

Social Health Archival Analysis Report

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GENERAL INTRODUCTION

The SCC secondary analyses were conducted to provide information about the psychometric properties of existing measures in the five targeted PROMIS domains (physical function, emotional distress, fatigue, pain, social health). We were interested in evaluating whether sets of items putatively measuring the same thing were sufficiently unidimensional for IRT analyses and estimating item parameters (difficulty, discrimination) for the items in the measures. These analyses were intended to provide preliminary information about item characteristics and performance that could help guide decisions for the PROMIS field test.

Two datasets contained items that were classified as measuring Social Health: the Cardiac Health Study (CHS) and CORE's item bank. The items selected from CHS tended to measure social support, while CORE's bank had items measuring two domains: role participation and social support. Because of differences in the sizes of the samples for which data were available, different methods were used in the analyses of these item sets. Also, because different methods were used to select Social Health items, comparisons across datasets are difficult.

The summary below attempts to answer several questions. For each (sub)domain::

- Do the items measure a single construct, that is, are they unidimensional?
- Are the rating scale categories used in a consistent fashion?
- Do the responses to the items fit the measurement model?
- Do the items cover a useful range of difficulty relative to this sample?
- Do the items adequately discriminate low scoring from high scoring persons?

DATA

The Cardiac Health Study (CHS) is a multi-center study longitudinally monitored the cardiovascular health of 5201 individuals to estimate incidence and prevalence of coronary heart disease and stroke. Originally, 115 items were selected by the Social Health domain group as being relevant to the domain; 81 of these overlapped with those chosen for the Physical Function domain. Only 18 Social Health items remained after items were eliminated that: (1) were not in the database or were not administered until the 6 month follow-up, (2) had >50% missing data, (3) were specific to activities not widely engaged in (bowling, dancing), (4) had non-categorical response scales, or (5) had large numbers of potential responses (e.g., counts of number of times an activity was engaged in). The 18 items of the final pool and their response formats are reported in Appendix A. In this reduced set of variables, two items overlapped with the Physical Function domain (CHOR, REACH).

The CORE Social Well-Being (now called Social Health) item bank was part of CORE's Item Banking Project. This bank included two item pools, one consisting of 65 social support and the other consisting of 29 role participation items. The items were administered by computer to 201 cancer patients. The items in the role participation pool and their response formats are presented in Appendix B and the items in the Social Support pool and their response formats are presented in Appendix C.

EVALUATION OF ITEM RESPONSE THEORY ASSUMPTIONS

Unidimensionality and Local Independence

Using MPlus software, confirmatory factor analyses (CFA) were conducted on the CHS and on the CORE databases. Because the items were rated on an ordinal scale, polychoric correlations were used in the analyses. The criteria for model fit were: CFI/TLI: greater than .90 (acceptable) or .95 (good); RMSEA/SMRM: less than .08.

The fit of the single factor model to the CHS data was poor (CFI=0.651, TLI= 0.687, RMSEA=0.089, SRMR= 0.084, and a large number of items were locally dependent (30 item pairs among the 18 items included in the analysis). A follow-up parallel analysis suggested a 6-factor solution. An EFA was conducted by using MPlus and six factors were retained. The obtained solution accounted for 57% of the common variance. Correlations among the factors were moderate to low (0.018 to 0.527).

The fit of the single factor model to the 29 CORE Role Participation items was also poor (CFI=0.853, TLI= 0.961, RMSEA=0.299, SRMR= 0.102). A parallel analysis suggested a 3-factor solution but a follow-up Exploratory Factor Analysis (EFA), also using MPlus, suggested a 2-factor solution. Two 2-factor CFAs were run; one assuming correlated factors and the other uncorrelated factors: The fit of the 2-correlated factor model was poor (CFI=.848, TLI=.949, RMSEA=.341 and SRMR=.149) but, other than the RMSEA, when the factors were not constrained to be correlated, the fit was acceptable (CFI=.909, TLI= .978, RMSEA=.223 and SRMR=.078)

Because of the small sample subject/item ratio, an analysis of the entire Social Support pool was not conducted. Instead, a CFA was conducted on subsets of items identified by clinical experts.

