

Validation of the Social Connectedness Scale in Argentinean adult sample

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Abstract

The feeling of social connectedness is an extremely important factor for the psychosocial well-being of individuals. Experiencing closeness, belonging, and mutual acknowledgement with the people who are part of the social circle, contributes to the establishment and maintenance of positive and stable relationships over time, as well as numerous benefits regarding the quality of life and mental health of individuals. In order to contribute to the field of study of interpersonal relationships, this study aims to adapt and validate the Social Connectedness Scale for Argentinean adults. The sample consisted of 399 individuals between the ages of 18 and 79 who completed the scale which was previously translated and submitted to expert judges. The results confirmed the one-dimensional structure of the scale, invariant by sex, with good internal consistency ($\omega = .92$). Furthermore, evidence of convergent and discriminant validity was provided through correlations with measures of extroversion ($r_p = .37$) and social anxiety ($r_p = -.61$). It is concluded that the measures provided by the Argentinean version of the social connectedness scale are both valid and reliable to be used in research, as well as in clinical settings in Argentinean population.

Keywords: social connection, Argentinean adults, validation study.

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Validação da Escala de Conexão Social em uma amostra de adultos argentinos

Resumo

O sentimento de conexão social é um fator extremamente importante para o bem-estar biopsicossocial dos indivíduos. Experimentar proximidade, filiação e reconhecimento mútuo com as pessoas que formam parte do círculo social contribui para o estabelecimento e manutenção de relacionamentos positivos e estáveis no tempo, como também numerosos benefícios na qualidade de vida e saúde mental dos indivíduos. A fim de contribuir para o campo de estudo das relações interpessoais, o objetivo deste estudo é adaptar e validar a Escala de Conexão Social para adultos argentinos. A amostra foi composta por 399 indivíduos entre 18 e 79 anos de idade, que completaram a escala previamente traduzida e submetida a análise de juízes especialistas. Os resultados confirmaram a estrutura unidimensional da escala com boa consistência interna ($\omega = .92$) e invariante segundo sexo. Também foi obtida evidência de validade convergente e discriminante, através de correlações com medidas de extroversão ($r_p = .37$) e ansiedade social ($r_p = -.61$). Conclui-se que a medida fornecida pela versão argentina da Escala de Conexão Social é válida e confiável para ser utilizada em pesquisa, como também com aplicações clínicas.

Palavras-chave: conexão social, adultos argentinos, estudo de validação.

INTRODUCTION

The feeling of belonging and social acknowledgement is an experience that gives all human beings satisfaction and purpose to their lives (Stavrova & Luhmann, 2016). This is explained by the fact that social connectedness is a fundamental human need, and it is becoming increasingly clear that this feeling bestows benefits for physical and mental health (Hutcherson et al., 2008).

Social connectedness is defined as the subjective psychological bond that people feel in relation to other individuals and social groups (Haslam et al., 2015). Van Bel et al (2009) consider it as an experience of belonging and familiarity based on personal satisfaction in terms of quantitative and qualitative evaluations of ties and relationships. Lastly, Lee and Robbins (1995) define it as an attribute of the self that reflects cognitions of a lasting interpersonal relationship with the social world as a whole. In other words, it is a cognitive structure that represents patterns of attachment of individuals (Lee & Robbins, 1998). This is based on the accumulation of individual experiences of proximal and distal relationships that provide both a sense of personal identity, as well as a sense of place in society. Nevertheless, despite the

fact that the feeling of social connectedness is a stable attribute, it is not presented as rigid and static. Instead, it is nourished by the interactions and experiences that the individual considers to be the most significant and with the greatest impact throughout their lifetime (Williams & Galliher, 2006). Therefore, it is not possible to ascertain that social connectedness is a trait, or a manner of bonding, because the subjective perception of belonging (Diendorfer et al., 2021), although relatively stable, could also be dynamic. This assumption was initially demonstrated by Mitic et al. (2021), who in their proposed model demonstrated that there are multiple variables that set up social connection, in addition to the fact that cognitions and sense of self are based on many internalized factors that are supported and constantly rectified by the significant social environment. In addition, there are several studies that report how social connectedness varies throughout the different life stages, increasing towards old age (Ang, 2016; Luong et al., 2011; Moran et al., in press).

Most people who feel connected to others or who have a sense of belonging to a social group will easily identify with other people, perceive others as friendly and approachable, and participate in social groups and activities (Lee et al., 2008; Satici et al., 2016). These individuals can reevaluate relationships, make friends, and seek new social ties. On the other hand, people with low social connectedness tend to feel interpersonal distance from others and from the world in general. They may also feel misunderstood and have difficulty relating to other people (Lee & Robbins, 1995). When this state is persistent and generalized, it is psychologically disturbing and potentially debilitating, with consequences such as the inability to maintain relationships and avoidance of social activities for fear of rejection (Eraslan-Capan, 2016; Fatima et al., 2017; Tomova et al., 2021).

In their review study, Hare-Duke et al. (2019) demonstrated an increase in research on social connectedness given its relevance to psychological well-being and mental health today. Furthermore, almost two decades ago, Lee and Robbins (2000) remarked on the worrying concerns that manifested themselves in psychotherapeutic consultations related to the lack of belonging, the lack of group participation, the lack of relationships, and even the lack of connectedness with society. These factors were leading to an increase in social isolation and mistrust towards those who were outside the already established social networks.

