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Chapter 6

The Measurement of Loneliness

Daniel Russell

The "standard" introduction to a discussion of the measurement of loneliness includes two statements: (1) there has been very little empirical research concerning this important social problem; and (2) a major hindrance to empirical research in this area has been the absence of adequate instruments to assess loneliness. As the chapters in this volume clearly indicate, empirical research on loneliness has sharply increased in the past two to three years, calling the first statement into question. And as the present discussion of loneliness assessment will demonstrate, a number of measuring instruments have been developed, suggesting that inability to assess loneliness is no longer a hindrance to research.

This chapter examines how investigators have conceptualized and measured loneliness. Although a large number of measures have been devised, as of this writing only two scales, the UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980; Russell, Peplau, & Ferguson, 1978) and the loneliness scale developed by de Jong-Gierveld and her associates (de Jong-Gierveld, 1979) have been published. This chapter begins with a review of existing loneliness measures, focusing on the reliability and validity of these scales. Next, an overview of work my colleagues and I have undertaken in developing the UCLA Loneliness Scale is presented. This scale has been widely used by other investigators, and some of the empirical findings from these studies will also be discussed. A final section examines a number of methodological and conceptual issues relevant to the assessment of loneliness and to our understanding of the causes and consequences of this important social phenomenon.

REVIEW OF LONELINESS MEASURES

Researchers have taken two different conceptual approaches to the problem of measuring loneliness. One, the *unidimensional* approach, views loneliness

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as a single or unitary phenomenon that varies primarily in its experienced intensity. This approach assumes that there are common themes in the experience of loneliness, regardless of what the particular cause of loneliness is for the individual. Thus the same general loneliness scale should be sensitive to the loneliness experienced by a new college student who lacks friends and an older person whose lifetime mate has recently died. In contrast, the *multi-dimensional* approach conceptualizes loneliness as a multifaceted phenomenon that cannot be captured by a single global loneliness measure. Rather than focusing on the commonalities underlying the experience of loneliness for all individuals, this approach attempts instead to differentiate among various hypothesized types or manifestations of loneliness. The distinction between unidimensional and multidimensional conceptual approaches provides a useful framework for categorizing existing loneliness measures.

Unidimensional Loneliness Measures

Table 6.1 summarizes the reliability and validity data for unidimensional loneliness measures. The earliest global loneliness measure was developed by Eddy (1961), and consists of 24 statements describing different intensities of loneliness. Examples of these statements are "I feel abandoned" and "I have a feeling of emptiness." A Q-sort format is employed in which respondents use the statements to describe themselves. Based on data from students in a merchant marine academy, the measure was found to be internally consistent, although test-retest reliability was low (see Table 6.1). Citing the lack of external validity criteria for loneliness, Eddy presented no validity data for his measure. He did administer a Q-sort measure, on which the students rated themselves (self-ratings), how they thought they were perceived by others (reflected self-ratings), and how they would like to be ideally (ideal self-ratings). Eddy found quite substantial correlations between scores on his loneliness measure and differences between self-reflected self-ratings, self-ideal self-ratings, and ideal-reflected self-ratings (ranging from .63 to .71). No relationship was found between loneliness and a sociometric measure of popularity.

A scale developed by Sisenwein (1964) built upon Eddy's efforts. Sisenwein added additional statements thought to describe loneliness, yielding a 75-item measure. He abandoned the Q-sort response format in favor of asking respondents to rate on a 4-point scale how often they felt the way described in each statement (i.e., "often," "sometimes," "rarely," or "never"). Concerning reliability, test-retest correlations of .83 and .85 were reported by Sisenwein over a 1-week period, once again using students from a merchant marine academy. Sisenwein validated his measure by correlating loneliness scores with a single 6-point scale asking respondents to indicate how lonely they felt compared to other people. (The anchoring statements for the response scale ranged from "I am the most lonely person I know" to "I never

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data for unidimensional measure was developed by describing different intensities of loneliness and "I have been abandoned" and "I have been rejected" in which respondents provided data from students in a format to be internally consistent, reliable (Cronbach's alpha = .61). Citing the lack of validity data for his measure which the students rated were perceived by others to be ideally (ideal self-ratings, self-ideal ratings from .63 to .71). No sociometric measure of

loneliness on Eddy's efforts. Sisenwein's measure yielded a format in favor of asking respondents to indicate how lonely they felt the way described by Eddy, "often" or "never". Concerning reliability, .85 were reported by students from a merchant school by correlating loneliness test results to indicate how lonely they felt in statements for the reason "I know" to "I never

Table 6.1. Characteristics of the Global Loneliness Measures

Scale	Number of items	Response format	Reliability data	Validity data
Eddy (1961)	24	Q-sort	Split-half = .82 Test-retest (2-week interval): $r = .52$	None reported
Sisenwein (1964)	75	4-point rating scale	Test-retest (1-week interval): $r = .83$ and .85	Self-labeling questions: $r = .72$ and $.70^a$
Bradley (1969)	38	6-point Likert scale	Split-half = .95 Coefficient alpha = .90 ^c	Known groups: Emotionally disturbed inmates, students receiving counseling ^b
Ellison & Paloutzian (Chapter 14)	7	4-point rating scale	Test-retest (2-week interval): $r = .89$; (8-week interval): $r = .83^b$	Self-labeling question: Correlations range from .45 to .80 ^{b, c}
Young (1979, Chapter 22)	18	4 response options (scored 0 to 3)	Test-retest (1-week interval): $r = .85$ Coefficient alpha = .67	Self-labeling question: $r = .61$
Rubenstein & Shaver (1979, Chapter 13)	8	Different formats for each item	Coefficient alpha = .78 to .84	Self-labeling questions concerning recent and long-term loneliness: $r = .47$ to $.55$; $.50$ and $.66^d$ Known groups: Outpatients in a mood clinic None reported

^a Data are from Moore (1972).

^b Data are from Belcher (1973).

^c Data are from Solano (1980).

