Summary of Psychometric Testing of the
Norbeck Social Support Questionnaire (NSSQ)[1]

This document summarizes results of psychometric testing of the NSSQ that were published in two articles and in the scoring instruction manual.[2]

1. Norbeck, J. S., Lindsey, A. M., Carrieri, V. L. (1981). The development of an instrument to measure social support. *Nursing Research*, *30*, 264-269.

   This initial testing of the NSSQ was done with 75 master's students in nursing and 60 senior nursing students. Instruments administered to various sub-groups of these students were the NSSQ, the Marlowe-Crowne Social Desirability Scale, the Social Support Questionnaire developed by Cohen and Lazarus, the Profile of Mood States (POMS) by McNair, Lorr, and Dropplemann, and the Life Experiences Survey by Sarason.

   Internal Consistency Reliability. Because the NSSQ is not a summative-type instrument, it was not appropriate to test internal consistency with Coefficient Alpha. As an alternative, Pearson correlations among the items and subscales were calculated.

   - Each of the two items for each subscale, were highly correlated: Affect, .97; Affirmation, .96; and Aid, .89.
   - The correlations among the four items measuring Affect and Affirmation ranged from .95 to .98, suggesting that these two functions might not be distinct. The correlations between the Aid items and the Affect and Affirmation items ranged from .72 to .78.
   - The correlations among the three network properties (Number in Network, Duration of Relationships, and Frequency of Contact) ranged from .88 to .96; and these network properties correlated highly with Affect and Affirmation (.88 to .97) and moderately with Aid (.69 to .80).

   Test-Retest Reliability. One week later 67 of the 75 master's students completed the NSSQ a second time. The test-retest correlations were Affect, .89; Affirmation, .88; and Aid, .86. Similar high correlations were found for the three network properties, which were each .92

   Response Bias. The correlations with items from the NSSQ and the social desirability scale ranged from .01 to .17 and were not significant; thus giving evidence for lack of a bias toward socially desirable responses.

   Concurrent Validity. Some of the correlations between constructs in the NSSQ and the exploratory social support measure developed by Cohen and Lazarus (C&L) were significant. Affect, Affirmation, and Aid correlated with the C&L Emotional Support component at .51, .56, and .44, respectively. Affirmation correlated at .33 with the C&L Informational Support, but the correlation between Aid and the C&L Tangible Support was -.03; however, the C&L Tangible Support scale was a weak construct with a Coefficient Alpha of .31.

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[1] This summary has been prepared as a convenience for individuals who may not have access to the more comprehensive reports in the articles published in *Nursing Research* journal in 1981 and 1983.
[2] Since the Loss variables from Item 9 are regarded as providing only supplemental descriptive data, psychometric results for the Loss variables are not summarized in this document.

<u>Construct Validity</u>. This initial test of construct validity did not produce significant findings with a small sample of 33 senior nursing students. The model of stress, social support, and health outcomes was tested by examining the relationships among these variables, using POMS scores as the outcome measure. None of the six mood state variables were significantly correlated with NSSQ functional or network subscales or total scores. The total negative mood score was used as the dependent variable in a multiple regression with the Negative Life Events score and NSSQ scores as predictor variables, but there were no significant findings.

2. Norbeck, J. S., Lindsey, A. M., & Carrieri, V. L. (1983). Further development of the Norbeck Social Support Questionnaire: Normative data and validity testing. *Nursing Research*, *32*, 4-9.

The second phase of testing the NSSQ involved three studies.

<u>Sub-Study 1: Normative Data and Construct Validity</u>

The sample for this sub-study consisted of 136 employed adults ranging in age from 22-67. Instruments administered were the NSSQ and the Fundamental Interpersonal Relations Orientation (FIRO-B). Scores from the NSSQ are shown in Table 1. (See Table 3 for additional normative data from a larger sample.)

Table 1. Corrected Scores for Normative Data Published in 1983

NSSQ Scales:	Mean	S.D.
Affect*	73.49	36.25
Affirmation*	66.06	32.33
(Emotional Support	*139.55)*	
Aid*	62.35	32.24
Total Functional*	201.90	95.87

*As described in the scoring instructions, the 1984 Scoring Adjustment applied only to questions 1-6 (Affect, Affirmation, and Aid); thus, the mean values for the other NSSQ subscales and variables on Table 2 in the 1983 article were not changed. Scores obtained from the 1995 version of the NSSQ do not need this correction because the 5-point rating scale for Questions 1-6 was changed to a 0-4 scale on the instrument.

<u>Construct validity</u>. Two constructs from the FIRO-B (Need for Inclusion, Need for Affection) were expected to have a positive relationship with NSSQ subscales, and one was expected to be unrelated (Need for Control). Significant small to moderate correlations were found between NSSQ subscales (Affect, Affirmation, Aid, Number in Network, Duration of Relationships, and Frequency of Contact) and the FIRO-B construct of Need for Inclusion, ranging from .17 to .26. The same NSSQ subscales, except Frequency of Contact, were significantly related to the FIRO-B construct of Need for Affection, ranging from .21-.27. As expected, the correlations between NSSQ subscales and the FIRO-B construct of Need for Control were not significant (range: .00 to -.09).