Moreover, studies have shown the relationship between social connectedness and several disorder and pathologies (Rossi et al., 2012), including depression (Nguyen et al., 2019) and anxiety (Grover et al., 2018; Kavanagh et al., 2017). It is also considered a variable associated with physical illness (Holt-Lunstad et al., 2010). Additionally, Faro et al. (2019) found that social connectedness has an inverse and significant effect on the suffering of internalized mental problems, which in turn mediates the effect of parenting practices on these disorders. On the other hand, Hashim

et al. (2019) found that social connectedness is an important predictor of negative affect linked to crime, and Savci and Aysan (2019) demonstrated the central role of social connectedness in addictions to multimedia devices. Accordingly, Duru and Poyrazli (2011) showed that high levels of social connectedness are associated with greater social adjustment and fewer difficulties in adjusting to the environment, even when presented with significant cultural differences, which has also been supported by other studies (Yeh & Inose, 2003). Lastly, recent research has also shown the effects of social connectedness to general life satisfaction (Taylor et al., 2020; Zhang et al., 2020), revealing the scope that this construct has in the various domains of individual development.

It was in this framework that the authors identified the need to have instruments intended to evaluate social connectedness and to be able to continue advancing in its study. According to the review by Hare-Duke et al. (2019), there are 21 scales that measure social connectedness from different perspectives, but few of these have studies on their psychometric properties. The authors found that most of the instruments were evaluated for internal consistency, leaving aside other important properties, such as content validity.

The Social Connectedness Scale (SCS) is one of the most widely used instruments, created in the United States by Lee and Robbins (1995). This scale measures how individuals cognitively construe interpersonal closeness with others in their social world (e.g., friends, peers, society). In its initial version, this was an 8-item scale with a one-dimensional factorial structure. However, despite its high internal consistency and its construct validity, the scale had certain psychometric limitations, such as, all of its items being written as negative affirmations (e.g., “I feel disconnected from the world around me”), which may have caused a response bias evidenced in the asymmetric distribution of the responses. As a result, Lee et al. (2001) wrote new items, in positive sense, which were incorporated into the initial version. Additionally, they modified some of the existing items to more accurately reflect the slight deficiencies in the need for belonging. This revised version consists of 20 items which respond to a unifactorial structure with adequate internal consistency ($\alpha = .92$). In addition, several studies have supported the external validity of the scale, relating it to other personality variables such as extraversion, life satisfaction and stress (Lee et al., 2008), as well as anxiety and self-esteem (Lee & Robbins, 1998).

Although the SCS has been used in multiple studies from various cultures and countries, only two psychometric adaptation and validation studies have been reported. The original version was adapted for the Turkish population by Duru (2007), and the revised version was adapted for Italians by Capanna et al. (2013). In both validation studies, evidence of a unidimensional structure was provided

through an exploratory factor analysis, and external validity was demonstrated through the relationships with other variables. The internal consistency and stability of the scale was also substantiated.

Considering the psychometric properties of the Social Connectedness Scale, and the importance of continuing to expand our understanding of this variable, the purpose of this study is to adapt and validate this instrument for the use of research among the Argentinean adult population, providing evidence of content, internal structure, external validity, and internal consistency. Having this tool will facilitate future research on interpersonal behavior in our country, a field of study that is simultaneously growing worldwide.

METHOD

Participants

The sample consisted of 399 Argentinean adults (56.6% female, 41.9% male, 1% preferred not to identify). The age ranged from 18 to 79 years ($M = 29.46$, $SD = 12.09$). The marital status was 34.8% single, 54.4% with a partner, 10.5% separated or divorced, and 0.3% widowed. In regards to education, the participants reported the following: 3.8% completed primary school, 36.6% high school, and 59.6% university. Concerning occupation, 5.5% were business owners, 44.4% were professional employees, 1.8% merchants, 0.8% self-employed, 0.5% skilled workers, 14.8% non-professional employees, 5% informal occupation, 5.3% retired or pensioned, 6.8% unemployed and 11.8% students. The sampling method was non-probabilistic self-selected.

Instruments

Sociodemographic data questionnaire

An ad hoc questionnaire was created to collect sociodemographic information from the participants; such as, gender, age, level of education, profession or employment, and marital status.

Social Connectedness Scale – Revised (Lee et al., 2001)

The Social Connectedness Scale measures the psychological sense of social belonging. Its revised version is made up of 20 items (10 positive and 10 negative) that are answered using a 6-point Likert scale (1 = Strongly disagree to 6 = Strongly agree) and high social connectedness is defined by mean scores of items equal to or greater than 3.5. Studies with American samples reveal a one-dimensional structure with excellent reliability index ($\alpha = .94$).

For the scale adaptation, the translation was carried out using the reverse translation method, in which three bilingual experts translated the items from English to Spanish, and later, two other experts translated from Spanish to English. The author of the test and his team (Lee, personal communications) reviewed the final versions in English and Spanish, and the pertinent modifications were made. These modifications were made preserving the meaning of each statement while respecting the idiomatic and cultural particularities.