^d Data are from Primakoff (1980).

feel lonely".) A correlation of .72 was found between loneliness scores and this single item. Moore (1972) reported a correlation of .70 between scores on Sisenwein's scale and a similar single item self-rating of loneliness among a college student sample. Sisenwein examined the relationship between loneliness and discrepancies between self-descriptions and descriptions by others (e.g., roommates), but no systematic relationship was found. Moore (1972) found that students identified as lonely on Sisenwein's loneliness measure were more hostile and submissive on Leary's Interpersonal Checklist, and had a greater discrepancy between self and reflected self-concepts than did non-lonely students. Moore also found that lonely students retrospectively reported having fewer friends and engaging in more solitary activities while growing up, and having fathers with lower incomes.

A third general loneliness measure was developed by Bradley (1969). She based her measure on 38 statements describing both loneliness and "belonging." Thus her measure, in contrast to the previous scales, includes both negatively worded (lonely) and positively worded (nonlonely) items, such as "I have no one to depend upon but myself" and "I have friends who understand me." Individuals rate how self-descriptive each item is, using a 6-point Likert format. The measure appears to have good internal consistency. Bradley reported a split-half coefficient of .95, and Solano (1980) found an alpha coefficient of .90 for the measure. Test-retest reliability also appears to be quite high; Belcher (1973) reported test-retest reliabilities of .89 and .83 over 2- and 6-week intervals, respectively. All of the above reliability data were gathered from college student samples.

In validating her measure, Bradley used a "known groups" procedure, finding that a group of emotionally disturbed prison inmates scored significantly higher on her loneliness measure than did other inmates. Belcher (1973) reported that college students receiving counseling scored highly on Bradley's scale. Belcher also found correlations of .45 to .80 between loneliness scale scores and a single item asking students to indicate their current level of loneliness.

Several studies have examined empirical correlates of scores on Bradley's measure. Bradley (1969) found a significant relationship ($r = .37$) between loneliness and the D scale of the MMPI, a measure of anxiety and depression. Belcher (1973) reported significant relationships between loneliness and scores on both the Taylor Manifest Anxiety Scale ($r = .69$) and a Q-sort measure of self-ideal discrepancy ($r = .75$). Finally, Nerviano and Gross (1976) correlated scores on Bradley's loneliness scale with Jackson's Personality Research Form (1967) and with Cattell's 16 PF (Form A; Cattell, Ebner, & Tatsuoka, 1970) for a sample of alcoholics. The pattern of relationships indicated that the lonely alcoholic was socially inhibited and highly anxious. Importantly, however, Nerviano and Gross found that the best predictor of loneliness was the Desirability scale from the Jackson measure, suggesting a confounding of loneliness scores with social desirability.

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liminary data on another general loneliness measure, the Abbreviated Loneli-
ness Scale. This measure consists of seven items, three of which are worded in a
lonely or negative direction (e.g., "I feel emotionally distant from people in
general") and four worded in a nonlonely or positive direction (e.g., "I have
as many close relationships as I want"). It should be noted that two of the
items on the scale ask respondents to indicate explicitly whether they are lonely
or not (e.g., "I feel lonely"). Respondents indicate how often they feel the way
described in each statement using a 4-point scale (ranging from "never" to
"often"). Based on a sample of college students, Ellison and Paloutzian
(1979a) reported a test-retest reliability of .85 over a 1-week interval and an
alpha coefficient of .67. Concerning the validity of the measure, a correlation
of .61 was found between scores on the scale and a single item asking
respondents how lonely they felt. Finally, Ellison and Paloutzian (1979a, b)
reported quite substantial relationships between loneliness scores and self-
reported spiritual well-being ($r = -.41$), existential well-being ($r = -.64$),
social skills ($r = -.55$), and self-esteem ($r = -.57$).

Another loneliness measure has recently been developed by Young (1979),
and is presented in Chapter 22 in this volume. Young's scale is designed as a
measure of chronic or long-term loneliness, with a format very similar to the
Beck (1967) Depression Inventory. Concerning reliability, Young reported
coefficient alphas ranging from .78 to .84 in college student samples and a
clinic sample. Primakoff (1980) found a coefficient alpha of .79 for the
Young measure, based on a sample of single adults. Validity for the measure
was indicated by correlations with measures of recent and long-term loneliness
(items 17 and 18 from the Young inventory); Young reported correlations
ranging from .47 to .55, and Primakoff found comparable relationships. A
form of "known groups" validity was indicated by the substantially higher
loneliness scores found by Young for outpatients in a mood clinic.

The unidimensional loneliness measures that have been discussed to this
point share one feature in common: for the most part, items on these scales
make no mention of the term "loneliness." This avoidance of explicitly
acknowledging the state being assessed is not unusual in mood assessment.
For example, in measuring anxiety or depression psychologists typically do
not limit themselves to asking the person "Are you anxious?" or "Are you
depressed?", but instead ask respondents to indicate whether or not they are
experiencing other emotions or feeling states related to the mood being
measured. An advantage of such an assessment procedure is that it helps dis-
guise what is being measured, thereby lessening the impact of social desira-
bility on responses. Moreover, incorporating items that are negatively related
to the construct being assessed (e.g., items reflecting social satisfaction or
nonloneliness) serves to eliminate response sets or acquiescence biases in
scores (Bentler, 1969).

A final approach to measuring unidimensional or global loneliness basically
involves asking the respondent, "Are you lonely?" Note that for almost all the
loneliness scales discussed above, such items have been employed as validity

criteria. The procedure of asking respondents to make direct self-ratings of loneliness has been extensively used in large scale survey studies. For example, Bradburn (1969) included in his Affect Balance Scale an item asking respondents whether they had felt "very lonely or remote from other people" during the past few weeks. Similarly, Maisel (1969) asked respondents whether or not they had felt severely lonely during the past week. Other forms of these questions deal with the frequency of loneliness. For example, Lowenthal, Thurner, and Chirboga (1975) asked respondents to indicate how often they had felt lonely during the previous week, and a survey of older adults by Shanas, Townsend, Wedderburn, Friis, Milhoj, and Stehouwer (1968) simply asked respondents to indicate in general how often they were lonely. A final form of such self-labeling questions deals with social comparison, asking respondents to rate how their current loneliness compares to the loneliness of others (see Lopata, Heinemann, & Baum, Chapter 19).

