

UCLA LONELINESS SCALE IN NEPAL

Durga Bhusal

Asst. Professor, Department of Population Studies, Butwal Multiple Campus, T. U.

Keshab Prasad Adhikari

Professor, Central Department of Population Studies, T. U.

Hom Nath Chalise

Faculty Member, Central Department of Population Studies, T. U.

Article History: Received 11 July 2023; Reviewed 30 September 2023; Revised 12 December 2023; Accepted 16 December 2023

ABSTRACT

The intention of this examination was to present innovative empirical evidence regarding the adaptation of the UCLA Loneliness Scale to Nepal and investigate the validity and reliability of the scale for Nepalese young elderly. The participants in this study were 513 young senior citizens aged in the age range 60 and 74. Among the participants, 243 (47.4%) were male, 270 (52.6%) were female and the mean age was found to be 65.86 (SD = 4.203). Principal Component Analysis (PCA) and Maximum Likelihood Analysis were used to evaluate the UCLA loneliness scale. The factor analysis resulted in one factor, where factor loadings of the items varied between 0.561 and 0.784 measuring in SPSS 20. The LISREL 8.8 program showed the factor loadings through ordinal analysis in the range of 0.695 and 0.917, and accordingly calculated Average Variance Explained (AVE) was 0.72. The computation of Cronbach alpha level was 0.945 and composite reliability was 0.98 in the examination of internal consistency of the variables. Findings suggested that the UCLA loneliness scale was found appropriate for use among Nepalese young senior citizens.

Key Words: *confirmatory factor analysis, Nepal, principal component analysis, UCLA loneliness scale.*

INTRODUCTION

Loneliness, feeling of being alone even in a group, produces in an individual with a condition that has less satisfying relations than desired. Studying loneliness is not to underestimate its importance because of its widespread phenomenon, which is faced by most people at some point in their lives. Use and abuse of many stimulants may be the methods used by lonelier to cope with loneliness that may result in suicide or even homicide like terrible experience. These probable disastrous attempts must be prevented from the society by investigating such issues through research. Functional MRI studies have shown that lonely people perceive social situations differently to non-

lonely people (Lim et al., 2020). Triggers (moving away from home, divorce, illness, death of a spouse, friend, or relative, or becoming a parent) do not directly lead to loneliness because every individual holds a level of risk of experiencing problematic loneliness. It is difficult to determine how and when loneliness becomes a problem. Loneliness appearing as the unidimensional construct contains different faces (Kwiatkowska et al., 2017). Introverted and interactive potential are both features of loneliness that make the human experience paradoxical (Weeks, 1994). The conceptual and the theoretical ground of loneliness is complex because of its own way of entrance, and level of interaction for the social engagement of the people. The people choosing the way of perceiving social environment is a subjective reality (Bofill, 2004). Negative thought advances in the mind based on the kind of issues; however, the only great behavior of an individual towards the situation is the ability to resist the development of the negative thought.

Loneliness has been defined as a subjective experience in which the relationships of the individual are fewer or less satisfying than the desired level (Lim et al., 2020). The importance of studying loneliness should not be underestimated particularly while studying its level on senior citizens. It is a phenomenon that is widespread and which is faced by most people at some point in their lives (Zakahi & Duran, 1982). According to the Austro-American psychoanalyst Heinz Kohut, developer of the school of self-psychology, people need to feel that they have the subjective sense of dyadic attachments or community connectedness, which helps to avoid the feeling of loneliness (Chipuer, 2001).

UCLA Loneliness Scale is the most common self-report loneliness instrument (Wu & Yao, 2008) through which subjective feeling of loneliness is evaluated. In support of the wide use of the UCLA Loneliness Scale, this study of loneliness concentrates in young elderly population. The initial version of the UCLA Loneliness Scale consisted of 20 statements that reflected the way to describe the experience of the respondents feeling lonely. In more research that is recent, the use of the UCLA Loneliness Scale instrument with population of senior citizens has become common rather than with the college students as in previous researches (D. W. Russell, 1996). Most research on loneliness has been based on one instrument, the UCLA Loneliness Scale that has come to be viewed as the standard scale in the area (Shaver & Brennan, 1991).

