

MEASUREMENT AND VALIDITY CHARACTERISTICS OF THE SHORT VERSION OF THE SOCIAL AND EMOTIONAL LONELINESS SCALE FOR ADULTS

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This article presents a psychometric study of the short form of the Social and Emotional Loneliness Scale for Adults (SELSA-S). Data were collected via self-report measures and mail surveys from several samples including university students, spouses of military personnel, and psychiatric patients. A total of 1,526 individuals took part in this study. Results indicated that the scores from the three scales of the SELSA-S were highly internally reliable. Concurrent validity for the scales was indicated by the statistically significant relationships with other measures of loneliness. Construct (convergent and discriminant) validity was supported by strong relationships with measures of the adequacy of intimate relationships (e.g., attachment and social intimacy) and by the association of the three types of loneliness to measures of social competence, self-esteem, trust, health, and well-being. Finally, results from a factor analysis indicated that the three-factor model of the SELSA-S provided the best fit to the data.

Keywords: *loneliness; reliability; validity; scale; SELSA*

Despite the many definitions of loneliness, it is fundamentally an aversive and distressing experience with potentially serious consequences (Peplau & Perlman, 1982; Perlman, 1983; Weiss, 1987). It has been estimated that at any one time, one in four people is suffering from loneliness (e.g., Cutrona, 1982; Perlman, 1988; Weiss, 1973). Loneliness has been linked to a number of psychological and somatic difficulties (e.g., DiTommaso & Spinner, 1997;

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Hojat, 1983; Lynch, 1977; D. A. West, Kellner, & Moore-West, 1986). Loneliness has been associated with lower reported life satisfaction (e.g., Goodwin, Cook, & Yung, 2001; Gray, Ventis, & Hayslip, 1992; Neto, 1995), alcoholism, suicide, and physical illness (see Ernst & Cacioppo, 1999, for a review). It is thus important to understand and effectively measure loneliness (see Marangoni & Ickes, 1989, for a discussion).

During the past 20 years of research, two main conceptualizations of loneliness have evolved. One perspective regards loneliness as a unitary state that varies only in intensity and is the result of deficits in a variety of relationships (Russell, 1982, 1996; Russell, Peplau, & Cutrona, 1980). The alternative conceptualization of loneliness views the experience as multidimensional and domain specific (Weiss, 1973, 1998). Although this perspective proposes that the different types of loneliness share a common core, it also proposes that deficits in different relationships and the associated consequences of becoming lonely in a particular relationship domain can be qualitatively different (DiTommaso & Spinner, 1993, 1997; Russell, Cutrona, Rose, & Yurko, 1984; Schmidt & Sermat, 1983; Weiss, 1973, 1998). Proponents of this approach suggest that it more fully reflects the diverse experiences of loneliness. For example, this perspective would argue that there are qualitative differences between the experience of an adolescent undergoing the transition to adulthood and the loneliness felt by an older adult whose partner has just died. Weiss (1973, 1987) first described the multidimensional nature of loneliness by proposing two distinct types: one being the experience of emotional isolation and the other that of social isolation. Consistent with his earlier formulations, Weiss (1998) proposed that there are two basic types of relationships that are reflective of the domain specificity of loneliness. Affiliations are described as social relationships, such as friendships and workplace relationships. A perceived lack of these types of relationships would be reflected in feelings of social loneliness. Attachments are found in close, intimate relationships that exist in romantic pair bonds and in the caregiver-child relationship. Deficiencies in these relationships may lead an individual to experience emotional loneliness.

DiTommaso and Spinner (1993, 1997) developed a theory-driven, 37-item, multidimensional measure consistent with Weiss's (1973) distinction between the experience of emotional isolation (emotional loneliness) and that of social isolation (social loneliness). The Social and Emotional Loneliness Scale for Adults (SELSA; DiTommaso & Spinner, 1993) also distinguishes between two domains of emotional loneliness: family emotional loneliness and romantic emotional loneliness. Although reliability and validity evidence of the SELSA was good (Cramer & Barry, 1999), a shorter, multidimensional measure is needed for two reasons. First, in clinical and research settings, a short, psychometrically sound, multidimensional measure of loneliness affords greater efficiency. Second, a shorter version of the SELSA that is similar in length to the most commonly used loneliness mea-

sure, the unidimensional revised University of California, Los Angeles, Loneliness Scale–Version 3 (UCLA-3; Russell et al., 1980), may encourage investigators to use a multidimensional approach to measuring loneliness. Herein lies the major advantage of the SELSA because it allows both researchers and clinicians to pinpoint the specific nature and/or duration of loneliness.

As noted previously, the experience of loneliness has been related to a number of intrapersonal and interpersonal constructs (see Ernst & Cacioppo, 1999; Hojat & Crandall, 1989; McWhirter, 1990, for reviews). Measures reflecting these correlates have been used in this study to evaluate the short version of the SELSA (SELSA-S). These measures encompass the following four broad areas: attachment, relationships, interpersonal competence, and adjustment.

