the preceding into account, prosocial behaviors appear to be a key component of positive psychology and may thus aid in designing positive psychology interventions (PPIs) and enhancing social work practice. As a result, valid and reliable easy-to-use tools assessing prosocial behaviors are of utmost importance for both clinicians and researchers aiming to make advances in this field. In this context, a short, practical, convenient, and time-efficient 4-item scale, called the Perceived Social Competence Scale (PSCS), was developed and validated to outreach these purposes [25]. In addition, the Prosociality Scale, first originating from Italy [26], was developed as a concise 16-item scale examining the general proclivity for prosocial tendencies and behaviors [27, 28].

When it comes to Arab countries, growing efforts have been made to explore the positive psychology field [29, 30], but validated measures of prosocial behaviors in the Standard Arabic language are still lacking. Such tools could direct research attention towards these behaviors and their promoting factors, thereby enhancing positive psychology. Encouraging such research among these populations has indeed become essential due to the plethora of political and financial challenges they have historically faced, which have also escalated in recent years. Therefore, we aimed to examine the psychometric properties of the Standard Arabic-translated versions of the PSCS and PS among an adult sample from Lebanon, a country facing abundant regional geopolitical tensions.

Methods

Study design and procedures

All of the data was collected through a Google Form link, which was distributed on various social media networks between February and December of 2022. The study was open to adult residents and citizens of Lebanon from all governorates. Inclusion criteria included citizens and residents of Lebanon aged 18 years and above. Exclusion criteria were people who refused to participate and those below 18 years old. All participants completed the questionnaires anonymously and with informed consent, and participation was entirely voluntary and uncompensated [31]. The study proposal received formal approval from the ethics committee of the School of Pharmacy at the Lebanese International University (2021RC-049-LIUSOP).

Translation procedure for the PSCS and PS

The PSCS and PS were translated into Standard Arabic in accordance with internationally recognized guidelines for cultural adaptation [32, 33]. Two bilingual healthcare professionals, native Arabic speakers with fluency in English, undertook the initial translation of the original English instruments. A subsequent rigorous back-translation process was conducted, followed by a comprehensive review by an expert committee of psychologists and psychiatrists. This meticulous process ensured the linguistic and conceptual equivalence of the Standard Arabic

versions to the original English instruments. Cognitive debriefing interviews with 10 participants from the target population were conducted to gather feedback on the translated items, ensuring their comprehensibility and cultural relevance.

Questionnaire and measures

The questionnaire was entirely administered in the Standard Arabic language (the native language of Lebanon). First, participants were asked to provide their demographic details consisting of age, gender, marital status, and level of education. To assess the socioeconomic status of participants, we computed the Household Crowding Index (HCI), which is calculated by dividing the total number of household members by the number of habitable rooms (excluding kitchens and bathrooms) [34]. Higher HCI values correspond to lower socioeconomic status [34]. Then, their responses were recorded on the following questionnaires:

The perceived social competence scale (PSCS) The PSCS is a self-reporting assessment tool that rates a person's level of social competence based on both how they see themselves in social situations and the information they supply about themselves. This scale was demonstrated to be valid and reliable. The PSCS development addressed many shortcomings of previously existing instruments measuring social competence, which were generally costly, time-consuming, and only focusing on groups of youth and children from an adult perspective (i.e., parent or teacher) [25]. The PSCS has four items (e.g., "I ask others if I can be of help" and "I do nice things for people"), and uses a Likert scale with a maximum score of 5. Scores are computed by summing each item's score. Greater perceived social competence is indicated by higher scale scores [25].

The prosociality scale (PS) The PS is a 16-item, 5-point Likert scale that assesses prosocial behavior propensities. The items (e.g., "I immediately sense my friends' discomfort even when it is not directly communicated to me" and "I am willing to make my knowledge and abilities available to others") assess various prosocial characteristics, including empathy/sympathetic emotions as well as sharing, supporting, and caring actions [27, 28]. This scale is also one of the few to assess the broad construct of prosocial behaviors (i.e., without focusing on a particular population or situation) during late adolescence and adulthood. The original Italian psychometrical report revealed good validity and psychometric performance for this scale [27, 28]. Thereafter, this instrument has demonstrated its validity and usefulness in various countries, including the United States, Argentina, Chile, Peru, Spain, Italy, and China [35–37]. The multitude of research examining this scale rendered it one of the most widely used tools to assess prosocial behaviors. Each item's grading is summed to calculate the total score; and higher scores indicate higher prosocial behaviors.