The reliability of these measures has not been reported in survey studies. Indeed, since survey studies typically employ only single item measures of loneliness, the only form of reliability that could be determined is test-retest reliability. These explicit self-labeling questions obviously have content or face validity. However, social desirability concerns and response sets could seriously affect the findings based on these measures, as discussed above. Moreover, due to the variety of ways in which these self-labeling questions are asked, the comparability of findings from studies using different questions is difficult to determine.

A recent measure of loneliness developed by Rubenstein and Shaver (1979) has improved on these earlier survey measures. Their measure consists of eight explicit self-labeling questions, such as "How often do you feel lonely?" and "Other people think of me as a lonely person." The response format for the eight items varies, with 4- to 7-point response scales being used. (The exact wording of the items is given in Rubenstein & Shaver, Chapter 13.) These items were included in a questionnaire survey published in newspapers in New York City and Worcester, Massachusetts. Rubenstein and Shaver reported coefficient alphas of .88 and .89 for their scale. (A similar six-item "self-labeling loneliness index" has been used by this author and his colleagues in validating the revised UCLA Loneliness Scale and found to have a coefficient alpha of .88; see Russell et al., 1980). Content validity is of course evident for the Rubenstein and Shaver scale. Scores on this measure were also related strongly to low self-esteem ($r = .59$) and to the self-report of health problems ($r = .60$).

To summarize, most global loneliness measures appear to be very reliable. Validity evidence is, however, quite limited, being restricted to comparisons of "at risk" and normal samples, or correlations with questions eliciting explicit self-labels of loneliness. Although relationships between unidimensional loneliness measures and other variables have been reported that could be interpreted as indicating construct validity, no attempt has been made to demonstrate discriminant validity for these measures. Discriminant validity is

make direct self-ratings of survey studies. For example,

Scale an item asking "remote from other people" (1969) asked respondents the past week. Other forms exist. For example, Lowenthal et al. (1968) asked respondents to indicate how often they were lonely. Stehouwer (1968) asked respondents to indicate how often they were lonely with social comparison. Lowenthal et al. (1968) compares to the loneliness scale (Chapter 19).

reported in survey studies. Single item measures of loneliness were determined by test-retest reliability. Content validity was established by comparing responses to responses on other loneliness scales, as discussed above. These self-labeling questions were used in different ques-

Rubenstein and Shaver (1983) used a scale consisting of 10 items: "How often do you feel lonely person." The response format was a 5-point Likert scale. In Rubenstein & Shaver, 1983, a questionnaire survey published in Massachusetts. Rubenstein et al. (1983) reported a reliability of .89 for their scale. (A scale has been used by this author in the Loneliness Scale and found to be reliable, 1980). Content validity was established by comparing scores on this scale ($r = .59$) and to the

appear to be very reliable. Restricted to comparisons with questions eliciting responses between unidimensional scales, it was reported that could be compared to other scales. Discriminant validity is

a serious issue for several of these measures, due to the extremely high correlations reported between loneliness scores and measures of self-esteem, anxiety, and depression. Finally, only Bradley (1969) and Ellison and Paloutzian (1979a) have attempted to counteract possible response set problems by including reversed items in their measures.

Multidimensional Loneliness Measures

Reliability and validity data for multidimensional loneliness measures are summarized in Table 6.2. The first of these scales was the Belcher Extended Loneliness Scale (BELS; Belcher, 1973). Belcher modified the Bradley measure, arguing that her global loneliness scale assessed only the "psychological" aspects of loneliness. To measure sociological components of loneliness, items were added to the Bradley scale from previously developed measures of alienation (Keniston, 1960) and anomie (Srole, 1956). The final measure consists of 60 items; respondents indicate how often they feel the way described in each statement on a 6-point Likert scale. Concerning the reliability of the scale, Belcher obtained test-retest correlations of .79 to .84 over a 9- to 11-week interval. Solano (1980) reported an alpha coefficient of .93 for the total 60-item scale. These reliability data were gathered from college student samples.

The validity of the total score of the BELS was supported by finding significantly higher loneliness scores among students receiving counseling than among a sample of "normal" college students (Belcher, 1973). Solano (1980) reported a correlation of .59 between the total score on the BELS and a single item question asking students how lonely they are. To demonstrate the dimensional structure of the measure, Belcher factor analyzed the scale. He reported eight overlapping factors: alienation, anomie, estrangement, existential loneliness, loneliness anxiety, loneliness depression, pathological loneliness, and separateness.

Another multidimensional loneliness measure, the Differential Loneliness Scale, was developed by Schmidt (1976). She attempted to assess loneliness or social dissatisfaction within four types of relationships: romantic-sexual, friendship, family, and community. Schmidt developed her measure based on a sample of college students and a sample of adults, constructing separate versions of her scale for students and for adults. Both scales consist of 60 statements, dealing with the four different types of relationships. Examples of the statements for romantic relationships are "My romantic/marital partner gives me much support and encouragement" and "I have never been able to maintain a close romantic relationship over any length of time." Note that the scale includes both positive and negative items. Respondents indicate whether each statement is "true" or "false" in describing themselves. Both the student and adult scales were found to be internally consistent, with K-R 20s of .90 and .92, respectively. Schmidt attempted to establish discriminant

Table 6.2. Characteristics of the Multidimensional Loneliness Measures.