This article presents evidence for the psychometric properties of the 15-item SELSA-S. The SELSA-S has been completed by several different samples, including partners of armed forces personnel, psychiatric patients, and university students. This article reports on a total of 1,572 individuals from four samples. The following two data collection methods were used: self-report questionnaires and mail surveys. Data from all four samples are presented to assess the reliability, validity, and structural stability of the scores on the Social, Family, and Emotional Loneliness subscales of the SELSA-S.

Method

Participants

The validity and reliability of the SELSA-S scores were assessed based on data collected from four samples. The first two samples consisted of university students, the third sample was a female sample that consisted of the spouses or partners of Canadian Forces members, and the fourth sample was drawn from a psychiatric population. The aim of using these samples was to evaluate the properties of the SELSA-S in diverse populations and age groups. Table 1 outlines some demographic characteristics of the samples.

Measures

Table 2 presents the measures that were completed by participants in the four independent samples. The data reported here were collected over a period of time and therefore not all of the participants completed each of the measures. The measures used in this study are established, and previous studies have assessed the psychometric quality of these scales.

Table 1
Demographic Information for the Four Samples

Sample	Number of Participants (% of sample)	Age		
		Mean	Standard Deviation	Range
University undergraduates	1,060	21.02	5.87	17-74
Women	699 (65.94%)	21.01	5.95	17-60
Men	358 (33.77%)	21.05	5.72	17-74
SELSA-S validation sample of university undergraduates	184	21.32	4.20	17-47
Women	118 (64.13%)	21.69	4.70	18-47
Men	65 (35.32%)	20.66	3.02	17-33
Partners of armed forces personnel	334	32.37	6.52	17-62
Women	334 (100%)	32.37	6.52	17-62
Men	NA	NA	NA	NA
Psychiatric sample	38	38.66	11.57	17-62
Women	22 (57.89%)	38.02	12.21	17-61
Men	16 (42.11%)	39.53	10.96	21-62
Total ^a	1,602	23.81	7.91	17-74
Women	1,138 (71.04%)	24.61	8.19	17-61
Men	431 (26.90%)	21.67	6.65	17-74

Note. SELSA-S = Social and Emotional Loneliness Scale for Adults (short form).

a. The number of cases varies from the overall sample size due to missing data.

LONELINESS MEASURES

SELSA. The full version of the SELSA (DiTommaso & Spinner, 1993) is a 37-item multidimensional measure of loneliness that assesses emotional (romantic and family) and social loneliness. Items were rated on a 7-point Likert-type scale that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

SELSA-S. A total of 15 items selected from the original SELSA subscales (Social, Romantic, and Family) comprise the SELSA-S (DiTommaso, 1997). Item selection was based on the item's loading, variance, and the need to provide a balance between negatively and positively worded items. The Romantic subscale was composed of original Items 4, 8, 10, 15, 21; the Family subscale included Items 2, 5, 17, 19, 23; and the Social subscale included Items 2, 3, 4, 9, 11. Items were rated on a 7-point Likert-type scale that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

UCLA-3. This is a 20-item unidimensional measure of global loneliness (Russell, 1996). Items are scored on a 4-point Likert-type scale and scores can range from 20 (*low levels of loneliness*) to 80 (*high levels of loneliness*).

Table 2
Measures of Individual Difference Used in the Four Samples

Sample	1	2	3	4
Attachment measures				
ECR	X			X
IPPA	X			
RAQ		X		
RSQ	X	X	X	X
RQ	X	X	X	X
Personality measures				
ITS	X	X		
LPS	X			
MSIS	X			
RSE	X	X		
SWLS	X			
Interpersonal skill measures				
SSI	X			
WCL	X		X	X
Mental health measures				
SC	X			
SS-77				X
Loneliness measures				
SELSA-S	X	X	X	X
SELSA		X		
UCLA-3		X		
Relationship measures				
QRI		X		

Note: X denotes use of the measure in the indicated sample. ECR = Experiences in Close Relationships; IPPA = Inventory of Parental and Peer Attachment; RAQ = Reciprocal Attachment Questionnaire; RSQ = Relationship Scales Questionnaire; RQ = Relationship Questionnaire; ITS = Interpersonal Trust Scale; LPS = Liking for People Scale; MSIS = Miller Social Intimacy Scale; RSE = Rosenberg Self-Esteem Scale; SWLS = Satisfaction With Life Scale; SSI = Social Skills Inventory; WCL = Ways of Coping Checklist; SC = Symptom Checklist; SS-77 = Symptom Survey-77; SELSA-S = Social and Emotional Loneliness Scale for Adults (short form); SELSA = Social and Emotional Loneliness Scale for Adults (original); UCLA-3 = University of California, Los Angeles, Loneliness Scale-Version 3; QRI = Quality of Relationship Inventory.