The buss–perry aggression questionnaire-short form (BPAQ-SF) A condensed version of the BPAQ, the BPAQ-SF consists of 12 items with response ratings based on a 5-point Likert scale. The questions are distributed into four subscales composed of 3 questions each, which are physical aggression (e.g., "I have threatened people I know"), verbal aggression (e.g., "My friends say that I'm somewhat argumentative"), anger (e.g., "I flare up quickly but get over it quickly"), and hostility (e.g., "I wonder why sometimes I feel so bitter about things"). Scores are obtained by summing each item's grading. Greater scores suggest more aggressive behavior [38]. This scale has been validated in Lebanon, and we used the validated Arabic translation for the current study [39].

The jong-gierveld loneliness scale The modified Jong-Gierveld Loneliness Scale, which consists of 5 questions (e.g., "I experience a general sense of emptiness" and "I miss having people around"), was used to measure subjective loneliness. A "yes" response receives a score of 1, and a "no" response receives a score of 0. Scores for each item are added to calculate the instrument's final score. Higher scores suggest a greater sense of being lonely [40, 41]. This scale has been validated in Lebanon, and the validated Arabic was used [42].

The depression anxiety stress scale (DASS-8) Eight items compose the Arabic version of the DASS-8, which is divided into three subscales: depression (e.g., "I felt downhearted and blue"), anxiety (e.g., "I felt scared without reason"), and stress (e.g., "I was using a lot of my mental energy"). Higher scores, computed by adding the scores of the scale's 8 items, denote increased psychological distress. The validated Arabic version was used [43].

Statistical analysis

In order to investigate the factor structure of the prosociality (PS) and perceived social competence (PSC) scales, we performed a confirmatory factor analysis using SPSS AMOS v.26 software. Prior research has recommended a minimum sample size for conducting a confirmatory factor analysis, which varies from 3 to 20 times the number of variables in the scale [44]. Based on this recommended ratio of 3–20 participants per one item of the scale, we determined that a minimum sample size of 48–320 and 12–80 participants for the PS and PSCS, respectively, was necessary to achieve sufficient statistical power. This requirement was met by the sample we used. Our goal was to assess the unidimensional model

of the PS using the original model. To achieve this, we obtained parameter estimates using the maximum likelihood method and assessed the fit indices: the normed model chi-square ($\chi^2/df \leq 5$), the root mean square error of approximation (RMSEA ≤ 0.08), as well as the Goodness of Fit (GFI), Incremental Fit Index (IFI), the Tucker-Lewis Index (TLI) and the comparative fit index (CFI) (≥ 0.90 for all). Furthermore, we evaluated the convergent validity by examining the average variance extracted (AVE) values, which are considered adequate if they are ≥ 0.50 [45].

Gender invariance For examining the gender invariance property of the PS and PSCS, we conducted multigroup CFA [46] using the total sample. We assessed three levels of invariance between genders: configural, metric, and scalar [47]. Configural invariance involves examining whether the latent prosociality (PS) and perceived social competence (PSCS) variables, as well as the pattern of loadings of the indicators, are similar across genders. This is evaluated by comparing the fit of the unconstrained latent model in both groups. Metric invariance involves testing whether the magnitude of the loadings is similar across genders, which is done by comparing two nested models consisting of a baseline model and an invariance model. Lastly, scalar invariance involves examining whether both the item loadings and item intercepts are similar across genders, which is also evaluated using the same nested-model comparison strategy as metric invariance [46]. To determine if there was evidence of invariance, we used the following criteria: ΔCFI ≤ 0.010, ΔRMSEA ≤ 0.015, or ΔSRMR ≤ 0.010. If the differences in these values between the baseline model and the invariance model met these criteria, we accepted it as evidence of invariance [46, 48]. Our goal was to examine whether there were gender differences in latent prosociality (PS) and perceived social competence (PSCS) scores. However, we only conducted independent-samples t-tests to compare the scores between genders if scalar or partial scalar invariance had been established.