Scale	Number of items	Response format	Dimensions	Reliability data	Validity data
Belcher (1973)	60	6-point Likert scale	Global loneliness, alienation, and anomie	Coefficient alpha = .93 ^a Test-retest (9- to 11-week interval): $r = .79$ to $.84$	Known groups: students receiving counseling Self-labeling question: $r = .59$ ^a
Schmidt (1976)	60	True — False	Friendship, romantic-sexual, family and community relationships	K-R 20 = .90 and .92 for student and adult versions	None reported
de Jong-Gierveld (1978)	38	6-point Likert scale	Types of missing relationships, adjustment and defense mechanisms, future time perspective, and personal capabilities	Factors for the measure have coefficient alpha = .14 to .87	Self-reported loneliness: $r = .49$ Other-reported loneliness: $r = .40$

^a Data are from Solano (1980).

validity for her scale by selecting items that had low correlations with measures of social desirability, self-esteem, anxiety, and depression. However, this effort was only partially successful; significant correlations were still found between total loneliness scores and social desirability ($r = -.38$ for students, $-.53$ for adults), self-esteem ($r = -.28$ and $-.50$), anxiety ($r = .29$ and $.40$), and depression ($r = .46$ and $.62$). Finally, concerning the multidimensional structure of Schmidt's measure, a factor analysis revealed that the largest factors concerned family, romantic-sexual relationships, and friendships, supporting Schmidt's distinction among these types of relationships.

A final multidimensional loneliness scale has been developed by de Jong-Gierveld and her colleagues (de Jong-Gierveld, 1978). Four components of loneliness are hypothesized to exist based on: (1) the types of relationships that are missing; (2) adjustment and defense mechanisms; (3) future time perspective concerning loneliness; and (4) personal capabilities to resolve loneliness. These components of loneliness are assessed by a 38-item loneliness scale, with separate items measuring each dimension. (The scale is described in Chapter 7.) A factor analysis of responses to this scale by a sample of adult men and women from the Netherlands generally confirmed the multidimensional structure of the measure. Results indicated that the factors corresponding to each of the four hypothesized components were generally reliable, with coefficient alphas ranging from .64 to .87. Exceptions here were the two factors corresponding to adjustment and defense mechanisms; the alpha coefficients for these two factors were only .47 and .14 (de Jong-Gierveld, 1978). De Jong-Gierveld has found significant correlations between her multidimensional loneliness scale and a unidimensional self-report measure of loneliness (consisting of items such as "I sometimes feel lonely" and "I sometimes find it difficult to develop lasting relationships"), as well as a rating of the person's loneliness by a close friend. Factors underlying the first loneliness component, concerning feelings of deprivation, were most strongly related to global loneliness, with the correlations ranging from .43 to .59 for self-rated loneliness and .21 to .49 for other-rated loneliness. An overall loneliness score, based on summing together responses to all the items on the multidimensional loneliness scale, correlated .49 with self-rated loneliness and .40 with other-rated loneliness.

At present, it is unclear whether multidimensional scales assess loneliness more adequately than global or unidimensional measures. More research is needed to develop such measures further. Multidimensional scales have the potential of identifying variations in the experience of loneliness that may be particularly useful in helping the lonely. There is, however, a need for greater clarity in the theoretical conceptualizations underlying multidimensional measures. The present scales appear to assess a wide array of factors, including antecedents of loneliness (e.g., satisfaction with different types of relationships), consequences of loneliness (e.g., future time perspective concerning loneliness), and variables related to but distinct from loneliness, (e.g., alienation and anomie). Future research needs to examine the relationship among

^a Data are from Soliano (1980).

relationships, adjustment and defense mechanisms, future time perspective, and personal capabilities

scale

measures for the measure have coefficient alpha = .14 to .87

Self-reported loneliness: $r = .49$

Other-reported loneliness: $r = .40$

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these different aspects of loneliness as an important step in further developing theoretical models of loneliness. In addition, the relationship between unidimensional and multidimensional loneliness measures needs to be explored; understanding what each type of scale is measuring should advance our understanding of loneliness.)

DEVELOPMENT OF THE UCLA LONELINESS SCALE

Having briefly reviewed the development of loneliness measures by other investigators, I would now like to review in some detail the development of the UCLA Loneliness Scale (Russell et al., 1980; Russell et al., 1978). When I and my colleagues began work on the measure in 1976, none of the loneliness measures discussed above had been published. We sought to create a psychometrically adequate, easily administered, and generally available scale that would serve as a stimulus for empirical research on loneliness. At present, the UCLA scale is the most widely used loneliness measure.

In assessing loneliness, my colleagues and I sought to identify several common themes that characterized the experience of loneliness for a broad spectrum of individuals. Thus we took a global or unidimensional approach to measuring loneliness. Our scale development work began with 25 items borrowed from Sisenwein's (1964) loneliness measure. Sampling of items from Sisenwein's scale was unsystematic; the only criterion was to eliminate very extreme statements (e.g., "The television is my only friend"). Examples of items that were selected are "I cannot tolerate being so alone" and "No one really knows me well." The response format (taken from Sisenwein) asked individuals to rate how frequently they felt the way described, from "never" to "often" on a 4-point scale.

This initial set of items was administered to two groups of young adults at UCLA. A *clinic sample* included volunteers recruited to participate in a discussion group on loneliness; a *student sample* included participants recruited from psychology courses in return for course credit. All participants responded to the set of 25 items and indicated how lonely they were compared to others on a 5-point Likert scale. Individuals also described their current affective state by making intensity ratings of such feelings as "restless," "empty," "depressed," and "bored."

The final loneliness scale, consisting of 20 items, was developed based on item-total correlations; selected items all had correlations above .50. The resulting scale had high internal consistency with a coefficient alpha of .96. Validity for the measure was assessed in three ways. First, a correlation of .79 was found between the total score on the loneliness scale and responses to the single item loneliness self-rating measure. A second test compared the loneliness scores of the clinic sample to scores of the student participants. The difference between these two groups was large and statistically significant; the mean of the clinic sample (60.1) was nearly two standard deviations

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higher than the mean for the student sample (39.1). Finally, loneliness scores were strongly related to the reported intensity of feelings one might associate with loneliness, such as depression, anxiety, dissatisfaction, unhappiness, and shyness; and scores were unrelated to feelings that appear to be conceptually distinct from the experience of loneliness, such as feeling "hard-working" or having "wide interests."