ATTACHMENT MEASURES

Relationship Questionnaire. The Relationship Questionnaire (Griffin & Bartholomew, 1994) consists of four attachment paragraphs (secure, fearful, preoccupied, and dismissing). Participants use a 7-point scale to rate their similarity with a profile (1 = *not at all like me* to 7 = *very much like me*). A fifth question requires participants to select which of the four paragraphs is most like them.

Relationship Scales Questionnaire. The Relationship Scales Questionnaire (Griffin & Bartholomew, 1994) is a 30-item measure assessing four

adult attachment prototypes (secure, fearful, preoccupied, and dismissing). Items are rated on a 5-point Likert-type scale ranging from 1 (*not at all like me*) to 5 (*very like me*).

Inventory of Parent and Peer Attachment (IPPA) (Armsden & Greenberg, 1987). The original IPPA is a 75-item measure of parental and peer attachment in adolescence. It consists of the following three subscales for both parents and peers: Trust, Communication, and Alienation. Items are rated on a 5-point Likert-type scale (1 = *almost never or never true* to 5 = *almost always or always true*). For this study, participants also completed a modified IPPA measuring romantic attachment in adolescence.

Experiences With Close Relationships Inventory. The Experiences With Close Relationships Inventory (Brennan, Clark, & Shaver, 1998) is a 36-item self-report scale that measures avoidance and anxiety in adult romantic attachment.

Reciprocal Attachment Questionnaire. The Reciprocal Attachment Questionnaire (L. M. West & Sheldon-Keller, 1994) is a 43-item scale designed to measure adult attachment along five dimensions (proximity seeking, separation protest, feared loss, availability, and use) of attachment and four patterns (angry withdrawal, compulsive caregiving, compulsive self-reliance, and compulsive care seeking) of attachment. Each scale consists of three items that are rated on a 5-point scale (1 = *strongly agree* to 5 = *strongly disagree*).

QUALITY OF RELATIONSHIP MEASURES

Quality of Relationship Measure. The Quality of Relationship Measure (Pierce, Sarason, Sarason, Solky-Butzel, & Nagle, 1997) assesses the support, conflict, and depth of specific relationships. The 25 self-report items are rated on a 4-point Likert-type scale (1 = *not at all* to 4 = *very much*).

Interpersonal Trust Scale. The 25-item Interpersonal Trust Scale (Rotter, 1967) measures interpersonal trust in various situations using a 5-point Likert-type scale (1 = *strongly agree* to 5 = *strongly disagree*).

Liking for People Scale. The 15-item Liking for People (Filsinger, 1981) measures interpersonal orientation and liking for people using a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*).

Miller Social Intimacy Scale. The Miller Social Intimacy Scale (Miller & Lefcourt, 1982) measures the level of social intimacy and the current relationship with a closest friend. The 25 items are rated on a 5-point Likert-type scale (1 = *very rarely* to 5 = *almost always*).

Rosenberg Self-Esteem Inventory. The Rosenberg Self-Esteem Inventory (Rosenberg, 1965) has 10 self-esteem items that are rated on a 4-point scale.

SOCIAL COMPETENCE MEASURES

Social Skills Inventory. The Social Skills Inventory (Riggio, 1989) is a 90-item self-report measure scored using a 5-point Likert-type scale (1 = *not at all like me* to 5 = *exactly like me*) and yields a total score as well as scores on the following six separate scales: Emotional Expressivity, Emotional Sensitivity, Emotional Control, Social Expressivity, Social Sensitivity, and Social Control.

The Revised Ways of Coping Checklist. The Revised Ways of Coping Checklist (Folkman & Lazarus, 1985) is a self-report measure to assess coping with a current life stressor, with ratings ranging from 0 (*not used*) to 3 (*used a great deal*). The version used for this study contains 42 items and five scales measuring problem-focused, seeking social support, and emotion-focused coping styles (Vitaliano, Russo, Carr, Maiuro, & Becker, 1985).

ADJUSTMENT MEASURES

Symptoms Checklist. The Symptoms Checklist (Bartone, Ursano, Wright, & Ingraham, 1989) is a 20-item measure of general mental health.

Symptom Survey-77. The Symptom Survey-77 (Johnson, 1995) is a 77-item health survey that measures physical and mental maladaptive functioning (participants report the frequency of each symptom during the past week on a scale from 0 (*not bothered*) to 6 (*severely*)). The Symptom Survey-77 measures a variety of symptoms, but an overall index of symptomatology was used for this study.

Satisfaction With Life Scale. This scale measures individuals' satisfaction with their lives. The five-item Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) is measured using a 7-point Likert-type scale (1 = *strongly agree* to 7 = *strongly disagree*).

Procedure

SAMPLES 1 AND 2

Students enrolled in psychology courses at a Canadian University completed the questionnaire package in groups ranging from 10 to 40. At the beginning of each session, participants read the instructions for completing the questionnaires while listening to a tape recording of the same instructions. After reading the instructions, participants completed a consent form and a demographics questionnaire. The remaining measures were presented in five different random orders. It took participants about 20 to 45 minutes to complete all of the questionnaires.