Table 1 Sociodemographic and other characteristics of the participants ($n = 403$)

Variable	*n* (%)
Gender	
Men	109 (27.0%)
Women	294 (73.0%)
Education level	
Secondary or less	25 (6.2%)
University	378 (93.8%)
Marital status	
Single	339 (84.1%)
Married	64 (15.9%)
	Mean ± SD
Age (in years)	24.56 ± 8.46
Household crowding index (person/room)	1.09 ± 0.54
Perceived social competence	21.90 ± 4.47
Prosociality	56.47 ± 13.44
Physical aggression	4.97 ± 2.41
Verbal aggression	6.24 ± 2.44
Anger	6.73 ± 3.09
Hostility	6.75 ± 3.07
Loneliness	12.29 ± 5.07
Psychological distress	9.21 ± 6.35

Further analyses We evaluated the composite reliability using McDonald's ω, with a value of greater than 0.70 indicating sufficient composite reliability [49]. McDonald's ω was chosen as the measure of composite reliability instead of Cronbach's α due to known issues that can arise when using Cronbach's α [50]. As the skewness and kurtosis values of PSCS and PS were within the range of -1 and + 1, it was assumed that both variables were normally distributed [51]. To evaluate the construct validity, we calculated bivariate correlations between PSCS and PS scores and other measures included in the survey (aggression, loneliness, and psychological distress). Specifically, we hypothesized that the PSCS and PS would be positively correlated, demonstrating convergent validity. Indeed, convergent validity refers to whether a variable relates to other tests of the same concept [52]. In addition, we expected that the PS and PSCS would be either negatively correlated or unrelated to measures of aggression, loneliness, and psychological distress [20]. The latter measures were therefore included in our study to test divergent validity since divergent validity relates to how different, uncorrelated, or inversely correlated a measure is to other measures of unrelated concepts [53]. We used Cohen's guidelines [54] to interpret the strength of the correlations, with values of ≤ 0.10 considered weak, ~ 0.30 considered moderate, and ~ 0.50 considered strong. *P*-values less than 0.05 were considered statistically significant.

Results

Participants

In this study, a total of 403 participants were included, with a mean age of 24.56 ± 8.46 years [min = 18; max = 60] and 73% of the sample being women. Additional information about the sample's characteristics can be found in Table 1 (Table 1).

Confirmatory factor analysis of the prosociality scale (PS)

The results of the 1-factor model of PS scores were as follows: $\chi 2/df = 413.30/104 = 3.97$, RMSEA = 0.104 (90% CI 0.094, 0.115), SRMR = 0.049, CFI = 0.905, TLI = 0.891 and IFI = 0.915. When adding a correlation between residuals 1 and 2, the fit indices improved as follows: $\chi 2/$

df = 381.28/103 = 3.70, RMSEA = 0.047 (90% CI 0.089, 0.110), SRMR = 0.047, CFI = 0.915, TLI = 0.901.

The results of the 2-factor model of PS scores, as suggested in recent research [37], were less satisfactory, as follows: $\chi 2/df = 413.67/103 = 4.01$, RMSEA = 0.087 (90% CI 0.078, 0.095), SRMR = 0.049, CFI = 0.905, TLI = 0.874, and IFI = 0.906.

The standardized estimates of factor loadings were all adequate (Table 2). The convergent validity for this model was adequate, as AVE = 0.57.

Composite reliability of the prosociality scale

Composite reliability of PS scores was adequate in women (ω = 0.95), men (ω = 0.96), and the total sample (ω = 0.95).

Gender invariance of the prosociality scale

As reported in Table 3, all indices suggested that configural, metric, and scalar invariance was supported across gender. Given these results, we computed an independent-sample *t*-test to examine gender differences in PSCS scores. The results showed that no significant difference was seen between women ($M = 21.80$, $SD = 4.38$) compared to men ($M = 22.18$, $SD = 4.72$) in terms of PSCS scores, $t(401) = 0.773$, $p = .440$, $d = 0.083$ (Table 3).

Table 2 Items of the Prosociality scale in English and standardized estimates of factor loadings from the Confirmatory Factor Analysis (CFA) in the total sample

Items of the Prosociality Scale [27, 28]	Total
1-"I am pleased to help my friends/colleagues in their activities"	0.77
2-"I share the things that I have with my friends"	0.71
3-"I try to help others"	0.81
4-"I am available for volunteer activities to help those who are in need"	0.75
5-"I am emphatic with those who are in need"	0.81
6-"I help immediately those who are in need"	0.79
7-"I do what I can to help others avoid getting into trouble"	0.84
8-"I intensely feel what others feel"	0.81
9-"I am willing to make my knowledge and abilities available to others"	0.61
10-"I try to console those who are sad"	0.81
11-"I easily lend money or other things"	0.51
12-"I easily put myself in the shoes of those who are in discomfort"	0.63
13-"I try to be close to and take care of those who are in need"	0.87
14-"I easily share with friends any good opportunity that comes to me"	0.78
15-"I spend time with those friends who feel lonely"	0.76
16-"I immediately sense my friends' discomfort even when it is not directly communicated to me"	0.72