Monotonicity

Non-monotonicity was observed in all three datasets. A total of 4 of the 18 CHS items, 4 of the 29 CORE Role Participation items, and 17 of the 65 CORE Social Support items were not monotonically increasing. In almost all the cases, the inversions were in items rated on a 5-point frequency scale and were between the 'never' and 'rarely' categories. The response distributions in these items were skewed toward the top of the rating scale. Before item responses were calibrated to an IRT model, adjacent response categories were collapsed as needed to achieve monotonicity.

Selection of Item Pools

A subset of the 18 CHS items was selected for calibration to an IRT model. This pool consisted of the six items that loaded substantially on the second factor, a factor that appears to be associated with a Social Support sub-domain. A seventh item (HOUSE) was added to this pool. This item's content was consistent with that of the other 6 items, and, though it loaded highly on no item, its highest factor loading was on the second factor (0.281). The included items were:

- LONELY: If I feel lonely, there are several people I can talk to.
- PROBS: When I need suggestions on how to deal with a personal problem, I know someone I can turn to.
- SICK: If I were sick, I could easily find someone to help me with my daily chores.
- TRUST: There is at least one person I know whose advice I really trust.

- DCSN2: When other people you know have an important decision to make, do they talk to you about it?
- DCSN3: When you have an important decision to make, do you have someone you can talk to about it?
- HOUSE: If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my home, for example the plants, pets, garden, etc.

A single factor confirmatory model was fit to this reduced CHS item pool using MPlus. The fit, though marginal (CFI=0.919, TLI= 0.907, RMSEA=0.071, SRMR= 0.05), was dramatically better than that achieved with the full item pool.

Selection of CORE Item Pools

The Role Participation (RP) items were divided into two subsets for further analysis. The first pool consisted of the 19 items that loaded substantially on the first factor, a factor that appears to be associated with limitations in usual roles and the second pool consisted of 6 items that loaded substantially on the second factor, a factor that appears to be associated with satisfaction with social roles. Four items did not load on either factor and were excluded from the analysis.

The Social Support (SS) items were categorized into one of four subdomains: emotional support (17 items), instrumental support (10 items), intimacy (13 items), and social activities (11 items). Thirteen items that did not fit any of these categories were excluded from further analysis.

CFA of CORE Item Pools

To examine the fit of each of the constructed item pools, a single factor confirmatory model was fit to each item pool. The model fit for half of the item pools was acceptable-to-good using the first two criteria but the RMSEA and SRMR were generally higher than acceptable (see table below).

Item Pool	CFI	TLI	RMSEA	SRMR
Role Participation: Limitations	.967	.991	.186	.044
Role Participation: Satisfaction	.976	.976	.345	.058
Social Support: Emotional	.879	.951	.217	.092
Social Support: Instrumental	.982	.995	.084	.023
Social Support: Intimacy	.896	.937	.224	.125
Social Support: Social Activities	.865	.915	.250	.106

A follow-up EFA was conducted on each pool. The criteria used to evaluate the factor structure included: the number of items with eigenvalues greater than 1.0, the percent of variance accounted for by the first factor, factor loadings greater than .40, and RMSR less than .08. The results for the two Role Participation and four Social Support item pools are presented below.

- RP Limitations (19 items): A single factor (eigenvalue= 14.56) accounted for 76.6% of the variance. All of the factor loadings on the first factor were greater than .70 and the RMSR suggested good fit (.041).
- RP Satisfaction (6 items): A single factor (eigenvalue=4.79) accounted for 79.8% of the variance. All of the factor loadings on the first factor were greater than .80 and the RMSR suggested good fit (.058)
- SS Emotional (17 items): Three factors were identified (eigenvalues=10.7, 1.6, 1.0), with the first factor accounting for 62.9% of the variance. The single factor solution produced “almost acceptable” results: all of the first factor loadings were greater than .60 and the

RMSR was 0.09. For the two factor solution, RMSR=.05 and the correlation between factors was 0.651. Inspection of the items loading on the 1st factor suggested that this factor measured support from outside the family while the items loading on the 2nd factor dealt specifically with support from within the family. Thus the evidence for unidimensionality was equivocal.