Sub-Study 2: Sensitivity and Stability

The 75 master's students who completed the NSSQ for findings reported in the 1981 article were sent the NSSQ seven months later to explore the sensitivity of the instrument to change over time. 44 forms were returned. Each of the subscales in the NSSQ was highly correlated with that subscale 7 months later (range .58 to .78) indicating a high degree of stability. However in comparison with the first administration, there were significant differences in the mean scores for Number in Network (lower at time-2) and Duration of Relationships (lower at time-2). These changes are consistent with shifts in their networks that would occur as students changed their lives over the initial year in graduate school; thus, there was some evidence that the NSSQ can detect changes over time. Analysis of sources of support showed significant decreases in support from the category of family/relatives and an increase in the neighbor category. Within the friend category, the number of supporters remained constant over the 7-month period, but the actual composition of the friendship network changed, with new friends substituted for the approximate 1/3 of friends that had been dropped from the network list. Among the 9 categories of supporters, changes in actual supporters occurred in the categories of friend, family/relatives, and neighbors.

Sub-Study 3: Concurrent and Predictive Validity.

The sample for this study consisted of 55 female graduate-nursing students.   The instruments administered were another new social support questionnaire (the Personal Resources Questionnaire, PRQ, by Brandt & Weinert), Sarason's Life Experiences Survey, and the Profile of Mood States by McNair, Lorr, and Droppleman.

Concurrent validity. Significant moderate correlations among functional subscales (Affect, Affirmation, Aid) from the NSSQ and the two parts of the PRQ were found, ranging from .35 to .41, indicating modest concurrent validity between these two social support instruments.

Predictive validity. The same model that was described in the section "Construct Validity" in the summary of the 1981 article was used again in this sub-study. The multiple regression was significant, with 35.1% of the variance in Negative Mood accounted for as follows: Negative Life Events, 16.1% ($p < .01$); Affect, 2.5% (n.s.); Affirmation, 0.5% (n.s.); Aid, 2.8% (n.s.); and one interaction term (Negative Life Events x Aid), 13.2% ($p < .01$). This significant interaction term supported the stress-buffering theory.

The network property subscales (Number in Network, Duration of Relationships, and Frequency of Contact) and their interaction terms with the Negative Life Events measure were entered into a second multiple regression. Again, Negative Life Events was entered first and accounted for 16.1% of the variance in Negative Mood, a significant main effect was found for Duration of Relationships, accounting for 11.7% of the variance; and a significant buffering effect was found (Negative Life Events x Duration of Relationships) accounting for an additional 7.6% of the variance. The total variance explained was 36.1%.

3. Norbeck, J. S. (1995). *Scoring Instructions for the Norbeck Social Support Questionnaire (NSSQ)*, revised 1995. Unpublished manual available online through the UCSF School of Nursing website: www.nurseweb.ucsf.edu

Factor Structure of the NSSQ. Dr. Suzanne Dibble and Dr. Steven Paul collaborated in examining the factor structure of the NSSQ. Data shared by investigators who used the NSSQ were pooled resulting in a total sample of 1,392 participants with complete data. A principal axes factor analysis with varimax rotation was conducted. This factor analytic procedure identified two distinct dimensions of social support: Emotional Support and Tangible Support. This two-factor model accounts for 74% of the total variance. The loadings of the 6 items on the two rotated factors are reported in Table 2. Factor loadings exceeding 0.40 are highlighted. Additional normative data is presented in Table 3 from this pooled sample of healthy adults.

Table 2. Factor Pattern Following Principal Axes Factoring with Varimax Rotation

	Factor 1 Emotional Support	Factor 2 Tangible Support
Average Scores:		
Question 2 (affect)	**.83**	.16
Question 1 (affect)	**.78**	.20
Question 4 (affirmation)	**.68**	.31
Question 3 (affirmation)	**.64**	.35
Question 5 (aid)	.21	**.79**
Question 6 (aid)	.24	**.70**

Table 3. Normative Values for the NSSQ
(Healthy Adults, >80% Caucasian)

NSSQ Variables:	Females (n=1,067) Mean	S.D.	Males (n=348) Mean	S.D.
Number Listed	10.9	5.9	10.6	6.0
Emotional Support	127.2	72.7	119.3	75.2
Tangible Support	53.1	33.4	55.3	36.0
Total Functional Support	179.4	102.1	173.6	108.3
Total Network Score	98.5	53.8	95.0	55.3
Amount of Loss	2.4	1.3	2.2	1.1
Percent Experienced Loss	44.1%		36.3%	