SAMPLE 3

Questionnaire packages were mailed to 1,000 female partners of members of the Canadian Forces in New Brunswick, Canada. Participants understood that their participation was voluntary, and they were eligible for an end-of-study prize drawing. Participants were instructed not to place any identifying information on any of the questionnaires. They mailed the consent form and prize form separately from the questionnaire package. To control for order effects, questionnaires were presented in two different orders. A total of 336 (35.7%) questionnaires were received.

SAMPLE 4

Participants who were in psychoeducational programs received the package of questionnaires at a local mental health center. They were presented with the informed consent form, the written instructions, and the questionnaires (the questionnaires were counterbalanced) and were asked to complete the package and to mail it anonymously in a postage-paid, addressed envelope.

To avoid fatigue, not all participants completed all the comparison measures in one sitting. Depending on the length of the measures, participants completed between three and eight measures.

Results

Factor Analyses

Exploratory factor analysis. Factor pattern coefficients of the three subscales of SELSA-S for the overall sample are presented in Table 3. Overall results were similar when the four samples were analyzed individually; therefore, only the analyses for the overall sample were reported.

Table 3
Items and Varimax Rotated Factor Pattern Coefficients for the SELSA-S for the Overall Sample

Item Number ^a	Factor ^b		
	1	2	3
Social subscale ^c			
2. I feel part of a group of friends. ^{de} (3)	81	09	02
5. My friends understand my motives and reasoning. ^e (4)	80	12	10
7. I don't have any friends who share my views, but I wish I did. (2)	84	11	08
9. I am able to depend on my friends for help. ^e (9)	85	13	05
13. I do not have any friends who understand me, but I wish I did. (11)	87	10	09
Emotional Loneliness subscales			
Family subscale			
1. I feel alone when I am with my family. ^d (2)	16	76	12
4. There is no one in my family I can depend on for support and encouragement, but I wish there was. (5)	12	76	12
8. I feel close to my family. ^e (23)	08	89	05
11. I feel part of my family. ^e (17)	10	90	05
12. My family really cares about me. ^e (19)	08	84	07
Romantic subscale			
3. I have a romantic partner with whom I share my most intimate thoughts and feelings. ^e (4)	08	00	86
6. I have a romantic or marital partner who gives me the support and encouragement I need. ^e (8)	07	04	90
10. I wish I had a more satisfying romantic relationship. (15)	06	18	72
14. I have a romantic partner to whose happiness I contribute. ^e (21)	06	03	85
15. I have an unmet need for a close romantic relationship. (10)	05	16	70

Note: $N = 1,526$. SELSA-S = Social and Emotional Loneliness Scale for Adults (short form); SELSA-L = Social and Emotional Loneliness Scale for Adults (long version).

a. SELSA-L item number in brackets.

b. Decimal point omitted.

c. Items scores on a scale from 1 (*disagree strongly*) to 7 (*agree strongly*).

d. Chronic version of the SELSA-S.

e. Reverse scoring on these items.

Confirmatory factor analysis. The 15-item SELSA-S was subjected to a confirmatory factor analysis using the SPSS Amos Version 3.6 (Arbuckle, 1997). By using maximum likelihood estimation, four different models were compared. These included the independence model, a one-factor model, a two-factor model, and a three-factor model. Following the cutoff criteria for fit indices outlined by Hu and Bentler (1999), the independence model was

easily rejected. Both the one-factor model (Comparative Fit Index [CFI] = .37; Normed Fit Index [NFI] = .37, Tucker-Lewis Index [TLI] = .27; root mean square error of approximation [RMSEA] = .260) and the two-factor model (CFI = .61; NFI = .60; TLI = .54; RMSEA = .205) fitted the data very poorly. As predicted, the three-factor structure provided the best fit for the sample data (CFI = .92; NFI = .92; TLI = .91; RMSEA = .091). Moreover, all the goodness-of-fit indices are greater than .90 and the root mean squared residual is less than .01, indicating that the three-factor model provided model fit close to the guidelines suggested by Hu and Bentler.

Descriptive and Inferential Statistics

The means and standard deviations for each sample on the social, family, romantic, and total SELSA-S scores are presented in Table 4. Samples 1 and 2 were both student samples; therefore, it was expected that participants in these samples would have similar loneliness scores. Sample 3 consisted of married women, and this sample was expected to have lower loneliness scores. Sample 4 was a psychiatric sample and was expected to have higher SELSA-S scores.

In Table 4, there appear to be differences attributable to sample, gender, and subscales. Several analyses of variance were conducted to examine these differences. The results of these analyses indicated several statistically significant main effects and interactions, but the small effect sizes (η^2 s < .02) suggested that statistical significance was mainly due to the large sample size.