- SS Instrumental (10 items): The first factor (eigenvalue=6.8) accounted for 68% of the variance. The single factor solution produced good results: all the first factor loadings were greater than .50 and the RMSR suggested good fit (.04).
- SS Intimacy (13 items): Two factors were identified (eigenvalues=7.4 and 1.9), with the first factor accounting for 56.9% of the variance. The single factor solution produced poor results. Though all the factor loadings were greater than .50, the RMSR was unacceptably high (.12). The two factor solution had better fit (RMSR=.04), and the correlation between the two factors was .571. The items loading on the 1st factor were positive and those loading on the 2nd factor were negative. The evidence for unidimensionality was not strong.
- SS Social Activities (11 items): The EFA identified 2 factors (eigenvalues=6.5 and 1.4), with the first factor accounting for 67.3% of the variance. The single factor solution produced poor results: although all the factor loadings were greater than .50, the RMSR was high (.11). The fit of a two factor solution was much better (RMSR=.06). The correlation between the two factors was .607. The items loading on the 1st factor were negative and those loading on the 2nd factor were positive. The evidence for unidimensionality was not strong.

Local dependence was evaluated for each of the item pools based on the correlations between item residuals. No correlations above 0.20 were obtained for any of the CHS or CORE Role Participation item pools. However, three of the four CORE Social Support subdomains had correlations that exceeded this value. The emotional support pool had four such item pairs; the intimacy pool had 12, and the social activities pool had 3. For the subsequent analyses, locally dependent items were not deleted from the item pools.

IRT CALIBRATION

Due to the sample size limitation, the two datasets were modeled with different IRT models. For the CHS item pool, the graded response model (GRM) was used. For the item pools from the CORE datasets, a Rasch model was used.

CHS Item Pool

Using Parscale and expected a priori (EAP) estimation, the seven item pool was calibrated using the graded response model (GRM). All of the category difficulties (b's) were negative, indicating that the items targeted the lower end of the measurement continuum (low Social Support). Whereas the item category difficulties ranged from -9.095 to -0.030, persons' scores ranged from -3.015 to 1.831. Thus, persons with low Social Support are well within the effective measurement range of the seven item pool, but those with higher Social Support were not adequately targeted. Were these items to serve as the core of a CAT item bank, they would need to be augmented with items that better targeted higher ranges of Social Support. The item discrimination parameter estimates for these items ranged from 0.125 to 0.743, relatively low values. Though four to six response options were available for the items of the reduced pool, inspection of the category characteristic curves indicated that most items appeared to function, effectively, as two or three response option scales.

CORE Item Pools

Because of the small sample size, a Rasch model was used instead of the 2-parameter IRT model used in other analyses. The calibrations were conducted with *Winsteps* and multiple rating scales using Andrich's rating scale model. All of the items of all four of the Social Support item pools fit the Rasch model as did the items of the RP Satisfaction pool. One item from the RP Limitations failed to fit (MnSq = 1.55) (*I am able to work [including work at home]*).

As was found to be the case for the CHS item pool, the CORE items targeted lower levels of the traits being measured (Role Participation and Social Support). Also consistent with the CHS results, there was some mismatch between the item difficulties and the study population's trait levels. For the CORE item sets, the number and percent of cases with scores higher than the highest item category difficulty were: 30 persons (15%) for RP Limitations, 45 (22%) for RP Satisfaction, 80 (40%) for SS Emotional, 87 (33%) for SS Instrumental, 23 (11%) for SS Intimacy, and 29 (14%) for SS Social Activities.

Another similarity with the findings for the CORE datasets was the relatively low level of item discrimination. While Rasch analysis assumes a constant level of item discrimination, the *Winsteps* program estimates the discrimination level of each item. Item discrimination values ranged from .58 to 1.44. Twelve items had item discrimination below 0.80 (6 RP Limitation items; 2 items each in RPSatisfaction, SS Intimacy, and SS Social Activities; and 1 item each in SS Emotional and SS Instrumental).

SUMMARY COMMENTS

The CHS data and the CORE datasets target similar, but distinct social health constructs. There was some consistency, however, in the results of our psychometric analyses. As is frequently the case in health outcomes measurement, most of the item subsets evaluated in this study had marginal fit to a unidimensional model. The CORE RP Limitations and RP Satisfaction item pools had the best fit to a unidimensional model, but fit was marginal for the CHS items and unacceptable for the CORE Social Support item pools. The pertinent question is whether there is "good enough" fit with respect to the models.