Subsequent research, both by ourselves and other investigators, has provided further evidence for the adequacy of the UCLA Loneliness Scale. Unpublished data from new samples of college students at UCLA have cross-validated the high internal consistency found initially for the measure; an alpha coefficient of .94 has been found in several different samples. Solano (1980) reported an alpha coefficient of .89 for a sample of students from Wake Forest University. Concerning test-retest reliability, Jones (cited in Russell et al., 1978) found a correlation of .73 over a 2-month period in a college student sample. (Recent data gathered at UCLA (see Chapter 18 by Cutrona) indicated a test-retest correlation of .62 over a 7-month period for a group of first-year college students. These correlations indicate some stability in loneliness scores, but also indicate that variations do occur over time.)

Concerning the validity of the UCLA Loneliness Scale, a number of investigations provide evidence of the measure's adequacy. Scores on the scale have correlated significantly with several other loneliness measures. Solano (1980) reported a correlation of .74 between the Bradley loneliness measure and the UCLA scale. Ellison and Paloutzian (1979a) found a correlation of .72 between their Abbreviated Loneliness Scale and the UCLA Loneliness Scale. Jones, Freeman, and Goswick (1981) reported a variety of personality correlates of scores on the UCLA loneliness measure. The lonely person indicated greater public self-consciousness and social anxiety, higher levels of shyness and normlessness, greater social isolation, lower self-esteem, less altruism, and less acceptance of others. Lonely students also felt less acceptance of themselves by others, scored lower in belief in a just world, and indicated a more external locus of control. Jones et al. also found that lonely individuals evaluated themselves and other people more negatively following brief social interactions. In a careful behavioral analysis of the interactions of lonely and nonlonely students, Jones and his colleagues found that lonely individuals made more self-statements, asked fewer questions of their partners, changed the topic of conversation more frequently, and responded more slowly to their partners (Jones, Chapter 15). Related to these findings, Horowitz and French (1979) have reported that lonely individuals experience greater feelings of inhibited sociability.

A limitation of the research just described is that it is based on college student samples, raising questions concerning the validity of the UCLA Loneliness Scale in assessing loneliness for other populations. Evidence on this important issue is still limited. Perlman, Gerson, and Spinner (1978) examined loneliness in a sample of senior citizens, using an 11-item version of

the UCLA Loneliness Scale. They found that loneliness scores correlated significantly ($r = .72$) with an index of the frequency and intensity of the respondents' self-rated current loneliness. In addition, loneliness scores were highly related to experiencing such emotions as anxiety, depression, unhappiness, and dissatisfaction—affects that are associated with loneliness among college students (Russell et al., 1978). Finally, loneliness among senior citizens was associated with less frequent contact with peers and friends.

A comparison of the average loneliness scores for the older adults tested by Perlman et al. with the scores of students at UCLA (using the same 11-item version of the UCLA scale employed by Perlman et al.) indicates that the senior citizens scored significantly less lonely as a group than the college students (means of 18.44 and 22.63, respectively). While running counter to the stereotype of the lonely older person, this same pattern of findings has been reported in several survey studies of loneliness (Dyer, 1974; Lowenthal et al., 1975; Rosow, 1962; Rubenstein & Shaver, 1979; Shanas et al., 1968).

Data from other adult "at risk" groups also indicate that the UCLA Loneliness Scale validly assesses adult loneliness. Compared to the overall mean loneliness score for college student samples ($M = 38.6$), adult psychiatric inpatients ($M = 51.8$), divorced adults ($M = 47.7$), and adult participants in social skills workshops ($M = 56.8$) were all found to be significantly lonelier (Russell, 1978). Although there is a clear need for further systematic analyses of the validity of the UCLA Loneliness Scale in populations other than college students, the existing evidence is encouraging.

(Several potential problems with the UCLA Loneliness Scale deserve comment. One issue concerns possible response biases. All of the items on the measure are worded in the same (lonely) direction; thus tendencies to respond in a certain fashion could systematically influence loneliness scores. A second potential problem is social desirability. Since a social stigma is attached to loneliness (Gordon, 1976), individuals may distort their responses in order to appear less lonely. A final problematic issue concerns discriminant validity. The relationships found between loneliness scores and measures of other constructs such as depression or self-esteem are intuitively quite reasonable, and therefore support the validity of the measure. However, the magnitude of these empirical relationships indicates a need to demonstrate that the UCLA Loneliness Scale is distinct from these other measures.)

To address these issues, we have recently revised the UCLA Loneliness Scale. Two new studies using the revised scale provide clear evidence for the validity of the new measure (Russell et al., 1980). In a first study, a set of positively worded loneliness items was developed; items were written to reflect as nearly as possible the opposite of the original scale items (i.e., social satisfaction rather than social dissatisfaction). Examples of these positive items are "There are people I feel close to" and "I have a lot in common with the people around me." The original loneliness scale and the new positive items were administered to a group of 162 college students, along with a set

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of items asking students to indicate whether they were lonely or not (e.g., "During the past two weeks, how lonely have you felt?"). These latter items were summed together to form an index of self-labeled loneliness. In addition, several measures of affective states were included: the Beck Depression Inventory (Beck, 1967), the Costello-Comrey Anxiety and Depression Scales (Costello & Comrey, 1967), and intensity ratings of different feelings (e.g., bored, empty, hopeless).