Intercorrelations and Internal Consistency of the Subscales

Table 5 displays the internal consistencies (Cronbach's coefficient α) and correlations among the subscales for the four samples combined. The scores indicate levels of internal consistency, ranging from $\alpha = .87$ to $\alpha = .90$. The correlations among the three subscales are statistically significant but quite low to justify the separate subscales. Intercorrelations from each of the four samples are similar, being slightly higher for the military spouses sample.

Concurrent and Discriminant Validity

Relationship with the SELSA (long version) and the UCLA-3. To assess the concurrent and discriminant validity of the SELSA-S scales, the relationships between the SELSA-S, the SELSA, and the UCLA-3 were evaluated. The validity of the SELSA-S scores is evidenced by both the patterns and magnitudes of the correlations between its subscales and the other measures displayed in Table 6. The scores on the Romantic, Family, and Social scales

Table 4
Descriptive Statistics for the Three SELSA-S Subscales

	<i>n</i> ^b	Subscale ^a					
		Romantic		Family		Social	
		Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Sample 1							
Men	354	17.8	8.8	13.4	6.9	15.1	8.1
Women	679	15.7	9.2	13.4	8.0	15.6	9.0
Total	1,033	16.4	9.1	13.4	7.7	15.4	8.7
Sample 2							
Men	62	18.1	9.2	13.1	7.4	12.9	6.6
Women	116	14.8	9.6	11.6	7.6	11.7	5.6
Total	178	15.9	9.5	12.1	7.5	12.1	6.0
Sample 3							
Men	—	—	—	—	—	—	—
Women	323	13.9	8.3	11.4	6.8	13.7	7.5
Total	323	13.9	8.3	11.4	6.8	13.7	7.5
Sample 4							
Men	15	22.1	11.2	20.0	9.1	19.9	6.7
Women	20	22.7	9.5	18.3	8.8	19.3	7.7
Total	35	22.4	10.1	19.0	8.8	19.6	7.2
Overall							
Men	431	18.0	8.9	13.6	7.2	14.9	8.0
Women	1,138	15.2	9.1	12.7	7.7	14.7	8.4
Total	1,572	16.0	9.1	13.0	7.6	14.8	8.3

Note: SELSA-S = Social and Emotional Loneliness Scale for Adults (short form).

a. Potential range for each subscale is from 5 (low) to 35 (high).

b. The number of cases varies from the overall sample size due to missing data.

Table 5
Internal Consistency (confidence intervals) and Intercorrelations of the Three SELSA-S Subscales for the Overall Sample

Subscale	SELSA-S Subscale		
	Romantic	Family	Social
Romantic	0.87 (.85 to .88)	0.21*	0.17*
Family		0.89 (.88 to .90)	0.26*
Social			0.90 (.88 to .90)

Note: *N* = 1,526; SELSA-S = Social and Emotional Loneliness Scale for Adults (short form). Cronbach's alphas on the diagonal and correlations above the diagonal.

**p* < .001.

of the SELSA-S were most highly correlated with the scores on the same scales in both the SELSA and the adjusted SELSA. The weaker correlations

Table 6
Intercorrelations Between Subscales and Correlations Between the SELSA, UCLA-3, and SELSA-S in Sample 2

Measure	SELSA-S Subscale		
	Romantic	Family	Social
SELSA-S			
Romantic		0.14	0.20**
Family			0.46***
SELSA ^a			
Romantic	0.85***	0.18*	0.21***
Family	0.21***	0.83***	0.37***
Social	0.24***	0.39***	0.78***
UCLA-3	0.34*	0.50**	0.73**

N ranges from 171 to 176.

a. A similar pattern of relationships was found between the SELSA-S subscales and the corresponding subscales of the adjusted SELSA. The latter version did not include the 15 items used in the SELSA-S.

* $p < .05$. ** $p < .01$. *** $p < .001$.

found between the subscale scores supports the multidimensional approach of the SELSA-S.

As can be seen in Table 6, there were statistically significant relationships between the scores on all the SELSA-S subscales and the scores on the UCLA-3. Consistent with past research on the full version of the SELSA, the scores on the Social subscale had the strongest correlation with the UCLA-3 scores (DiTommaso & Spinner, 1993). Multiple regression analyses indicated that the overall R^2 was .34, with scores on each subscale making a statistically significant contribution to the total UCLA-3 scores. This may indicate that the UCLA-3 is also a multidimensional measure of loneliness.

Analysis of the relationship between the SELSA-S scores and current involvement or noninvolvement in a romantic relationship provided further concurrent and discriminant validity for the scores on the three subscales. Being involved in a romantic relationship was related to lower scores on the Romantic Loneliness scale but was not associated with scores on the Family or Social Loneliness scales.