IPIP-NEO 120 Extraversion Subscale (Goldberg, 1999)

This subscale has 24 items written in sentences that state typical behaviors that allow the Extraversion factor to be measured according to the Big Five Factors Theory (McCrae & Costa, 1992). It uses a Likert-type scale with five response options ranging from *Strongly Disagree with this description of myself*, to *Strongly agree with this description of myself*, asking the participants to detail the precision with which they feel each statement describes their personality. The version adapted and validated for the Argentinean population will be used. This version presents a satisfactory internal structure analysis and a reliability index of $\alpha = .84$ (Ponce, 2016).

Social Phobia and Anxiety Inventory – Brief form, SPAI – B (Garcia-Lopez et al., 2008)

This questionnaire evaluates symptoms of phobia and social avoidance. It is made up of 16 items and a 5-point rating scale. The participants will have to answer to the frequency with which the situation described in the statement occurs (1 = Never, 5 = Always). An exploratory and confirmatory factor analysis demonstrated a unifactorial structure with excellent internal consistency in Argentinean samples ($\alpha = .85$) (Moran et al., 2019).

Procedures

The data was collected online using google forms platform. The invitation to participate was distributed randomly throughout adult social network accounts within the Argentinean territory. Participants were informed about the purpose of the study prior to participation, and entry to the questionnaire was not enabled until they expressed their agreement with the informed consent, wherein the goal, the voluntary nature of their participation, and the confidential nature of the study was described. The ethical issues considered were approved by Universidad Siglo 21 Research Project Evaluation Committee.

Concerning data analysis, first, expert judges evaluated the cultural, semantic, syntax and content of the items. For this purpose, an item evaluation protocol was distributed to three experts in the evaluation of constructs related to interpersonal relationships, and to experts in the construction and adaptation of psychometric tests. Aiken's V coefficient was used to determine the agreement between judges regarding the quality of the items. Additionally, to calculate the confidence intervals of each coefficient, the score method was used since it does not depend on the normal distribution of the variable, and it is highly accurate (Soto & Segovia, 2009).

Second, a confirmatory factor analysis was carried out using Mplus software and the diagonally weighted least squares (DWLS) estimation method, which is suitable for ordinal type variables. To evaluate the fit of the one factor model, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA) and the Weighted Residual Mean Square (WRMR) was used. Values between .90 and .95, or higher for CFI and TLI, are considered acceptable to excellent fit. Values between .05 and .08 are expected for RMSEA and values lower than 1 for the WRMR (Yu & Muthen, 2002). To assess whether the factorial structure differs according to sex, an invariance analysis was performed for the configural model, the metric model, and the scalar model.

Third, to analyze the internal consistency of the scale, the composite reliability index (ω) was calculated. When structural equation modeling is performed, many authors recommend using this index, instead of Cronbach's alpha, because it is based on the item weights rather than covariances, thus allowing better estimations of latent variables reliability (Dunn et al., 2014; Padilla & Divers, 2016; Peterson & Kim, 2013).

Finally, the relationship between the test and other variables was analyzed using the Pearson correlation coefficient, applying Cohen's interpretation criteria (Cohen, 1988) that states that a small effect size is considered when the correlation is below .10, average around .30, and large when greater than .50.

RESULTS

Content validity

First, the agreement between judges was calculated in relation to the quality of the translated items, of which 17 obtained satisfactory results, presenting V coefficients higher than .80 with confidence intervals (CI) between 95% and 99% (Table 1). Moreover, two items presented V coefficients of .75. These items were retained since they were considered relevant as indicators of the construct. Lastly, one item (item 20) presented a value of .42. This item was revised following the experts' recommendations, who subsequently re-evaluated it, resulting in $V = 1$ (CI 99% [.65-1.00]).

Table 1
Aiken's coefficients and confidence intervals

	V	CI %	CI L-H
Item 1	.92	99	.55-.99
Item 2	1.00	99	.65-1.00
Item 3	.75	90	.51-.89
Item 4	1.00	99	.65-1.00
Item 5	.88	99	.51-.98
Item 6	1.00	99	.65-1.00
Item 7	.75	99	.51-.89
Item 8	.83	95	.55-.95
Item 9	.92	99	.55-.99
Item 10	1.00	99	.65-1.00
Item 11	1.00	99	.65-1.00
Item 12	1.00	99	.65-1.00
Item 13	.75	90	.51-.89
Item 14	1.00	99	.65-1.00
Item 15	1.00	99	.65-1.00
Item 16	1.00	99	.65-1.00
Item 17	1.00	99	.65-1.00
Item 18	.92	99	.55-.99
Item 19	.92	99	.55-.99
Item 20	.41	90	.22-.64

Note: V = Aiken's coefficient; CI = Confidence interval; L= low limit; H = high limit.

Descriptive analysis

Regarding the data, there were five univariate atypical cases (Z scores $> \pm 3.29$) and 18 multivariate atypical cases (Mahalanobis, $p < .001$), which were all retained since the elimination of these could mean a limitation in the generalization of the results (Hair et al., 2006). A descriptive data analysis was performed and descriptive statistics of the items were calculated. Additionally, the frequency of the responses was analyzed, finding that all response options were selected for all items. Regarding the distribution, as seen in Table 2, the skewness and kurtosis values were adequate and excellent according to the George and Mallery (2001) criteria, which conform to a normal type distribution.