Another consistency was the failure of items in the item pools to differentiate well among persons with higher levels of social functioning. In some context, it is sufficient to measure well at the lower end of the continuum, but the goal of an item bank for computerized adaptive testing (CAT) is to have sufficient breadth to measure well at all levels of the measured continuum. When CAT item banks are developed for the Role Participation domains, it will be important to identify items that effectively measure persons with higher levels of the trait.

The results of the CHS database analyses suggested that people may be unable to discriminate among all four to six categories that constituted the response options for these items. Future analyses should evaluate the response category characteristic functions in other datasets to determine whether this finding can be replicated in other datasets and with other Social Support items.

APPENDIX A
CHS Items Identified for Social Health

Item	Item Stem	Item Context	Response Categories
CHOR	moderately strenuous household chores, for example, scrubbing or vacuuming	In the past two weeks, have you done...	0=NO 1=YES 9=REFUSE
REACH	reaching out?	Do you have any difficulty...	0=NO 1=YES 2=COULD DO IT, BUT DON'T FOR OTHER REASON 9=DON'T KNOW OR REFUSE
HOUSE	If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my home, for example the plants, pets, garden, etc.		1=DEFINITELY TRUE 2=PROBABLY TRUE 3=PROBABLY FALSE 4=DEFINITELY FALSE 9=REFUSED TO ANSWER
LONELY	If I feel lonely, there are several people I can talk to.		1=DEFINITELY TRUE 2=PROBABLY TRUE 3=PROBABLY FALSE 4=DEFINITELY FALSE 9=REFUSED TO ANSWER
PROBS	When I need suggestions on how to deal with a personal problem, I know someone I can turn to.		1=DEFINITELY TRUE 2=PROBABLY TRUE 3=PROBABLY FALSE 4=DEFINITELY FALSE 9=REFUSED TO ANSWER
SICK	If I were sick, I could easily find someone to help me with my daily chores.		1=DEFINITELY TRUE 2=PROBABLY TRUE 3=PROBABLY FALSE 4=DEFINITELY FALSE 9=REFUSED TO ANSWER
TALK	I often meet or talk with family or friends.		1=DEFINITELY TRUE 2=PROBABLY TRUE 3=PROBABLY FALSE 4=DEFINITELY FALSE 9=REFUSED TO ANSWER
TRUST	There is at least one person I know whose advice I really trust.		1=DEFINITELY TRUE 2=PROBABLY TRUE 3=PROBABLY FALSE 4=DEFINITELY FALSE 9=REFUSED TO ANSWER
BETRLT	Tell me about the relative with whom you have the most contact. How often do you see or hear from that person?		0=LESS THAN ONCE A MONTH 1=ONCE A MONTH 2=A FEW TIMES A MONTH 3=WEEKLY 4=A FEW TIMES A WEEK 5=DAILY 9=REFUSED TO ANSWER
FEEL	How do you feel about life as a whole?		1=DELIGHTED 2=PLEASED 3=MOSTLY SATISFIED 4=MOSTLY DISSATISFIED 5=UNHAPPY 6=TERRIBLE 9=REFUSED TO ANSWER
RELYON	Does anybody rely on you to do something for them each day? For example: shopping, cooking dinner, doing repairs, cleaning house, providing child care, etc.		0=NO 5=YES 9=REFUSED TO ANSWER

CHS Items Identified for Social Health (continued)