Predicted Relationship With Individual Differences Measures

A total of four different areas of individual differences using several different measures were evaluated in order to further assess the construct and discriminant validity of the SELSA-S scores. These areas were attachment, social competence, quality of personal relationships, and adjustment. Table 7 displays the relationships between the SELSA-S subscale scores and scores on several measures of attachment. The direction and magnitude of the rela-

Table 7
Correlations of the SELSA-S With Attachment Measures

Attachment	Romantic	Family	Social
IPPA ^a -Parent			
Alienation	0.07	0.69***	0.20**
Communication	-0.08	-0.55***	-0.18**
Trust	-0.13*	-0.77***	-0.22**
Total	-0.11	-0.77***	-0.22**
IPPA ^a -Peer			
Alienation	0.15*	0.25***	0.43***
Communication	-0.22***	-0.19**	-0.55***
Trust	-0.22***	-0.21***	-0.53***
Total	-0.24***	-0.27***	-0.61***
IPPA ^a -Romantic			
Alienation	0.33***	0.24***	0.17**
Communication	-0.53***	-0.26***	-0.24***
Trust	-0.49***	-0.25***	-0.21***
Total	-0.53***	-0.29***	-0.24***
RSQ ^a			
Dismissing	0.13**	0.09	0.18***
Fearful	0.27***	0.29***	0.42***
Preoccupied	0.12**	0.17**	-0.04
Secure	-0.32***	-0.30***	-0.43***
RQ ^a			
Dismissing	0.04	-0.01	0.11**
Fearful	0.29***	0.26***	0.10**
Preoccupied	0.18***	0.20***	0.06
Secure	-0.26***	-0.22***	-0.10**
RQ ^b			
Dismissing	0.07	0.07	0.15*
Fearful	0.28***	0.43***	0.54***
Preoccupied	0.28***	0.30***	0.32***
Secure	-0.28***	-0.40***	-0.56***
RAQ ^b			
Angry or withdrawal	0.20**	0.24**	0.30***
Availability	0.31***	0.20*	0.28***
Compulsive (care seek)	0.27***	0.23**	0.28***
Compulsive (caregive)	-0.27***	0.02	0.01
Compulsive (reliance)	0.49***	0.38***	0.39***
Fear of loss	0.20**	0.34***	0.33***
Proximity seeking	-0.12	0.10	0.10
Separation or protest	0.03	0.28***	0.12
Use	0.42***	0.28***	0.25***
ECR ^a			
Avoidance	0.51***	0.18***	0.12*
Anxiety	0.34***	0.35***	0.15**

Note: SELSA-S = Social and Emotional Loneliness Scale for Adults (short form); ECR = Experiences in Close Relationships; IPPA = Inventory of Parental and Peer Attachment; RAQ = Reciprocal Attachment Questionnaire; RSQ = Relationship Scales Questionnaire; RQ = Relationship Questionnaire.

a. Sample 1: *N* ranges from 233 to 237 for IPPA, from 436 to 792 for RSQ, from 588 to 594 for RQ, and from 352 to 358 for ECR.

b. Sample 2: *N* ranges from 161 to 177.

p* < .05. *p* < .01. ****p* < .001.

tionships support both the construct and discriminant validity of the SELSA-S subscale scores. The relationships between the scores on the Romantic, Family, and Social subscales and the IPPA scores are high (and the relationship between these scores and the scores on the other IPPA measures is weak). Moreover, a similar pattern was also displayed by the SELSA-S Romantic subscale scores in its relationship to Experiences With Close Relationships Inventory scores, a measure of romantic attachment. As expected, there were statistically significant correlation coefficients between the scores on the SELSA-S subscales and the scores on the Relationship Scales Questionnaire and Relationship Questionnaire measures of global attachment. Results indicated that a lower score on the Romantic, Family, and Social Loneliness subscales was related to attachment scores indicating greater attachment security. Finally, a similar relationship between global attachment (the Relationship Scales Questionnaire scores) and loneliness was found for Samples 3 and 4.

The relationship between loneliness and interpersonal competence was also examined. Table 8 displays the correlations between the scores on the SELSA-S subscales, the Social Skills Inventory, the Revised Ways of Coping Checklist, and the Quality of Relationship Measure. Results indicated that higher scores on the Social Skills Inventory were related to lower social loneliness scores ($r = .36$), lower family loneliness scores ($r = -.12$), and lower romantic loneliness scores ($r = -.13$).

The relationships between loneliness and coping with both relational and work stress were also assessed. As indicated in Table 8, greater reported social loneliness was associated with lower social support-seeking scores and greater emotion-focused coping (avoidance, wishful thinking, and self-blame) scores for both work and relational stress situations. Higher scores on emotion-focused coping were associated with higher family and romantic loneliness scores, ($r = .30$ and $r = .25$, respectively).

The statistically significant relationship between the scores on the quality of parental relationships scale and loneliness scores provided further support for the validity of the SELSA-S. As Table 8 indicates, family loneliness scores were most highly associated with quality of relationship with parents scores, particularly with the mother in terms of support and the depth of the relationship. Finally, a higher social loneliness score were associated with scores indicating lower depth, higher conflict in the maternal relationship, and lower support from both parents.