The total scores presented a normal distribution given their skewness (-0.8) and kurtosis (0.18) values. The total mean score was 88.07 ($SD = 17.69$) and the mean item score was 4.40 ($SD = 0.88$). Regarding the social connectedness scores of the sample, it was observed that 85% of the participants presented high levels of social connectedness.

Furthermore, differences in social connectedness according to sex were evaluated, finding that women had a higher mean than men, but these differences were not significant ($t = .86$; $p = .39$).

Table 2
Descriptive statistics and standardized regression weights of 20 items

	<i>M</i>	<i>SD</i>	<i>S</i>	<i>K</i>	β
Item1	3.99	1.37	-0.35	-0.71	.37**
Item2	3.95	1.35	-0.40	-0.46	.63**
Item3	4.93	1.42	-1.31	0.67	.57**
Item4	4.55	1.26	-0.85	0.24	.59**
Item5	4.47	1.28	-0.80	0.11	.71**
Item6	4.54	1.43	-0.69	-0.54	.63**
Item7	2.70	1.58	0.60	-0.80	.70**
Item8	3.77	1.38	-0.26	-0.65	.54**
Item9	4.65	1.51	-0.85	-0.47	.76**
Item10	4.36	1.34	-0.86	0.10	.61**
Item11	4.29	1.53	-0.61	-0.68	.82**
Item12	5.04	1.13	-1.35	1.61	.73**
Item13	4.40	1.49	-0.68	-0.60	.70**
Item14	4.05	1.34	-0.52	-0.37	.62**
Item15	4.46	1.55	-0.74	-0.54	.67**

Table 2 (continued)*Descriptive statistics and standardized regression weights of 20 items*

	<i>M</i>	<i>SD</i>	<i>S</i>	<i>K</i>	β
Item16	5.03	1.14	-1.30	1.38	.67**
Item17	3.72	1.71	-0.14	-1.21	.53**
Item18	4.13	1.68	-0.49	-1.06	.69**
Item19	4.60	1.41	-0.87	-0.01	.45**
Item20	4.83	1.56	-1.20	0.27	.76**

Note: *M* = Medium; *SD* = Standard Deviation; *S* = Skewness; *K*= Kurtosis; β = Standardized regression weights.

** $p \leq .001$

Confirmatory factor analysis

The original 20-item model presented a significant $X^2(828.27; p \leq .001)$ but satisfactory fit indices (CFI = .91, TLI = .90, RMSEA = .09 [CI 90% .09-.10], WRMR = 1.42). The standardized regression coefficients of the model presented significant values between .37 and .82 (Table 2). The internal consistency of the scale was evaluated by calculating the composite reliability, obtaining $\omega = .92$, a value considered very good by the literature.

Invariance analysis

The model presented good fit indexes for both women ($X^2= 611.49; p \leq .001$; CFI = .90, TLI = .89, RMSEA = .10 [CI 90% .09-.11], WRMR = 1.19) and men ($X^2= 490.12; p \leq .00$; CFI = .91, TLI = .90, RMSEA = .10 [CI 90% .09-.11], WRMR = 1.18).

The invariance analysis of the configural, metric and scalar model by sex obtained satisfactory fit indices (Table 3), but the X^2 differences between the base model (configural) and the metric model were significant. However, the chi-square test is sensitive to sample size and many researchers suggest avoiding the evaluation of measurement invariance based only on this criterion. Instead, they propose alternative fit indices depending on the invariance evaluated (Hong et al., 2003; Putnick & Bornstein, 2016).

Thus, based on Chen's (2007) criteria, it is indicated that in the metric model there were no significant alterations in the fit since there was no decrease greater than 0.10 in the CFI or an increase greater than 0.015 in the RMSEA. Lastly, the differences with the scalar model were not significant, thus it is determined that the scale is invariant for both sexes.

Table 3*Fit indices in the factorial invariance analysis according to sex*

	X^2	<i>df</i>	CFI	TLI	RMSEA	WRMR	ΔX^2	Δ CFI	Δ RMSEA
<i>Configural</i>	852.40**	361	.935	.932	.083	2.25			
<i>Metric</i>	907.23**	359	.928	.923	.088	1.91	54.83**	<.01	<.01
<i>Scalar</i>	925.57**	459	.938	.949	.072	2.01	73.17	<.01	.01

Note: *df* = degrees of freedom; ΔX^2 = Difference in the Chi Square; Δ CFI = Difference in the CFI; Δ RMSEA = Difference in the RMSEA.

** $p \leq .001$

External validity

The relationship between the scale and other variables was evaluated. In the discriminant validity study, SCS scores were significantly and inversely correlated ($r = -.61$; $p \leq .001$) with social anxiety scores. In the convergent validity study, the correlation with the extraversion scores was significant, moderate, and positive ($r = .37$; $p \leq .001$).

DISCUSSION

The main purpose of this study was to adapt the Social Connectedness Scale to Argentinean adult samples and to evaluate the psychometric properties of this version. According to the standards for psychological tests proposed by American Educational Research Association [AERA] et al. (2014), the translation of a test from one language to another does not guarantee that the psychometric properties of the original version, nor some characteristics of the items, will be maintained in the new version, for which it is recommended that evidence of validity and reliability of the translated versions be collected and reported (International Test Commission, 2017).