Confirmatory factor analysis of the perceived social competence scale (PSCS)

The results of the 1-factor model of PSCS scores were as follows: $\chi 2/df = 4.65/2 = 2.32$, RMSEA = 0.057 (90% CI 0.001, 0.128), SRMR = 0.017, CFI = 0.996, TLI = 0.989, GFI = 0.994, and IFI = 0.996. The standardized estimates of factor loadings were all adequate (Table 4). The convergent validity for this model was adequate, as AVE = 0.59.

Composite reliability of the PSCS

Composite reliability of scores was adequate in women (ω = 0.81), men (ω = 0.87), and the total sample (ω = 0.83).

Gender invariance of the PSCS

As reported in Table 5, the indices suggested that configural, metric, and scalar invariance was supported across gender. Given these results, we computed an independent-sample *t*-test to examine gender differences in PSCS scores. No significant difference was seen between men ($M = 14.94$, $SD = 3.31$) compared to women ($M = 14.79$, $SD = 2.97$) in terms of PSCS scores, $t(401) = 0.417$, $p = .677$, $d = 0.048$ (Table 5).

Construct validity of the PSC and prosociality scales

Higher PSC scores were significantly associated with higher prosociality scores ($r = .72$), lower verbal aggression ($r = -.10$), lower anger ($r = -.13$), and lower loneliness ($r = -.10$). The prosociality score did not correlate with the other scores (Table 6).

In terms of education, no significant difference was found in terms of perceived social competence scores (21.93 ± 4.46 vs. 21.40 ± 4.76; $p = .564$; Cohen's d = 0.119) and prosociality scores (56.53 ± 13.47 vs. 55.72 ± 13.38; $p = .807$; Cohen's d = 0.060) between participants with a university level of education vs. secondary or less.

Discussion

Over recent years, research into prosocial behaviors and their propitious outcomes has considerably increased [55–57]. Consequently, a number of instruments assessing these behaviors has been developed [58]. The PSCS and PS are two such scales that have shown their reliability and validity within the literature. In this psychometric report, we sought to contribute to the available literature by examining the psychometric properties of Arabic-translated versions of the PSCS and PS among a native Arabic-speaking population of Lebanese adults.

Actually, people living in Arab countries have been burdened over the last years with mental health issues above worldwide levels [59]. However, mental health care system has long been mainly hospital-based and secondary care in the Arab region, thus focusing on diseases treatment and neglecting the crucial role that positive psychology may play in promoting mental health and

Table 3 Measurement invariance of the Prosociality scale across gender in the total sample

Model	χ^2	df	CFI	RMSEA	SRMR	Model Comparison	$\Delta\chi^2$	ΔCFI	ΔRMSEA	ΔSRMR	Δdf	*p*
Configural	25.84	16	0.991	0.039	0.027							
Metric	27.81	21	0.994	0.028	0.028	Configural vs. metric	1.97	0.003	0.011	0.001	5	0.853
Scalar	46.40	26	0.982	0.044	0.029	Metric vs. scalar	18.59	0.012	0.016	0.001	5	0.002

CFI = Comparative fit index; RMSEA = Steiger-Lind root mean square error of approximation; SRMR = Standardized root mean square residual

Table 4 Items of the Perceived Social competence scale in English and standardized estimates of factor loadings from the Confirmatory Factor Analysis (CFA) in the total sample