Table 9 presents the relationships between the SELSA-S subscale scores and scores on several personality and quality-of-relationships measures. As expected, higher loneliness scores on all three subscales were associated with lower scores on the self-esteem and liking for people measures. Moreover, higher scores on the Family and Social Loneliness subscales were associated with lower interpersonal trust scores. As expected, higher social inti-

Table 8
Correlations of the SELSA-S With Interpersonal Competence and Relationship Measures

Variable	Subscale		
	Romantic	Family	Social
Interpersonal competence			
Coping with relational stress (WCL)			
Emotion-focused coping	0.17*	0.20**	0.29**
Problem-focused coping	-0.19*	-0.00	-0.09
Social support seeking	-0.06	-0.01	-0.22*
Coping with work stress (WCL)			
Emotion-focused coping	0.25**	0.28**	0.32**
Problem-focused coping	-0.22**	-0.00	-0.15
Social support seeking	0.02	-0.02	-0.22**
Coping with mental problems (WCL)			
Emotion-focused coping	0.35**	0.45**	0.12
Problem-focused coping	-0.21	-0.33*	-0.55***
Social support seeking	0.17	-0.02	-0.23
Social skills			
SSI total	-0.13**	-0.12**	-0.36***
Emotional expressivity	-0.16**	-0.12**	-0.22***
Emotional sensitivity	-0.17**	-0.05	-0.25***
Emotional control	0.14**	-0.01	-0.01
Social expressivity	-0.10*	-0.14**	-0.36***
Social sensitivity	0.02	0.16**	0.12**
Social control	-0.16**	-0.21***	-0.35***
Quality of relationship (mother)			
Support	-0.09	-0.62***	-0.36***
Depth	0.04	-0.61***	-0.30***
Conflict	0.01	0.48***	0.24**
Quality of relationship (father)			
Support	-0.13	-0.39***	-0.24**
Depth	-0.12	-0.33***	-0.18*
Conflict	0.12	0.25***	0.16*

Note: WCL = Ways of Coping Checklist; *N* ranges from 142 to 172 for WCL (relational and work stress); for WCL (mental problems), it ranges from 36 to 37; for Quality of Relationship Inventory, it ranges from 142 to 172; and it ranges from 406 to 426 for Social Skills Inventory.

* $p < .05$. ** $p < .01$. *** $p < .001$.

macy scores were associated with lower scores on the Romantic Loneliness subscale.

All three SELSA-S subscale scores were related to scores on the satisfaction with life measures. As expected, higher satisfaction with life scores were associated with lower family, romantic, and social loneliness scores, $r = -.44$, $r = -.31$, and $r = -.20$, respectively. Finally, higher scores on the Family Loneliness subscale were associated with more physical and mental health symp-

Table 9
Correlations of the SELSA-S With Personality and Adjustment Measures

Variable	SELSA-S Subscale		
	Romantic	Family	Social
Personality variables			
LPS ^a	-0.21**	-0.22**	-0.34***
MSIS ^a	-0.35***	-0.06	-0.22**
SC total ^a	0.14*	0.36***	0.12
SWLS ^a	-0.31***	-0.44***	-0.20**
ITS ^b	-0.07	-0.26***	-0.26***
RSE ^b	-0.32***	-0.43***	-0.45***
SS-77 total ^c	0.23	0.48***	0.27

Note: *N* ranges from 173 to 235, except for the SS-77 total, which ranges from 37 to 38. ITS = Interpersonal Trust Scale; LPS = Liking for People Scale; MSIS = Miller Social Intimacy Scale; RSE = Rosenberg Self-Esteem Scale; SWLS = Satisfaction With Life Scale; SC = Symptom Checklist; SS-77 = Symptom Survey-77.

a. Sample 1.

b. Sample 2.

c. Sample 4.

* $p < .05$. ** $p < .01$. *** $p < .001$.

toms for both the Symptoms Checklist and the SS-77 total scores, $r = .36$ and $r = .48$, respectively. The relationship between loneliness scores and mental health symptomatology was also supported by the results from Sample 4. Findings indicated that a greater family loneliness score was associated with greater reported mental symptoms, $r = .48$, whereas Social and Romantic subscale scores were only modestly positively correlated with mental symptomatology, $r = .26$ and $r = .23$.

Discussion

The findings presented in this study indicate that the SELSA-S scores are useful in measuring the multidimensional experience of loneliness. The relatively low intercorrelations among the subscales as well as the high Chronbach's alpha coefficients for the subscales suggest that romantic, family, and social loneliness are relatively independent constructs. These findings are consistent with those from the full-length SELSA (DiTommaso & Spinner, 1993). Furthermore, the results of a factor analysis carried out on the SELSA-S yielded the predicted three-factor solution as the best fit to the data. Taken together, these results provide strong validity evidence for the SELSA-S.