To address the concerns, the determination of this study was designed to confirm the UCLA Loneliness Scale with a sample of Nepalese young senior citizens in Nepal. Since, the validation of the UCLA Loneliness Scale on Nepalese samples will contribute with new knowledge.

METHODS AND MATERIALS

Instrument to Collect Data

The UCLA Loneliness Scale was used to collect data. In order to adapt the scale to Nepalese young elderly population, a separate translation study was not conducted. The items of the UCLA Loneliness Scale translated by the researcher in Nepalese language within the praiseworthy suggestion of two experts-Professors of the Tribhuvan University. Then, the translation was used to take information from the respondents.

Participants and Procedure

A total 513 young senior citizens inhabitant of Butwal sub metropolitan city were participated in this study to get extra credits in the research. Two hundred and forty-three of the subjects were male (Mean age = 66.46, SD = 4.14) and 270 of the subjects were female (Mean age = 65.32, SD = 4.19). Information of this study was taken through face-to-face interview. Participants who were

requested showed their interest in this study and asked 20 items one by one spending 30 minutes to each participant. Regarding test administration, researcher first explained how to answer questions, and then participants became ready to answer the questionnaires on their self-report.

Instruments to Analyze Data Collected

This UCLA Loneliness Scale contains the 20 items. The study employed a 4-point Likert scale with values ranging from “never” to “often”. LISREL 8.8 program was also used for the purpose of confirmatory factor analysis with maximum likelihood test.

Data Analysis

SPSS 20 version and <https://oconnor-psych.ok.ubc.ca/nfactors/rawpar.sps> for parallel analysis were used in data analysis. In order to evaluate reliability, internal consistency coefficient Cronbach alpha value and composite reliability were computed. In order to detect construct validity Confirmatory Factor Analysis was conducted in LISREL 8.8 program.

RESULTS

The initial version of the UCLA Loneliness Scale used in this research consisted of 20 statements that reflected how lonely individuals described their experience (D. Russell et al., 1978). Table 1 below expresses the responses of the respondents with four options provided with each statement to measure the unpleasant angle of loneliness. The pleasant experience of loneliness through meditation is a positive angle (de Jong Gierveld, 1998) is inconsistent with the concept of loneliness to measure assumed in this scale.

Table 1: Distribution of respondents by individual statement of UCLA loneliness scale and response category

S.N.	Statement to measure loneliness feeling	Response (Row percent of 513 cases)			
		Never	Rarely	Sometimes	Often
1	I am unhappy doing so many things alone.	305 (59.5)	123 (24.0)	65 (12.7)	20 (3.9)
2	I have nobody to talk to.	230 (44.8)	126 (24.6)	119 (23.2)	38 (7.4)
3	I cannot tolerate being so alone.	157 (30.6)	40 (7.8)	142 (27.7)	174 (33.9)
4	I lack companionship.	230 (44.8)	105 (20.5)	129 (25.1)	49 (9.6)
5	I feel as if nobody really understands me.	167 (32.6)	43 (8.4)	128 (25.0)	175 (34.1)
6	I find myself waiting for people to call or write.	190 (37.0)	65 (12.7)	117 (22.8)	141 (27.5)
7	There is no one I can turn to.	210 (40.9)	146 (28.5)	105 (20.5)	52 (10.1)
8	I am no longer close to anyone.	264 (51.5)	147 (28.7)	73 (14.2)	29 (5.7)
9	Those around me do not share my interests and ideas.	202 (39.4)	68 (13.3)	181 (35.3)	62 (12.1)
10	I feel left out.	349 (68.0)	107 (20.9)	36 (7.0)	21 (4.1)
11	I feel completely alone.	339 (66.1)	108 (21.1)	41 (8.0)	25 (4.9)

12	I am unable to reach out and communicate with those around me.	321 (62.6)	109 (21.2)	49 (9.6)	34 (6.6)
13	My social relationships are superficial.	147 (28.7)	43 (8.4)	164 (32.0)	159 (31.0)
14	I feel starved for company.	191 (37.2)	142 (27.7)	139 (27.1)	41 (8.0)
15	No one really knows me well.	175 (34.1)	57 (11.1)	131 (25.5)	150 (29.2)
16	I feel isolated from others.	310 (60.4)	108 (21.1)	75 (14.6)	20 (3.9)
17	I am unhappy being so withdrawn.	406 (79.1)	72 (14.0)	29 (5.7)	6 (1.2)
18	It is difficult for me to make friends.	217 (42.3)	132 (25.7)	139 (27.1)	25 (4.9)
19	I feel shut out and excluded by others.	379 (73.9)	103 (20.1)	24 (4.7)	7 (1.4)
20	People are around me but not with me.	256 (49.9)	104 (20.3)	110 (21.4)	43 (8.4)
	Total responses	5045 (49.2)	1948 (19.0)	1996 (19.5)	1271 (12.4)
Value of reporting feeling of loneliness in four types- never, rarely, sometimes, and often					
		N	Mean	SD	Range
	Loneliness sum scale variable	513	39.01	13.96	20-80