Item	Item Stem	Item Context	Response Categories
CLOSE	How many relatives do you feel close to? That is, how many of them do you feel at ease with, can you talk to about private matters, or can you call on for help?		0=NONE 1=ONE 2=TWO 3=THREE OR FOUR 4=FIVE TO EIGHT 5=NINE OR MORE 9=REFUSED TO ANSWER
CLSFRD	How many close friends do you have? That is, friends with whom you feel at ease, can talk to about private matters or can call on for help.		0=NONE 1=ONE 2=TWO 3=THREE OR FOUR 4=FIVE TO EIGHT 5=NINE OR MORE 9=REFUSED TO ANSWER
DCSN2	When other people you know have an important decision to make, do they talk to you about it?		0=NO 1=SELDOM 2=SOMETIMES 3=OFTEN 4=VERY OFTEN 5=ALWAYS 9=REFUSED TO ANSWER
DCSN3	When you have an important decision to make, do you have someone you can talk to about it?		0=NO 1=SELDOM 2=SOMETIMES 3=OFTEN 4=VERY OFTEN 5=ALWAYS 9=REFUSED TO ANSWER
RELATI	How many different relatives do you see or hear from at least once a month? Please include your spouse and in-laws.		0=NONE 1=ONE 2=TWO 3=THREE OR FOUR 4=FIVE TO EIGHT 5=NINE OR MORE 9=REFUSED TO ANSWER
SEEFR1	How many of these friends do you see or hear from at least once a month?		0=NONE 1=ONE 2=TWO 3=THREE OR FOUR 4=FIVE TO EIGHT 5=NINE OR MORE 9=REFUSED TO ANSWER
SEEFR2	Tell me about the friend with whom you have the most contact. How often do you see or hear from that person?		0=LESS THAN ONCE A MONTH 1=ONCE A MONTH 2=A FEW TIMES A MONTH 3=WEEKLY 4=A FEW TIMES A WEEK 5=DAILY 9=REFUSED TO ANSWER

APPENDIX B
CORE Items Identified for Social Role Participation

Role Participation: Limitations Items

Code	Item	Rating Scale
GF1x	I am able to work (include work at home)	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SF32x	How much of the time has your health interfered with your social activities?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SF32xx	How much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?	4=None of the time 3=A little of the time 2=Some of the time 1=Most of the time 0=All of the time
CARES8x	I find that my health interferes with my ability to work (include work at home)	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
EORTC26x	Has your health interfered with your family life?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
EORTC27x	Has your health interfered with your social activities?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
EORTC6x	Were you limited in doing either your work or other daily activities?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
EORTC7x	Were you limited in pursuing your hobbies or other leisure time activities?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
GP3x	I have trouble meeting the needs of my family	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always

Role Participation: Limitations Items (continued)

Code	Item	Rating Scale
SF20x	To what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?	4=Not at all 3=Slightly 2=Moderately 1=Quite a bit 0=Extremely
RP1	I have trouble doing my regular daily work around the house	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
RP2	I have trouble taking care of my regular personal and household responsibilities	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
RP3	I am accomplishing as much as usual at work (include work at home)	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
RP4	I have to do my hobbies and leisure time activities for shorter periods of time than usual	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
RP5	I am going out for entertainment less often than usual	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
RP6	I have trouble meeting the needs of my friends	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
RP9	I am satisfied with my ability to meet the needs of those who depend on me	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
RP11	I have to limit my social activity because of my health	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
RP12	I have to limit my family activity because of my health	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always

Role Participation: Satisfaction Items

Code	Item	Rating Scale
RP7	I am able to maintain my friendships as much as I would like	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
RP8	I am satisfied with my level of activities with my friends	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
RP10	Overall, how happy are you with your social life?	0=Very unhappy 1=Somewhat unhappy 2=Not too happy 3=Somewhat happy 4=Very happy 5=Extremely happy
RP13	I am satisfied with my current level of social activity	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
RP14	I am satisfied with my current level of family activity	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
RP15	Overall, how satisfied are you with your social life?	0=Very dissatisfied 1=Somewhat dissatisfied 2=Not too satisfied 3=Somewhat satisfied 4=Very satisfied 5=Extremely satisfied

APPENDIX C
CORE Items Identified for Social Support

17 Emotional Support Items

Code	Item	Rating Scale
UCLA20x	How often do you feel there are people you can turn to?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
UCLA10x	How often do you feel close to people?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SSQ4x	I have someone I trust to talk with about my personal and family problems	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SSQ3x	I have someone to talk with about problems at work or with my housework	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SS7	How often do you have someone to turn to for suggestions about how to deal with a problem?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31069x	How often do you have someone who understands your problems?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31066x	How often do you have someone with whom to share your most private worries and fears?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31059x	How often do you have someone to confide in or talk to about yourself or your problems?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31054x	How often do you have someone to give you good advice about a crisis if you need it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31053x	How often do you have someone you can count on to listen to you when you need to talk?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always