The data indicated that the scores associated with the three subscales displayed high levels of concurrent validity. There were statistically significant correlations between the scores on these scales and their analogues in the SELSA. There were no statistically significant correlations between these

scores and the nonmatching scale scores. The same pattern and magnitude of correlations were displayed between the SELSA-S scores and the SELSA scale scores even when the items included in the SELSA-S were removed from the SELSA in calculating its scale scores. Moreover, there were statistically significant correlations between each subscale score and the scores on the UCLA-3 (Russell, 1996). Consistent with DiTommaso and Spinner (1993), the strongest relationship was between the Social Loneliness subscale and the UCLA-3.

Certain life experiences also were differentiated among the three types of loneliness. There were statistically significant correlations between romantic loneliness scores and reported involvement in a romantic relationship, a result that provides further evidence of concurrent validity. On the other hand, the lower correlations between involvement in a romantic relationship and family and social loneliness scores support the discriminant validity of the Loneliness scales. This is consistent with previous findings that indicated emotional (romantic) loneliness was predicted by deficits in romantic and dating relationships but not by deficits in family and social relationships (DiTommaso & Spinner, 1993, 1997; Russell et al., 1984). Moreover, the psychiatric patient sample reported higher levels of loneliness than did all the other groups on the three types of loneliness. This is consistent with previous findings and supports the ability of the SELSA-S to accurately measure the severity of the experience of loneliness (D. A. West et al., 1986).

Further evidence of concurrent and discriminant validity was provided by the relationships of the SELSA-S scale scores to the Inventory of Parental and Peer Attachment. As noted earlier, in addition to the two other relational domains, participants also responded to a modified IPPA focusing on romantic partners. Strong relationships were found between romantic loneliness and the IPPA romantic attachment scores, family loneliness and IPPA family attachment scores, and social loneliness and the IPPA peer attachment scores. The remaining relationships between the SELSA-S scores and the three IPPA scores were much weaker. Moreover, family loneliness scores were highly associated with the reported quality of the parental relationship, particularly in terms of support and depth provided by the mother. In contrast, the reported relationships between social and romantic loneliness scores and the quality of parental relationship scores were not as strong. On the other hand, the experience of avoidance and anxiety in intimate (e.g., romantic) relationships and lower social intimacy was most highly correlated with romantic loneliness and only weakly correlated with family and social loneliness. Additional evidence of convergent validity was provided by the relationship of the SELSA-S scores with scores on the other measures of attachment. Consistent with past research, greater reported loneliness was associated with greater insecurity of attachment relationships (e.g., Cutrona, 1982; Hazan & Shaver, 1987).

A final set of results lends further support to the concurrent and convergent validity of the SELSA-S scale scores. All three subscale scores were strongly associated in the expected directions with scores on self-esteem, social skills, coping style, liking for people, interpersonal trust, social intimacy, mental symptomatology, and satisfaction with life measures. Greater loneliness has been associated with higher levels of mental health difficulties (DiTommaso & Spinner, 1997; McWhirter, 1990); the use of more passive, emotion-focused coping (e.g., avoidance) to deal with stress (Buskirk & Duke, 1991); greater social skills inadequacies (Brannen-McNulty & DiTommaso, 1997; Jones, Hobbs, & Hockenbury 1982; Wittenberg & Reis, 1986); lower self-esteem (Goswick & Jones, 1981; Woodward & Frank, 1988); less liking for people (Wittenberg & Reis, 1986); less interpersonal trust (Rotenberg, 1994; Vaux, 1988); greater intimacy deficits (Bumby & Hansen, 1997; Hamid, 1989); and less satisfaction with life (Neto, 1993; Schumaker, Shea, Monfries, & Groth-Marnat, 1993).

Scale construction is a continual process with the goal of always looking to improve a particular measure. The SELSA-S is no different. It would be useful to assess its temporal stability as well as to further evaluate its psychometric properties using more diverse populations including older individuals. Initial work by Letts (1997) has shown the SELSA-S has good measurement reliability for measuring romantic, family, and social loneliness in a sample of older people ranging in age from 55 to 88 years.

In sum, these results provide some support for Weiss's (1973) typology of loneliness and indicate the importance of differentiating among the different types of loneliness. The findings also support the convergent and discriminant validity of the scores on the subscales of the SELSA-S. As in the original work by DiTommaso and Spinner (1993), these findings suggest that emotional (romantic and family) and social loneliness have a common core. However, it is also probable that these different types of loneliness may reflect distinct deficits, experiences, and consequences (e.g., Saklofske & Yackulic, 1989). In conclusion, the 15-item SELSA-S has similar psychometric properties comparable to the longer 37-item SELSA, which has recently been advocated as the multidimensional loneliness measure of choice (Cramer & Barry, 1999). It appears that the SELSA-S is psychometrically sound as a multidimensional measure of loneliness, and it provides savings in time and resources. This may be particularly appropriate in clinical settings where the use of the longer version may be too cumbersome.

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