Based on this, the scale was translated adapting the expressions to the Argentinean context whilst preserving the meaning of each item. The translated version was subjected to the evaluation of experts who indicated that the expressions and situations presented were culturally appropriate and clear at a syntactic and semantic level. This process not only provides content validity to the scale, but also allows to inquire about the compatibility of the experiences and meanings contained in each item of both versions, properties which were scarcely evaluated in the previous studies of different scales measuring social connectedness (Hare-Duke et al., 2019).

In regards to the psychometric properties of the translated scale, the data supports a one-dimensional structure coinciding with the structure presented in the original version proposed by Lee et al. (2001). The data also demonstrates the scale is invariant according to sex, both in the factorial structure, the regression weights of the items, as well as the intercept values. These results show that it is possible to determine that the SCS provides a measure of social connectedness as a global construct. However, other scales define it as a concept made up of different dimensions, for example, Relationship salience, Shared understandings, Knowing each other's experiences, Feelings of closeness, and Dissatisfaction with contact quality (Van Bel et al., 2009). In addition, there are other social connectedness scales that present factorial solutions where each dimension represents the social group the item is about (Carroll et al., 2017; Karcher & Sass, 2010). In this sense, future research and theoretical developments could further expand on the nature of the construct.

Regarding the reliability of the SCS-R, the internal consistency of the Argentinean version was satisfactory, obtaining a similar result to that obtained in American samples (Lee et al., 2001), and slightly better than in the Italian (Capanna et al., 2013) and Turkish samples (Duru, 2007). These values are also consistent with those found in other studies in which the scale has been used (Grieve et al., 2013; Satici et al., 2016; Sinclair & Grieve, 2017; Yeh & Inose, 2003). Even though the interpretation is similar, in this study we calculated the composite reliability, while other psychometrics studies calculated Cronbach's alpha. According to Peterson and Kim (2013), composite reliability should be calculated when structural equation modeling is used. In this approach, construct weights are allowed to vary offering better estimates of true reliability, in contrast to Cronbach's alpha which assumes equal score variance (Bacon et al., 1995).

Moreover, convergent-discriminant validity analyses were performed. A moderate and positive correlation was found between social connectedness scores and extraversion scores. In a study on subjective well-being, Lee et al. (2008) had already shown psychometrically the relationship between social connectedness and extraversion, and empirically reaffirmed that both constructs appear to be similar, but are theoretically different, since social connectedness does not include the motivational component of the behavior. The nature of the relationship between social connectedness and extraversion lies in the fact that the latter it is a personality trait, constituting a factor that predisposes an individual to certain behaviors, choices and interests. From an instrumental approach, extroverts seek to a greater extent to establish relationships and spend time with others, which broadens the possibility of exchanges and the creation of social ties that reward and contribute to the sense of social connectedness (McCrae & Costa, 1991).

However, this does not indicate that they present greater relationship satisfaction when compared to introverts (Lucas & Baird, 2004). In fact, it is about the perception of belonging and availability of others (Swickert et al., 2002).

On the other hand, negative and strong correlations were found between the SCS-R, phobia and social anxiety scores, accounting for the inverse relationship between both variables, and consequently, providing evidence of discriminant validity. Some of the main consequences ensuing from social anxiety are observed in the interactions with others, negatively affecting the establishment and maintenance of positive relationships, the integration and participation in social groups, as well as acceptance by others (Rubin et al., 2009), which impacts the development of the sense of belonging, acknowledgement and satisfaction with the quality of relationships that the person establishes. Along these lines, there are numerous studies that support the negative relationship between social connectedness and social anxiety (Fatima et al., 2017; Kavanagh et al., 2017; Savci & Aysan, 2019).

In addition to the studies mentioned, further evaluations were carried out to observe whether there were differences according to sex. As a result, it was found that there are no significant differences between men and women, concurring with results reported in previous psychometric studies (Capanna et al., 2013; Lee et al., 2001), as well as in other empirical studies (Lee et al., 2002; Lee & Robbins, 2000). These findings allow us to infer that both men and women value social connectedness equally, although it does not imply that they value it in the same way (Lee & Robbins, 2000). In fact, Baumeister and Sommer (1997) stated that women develop social connectedness through intimacy and physical closeness, while men develop it by social comparison to others.

Regarding the levels of social connectedness in the sample, it was found that the majority (85%) tend to feel socially connected. This percentage, as well as the average scores, were found to be similar to the values reported by Lee et al. (2001) in American samples and by Capanna et al. (2013) in Italian samples. Nevertheless, to extend these conclusions to the Argentinean population, it is necessary to expand the sample size and to use probabilistic sampling methods in order to achieve greater representativeness (Otzen & Manterola, 2017). Moreover, the cut-off points to establish the levels of social connectedness were determined by the authors based on the range of scores that the test yields. In this case, the higher the score, the higher the level of social connectedness. Seeing as this is a construct that cannot be interpreted based on a single criterion, it would be appropriate to establish cut-off points that allow an interpretation based on norms (AERA et al., 2014).

Another limitation of this study refers to the data collection carried out online, which excludes individuals who do not participate in social media (such

as Facebook or Instagram) or who do not have internet access. Therefore, future studies on the psychometric properties of the scale should include these individuals, as well as carry out evaluations that can examine the differences between online and face-to-face, pencil and paper administration. Lastly, it is essential to carry out further psychometric studies on the scores provided by the scale, for example, stability analysis, analysis between clinical and non-clinical groups, post intervention analysis, and creation of norms for the establishment of cut-off points for interpretation.

