



Development of Loneliness Scale

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ABSTRACT

The Loneliness scale was developed with the objective of testing the level of loneliness of adolescents. For construction of the scale, literature on loneliness was surveyed and scanned. This scale is meant for Indian adolescents ranging between the age group of 14 to 18 years and studying in the classes IX to XII. Present loneliness scale is a 5-point self-rating scale. Every item is in the question form. Five response categories are provided for responding to every question. The scale has undergone all the steps of construction and standardization including initial and final try out and hence can be used to assess loneliness among adolescents.

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Introduction

Development of Loneliness Scale

Human Society is witnessing a rapid change at all levels. In the light of Globalization, privatization and Industrialization almost every country of the world is participating in the race of strengthening its industry, technology and economy. Globalization which is said to be aiming at making this world a global village is actually resulting into drifting apart human beings, who are the real instruments in its hands. Thus the onset of twenty first century has observed a reorganization of customs, values and traditions. The huge strides in technical progress have not been accompanied by human progress as represented by better relationships. The network of social relationships is drastically affected and the tendencies of individualism and materialism are becoming the way of life. The developed and the developing countries are equally influenced by these changing social equations. Even the country like India, a pioneer in spiritualism and strongly rooted value systems has not succeeded to stay away from these influences. One of the various visible impacts amongst these is changing family structure. Joint families are rapidly converting into nuclear families and multi-children families into single child families. These changes in the structure of families have further contributed in altering the dimensions of human society and elevating the level of problems like distress, loneliness and dehumanization, the problems which were earlier restricted to west are now stretching their wings in the east as well.

Loneliness is a realization when a person feels unloved and alienated from others in his environment. Like other psychological variables, it originates internally but exhibits itself through various external symptoms like poor social skills (Brennan, 1982); emotional problems like low self esteem, depression and anxiety; behavioural problems like shyness, social withdrawal and decreased participation (Kupersmidt, Sigda, Sedikides and Voegler, 1999). Recent researches have also demonstrated the relationship of loneliness with various physiological diseases like heart failure (U.S. Framingham Heart Study, 2005), High Blood Pressure (Hawkey, 2006) and Dementia (Wilson, 2007). People with few social ties are at increased risk of dying of heart disease, cancer, respiratory and

gastrointestinal ailments and suffer more anger, anxiety, hostility, pessimism and lower self-esteem (Cacioppo and Patrick, 2008).

During the past decade, the concept of Loneliness has figured prominently in the psychological literature. But measuring Loneliness offers some problems. The individuals may not want to admit that they have undesirable qualities or more seriously, they might be unaware of the qualities that others consider undesirable. Their self-reports may show considerable difference in their Loneliness. Though scales are already developed but widely used scales are Differential Loneliness Scale by Schmidt and Sermat (1983) and UCLA loneliness scale by Russel, (1996). Both these scales are developed in foreign countries, thus, not suitable for Indian population. The researcher also studied one Indian scale i.e. Perceived Loneliness Scale by Jha (1997) which can be used to determine the loneliness of individuals of age group ranging from adolescents to elderly.

In the light of the above discussion, the necessity to frame a scale which should test the level of loneliness of an individual both in the light of internal feelings and its external exhibitors was felt. Moreover scarcity of Loneliness scales testing the level of loneliness of Indian population especially adolescents which can determine the degree and extent of loneliness of adolescents in accordance with existing Indian social and cultural set up further motivated the researcher to construct this scale of loneliness.

Preparation for Construction of Scale

The Loneliness scale was developed with the objective of testing the level of loneliness of adolescents. For construction of the scale, literature on loneliness was surveyed and scanned. To acquaint herself with the existing scales of loneliness, the researcher studied UCLA loneliness scale by Russel (1996), Differential Loneliness Scale by Schmidt and Sermat (1983) and Perceived Loneliness Scale by Jha (1997).

The books which were studied thoroughly included Loneliness: The experience of emotional and Social isolation (1973) by Weiss and Loneliness: A sourcebook of current theory research and therapy (1982) by Pepalau and Perlman.

Target Population

This scale is meant for Indian adolescents ranging between the age group of 14 to 18 years and studying in the classes IX to XII.

Type of Test Items

Present loneliness scale is a 5-point self-rating scale. Every item is in the question form. Five response categories are provided for responding to every question. Subject is required to select the most appropriate response category according to the assessment of his/her own extent of loneliness.