17 Emotional Support Items (continued)

Code	Item	Rating Scale
GS3x	I get support from my friends	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
GS2x	I get emotional support from my family	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
GS1x	I feel close to my friends	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FFM1Bx	I am satisfied with the support and understanding my family members give each other	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FFM1Ax	I am satisfied with the amount of togetherness in my family	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SCSC15x	How often do other people let you down by not showing you as much love?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always

10 Instrumental Support Items

Code	Item	Rating Scale
SSQ8x	I get help when I'm sick in bed	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SSQ1x	I have people who care about what happens to me	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SS9	How often do you have someone to take over all of your responsibilities at home if you need it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SS8	How often do you have someone to pick up a prescription if you need it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SS6	How often do you have someone to run errands if you need it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
CCC31065x	How often do you have someone to help with your daily chores if you are sick?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
CCC31062x	How often do you have someone to prepare your meals if you are unable to do it yourself?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
CCC31055x	How often do you have someone to take you to the doctor if you need it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
CCC31052x	How often do you have someone to help you if you are confined to bed?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
CCC31051x	Was someone available to help you if you needed and wanted help?	4=Yes, as much as I wanted 3=Yes, usually 2=Yes, a fair amount 1=Yes, rarely 0=No, never

13 Intimacy Items

Code	Item	Rating Scale
SCSC2x	How often do other people not seem to understand your situation?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
FSE31070x	How often do you have someone to love?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SS11	How often do you have someone who makes you feel needed?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SS12	How often do you have someone who makes you feel appreciated?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31066x	How often do you have someone with whom to share your most private worries and fears?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31056x	How often do you have someone who shows you love and affection?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
GS6x	I feel close to my partner (or the person who is my main support)	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
UCLA18x	How often do you feel people are around you but not with you?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
UCLA13x	How often do you feel no one really knows you well?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SCSC8x	How often do other people complain about their own problems when you want to share yours?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SCSC7x	How often do other people trivialize your problems?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always

13 Intimacy Items (continued)

Code	Item	Rating Scale
SCSC4x	How often do other people minimize your problems?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SSQ2x	I get love and affection	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always

11 Social Activities Items

Code	Item	Rating Scale
UCLA14x	How often do you feel isolated from others?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
UCLA11x	How often do you feel left out?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SS5	I am avoiding social visits from others	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SS4	I am cutting down the length of visits with friends	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SS3	I am doing fewer social activities with groups of people	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
SS1	I avoid socializing with others because of my health	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
UCLA15x	How often do you feel you can find companionship when you want it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SSQ6x	I get invitations to go out and do things with other people	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always

11 Social Activities Items (continued)

Code	Item	Rating Scale
FSE31061x	How often do you have someone to get together with for relaxation if you need it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31057x	How often do you have someone with whom to have a good time?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SCSC3x	How often do your friends avoid you?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always

13 Items Not Included in Subdomains

Code	Item	Rating Scale
SS10	How often does your family avoid you?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
CARES23x	I find that friends or relatives have difficulty talking with me about my health	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
CARES22x	I find that my friends or relatives do not visit often enough	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
CARES19x	I have difficulty asking friends or relatives to do things for me	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
QLI4x	What support have you received from others?	2=I have good relationships with others and receive strong support from at least one family member and/or friend 1=I receive only limited support from family and/or friends 0=I receive almost no support from family and/or friends
UCLA19x	How often do you feel there are people you can talk to?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always

13 Items Not Included in Subdomains (continued)

Code	Item	Rating Scale
UCLA16x	How often do you feel there are people who really understand you?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SSQ7x	I get useful advice about important things in life	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
SSQ5x	I have someone to talk with about money matters	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31068x	How often do you have someone with whom you can do something enjoyable?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
FSE31058x	How often do you have someone to give you information if you need it?	0=Never 1=Rarely 2=Sometimes 3=Usually 4=Always
UCLA8x	How often do you feel your interests and ideas are not shared by those around you?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
UCLA7x	How often do you feel you are no longer close to anyone?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always
UCLA12x	How often do you feel your relationships with others are not meaningful?	4=Never 3=Rarely 2=Sometimes 1=Usually 0=Always