A revised UCLA Loneliness Scale was developed (presented in Table 6.3), based on the correlations of individual items with the loneliness self-labeling index. The 10 positively worded and 10 negatively worded items with the highest correlations were chosen for the final measure. All of the item-criterion correlations were above .40. Coefficient alpha for the revised scale was .94, a figure comparable to that found for the original scale. Scores on the revised scale correlated in the expected fashion with the measures of emotional state. Substantial relationships were found with the Beck Depression Inventory ($r = .62$) and with the Costello-Comrey Anxiety ($r = .32$) and Depression ($r = .55$) scales. Significant relationships were also found between loneliness scores and feeling abandoned, depressed, empty, hopeless, isolated, and self-enclosed, and with *not* feeling sociable or satisfied; scores were unrelated to such conceptually distinct emotions as embarrassment or surprise.

A second study explored further the validity of the revised UCLA Loneliness Scale. Participants in this study were a heterogeneous sample of 237 college undergraduates from the University of Tulsa and from UCLA. Students completed the original loneliness scale, along with the 10 new positively worded items, and indicated how lonely they were on the loneliness self-labeling index from the earlier study. Other measures assessed aspects of the student's social and solitary activities during the past two weeks (e.g., "How often have you eaten dinner alone" and "How often have you done something with a friend") and social relationships (e.g., "How many close friends do you have?"). Finally, students completed several personality and mood inventories assessing depression, anxiety, self-esteem, introversion-extraversion, assertiveness, sensitivity to rejection, affiliative tendencies, lying, and social desirability.

Results from the second study further confirmed the internal consistency of the scale; a coefficient alpha of .94 was again found for the revised measure. Supporting the concurrent validity of the scale, loneliness scores were significantly related to social activities and relationships. Positive correlations were found between loneliness and the amount of time spent alone each day ($r = .41$), the number of times students had eaten dinner alone ($r = .34$), and the number of times students had spent a weekend evening alone ($r = .44$). Negative relationships were found between loneliness scores and the frequency of social activities with friends ($r = -.28$) and the number of close friends ($r = -.44$). Loneliness was also related to current marital or

Table 6.3. The Revised UCLA Loneliness Scale ^a

Directions: Indicate how often you feel the way described in each of the following statements. Circle one number for each.

	Never	Rarely	Sometimes	Often
*1. I feel in tune with the people around me	1	2	3	4
2. I lack companionship	1	2	3	4
3. There is no one I can turn to	1	2	3	4
*4. I do not feel alone	1	2	3	4
*5. I feel part of a group of friends	1	2	3	4
*6. I have a lot in common with the people around me	1	2	3	4
7. I am no longer close to anyone	1	2	3	4
8. My interests and ideas are not shared by those around me	1	2	3	4
*9. I am an outgoing person	1	2	3	4
*10. There are people I feel close to	1	2	3	4
11. I feel left out	1	2	3	4
12. My social relationships are superficial	1	2	3	4
13. No one really knows me well	1	2	3	4
14. I feel isolated from others	1	2	3	4
*15. I can find companionship when I want it	1	2	3	4
*16. There are people who really understand me	1	2	3	4
17. I am unhappy being so withdrawn	1	2	3	4
18. People are around me but not with me	1	2	3	4
*19. There are people I can talk to	1	2	3	4
*20. There are people I can turn to	1	2	3	4

^a The total score on the scale is the sum of all 20 items. Items with asterisks should be reversed (i.e., 1 = 4, 2 = 3, 3 = 2, 4 = 1) before scoring. The four item survey version of the UCLA Loneliness Scale consists of items 1, 13, 15 and 18. Reprinted from "The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence" by D. Russell, L. A. Peplau, and C. E. Cutrona, *Journal of Personality and Social Psychology*, 1980, 39(3), p. 475. Copyright 1980 by the American Psychological Association. Reprinted by permission.

dating status; students who were not dating at all ($M = 43.1$) were much lonelier than students who were dating casually ($M = 34.0$) or who were dating regularly or married ($M = 32.7$).

An important goal of this second study was to examine the discriminant validity of the revised UCLA Loneliness Scale. The previous study indicated quite substantial relationships between scores on the revised loneliness scale and measures of depression. Previous research has also indicated strong relationships between loneliness scores and measures of anxiety and self-esteem. These relationships pose an important validity question: Does the loneliness

devised a short, four-item version of the UCLA Loneliness Scale, intended for use in survey research (the items are indicated in Table 6.3). Using optimal subset regression techniques, four items were selected (two positively worded and two negatively worded) that best predicted scores on the loneliness self-labeling index. This short loneliness measure was found to have a coefficient alpha of .75. We employed this loneliness scale in a telephone survey of working adults in Los Angeles (described in Gutek, Nakamura, Gahart, Handschumacher, & Russell, 1980). Table 6.4 presents the mean loneliness scores for different age groups from this sample. As can be seen, the general trend is for loneliness to decrease over the life span, with the oldest respondents having the lowest loneliness scores. Results from this survey also indicated a relationship between loneliness and socioeconomic status; respondents who reported having larger incomes and greater education were less lonely.

Table 6.4. Mean UCLA Loneliness Scores for Different Age Groups^a

<i>Age Group</i>	<i>Number of respondents</i>	<i>Mean loneliness</i>	<i>Standard deviation</i>
18-30 year olds	149	8.31	2.02
31-40 year olds	94	8.17	1.97
41-50 year olds	53	7.51	1.88
51-60 year olds	52	7.86	2.32
Over 60 year olds	34	7.26	2.63

^a The loneliness scores are based on the four-item survey version of the UCLA Loneliness Scale (see Table 6.3). Further details on the characteristics of the sample are given in Gutek et al. (1980). The one-way ANOVA comparing the mean loneliness scores of the age groups was significant, $F(4,377) = 2.80, p < .05$; the correlation between loneliness scores and age was also significant, $r(382) = -.17, p < .001$.

We believe that our efforts to develop an adequate loneliness scale have been very successful. The revised UCLA Loneliness Scale is relatively short, easily administered, highly reliable, and appears to be valid both in assessing loneliness and discriminating between loneliness and other related constructs. Of course, the validity of a measure is never "proven." Hopefully future research will continue to support the utility of this measure in assessing loneliness. Despite the success of these efforts, however, there remain important unresolved conceptual and methodological issues in the assessment of loneliness.