Preliminary Draft of the Scale

After careful exploration of the literature, a pool of one hundred items was prepared to make an assessment of perceived loneliness of respondents. Items were framed based on the concept and characteristics of loneliness. To control acquiescence response bias, fifty four items were constructed positively worded and forty six items negatively worded.

Pre-Try Out of Scale

The list of items thus prepared was given to four university and two college teachers related to the disciplines of Psychology and Education. The purpose of the scale was conveyed to them as to measure the extent of perceived loneliness of Indian adolescents. They were asked to add, change or delete any item. They were also asked to give their suggestions to improve the scale. On the basis of the result of pre-try out, thirty six items were eliminated for being unsatisfactory. Six of the items were slightly modified. Now sixty four items were ready for further try-out and item-analysis.

Directions for Administration

While administering the administrator has to simply distribute the scale to the subjects. Although, the directions are written on the first page and are self-explanatory even then assistance in translating the meaning can be given where and when required.

Some basic and necessary guidelines for administration of the scale are stated below:-

- The scale can be used in individual as well as group testing situations.
- No time limit is prescribed for the administration of the scale but usually it takes 20-25 minutes for its completion.
- The responses are to be given on the booklet itself. Against each item of the scale five response categories are given in the form of cells indicating the extent of loneliness.
- There are no right or wrong responses. They are designed to have differences in individual experiences.
- Honesty in answering is required by ticking only one out of five responses which is the most subtle and spontaneous.

Procedure for Scoring

The loneliness scale can be scored by hand. For each positive statement scores ranging from 5 to 1 are given. For each negative statement scores ranging from 1 to 5 are given depending upon the selected response out of the five response categories.

Try-Out of the Scale

Before undertaking the work of item analysis, the scale was administered to a sample of ten students to remove the language difficulty, if any, reported by them in understanding clearly the different items.

Item Analysis of the Scale

The second format of the loneliness scale containing 64 items was administered to 152 adolescents.

Item validity

Item validity means that the item measures the same trait as the whole test/scale. To find out item validity, biserial coefficient of correlation was calculated for each item with the total scores of the whole scale. Results are shown in Table 3.1.

Items with negative coefficient of correlation and insignificant correlation were dropped. As depicted in Table 3.1, four items with item numbers 10, 15, 42 and 61 had negative correlation and seven items with item numbers 12, 23, 24, 31, 38, 45 and 62 had insignificant correlation. So these eleven items were dropped.

Discriminating index / power

To ascertain whether the item differentiates between high and low group, t-ratios were worked out item wise. High and low groups were formed by employing Kelley's method. On the basis of total scores, 27% top scorers formed the high group and 27% bottom scorers formed the low group. t-ratios were computed between these two groups. Results are shown in Table 3.2.

Items with significant t-ratios were retained whereas items with insignificant t-ratios were deleted. Table 3.2 reveals that eighteen items with item numbers 4, 6, 8, 12, 13, 19, 25, 26, 30, 32, 35, 39, 40, 43, 47, 48, 52 and 57 had insignificant t-ratios. These items were deleted from the scale. Finally 35 items were retained for testing loneliness. Item numbers 1, 2, 4, 5, 6, 11, 12, 16, 17, 21, 27, 30, 32, 33, 34 are the negative statements and Item numbers 3, 7, 8, 9, 10, 13, 14, 15, 18, 19, 20, 22, 23, 24, 25, 26, 28, 29, 31, 35 are positive statements.

Reliability of the scale

The reliability of the test depends upon the stability and consistency of scores. Two indices of reliability of this scale were determined.

(i) Split-Half Method:-

The scale was first divided into two equivalent halves by using odd-even method. Items with odd numbers formed one half test and items with even numbers formed second half test. The scale was given to 152 students. Then correlation was found by Product-moment method between the two halves to obtain the reliability of the half test. It came out to be 0.448. The reliability co-efficient of the whole test was estimated by using Spearman Brown Prophecy formula:

$$r_{1I} = \frac{2r_{1/2I/II}}{1 + r_{1/2I/II}}$$

where

r_{II} = reliability co-efficient of the whole test.

$r_{1/2I/II}$ = reliability co-efficient of the half test.

The reliability co-efficient by Spearman Brown Prophecy formula came out to be 0.619 which is significant at 0.01 level.

(ii) Test-Retest Method:-

The test-retest reliability was also calculated for the present scale by calculating the co-efficient of correlation between two sets of scores of the same individuals on the same scale at different time intervals on sample of 152 adolescents. The test-retest reliability after three weeks interval was calculated. The result is shown in Table 3.3.