Nevertheless, with the results obtained in this study, it is now possible to use the Social Connectedness Scale to carry out further research among Argentinean adults, making progress in the field of study of interpersonal behavior and understanding of this variable in Latin America.

REFERENCES

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education [AERA, APA, NCME] (2014). *Standards for educational and psychological testing*. American Educational Research Association.
- Ang, C. S. (2016). Types of social connectedness and loneliness: The joint moderating effects of age and gender. *Applied Research in Quality of Life*, *11*(4), 1173-1187. <https://doi.org/10.1007/s11482-015-9428-5>
- Bacon, D. R., Sauer, P. L., & Young, M. (1995). Composite reliability in structural equations modeling. *Educational and Psychological Measurement*, *55*(3), 394-406. <https://doi.org/10.1177/0013164495055003003>
- Baumeister, R. F., & Sommer, K. L. (1997). What do men want? Gender differences and two spheres of belongingness: Comment on Cross and Madson (1997). *Psychological Bulletin*, *122*(1), 38-44. <https://doi.org/10.1037/0033-2909.122.1.38>
- Capanna, C., Stratta, P., Collazzoni, A., D'Ubaldo, V., Pacifico, R., Di Emidio, G., Ragusa, M., & Rossi, A. (2013). Social connectedness as resource of resilience: Italian validation of the Social Connectedness Scale - Revised. *Journal of Psychopathology*, *19*(4), 320-326. <https://bit.ly/3dGXP8>
- Carroll, A., Bower, J. M., & Muspratt, S. (2017). The conceptualization and construction of the self in a social context – Social Connectedness Scale: A multidimensional scale for high school students. *International Journal of Educational Research*, *81*, 97-107. <https://doi.org/10.1016/j.ijer.2016.12.001>
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, *14*(3), 464-504. <https://doi.org/10.1080/10705510701301834>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.
- Diendorfer, T., Seidl, L., Mitic, M., Mittmann, G., Woodcock, K., & Schrank, B. (2021). Determinants of social connectedness in children and early adolescents with mental disorder: A systematic literature review. *Developmental Review*, *60*, 100960. <https://doi.org/10.1016/j.dr.2021.100960>

- Dunn, T. J., Baguley, T., & Brunnsden, V. (2014). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *British Journal of Psychology*, *105*(3), 399-412. <https://doi.org/10.1111/bjop.12046>
- Duru, E. (2007). An adaptation study of social connectedness scale in Turkish culture. *Eurasian Journal of Educational Research*, *26*, 85-94. <https://bit.ly/2P7Hk4H>
- Duru, E., & Poyrazli, S. (2011). Perceived discrimination, social connectedness, and other predictors of adjustment difficulties among Turkish international students. *International Journal of Psychology*, *46*(6), 446-454. <https://doi.org/10.1080/00207594.2011.585158>
- Eraslan-Capan, B. (2016). Social connectedness and flourishing: The mediating role of hopelessness. *Universal Journal of Educational Research*, *4*(5), 933-940. <https://doi.org/10.13189/ujer.2016.040501>
- Faro, A. L., McKee, L. G., Garcia, R. L., & O'Leary, J. L. (2019). Emotion socialization, social connectedness and internalizing symptoms in emerging adults. *Journal of Applied Developmental Psychology*, *64*, 101051. <https://doi.org/10.1016/j.appdev.2019.101051>
- Fatima, M., Niazi, S., & Ghayas, S. (2017). Relationship between self-esteem and social anxiety: Role of social connectedness as a mediator. *Pakistan Journal of Social and Clinical Psychology*, *15*(2), 12-17. <https://bit.ly/3r68xmF>
- Garcia-Lopez, L. J., Hidalgo, M. D., Beidel, D. C., Olivares, J., & Turner, S. (2008). Brief form of the Social Phobia and Anxiety Inventory (SPAI-B) for adolescents. *European Journal of Psychological Assessment*, *24*(3), 150-156. <https://doi.org/10.1027/1015-5759.24.3.150>
- George, D., & Mallery, M. P. (2001). *Using SPSS for Windows step by step: A simple guide and reference*. Allyn & Bacon.
- Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. *Personality psychology in Europe*, *7*(1), 7-28. <https://bit.ly/3pMxq5g>
- Grieve, R., Indian, M., Witteveen, K., Anne Tolan, G., & Marrington, J. (2013). Face-to-face or Facebook: Can social connectedness be derived online? *Computers in Human Behavior*, *29*(3), 604-609. <https://doi.org/10.1016/j.chb.2012.11.017>
- Grover, S., Avasthi, A., Sahoo, S., Lakdawala, B., Dan, A., Nebhinani, N., ... Suthar, N. (2018). Relationship of loneliness and social connectedness with depression in elderly: A multicentric study under the aegis of Indian Association for Geriatric Mental Health. *Journal of Geriatric Mental Health*, *5*(2), 99. https://doi.org/10.4103/jgmh.jgmh_26_18
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Pearson Education.
- Hare-Duke, L., Denning, T., de Oliveira, D., Milner, K., & Slade, M. (2019). Conceptual framework for social connectedness in mental disorders: Systematic review and narrative synthesis. *Journal of Affective Disorders*, *245*, 188-199. <https://doi.org/10.1016/j.jad.2018.10.359>
- Hashim, I. H. M., Mohd-Zaharim, N., Karupiah, P., Selamat, N. H., Endut, N., & Azman, A. A. (2019). Crime and social connectedness in Malaysian gated communities. *Social Indicators Research*. <https://doi.org/10.1007/s11205-018-2046-5>
- Haslam, C., Cruwys, T., Haslam, S. A., Jetten, J., (2015). Social connectedness and health. *Encyclopedia of geropsychology*, 2174-2182. <https://doi.org/10.1007/978-981-287-080-3>
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A Meta-analytic review. *PLOS Medicine*, *7*(7), e1000316. <https://doi.org/10.1371/journal.pmed.1000316>