Items of the Perceived Social Competence Scale [25]	Total
1- "I am good at making friends"	0.55
2- "I help other people"	0.87
3- "I ask others if I can be of help"	0.77
4- "I do nice things for people"	0.84

well-being [60]. Such strategies are inappropriate and ineffective for dealing with the major social changes, increased substance use, high violence rates, and subsequent precarious mental health that Arab general populations are facing [61]. Therefore, using contextual and culturally sensitive prevention approaches based on positive psychology becomes more than necessary in these struggling populations. Following the individualism-collectivism dimension by Hofstede [62], Arab countries are classified as collectivist. Individuals belonging to collectivist societies and cultures, where the group is prioritized over each individual, may experience more enhancement in well-being when practicing prosocial and group-oriented interventions, such as performing acts of sharing, caring, being kind, and helping others [60]. To design and test these interventions, psychometrically sound instruments are required. Our study's results lent credence to the adequate factorial structure, reliability, gender invariance, and construct validity of the PSCS and PS in their Standard Arabic versions. Therefore, we cautiously recommend their use in the future for clinical and research purposes in the Lebanese population. Since this study's sample is more representative of a highly educated, young, predominantly single women subgroup, these validation results should be interpreted with caution.

As for the factorial validity, the one-factor four-item model of the PSCS showed good fitness to the data. These findings converge to the original validation of the scale, where the unidimensional factor structure of the PSCS was found to be psychometrically sound [25]. Likewise, the one-factor model of the Standard Arabic PS was consistent with previous reports [27, 63], including the original validation of the PS [27, 28]. This one-factor model had better factorial validity than the two-factor model proposed in a subsequent cross-national validation of the PS, which was conducted in five Western and non-Western countries [37]. In the latter research, the analysis confirmed a bifactor model for the PS, characterizing prosocial responses into two additional specific components: an affective dimension (i.e., prosocial and empathic feelings; items 5, 8, 12, and 16) and a behavioral dimension (i.e., prosocial actions such as caring and helping). However, the scale also had a general latent factor including these two dimensions, which represented the

Table 5 Measurement invariance of the Perceived Social competence scale across gender in the total sample

Model	χ^2	df	CFI	RMSEA	SRMR	Model Comparison	$\Delta\chi^2$	ΔCFI	ΔRMSEA	ΔSRMR	Δdf	*p*
Configural	5.10	4	0.998	0.026	0.013							
Metric	5.94	7	1.000	0.001	0.015	Configural vs. metric	0.84	0.002	0.025	0.002	3	0.840
Scalar	19.84	10	0.986	0.050	0.024	Metric vs. scalar	13.9	0.014	0.049	0.009	3	0.003

Note. CFI = Comparative fit index; RMSEA = Steiger-Lind root mean square error of approximation; SRMR = Standardized root mean square residual

broad prosociality construct (i.e., the general proclivity towards other people's needs) [37]. In contrast, our study ascertained that the unifactorial model was the best-fitting to the scale among our sample. These differences may be shaped by the complex influence of culture on prosocial tendencies [64]. To exemplify, certain collectivistic cultures, such as the Lebanese one, give an immense importance to fostering prosocial behaviors [65, 66], which is on the other hand unusual in other cultures [67]. Therefore, there is a strong possibility that Lebanese people may perceive prosocial feelings and behaviors as inextricable constructs since their empathic sentiments always tend to push them into prosocial actions.

Both scales demonstrated high internal consistency ($\omega = 0.83$ for the PSCS and $\omega = 0.95$ for the PS), in line with the original validation studies [25, 27, 28]. Besides, gender invariance was evidenced for the two scales, thus indicating that the PSCS and the PS are structurally equivalent and understandable in the same way when comparing men and women. The gender invariance property is of crucial importance, as it will enable valid comparisons between men and women in future studies and interventions involving prosocial behaviors. In the present sample, we found no significant gender difference in both prosocial behaviors measures (i.e., PSCS and PS), which is inconsistent with most of the previous literature showing that women tend to be more prosocial and to exhibit greater prosocial behaviors' intentions than men [68]. However, it has also been suggested that gender differences reported in some studies might be due to particular characteristics of the experimental design [69], are dynamic, and may largely depend on the social context (rather than being universal) [69, 70]. However, we should note that the number of women participating in this study were almost three times the number of men, which could have affected the power of the subgroup analysis; additional studies are needed to further explore gender differences in prosociality in the Lebanese context.