Descriptive statistics of the UCLA Loneliness Scale items are indicated in Table 1. The mean score for the UCLA Loneliness Scale was 39.01 with standard deviation of 13.96.

Internal Consistency Reliability (Convergent Validity)

Based on the research of the confirmatory factor analysis to establish the internal consistency of the UCLA Loneliness Scale scores, researcher examined Cronbach's Alpha and split-half.

Cronbach standardized Alpha was 0.946 and Guttman's split-half coefficient was 0.902. Corrected item-total correlations ranged from 0.50 to 0.76 as in Table 2. The mean inter-item correlation coefficient had a value of 0.47 with minimum 0.216 and maximum 0.713 while the Intra-class correlation coefficient of single measures, avoiding whether interaction effect is present or not, demonstrated a sufficient level of homogeneity (0.46) with minimum 0.428 and maximum 0.494. It is the noteworthy level of homogeneity comparing with a study of Neto (2014) showing the value 0.43. Some other statistics for this study like ANOVA with Cochran Chi-square test showed the significant having $p < 0.001$, and $F(19,512) = 181.64$ with $p < 0.001$. Chi-square goodness of fit statistics for loneliness mean variable showed $\chi^2(57) = 707.261$ with $p < 0.001$. These values based on the scores endorse the internal consistency of the UCLA Loneliness Scale.

As can be seen in Table 3, extracted two components, Factor loading-I of the all twenty items were the greater than the critical value of 0.30 where item 4-I lack companionship showed the greatest factor loading 0.784, and item 17-I am unhappy being so withdrawn showed the least factor loading 0.561. Factor loadings-II showed negative relationship of the 10 items and the factor-II. Items 10, 11, 16, 17, and 19 showed the relationship positive and greater than the value 0.3.

Table 2: Means (M), standard deviations (SD), and corrected item-total correlations for the UCLA loneliness scale

Item number	Mean	Standard deviation	Corrected item-total correlation
1	1.61	0.85	0.52
2	1.93	0.99	0.69
3	2.65	1.23	0.71
4	1.99	1.04	0.76
5	2.61	1.26	0.75
6	2.41	1.24	0.68
7	2.00	1.01	0.74
8	1.74	0.90	0.72
9	2.20	1.09	0.74
10	1.47	0.80	0.55
11	1.52	0.84	0.62
12	1.60	0.91	0.54
13	2.65	1.19	0.70
14	2.06	0.98	0.66
15	2.50	1.23	0.71
16	1.62	0.87	0.64
17	1.29	0.62	0.50
18	1.95	0.94	0.68
19	1.34	0.63	0.62
20	1.88	1.02	0.72

Table 3: Component loadings for the UCLA loneliness scale through principal components analysis

Sorted items by size of factor loadings I	Factor loadings I	Factor loadings II	Communalities ($R^2 = I^2 + II^2$)
4	0.784	-0.124	0.630
7	0.772	-0.030	0.597
5	0.765	-0.412	0.754
8	0.762	0.132	0.598
9	0.762	-0.252	0.644
20	0.761	0.113	0.591
15	0.732	-0.369	0.671
3	0.730	-0.417	0.707
2	0.727	-0.087	0.536
13	0.721	-0.401	0.680
18	0.719	-0.036	0.518
14	0.702	0.091	0.502
16	0.701	0.384	0.639
6	0.700	-0.458	0.700
11	0.678	0.489	0.698

19	0.677	0.385	0.606
10	0.615	0.499	0.627
12	0.595	0.281	0.433
1	0.566	0.043	0.322
17	0.561	0.517	0.582

A factor analysis was run on the raw data of the UCLA Loneliness Scale. The model tested showed the two-factors model as shown in Table 3. The result of the Factor Analysis through Principal Component Analysis allowed to test whether the both factors were acceptable. Among the 20 items of the scale, item 1 showed the least R- square value of 0.322 while item 5 showed the greatest value of 0.754. This helped to explain that the range of the variability explained by the individual items to measure loneliness ranging from 36.4 percent to 70.8 percent. Parallel analysis conducted here was to detect whether the scale included both factors. Eigenvalues obtained from parallel analysis and Principal Component Analysis were summarized in Table 4 below.