METHODOLOGICAL AND CONCEPTUAL ISSUES

In this final section, I consider some general issues of importance to the development of measures of loneliness. A basic point to be made is that theoretical conceptualizations and methodological issues are inseparable. Our

Loneliness Scale, intended in Table 6.3). Using the selected (two positively predicted scores on the loneliness measure was found to have a loneliness scale in a telephone bed in Gutek, Nakamura, Table 6.4 presents the mean scores sample. As can be seen, over the life span, with the scores. Results from this loneliness and socioeconomic comes and greater educa-

Loneliness Scale by Age Groups^a

Loneliness	Standard deviation
1	2.02
7	1.97
1	1.88
6	2.32
6	2.63

^a Correlation of the UCLA Loneliness Scale characteristics of the sample are comparing the mean loneliness score to the mean loneliness score. $r = .80, p < .05$; the correlation between the mean loneliness score and the mean loneliness score is $r = -.17, p < .001$.

Loneliness scale have a short scale is relatively short, but it is valid both in assessing loneliness and other related constructs. "Loneliness is a state or a trait?" Hopefully future research will measure in assessing loneliness, there remain important issues in the assessment of loneliness.

CONCLUSIONS

Issues of importance to the point to be made is that these issues are inseparable. Our

judgments of the adequacy of loneliness measures are often dependent upon how we view loneliness theoretically. And conversely, the methodology we employ in studying loneliness may limit or constrain our theoretical view of the phenomenon. The relationship between theoretical conceptualizations of loneliness and the methodological problems of reliability and validity deserves special comment.

Reliability

Two forms of reliability have been examined in developing measures of loneliness: internal consistency and test-retest reliability. It is generally considered desirable to have internally consistent or homogeneous scales (Nunnally, 1978): a good measure should have high inter-item correlations. The implications for loneliness measures of this recommendation differ depending on one's theoretical conceptualization of loneliness. If loneliness is viewed as a unidimensional construct, then high inter-item correlations should be expected, since each item should be assessing the same thing (loneliness). For multidimensional measures of loneliness, however, high inter-item correlations would not necessarily be anticipated for the entire scale, since items are designed to assess different aspects or components of loneliness. Instead, internally consistent subscales should be developed, corresponding to the different components or dimensions of loneliness that the multidimensional scale is designed to assess (see Nunnally, 1978). If internally consistent subscales exist corresponding to the hypothesized dimensions of loneliness, then a factor analysis of the entire scale should reproduce these dimensions as separate factors, assuming that the loneliness dimensions are independent of one another. The scale development work of Schmidt (1976) and de Jong-Gierveld (1978, Chapter 7) illustrate this confirmatory factor analytic procedure.

Test-retest reliability also raises issues of a conceptual nature. These reliability correlations reflect the stability of scores on a measure over time. Generally speaking, high test-retest reliability is desirable, since variations in test scores over time are typically attributed to measurement error. However, this assumes that the construct being measured actually is stable over time. Although this may be a safe assumption for personality traits or abilities, it may be less reasonable for loneliness. Thus the issue of test-retest reliability raises questions concerning the state versus trait nature of loneliness.

Is loneliness a state or a trait? Undoubtedly, loneliness can have both characteristics. For example, the loneliness of a college student who is new on campus may be a short-lived state, lasting only until the student has become integrated into the new social situation. In contrast, another new student may suffer from chronic loneliness, having been socially maladjusted and lonely as an adolescent and continuing to be lonely in college. It may prove useful to distinguish both methodologically and conceptually between these two types or forms of loneliness. (In the only study to examine this trait-state distinction

directly, Gerson and Perlman (1979) administered the UCLA Loneliness Scale under both state (i.e., "How have you felt during the past two weeks") and trait (i.e., "How have you felt during your lifetime") conditions. They found that state-lonely individuals were better "senders" in a nonverbal communication task than trait-lonely individuals. Thus some interesting behavioral differences are suggested between state and trait loneliness (see also Young, Chapter 22).)

(The distinction between state and trait loneliness is analogous to the distinction between state and trait anxiety made by Spielberger (1975). It is informative that Spielberger, Gorsuch, and Lushene (1970) reported high levels of internal consistency for their measure of trait anxiety ($r = .73$ to $.86$) and low levels of test-retest reliability for their measure of state anxiety ($r = .16$ to $.54$). These reliability findings suggest that the level of test-retest reliability to be expected from loneliness measures should depend upon whether a scale assesses state or trait loneliness.)

Validity

Three types of validity are important in psychological testing (see *Standards for Educational and Psychological Tests*, 1974): content validity, criterion validity (both concurrent and predictive), and construct validity.

Content Validity

One form of content validity is face validity, which concerns whether or not a measure appears to assess the construct. The most face valid loneliness measures are items asking for explicit self-ratings of loneliness (e.g., "Are you lonely?"). However, such undisguised measures may have problems of social desirability or acquiescence response set biases that could limit their validity.

More generally, content validity deals with how well the items on a test represent the construct that is being assessed. This issue is particularly relevant to multidimensional loneliness measures, where different components or dimensions of loneliness are hypothesized to exist. To have content validity, the items on such a scale should assess these different aspects of loneliness, thereby representing the multifaceted nature of the construct (loneliness) that is being assessed. Content validity is less crucial for unidimensional or global loneliness scales, since loneliness is viewed as a unitary construct and the representativeness of scale items is not an issue. So, once again, our theoretical perspective on loneliness dictates how we address issues of content validity.

Criterion Validity

A basic problem in constructing measures of loneliness is the lack of clear-cut external validity criteria for loneliness. Most researchers agree that loneliness represents a subjective reaction to deficiencies in social relationships. Loneliness is not synonymous with social isolation, and so measures of objective

specific measures of a person's satisfaction with particular types of social relationships.