- Hong, S., Malik, M. L., & Lee, M.-K. (2003). Testing configural, metric, scalar, and latent mean invariance across genders in sociotropy and autonomy using a non-western sample. *Educational and Psychological Measurement*, 63(4), 636-654. <https://doi.org/10.1177/0013164403251332>
- Hutcherson, C. A., Seppala, E. M., & Gross, J. J. (2008). Loving-kindness meditation increases social connectedness. *Emotion*, 8(5), 720-724. <https://doi.org/10.1037/a0013237>
- International Test Commission (2017). ITC guidelines for translating and adapting tests (2nd ed.). *International Journal of Testing*, 18(2), 101-134. <https://doi.org/10.1080/15305058.2017.1398166>
- Karcher, M. J., & Sass, D. (2010). A multicultural assessment of adolescent connectedness: Testing measurement invariance across gender and ethnicity. *Journal of Counseling Psychology*, 57(3), 274-289. <https://doi.org/10.1037/a0019357>
- Kavanagh, B. E., Harvey, J. T., & Mesagno, C. (2017). Social anxiety mediates the relationship between social connectedness and test anxiety: An exploratory investigation. *Journal of Theoretical Social Psychology*, 1(2), 60-69. <https://doi.org/10.1002/jts5.14>
- Lee, R. M., Dean, B. L., & Jung, K.-R. (2008). Social connectedness, extraversion, and subjective well-being: Testing a mediation model. *Personality and Individual Differences*, 45(5), 414-419. <https://doi.org/10.1016/j.paid.2008.05.017>
- Lee, R. M., Draper, M., & Lee, S. (2001). Social connectedness, dysfunctional interpersonal behaviors, and psychological distress: Testing a mediator model. *Journal of Counseling Psychology*, 48(3), 310-318. <https://doi.org/10.1037/0022-0167.48.3.310>
- Lee, R. M., Keough, K. A., & Sexton, J. D. (2002). Social connectedness, social appraisal, and perceived stress in college women and men. *Journal of Counseling & Development*, 80(3), 355-361. <https://doi.org/10.1002/j.1556-6678.2002.tb00200.x>
- Lee, R. M., & Robbins, S. B. (1995). Measuring belongingness: The Social Connectedness and the Social Assurance scales. *Journal of Counseling Psychology*, 42(2), 232-241. <https://doi.org/10.1037/0022-0167.42.2.232>
- Lee, R. M., & Robbins, S. B. (1998). The relationship between social connectedness and anxiety, self-esteem, and social identity. *Journal of Counseling Psychology*, 45(3), 338-345. <https://doi.org/10.1037/0022-0167.45.3.338>
- Lee, R. M., & Robbins, S. B. (2000). Understanding social connectedness in college women and men. *Journal of Counseling & Development*, 78(4), 484-491. <https://doi.org/10.1002/j.1556-6676.2000.tb01932.x>
- Lucas, R. E., & Baird, B. M. (2004). Extraversion and emotional reactivity. *Journal of Personality and Social Psychology*, 86(3), 473-485. <https://doi.org/10.1037/0022-3514.86.3.473>
- Luong, G., Charles, S. T., & Fingerman, K. L. (2011). Better with age: Social relationships across adulthood. *Journal of Social and Personal Relationships*, 28(1), 9-23. <https://doi.org/10.1177/0265407510391362>
- McCrae, R. R., & Costa, P. T. (1991). Adding liebe und arbeit: The full five-factor model and well-being. *Personality and Social Psychology Bulletin*, 17(2), 227-232. <https://doi.org/10.1177/014616729101700217>
- McCrae, R. R., & Costa, P. T. (1992). Discriminant validity of NEO-PIR facet scales. *Educational and Psychological Measurement*, 52(1), 229-237. <https://doi.org/10.1177/001316449205200128>
- Mitic, M., Woodcock, K. A., Amering, M., Krammer, I., Stiehl, K. A. M., Zehetmayer, S., & Schrank, B. (2021). Toward an integrated model of supportive peer relationships in early adolescence: A systematic review and exploratory meta-analysis. *Frontiers in Psychology*, 12, 589403. <https://doi.org/10.3389/fpsyg.2021.589403>