Table 4: Factor analysis through principal component analysis (PCA)

Component number	Variance percent of extraction	Actual Eigenvalue from PCA	Criterion values from parallel analysis	Decision
1	49.642	9.93	4.60	Accept
2	10.543	2.11	3.71	Reject

Table 4 showed the factor one is acceptable, which is further confirmed through Scree-plot graphics. Factors I and II appeared in Table 3 was concluded to accept only one factor was because of the smaller criterion value from parallel analysis than that in actual Eigenvalue from PCA.

Scree-plot

Scree-plot graphics and total variance table were analyzed together to detect number of factors (Figure 1).

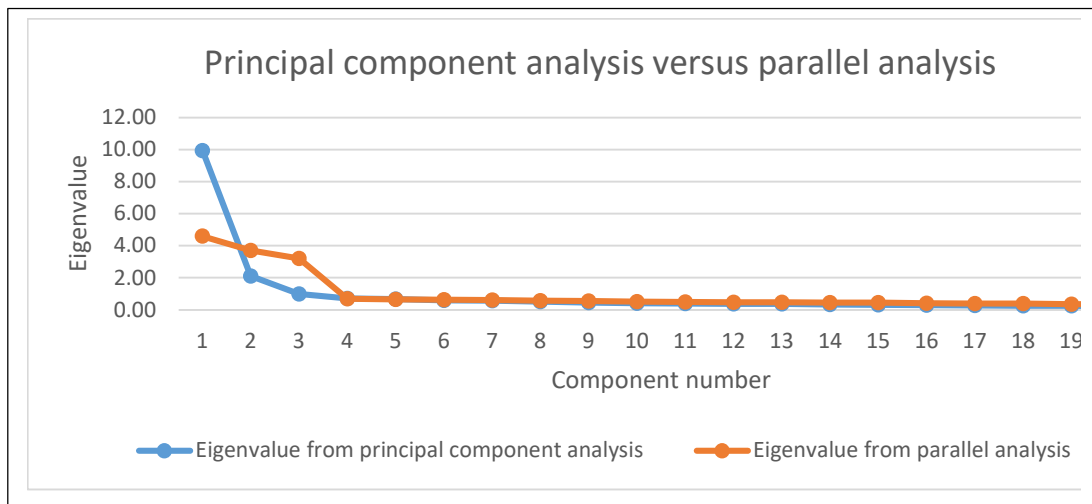


Figure 1: Scree-plot graphic on Eigen values versus component number for UCLA

As can be seen in Figure 1, there was a single Eigen value left above the crossing point of two lines—one from the Eigen values of study data and another from parallel analysis. This pointed that the UCLA Loneliness Scale had the single dimension, which helped to decide the one factor

acceptance. Factor analysis results indicated that UCLA Loneliness Scale, consisting of 20 items, had a single factor structure and described 49.64% of total variance as well.

Confirmatory Factor Analysis (CFA) with LISREL 8.8

CFA has been used extensively to examine the latent structure of the Scale and to determine construct validity. CFA is used to confirm the existing structure of a previously developed scale. CFA is an indispensable analytic tool in social and behavioral sciences to confirm structures. Therefore, the researcher evaluated whether the structure of UCLA Scale of loneliness was confirmed in our Nepalese community by CFA through ordinal factor analysis. Composite reliability test was used to examine the internal consistency of the variables in CFA. Values for composite reliability shown in Table 5 are more than 0.7 that shows the required composite reliability. On the confirmatory factor analysis result, the one-factor model with un-rotated factor loadings reveals that the twenty items all are homogeneous when measuring loneliness. Single factor structure of Loneliness scale of measurement, LISREL 8.8 showed the un-rotated factor loadings of ordinal data is shown in Table 5.