Finally, the PSCS and PS scores were highly correlated among our sample ($r = .72$), demonstrating the convergent validity of these two scales. On the other hand, weak and/or non-significant relations between prosocial behaviors and non-theoretically relevant variables (i.e., aggression, loneliness, and psychological distress) provided evidence for the divergent validity of both scales. Consistent with our findings, being distressed or socially undesirable are constructs little or not related to prosociality [71]. In our sample, lower ratings on verbal aggression, anger, and loneliness were positively and weakly associated with perceived social competence scores (as measured by the PSCS) and non-significantly associated with prosociality (as measured by the PS). Some prior evidence indicated that prosocial behaviors may attenuate antisocial and

Table 6 Correlations of the scores between each other

Variable	1	2	3	4	5	6	7	8	9
1. Perceived social competence	1								
2. Prosociality	0.72***	1							
3. Physical aggression	−0.03	−0.09	1						
4. Verbal aggression	−0.10*	−0.08	0.34***	1					
5. Hostility	−0.04	−0.04	0.41***	0.44***	1				
6. Anger	−0.13*	0.03	0.27***	0.44***	0.57***	1			
7. Loneliness	−0.10*	0.05	0.18***	0.29***	0.34***	0.51***	1		
8. Psychological distress	−0.06	0.10	0.20***	0.29***	0.50***	0.57***	0.60***	1	
9. Age	0.09	0.02	0.05	0.04	−0.11*	−0.07	−0.07	−0.07	1

Numbers in the table reflect Pearson correlation coefficients; *$p < .05$; **$p < .01$; ***$p < .001$

aggressive acts and promote positive social interactions [19, 20]. Recent findings revealed that the relationship between prosociality and aggressiveness changes over time, showing either inverse or non-significant associations [72]. The distinct patterns of correlations between aggression/loneliness and PSCS/PS scores found in the present study may be explained by the fact that the PSCS scale contains an item that reflects the skill of making friends (i.e., "I am good at making friends") rather than acting prosociality towards friends. Having such a skill is expected to be related to less loneliness and lower aggressiveness.

Research implications

The current study is important for acquiring better evidence on the cross-cultural validity and applicability of tools assessing prosocial behaviors, hence enabling future research in this field. As such, making these tools available in the Standard Arabic language could direct research attention towards these behaviors and their promoting factors in Lebanon. Nevertheless, the current sample is characterized by high educational attainment, youth, and a predominance of single women; thus, it may not be fully representative of the Lebanese population. Consequently, the application of these validated instruments to diverse subpopulations within Lebanon should be approached with careful consideration. Encouraging the use of these instruments and the conduction of research on prosociality have however become of crucial importance, due to the plethora of political and financial challenges Lebanese people are facing nowadays. Indeed, positive psychology components such as prosocial behaviors exert a favorable impact on mental and physical health [6, 15, 73–75]. Therefore, the use of these scales in future studies may help discover potential resources for promoting prosocial behaviors and improving well-being.

Limitations

This study has some limitations. First, its cross-sectional design prevents us from assessing the test-retest reliability of the scales. Second, participants were recruited via social networks using the snowball sampling technique, and the majority of our sample was composed of women. As a result, our results might not be generalizable to the whole Lebanese population. In addition, the study's reliance on social media for questionnaire dissemination has skewed the sample towards a younger demographic. This demographic bias should be considered when interpreting the results. As such, the predominantly young age of participants may restrict the scope of the study's findings, as experiences and perspectives of older age groups may differ. Finally, a residual confounding bias is possible; therefore, future studies should assess the convergent/divergent validity of these two scales using additional measures of other relevant constructs.

Conclusion

In sum, our study cautiously suggested that the Standard Arabic versions of the PSCS and PS are psychometrically valid instruments for measuring prosocial behaviors. This study should prompt further research in the field of social competence/prosocial behaviors for the sake of promoting positive psychological interventions and well-being in Lebanon. Future research should prioritize the inclusion of more diverse samples, encompassing a wider range of sociodemographic characteristics, in order to enhance the generalizability of these findings to the broader Lebanese population.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12955-025-02341-7.

Supplementary Material 1

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Author contributions

SG wrote the manuscript; VA, ZB, SO and SH designed the study; SH carried out the analysis and interpreted the results; SG, ZB and MD were responsible for the data collection; FFR reviewed the paper; SG critically revised the manuscript for intellectual content; all authors reviewed the final manuscript and gave their consent.

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Data availability
All data generated or analyzed during this study are not publicly available due to the restrictions by the ethics committee. The dataset supporting the conclusions is available upon request to the corresponding author.

Declarations

Ethics approval and consent to participate
The study proposal was approved by the ethics committee of the School of Pharmacy at the Lebanese International University (2021RC-049-LIUSOP). A written informed consent was considered obtained from each participant when submitting the online form. All methods were performed in accordance with the relevant guidelines and regulations.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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