- Morán, V. E., Azpilicueta, A. E., Cupani, M., & García-Lopez, L. J. (2019). Validación del Inventario de Fobia y Ansiedad Social – Forma Breve para universitarios argentinos. *Revista Avaliação Psicológica*, 18(02). <https://doi.org/10.15689/ap.2019.1802.16760.05>
- Moran, V. E., Fabbro, N., & Curi, M. V. (in press). Conexión social en adultos argentinos. Estudio descriptivo según variables sociodemográficas. *Psicodebate*.
- Nguyen, M. H., Le, T. T., & Meirmanov, S. (2019). Depression, acculturative stress, and social connectedness among international university students in Japan: A statistical investigation. *Sustainability*, 11(3), 878. <https://doi.org/10.3390/su11030878>
- Otzen, T., & Manterola, C. (2017). Técnicas de muestreo sobre una población a estudio. *International Journal of Morphology*, 35(1), 227-232. <https://doi.org/10.4067/S0717-95022017000100037>
- Padilla, M. A., & Divers, J. (2016). A comparison of composite reliability estimators: Coefficient omega confidence intervals in the current literature. *Educational and Psychological Measurement*, 76(3), 436-453. <https://doi.org/10.1177/0013164415593776>
- Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. *Journal of Applied Psychology*, 98(1), 194-198. <https://doi.org/10.1037/a0030767>
- Ponce, G. (2016). *Evidencias de validez del Inventario International Personality Item Pool NEO (IPIP-NEO) y su versión resumida IPIP-NEO-120*. (Unpublished grade dissertation). Universidad Nacional de Córdoba.
- Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review*, 41, 71-90. <https://doi.org/10.1016/j.dr.2016.06.004>
- Rossi, A., Stratta, P., & Capanna, C. (2012). Social connectedness and psychopathology. *Journal of Psychopathology*, 18(4), 305-308. <https://bit.ly/377VwUB>
- Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology*, 60(1), 141-171. <https://doi.org/10.1146/annurev.psych.60.110707.163642>
- Satici, S. A., Uysal, R., & Deniz, M. E. (2016). Linking social connectedness to loneliness: The mediating role of subjective happiness. *Personality and Individual Differences*, 97, 306-310. <https://doi.org/10.1016/j.paid.2015.11.035>
- Savci, M., & Aysan, F. (2019). A hypothetical model proposal for social connectedness in adolescents. *Türk Psikolojik Danışmave Rehberlik Dergisi*, 9(54), 589-621. <https://bit.ly/2NOevcR>
- Sinclair, T. J., & Grieve, R. (2017). Facebook as a source of social connectedness in older adults. *Computers in Human Behavior*, 66, 363-369. <https://doi.org/10.1016/j.chb.2016.10.003>
- Soto, C. M., & Segovia, J. L. (2009). Intervalos de confianza asimétricos para el índice la validez de contenido: Un programa Visual Basic para la V de Aiken. *Anales de psicología*, 25(1), 159-161. <https://bit.ly/2NWjacB>
- Stavrova, O., & Luhmann, M. (2016). Social connectedness as a source and consequence of meaning in life. *The Journal of Positive Psychology*, 11(5), 470-479. <https://doi.org/10.1080/17439760.2015.1117127>
- Swickert, R. J., Rosentreter, C. J., Hittner, J. B., & Mushrush, J. E. (2002). Extraversion, social support processes, and stress. *Personality and Individual Differences*, 32(5), 877-891. [https://doi.org/10.1016/S0191-8869\(01\)00093-9](https://doi.org/10.1016/S0191-8869(01)00093-9)
- Taylor, C. T., Pearlstein, S. L., & Stein, M. B. (2020). A tale of two systems: Testing a positive and negative valence systems framework to understand social disconnection across anxiety and depressive disorders. *Journal of Affective Disorders*, 266, 207-214. <https://doi.org/10.1016/j.jad.2020.01.041>

- Tomova, L., Andrews, J. L., & Blakemore, S.-J. (2021). The importance of belonging and the avoidance of social risk taking in adolescence. *Developmental Review, 61*, 100981. <https://doi.org/10.1016/j.dr.2021.100981>
- Van Bel, D. T., Smolders, K., IJsselsteijn, W. A., & de Kort, Y. (2009). Social connectedness: concept and measurement. In V. Callaghan, A. Kameas, A. Reyes, D. Royo & M. Weber (Eds.), *Proceedings of the 5th International Conference on Intelligent Environments*. IOS Press.
- Williams, K. L., & Galliher, R. V. (2006). Predicting depression and self-esteem from social connectedness, support, and competence. *Journal of Social and Clinical Psychology, 25*(8), 855-874. <https://doi.org/10.1521/jscp.2006.25.8.855>
- Yeh, C. J., & Inose, M. (2003). International students' reported English fluency, social support satisfaction, and social connectedness as predictors of acculturative stress. *Counselling Psychology Quarterly, 16*(1), 15-28. <https://doi.org/10.1080/0951507031000114058>
- Yu, C. Y., & Muthén, B. (2002). *Evaluation of model fit indices for latent variable models with categorical and continuous outcomes*. [Paper presentation]. Annual meeting of the American Educational Research Association, New Orleans, LA, United States.
- Zhang, Y., Dong, K., & Zhao, G. (2020). The mediating role of social connectedness in the effect of positive personality, alexithymia and emotional granularity on life satisfaction: Analysis based on a structural equation model. *Personality and Individual Differences, 110*473. <https://doi.org/10.1016/j.paid.2020.110473>