Table 5: Composite reliability, average variance explained

Item	Loading (λ)	Square of Loading (λ^2)	Measurement error ($1 - \lambda^2$)	CR	AVE
1	0.695	0.483	0.517		
2	0.846	0.716	0.284		
3	0.845	0.714	0.286		
4	0.896	0.803	0.197		
5	0.912	0.832	0.168		
6	0.835	0.697	0.303		
7	0.876	0.767	0.233		
8	0.894	0.799	0.201		
9	0.867	0.752	0.248		
10	0.805	0.648	0.352	0.9794	0.7154
11	0.818	0.669	0.331		
12	0.738	0.545	0.455		
13	0.848	0.719	0.281		
14	0.798	0.637	0.363		
15	0.850	0.723	0.278		
16	0.825	0.681	0.319		
17	0.801	0.642	0.358		
18	0.807	0.651	0.349		
19	0.917	0.841	0.159		
20	0.871	0.759	0.241		
Sum	$\sum \lambda =$ 16.049	$\sum \lambda^2 =$ 13.593	$\sum (1 - \lambda^2) =$ 5.407		

Note. CR = $(\sum \lambda)^2 / ((\sum \lambda)^2 + (\sum (1 - \lambda^2)))$ & AVE = $\sum \lambda^2 / (\sum \lambda^2 + \sum (1 - \lambda^2))$ (Fornell & Larcker, 1981)

Table 6 below is a presentation based on a suggestion of a previous research study. Which suggested that the maximum likelihood (ML,) solution and Chi-square significance tests generally used in confirmatory factor analysis (Hartshorne, 1993). This measure was done in LISREL 8.8 program.

Table 6: Results of confirmatory factor analysis (ML analysis in LISREL program)

Sample	Statistics	Zero factor	One factor	Two factors	Three factors	Four factors
Young senior citizens	χ^2	6655.93	1577.79	566.79	364.37	261.74
	df	190	170	151	133	116
	RMSEA	0.258	0.127	0.073	0.058	0.049
	p	<0.001	<0.001	<0.001	<0.001	<0.001

Table 6 showed the four factors column with RMSEA less than 0.05 that is the indication of the close fit model.

DISCUSSION

A subjective experience where one perceives a divergence between their actual and desired levels of social relationships. The subjective experience of one may not coincide to the others because of the perception disparity over the causes. Old fashioned UCLA Loneliness Scale through confirmatory factor analysis is the point of discussion of this research to know the acceptability of the scale for Nepalese young senior citizens. The study reported here examined the dimensions of loneliness tapped by the often used UCLA Loneliness Scale which has previously been reported as a global, unidimensional, measure of the phenomenon (Austin, 1983). The psychometric data presented here support the reliability and validity of the UCLA Loneliness Scale. In this study, it was found that UCLA Loneliness Scale had a single factor structure. All the items of the scale had sufficient factor loadings (>0.30), it was evident that no item of the scale was excludable from the scale (Yildiz & Duy, 2014). Russell (1996) introduced a shortened version of the UCLA Loneliness Scale (Version 3) composed of 10 items. These items were selected based on “the corrected item total correlations from previous studies” (Russell, 1996, p. 26). The 8-item model is not as excellent as the 6-item model (Wu & Yao, 2008), however, the values of fit in this 20-item model are still adequate and acceptable. Scale advancement process is continuous.

A study (Newcomb & Bentler, 1986) factor analyzed the scale with a sample of 739 young adults in 8-year longitudinal study finding four eigenvalues greater than 1.0, but a huge drop between the first and second. Thus, they endorse the one large general factor for one-dimensionality of the scale. In the similar manner, this study with a sample of 513 young senior citizens found two eigenvalues greater than 1.0 as in Table 4 but accepted 1 large factor while comparing with parallel analysis. Scree plot helped to verify this content.

The corrected item-total correlation measured to express the coherence between an item and the other items. Corrected item-total correlations for this study ranged from 0.50 to 0.76 shown in Table 2 for 20 items of UCLA Loneliness Scale used in Nepalese young senior citizens with ages ranged 60 to 74. While a study (Neto, 2014), involving 1,154 participants living in the community with ages ranged from 60 to 90, showed the same as 0.45 to 0.60 for six items ULS. The acceptable said corrected item-total correlation (0.47 to 0.56) for seven items in the scale (Ahorsu et al., 2020) flourished the findings of this study obtained in the range 0.5 to 0.76 for 20 items.