The correlation between the two administrations of the loneliness scale was found to be 0.74. The reliability co-efficient was found to be significant at 0.01 level of significance. So it can be inferred on the basis of split half reliability coefficient and test-retest reliability coefficient that scale is reliable. Reliability coefficients of the scale by split half and test retest methods are given in Table 3.3:

Table 1. Coefficient of correlation for each item of the scale with total score of the whole scale

ITEM NO.	r	ITEM NO.	r	ITEM NO.	R
1	.47**	23	.143	45	.098
2	.79**	24	.128	46	.22**
3	.73**	25	.534**	47	.167*
4	.27**	26	.29**	48	.36**
5	.41**	27	.423**	49	.239**
6	.33**	28	.53**	50	.72**
7	.62**	29	.46**	51	.49**
8	.60**	30	.39**	52	.35**
9	.25**	31	.147	53	.26**
10	-.137	32	.68**	54	.18*
11	.64**	33	.73**	55	.179*
12	.086	34	.28**	56	.235**
13	.51**	35	.54**	57	.18*
14	.31**	36	.38**	58	.43**
15	-.152	37	.68**	59	.51**
16	.77**	38	.065	61	-.128
17	.62**	39	.37**	62	.079
18	.72**	40	.55**	63	.42**
19	.56**	41	.62**	64	.324**
20	.44**	42	-.143		
21	.68**	43	.66**		
22	.48**	44	.59**		

*=Significant at .05 level of significance (table value for $r = .159$ for 150 degree of freedom)

**=Significant at .01 level of significance (table value for $r = .208$ for 150 degree of freedom)

Table 2. T-ratios between high and low group for each item of the scale

ITEM NO.	T	ITEM NO.	t	ITEM NO.	T
1	2.86**	23	2.83**	45	1.99*
2	2.62**	24	2.68**	46	2.03*
3	2.92**	25	1.53	47	1.33
4	1.23	26	1.61	48	1.37
5	2.67**	27	3.36**	49	1.76*
6	1.33	28	3.17**	50	2.02*
7	3.17**	29	2.83**	51	2.13*
8	1.59	30	1.49	52	1.65
9	2.76**	31	2.69**	53	2.45**
10	2.75**	32	1.41	54	2.33*
11	2.80**	33	2.92**	55	1.83*
12	1.56	34	2.75**	56	1.78*
13	1.35	35	1.62	57	1.55
14	1.67*	36	3.11**	58	2.11*
15	3.25**	37	3.06**	59	2.26*
16	3.06**	38	3.25**	61	2.57**
17	2.98**	39	1.58	62	3.18**
18	2.86**	40	1.54	63	1.99*
19	1.39	41	2.80**	64	2.62**
20	2.77**	42	2.83**		
21	2.76**	43	1.63		
22	3.11**	44	2.98**		

*=Significant at .05 level of significance (table value for $t = 1.66$ for 150 degree of freedom)

**=Significant at .01 level of significance (table value for $t = 2.35$ for 150 degree of freedom)

Table 3. Reliability of Loneliness Scale

Method	No. of Subjects	Reliability
Split-half	152	0.619*
Test-Retest Method	152	0.74*

* implies significant at 0.01 level

Validity of the scale

Validity of the scale refers to the degree to which it measures accurately what it is supposed to measure. Regarding the method of establishing the validity of a test, it is necessary for all the tests to have content validity. A more adequate approach to validation consists of checking the agreement between the responses elicited by the test against the criterion and the validity so established is called criterion validity.

In the present scale, content and concurrent validity was calculated. For determining content validity, the scale items were given to the panel consisting of 6 judges. The experts were requested to give '+1' if the item was related to the trait and '-1' if the item is not related to the trait and zero in case of uncertainty. On the basis of their responses, index of suitability (IOS) of each item was worked out by using the formula:

$$IOS = \frac{\sum R}{N}$$

$\sum R$ = Sum of experts' responses

N= No. of experts

The IOS value for the items ranged from 0.89 to 1 which clearly showed that the content of the scale measures the same trait for which it was written. Thus the content validity was established.

The concurrent validity of loneliness scale was investigated against external criterion of perceived Loneliness Scale by Jha. Both the scales were administered on a sample of 152 adolescents. The co-efficient of correlation was found between the scores of two scales. The two test scores yielded a positive correlation of 0.572 which is significant at 0.01 level of significance. Hence the concurrent validity of the scale is also established.

Conclusion and Suggestions

The study indicates that this scale thus developed is a quick, easy to administer tool that has the potential to assess loneliness. However, more research is needed into the psychometric properties of this scale.

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