The discussion of criterion validity to this point has focused on concurrent validity, where loneliness measures are validated by demonstrating relationships with the person's current feelings of loneliness, satisfaction with social relationships, and so on. Another form of criterion validity is predictive validity, in which scores on a measure are related to validity criteria that are assessed at some future point in time. Unless loneliness is viewed as a trait or as enduring over time, it seems unlikely that scores on a loneliness measure would predict a person's future feelings of satisfaction with social relationships. Thus, our concern with the predictive validity of loneliness measures depends upon how loneliness is conceptualized.

Construct Validity

The most difficult and abstract form of validity involves construct validation. The concern here is not with the relationship between loneliness scores and any single validity criterion. Instead the focus is shifted to how the loneliness measure relates to a variety of other variables or constructs. This approach requires that the loneliness researcher have at least a tentative theory of loneliness from which to derive predictions linking loneliness to other measures. These predictions are then empirically tested. If the predictions are confirmed, then both the validity of the measure and the validity of the loneliness theory are supported. If the predictions are not confirmed, the interpretation is somewhat ambiguous—the problem could be with the measure or with the theory.

Attempts at construct validation of loneliness measures have been rare. One example comes from our work in developing the UCLA Loneliness Scale. Based on Weiss's (1973) ideas concerning the emotional concomitants of loneliness, we examined a variety of feeling states (such as feeling "bored," "empty," and "restless") that should be related to loneliness, as well as feeling states that should be unrelated to loneliness (such as feeling "surprised"). Empirical findings confirmed these hypothesized relationships. Another example of construct validation comes from a recent study by Cutrona (Chapter 18) employing the UCLA Loneliness Scale. Based on a social dissatisfaction model of loneliness (Peplau, Russell, & Heim, 1979), Cutrona predicted and found that loneliness scores were much more strongly related to measures of qualitative satisfaction with relationships than to quantitative measures of social contact (e.g., number of close friendships).

Establishing the discriminant validity of a measure can also be viewed as a form of construct validation (Campbell & Fiske, 1959; Magnusson, 1967). Discriminant validity is a particularly important issue for loneliness measures, since loneliness is strongly related to other constructs such as depression and low self-esteem. Our recent research using the revised UCLA Loneliness Scale illustrates discriminant validation, and provides clear evidence that the UCLA scale measures a construct that is distinct from other related constructs. The

particular types of social

has focused on concurrent validity by demonstrating relationships between loneliness and other variables such as depression, satisfaction with social relationships, and self-esteem. Concurrent validity is predictive validity criteria that are related to loneliness. Loneliness is viewed as a trait that is measured on a loneliness measure. The relationship between loneliness and social relationships is a key concern of loneliness measures.

Construct validation involves construct validation. The relationship between loneliness scores and other variables is related to how the loneliness measure is defined. This approach involves testing a tentative theory of loneliness by relating it to other variables. If the predictions are supported, the validity of the loneliness measure is confirmed, the interpretation of the measure or with other variables.

Loneliness measures have been rare. The UCLA Loneliness Scale is one of the most widely used measures of the emotional concomitants of loneliness (such as feeling isolated, depressed, and dissatisfied). It is related to loneliness, as well as to other variables such as loneliness (such as feeling isolated, depressed, and dissatisfied). The UCLA Loneliness Scale is based on a recent study by Russell, & Heim, (1979), which found that loneliness was much more strongly related to depression and other variables than to other variables (such as depression and other variables). The UCLA Loneliness Scale is based on evidence that the UCLA Loneliness Scale is related to other variables. The

only other attempt to demonstrate discriminant validity for a loneliness measure (Schmidt, 1976) was less successful.

A further issue of discriminant validity concerns the possibility that relationships between loneliness and other variables are mediated by the impact of a third variable. For example, the general tendency of lonely individuals to evaluate themselves and other people negatively (see Jones, Chapter 15) may reflect the influence of depression on loneliness scores. This mediating effect could be tested by statistically controlling for the impact of depression on loneliness scores, and then examining whether the relationship between loneliness and this "negativity bias" persists. (For an example of this type of analysis, see Gerson & Perlman, 1979.) Given the extremely high correlations that have repeatedly been reported between loneliness measures and anxiety, depression, and self-esteem, discriminant validity should have a high priority in future loneliness research.

A final issue in the construct validation of loneliness measures concerns the nature of loneliness itself. As noted earlier, two different conceptual approaches to loneliness can be identified: the unidimensional and multidimensional approaches. Researchers who subscribe to each approach must provide support for their theoretical view of loneliness in validating their measures of loneliness. So, for example, developers of unidimensional measures must demonstrate that their scale is sensitive to loneliness in a wide range of individuals, varying in age, social class, and cause of social distress. Developers of multidimensional measures must substantiate that loneliness consists of the components or dimensions they propose, and that their scale adequately assesses these components. Although these two approaches to the assessment of loneliness appear contradictory, both approaches may prove to be correct. A general or common set of experiences could underlie loneliness as it is experienced by all people. Different components or dimensions of loneliness may also exist, reflecting different paths to this common experiential state (loneliness) or variations in how people respond to loneliness. An integration of these two conceptual approaches to loneliness may therefore be possible, and might yield a more general and comprehensive conception of loneliness.)

As loneliness research leaves its infancy, there is a general need for greater theoretical development. As Kurt Lewin commented many years ago:

The simple collection of facts is indispensable at certain stages of a science; it is a wholesome reaction against a philosophical and speculative building of theories. But it cannot give a satisfactory answer to questions about causes and conditions of events. Only with the help of theories can one determine causal interrelationships. (Lewin, 1936, p. 4)

At this point, it appears that we are able to assess loneliness with some confidence. And as the research summarized here and elsewhere in this volume demonstrates, a large number of empirical facts concerning loneliness have been gathered. For our understanding of loneliness to progress, we now need

to develop theoretical models of loneliness that organize what is known about loneliness and serve to guide our search for further knowledge.

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