In order to test construct validity of the scale, measurement of CR, and Average Variance Extracted (AVE) is recommended. According to (Hair-JR et al., 2010), CR values between 0.60 and 0.70 are acceptable and values higher than 0.70 are good, and AVE, values over 0.50 are recommended. AVE value obtained in the range of $0.5 < AVE \leq 1.0$ is considered as more competent (Dos Santos & Cirillo, 2021). If AVE is less than 0.50, the variance due to measurement error is

larger than the variance captured by the construct. Then the validity of the individual indicators as well as the construct, is questionable (Fornell & Larcker, 1981; Yildiz & Duy, 2014). In Table 4, CR and AVE values of the items obtained from CFA analysis were presented, where CR was 0.98 and AVE was 0.715 for UCLA loneliness scale in Nepalese young elderly. A study by (Zakahi & Duran, 1982) showed that the UCLA scale produced a two-factor solution accounting for 40% of the variance; however, this study showed 49.6% in one factor solution through SPSS 20 while 71.5% through LISREL 8.8.

Earlier research suggested based on the practical experience that an RMSEA value of about 0.05 or less indicates a “close fit”, and that 0.08 or less would indicate the reasonable error of approximation, and would not want to employ a model with a RMSEA greater than 0.1 (Browne & Cudeck, 1992). An overall RMSEA less than or equal to 0.06, and a confidence interval range from 0.00 to 0.08 indicates a close or good fit (Schreiber, 2008). This study showed as in Table 6 that Minimum Fit Function Chi-Square with 116 Degree of Freedom = 261.74, and the respective RMSEA = 0.049 in the column of the four factors.

LIMITATION

The designation of the standard variables used in this study were the concepts showing nearby relation to loneliness, because this study was intended to display the UCLA Loneliness Scale is an acceptable measuring instrument of loneliness, not to inspect or discover the psychological mechanism of loneliness. As a result, the scope of this study is restrictive without providing theoretical contributions to loneliness studies. However, several limitations comprise that one is the sample size in the current study that was small and participants were only young senior citizens. Replication of the present study is clearly necessary, especially in view of the composition of the sample. A limitation of this study is that the young senior citizens in the sample being a part did not have over all category of the senior citizens. In future studies, investigating psychometric properties of the scale in senior citizen sample and evaluation of associations between loneliness and diagnosed mental health condition will contribute to a better understanding of loneliness among senior citizens.

CONCLUSION

The intention of this research study was to get new empirical evidence regarding the psychometric properties of the UCLA Loneliness Scale in a 513 sample of young older Nepalese. Results obtained from validity and reliability studies of adaptation of UCLA Loneliness Scale in Nepalese for young senior citizens showed that this scale can be used reliably in studies with young elderly. Besides, shortness of the scale with 6 items or 8 items or less than so will provide easiness and functionality of use in future studies investigating loneliness. The factor structure, the reliability, and the validity of the UCLA Loneliness Scale were studied. The UCLA Loneliness Scale showed adequate internal consistency and appropriate item-total correlations. Generally, outcomes of this study reveal that the UCLA Loneliness Scale is a suitable loneliness measure on Nepalese young senior citizens.

Ethical Consideration

Nepal Health Research Council (NHRC), a nationwide apex body responsible for providing quality research on health or population dynamics in Nepal with the utmost level of moral values, had approved the study protocol communicating a letter having reference number 917/ 2020. Similarly, officer of the concerned local level—Butwal Sub-Metropolitan Office—has given authorization through a letter with a

number- 4569/2021 for this study. Respondents had no refusing statement giving verbal informed consent while initiating and during face-to-face interview at their residence.

Acknowledgements

We would like to express our heartfelt thanks to the respondents for their participation with free and frank replies on our (as researchers) request of this scientific work.

Funding

This study known no particular endowment from any funding public or private agency.

Conflict of Interest

No acknowledged conflict of interest to disclose.

