

A Psychometric Analysis of the Functional Social Support Questionnaire in Low-Income Pregnant Women

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The purpose of this study was to examine the psychometric properties of the Functional Social Support Questionnaire (FSSQ) in pregnant women. A secondary analysis of data from 186 low-income pregnant women in their third trimester was conducted to assess the internal consistency reliability, dimensionality, and concurrent validity of the FSSQ. Cronbach's alpha was .83. Factor analysis supported the unidimensionality of the FSSQ. Correlations with the Interpersonal Support Evaluation List (ISEL) and the Center for Epidemiologic Studies-Depression Scale (CES-D) supported concurrent and construct validity. This secondary analysis provided evidence of the psychometric soundness of the FSSQ in this sample.

The purpose of this secondary analysis of existing data was to examine the psychometric properties of the Functional Social Support Questionnaire (FSSQ) with a sample of low-income pregnant women in their third trimester. Stress during pregnancy can be precipitated by a multitude of factors. The physical and emotional changes a woman experiences during pregnancy can be overwhelming. These physical and emotional changes can be compounded, especially if the woman has limited resources due to low-income, demanding employment, and lack of social support (Hall, Gurley, Sachs, & Kryscio, 1991). Resources available during periods of stress can influence the coping ability of the pregnant woman and ultimately the pregnancy outcome (Sachs, Hall, Lutenbacher, & Rayens, 1999). Low-income women have fewer resources available to cope with the pregnancy itself and to support conditions necessary to raise a child (Hall et al., 1991). The level of social support from a significant other, family, and friends can have a major impact in diminishing the level of anxiety experienced during pregnancy and promote a healthy pregnancy outcome (Feldman, Dunkel-Schetter, Sandman, & Wadhwa, 2000).

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Social relationships provide support to an individual that assists the person in coping not only with every day events, but also with extremely stressful situations. These relationships can provide the individual with support by way of material resources, self-esteem, emotional stability, and environmental control (Feldman et al., 2000). Social support in this study is defined as the perception of the individual regarding relationships with others that provide resources (e.g., psychosocial, material, and environmental resources) that serve to assist the individual in coping with stress occurring in everyday life and extreme situations (Aaronson, 1989).

Two models by which social support influences healthy outcomes have been proposed: the main effects model and the buffering effects model. In the main effect model, social support has a direct impact on health and well-being. The buffering effect relates to social support that is effective only during periods of extreme stress (Brookings & Bolton, 1988).

Research has been conducted to evaluate the effects of social support on symptoms and complications during pregnancy. Studies by both Feldman et al. (2000) and Chou, Avant, Kuo, and Fetzer (2008) showed that increased levels of social support decreased the stress experienced by pregnant women, which led to improved physiologic stability of both mom and baby. Instruments used in these studies included the 40-item Interpersonal Support Evaluation List (Feldman et al., 2000), a measure of social support frequently used in studies of pregnant women, and a 16-item version of the Interpersonal Support Evaluation List (ISEL; Chou et al., 2008). Thus, the ISEL is an ideal measure against which to validate other measures of social support among pregnant women (Chou et al., 2008; Feldman et al., 2000).

BACKGROUND

The Duke-UNC Functional Social Support Questionnaire (FSSQ) was developed by Broadhead, Gehlbach, DeGruy, and Kaplan (1988) to measure perceived social support. The

original version of this scale consisted of 14 brief statements that were reduced to eight items after reliability testing; thus, the FSSQ is a considerably shorter measure of social support. The tool was designed to measure confidant support, including the perception of being able to discuss issues with a friend, family member, or coworker. Affective support also was included in the measurement tool and addressed the areas of love and caring. Independent items included “visits with friends and relatives,” “instrumental support such as help with tasks,” and “praise from others.” The initial sample involved in the psychometric analysis of this measurement tool consisted of adult medicine patients (Broadhead et al., 1988).

The FSSQ has been used in a variety of samples: individuals with chronic conditions (Bova, 2001; Breitbart et al., 2000; Ganzini, Johnston, McFarland, Tolle, & Lee, 1998; Green et al., 2000; Laxton & Perrin, 2003; Nelson, Rosenfeld, Brietbart, & Galiotta, 2002), university students (Bovier, Chamot, & Perneger, 2004), family medicine patients (Broadhead et al., 1988), low-income single mothers (Hall et al., 1991), and infertility patients (Slade, O’Neil, Simpson, & Lashen, 2007). It demonstrated good internal consistency reliability in patients with chronic conditions and low-income single mothers (Bova, 2001; Hall et al., 1991; Hall, Sachs, & Rayens, 1998; Harley & Eskenazi, 2006; Laxton & Perrin, 2003; Sachs et al., 1999). Content validity was supported by the literature review, which provided the foundation for item generation; concurrent validity was supported by positive correlations with other measures of social support (Broadhead et al., 1988).