REFERENCES

- Ahorsu, D. K., Lin, C.-Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction*, 1–9. <https://doi.org/10.1007/s11469-020-00270-8>
- Austin, B. A. (1983). Factorial structure of the UCLA loneliness scale. *Psychological Reports*, 53(3 I), 883–889. <https://doi.org/10.2466/pr0.1983.53.3.883>
- Bofill, S. (2004). Aging and loneliness in Catalonia: The social dimension of food behavior. *Ageing International*, 29(4), 385–398. <https://doi.org/10.1007/s12126-004-1006-3>
- Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, 21(2), 230–258. <https://doi.org/10.1177/0049124192021002005>
- Chipuer, H. M. (2001). Dyadic attachments and community connectedness: Links with youths' loneliness experiences. *Journal of Community Psychology*, 29(4), 429–446. <https://doi.org/10.1002/jcop.1027>
- De Jong Gierveld, J. (1998). A review of loneliness: Concept and definitions, determinants and consequences. *Reviews in Clinical Gerontology*, 8(1), 73–80. <https://doi.org/10.1017/s0959259898008090>
- Dos Santos, P. M., & Cirillo, M. A. (2021). Construction of the average variance extracted index for construct validation in structural equation models with adaptive regressions. *Communications in Statistics - Simulation and Computation*, 0(0), 1–12. <https://doi.org/10.1080/03610918.2021.1888122>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <http://www.jstor.org/stable/3151312>
- Hair-JR, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (Seventh). Prentice Hall. <https://b-ok.cc/book/21938258/82766e>
- Hartshorne, T. S. (1993). Psychometric properties and confirmatory factor analysis of the UCLA loneliness scale. *Journal of Personality Assessment*, 61(1), 182–195. https://doi.org/10.1207/s15327752jpa6101_14
- Kwiatkowska, M. M., Rogoza, R., & Kwiatkowska, K. (2017). Analysis of the psychometric properties of the Revised UCLA Loneliness Scale in the Polish adolescent sample. *Current Issues in Personality Psychology*, 5, 1–7. <https://doi.org/10.5114/cipp.2017.69681>
- Lim, M. H., Eres, R., & Vasan, S. (2020). Understanding loneliness in the twenty-first century: An update on correlates, risk factors, and potential solutions. *Social Psychiatry and Psychiatric Epidemiology*, 55(7), 793–810. <https://doi.org/10.1007/s00127-020-01889-7>

- Neto, F. (2014). Psychometric analysis of the short-form UCLA Loneliness Scale (ULS-6) in older adults. *European Journal of Ageing, 11*(4), 313–319. <https://doi.org/10.1007/s10433-014-0312-1>
- Newcomb, M. D., & Bentler, P. M. (1986). Loneliness and social support: A confirmatory hierarchical analysis. *Personality and Social Psychology Bulletin, 12*(4), 520–535.
- Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment, 42*(3), 290–294. https://doi.org/10.1207/s15327752jpa4203_11
- Russell, D. W. (1996). UCLA loneliness scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment, 66*(1), 20–40. <https://doi.org/10.1207/s15327752jpa6601>
- Schreiber, J. B. (2008). Core reporting practices in structural equation modeling. *Research in Social and Administrative Pharmacy, 4*, 83–97. <https://doi.org/10.1016/j.sapharm.2007.04.003>
- Shaver, P. R., & Brennan, K. A. (1991). Measures of depression and loneliness. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 195–289). Academic Press, Inc.
- Weeks, D. J. (1994). A review of loneliness concepts, with particular reference to old age. *International Journal of Geriatric Psychiatry, 9*(5), 345–355. <https://doi.org/10.1002/gps.930090502>
- Wu, C. huei, & Yao, G. (2008). Psychometric analysis of the short-form UCLA Loneliness Scale (ULS-8) in Taiwanese undergraduate students. *Personality and Individual Differences, 44*(8), 1762–1771. <https://doi.org/10.1016/j.paid.2008.02.003>
- Yildiz, M. A., & Duy, B. (2014). Adaptation of the short-form of the UCLA Loneliness Scale (ULS-8) to Turkish for the adolescents. *The Journal of Psychiatry and Neurological Sciences, 27*(3), 194–203. <https://doi.org/10.5350/DAJ PN2014270302>
- Zakahi, W. R., & Duran, R. L. (1982). All the lonely people: The relationship among loneliness, communicative competence, and communication anxiety. *Communication Quarterly, 30*(3), 203–209. <https://doi.org/10.1080/01463378209369450>