Of the 13 studies reviewed, 7 used the 8-item subscale of the FSSQ while four did not identify the version used, but cited Broadhead et al. (1988). One study used a 14-item version and one used an adaptation of the FSSQ scale with six items total. See Table 1.

Among the studies using the 8-item subscale, measures of stress and child abuse potential were inversely related to the FSSQ. Cronbach’s alpha ranged from .78–.89 for the 8-item subscale (Ganzini et al., 1998; Green et al., 2000; Hall et al., 1991; Hall et al., 1998; Harley & Eskenazi, 2006; Sachs et al., 1999; Slade et al., 2007). The construct validity of the FSSQ has been supported by findings of significant relationships of the FSSQ with higher levels of social support and effective coping strategies (Green et al., 2000; Hall et al., 1991; Nelson et al., 2002), lower child abuse potential (Hall et al., 1998; Sachs et al., 1999), better self-care during pregnancy (Harley & Eskenazi, 2006), and higher quality of life (Laxton & Perrin, 2003). One study did not find significant relationships between the FSSQ and social support and attitude about assisted suicide in persons with ALS (Ganzini et al., 1998). Thus, the FSSQ has demonstrated excellent psychometric properties in a variety of populations; however, the psychometric properties of the FSSQ in pregnant women have not been evaluated.

The specific aims of this study were to:

1. Assess the internal consistency reliability of the FSSQ
2. Investigate the dimensionality of the FSSQ
3. Examine the concurrent validity of the FSSQ via correlation with the Interpersonal Support Evaluation List (ISEL)
4. Evaluate the construct validity of the FSSQ

That the FSSQ is inversely related to depressive symptoms as measured by the Center for Epidemiologic Studies Depression Scale (CES-D) was the hypothesis for evaluating construct validity.

METHODS

Design

The data were collected in a four-wave prospective panel study of 186 low-income pregnant women beginning in their third trimester. Secondary analysis of cross-sectional data from wave one was conducted to examine the psychometric properties of the FSSQ.

Sample

Data from all 186 women who were recruited into the parent study were used in the current study. Participants were recruited from three prenatal clinics in Kentucky. The inclusion criteria were: women between 28 and 40 weeks gestation, low-risk pregnancy classification, working at least 35 hours per week, and planning on returning to work approximately four months post-delivery. Women working part-time or with other children were excluded from the original study.

The majority of participants were Caucasian and living with their significant other while in their third trimester of pregnancy. Approximately half of the sample was pregnant with their first baby. The average age of the sample was 25 years old; most had completed their high school education. Most were in service-oriented employment such as cashier, food service prep, or day care worker. Greater than half of the participants had been at their current job six months or less with an annual salary of \$15,001–\$17,500. See Table 2.

Measures

The 8-item Duke-UNC Functional Social Support Questionnaire was used to measure perceived social support. Individuals rated each statement on a 5-point scale ranging from “as much as I would like” to “much less than I would like.” The responses were summed to form a cumulative score. Scores ranged from 8–40, with higher scores indicating more perceived social support.

The 10-item tangible support subscale of the Interpersonal Support Evaluation List (ISEL) developed by Cohen and Hoberman (1983) was used in this study. Tangible refers to support by way of materialistic items such as money (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). Respondents indicated whether

TABLE 1
Reliability and Validity of the FSSQ in Prior Research

Author/year	Scale Used	Sample	Reliability	Validity	Comments
Bova (2001)	FSSQ version not identified; Broadhead (1988) cited	101 HIV-infected women in the Northwestern US	Cronbach's alpha = .88	Appraisal of illness mediated the effect of social support on adjustment and symptom experience; however, social support did not have a direct effect on adjustment.	The effect of social support was indirect.
Bovier et al. (2004)	6-item instrument adapted from the Duke-UNC FSSQ	1,257 university students in Geneva, Switzerland	Confident support Cronbach's alpha = .79 and Affective support Cronbach's alpha = .70	Internal resources and stress mediated the effect of social support on mental health scores. Social support did not have a direct effect on mental health scores.	The effect of social support was indirect.
Breitbart et al. (2000)	FSSQ version not identified; Broadhead (1988) cited	92 terminally ill cancer patients admitted to a palliative care hospital in New York	Although assessments were completed by two investigators with the intent to support reliability, no reliability assessment was conducted.	No significant association between desire for hastened death and perceived quality of social support were found.	
Ganzini et al. (1998)	8-item FSSQ subscale	100 persons with ALS and 91 family caregivers who attended the ALS Clinic at Oregon Health Sciences University in Portland, Oregon	Mean scores indicate high affective and confidant support in this sample.	Level of social support did not have a significant relationship with attitude toward assisted suicide.	No comparison of caregiver and patient on the level of social support was given.
Green et al. (2000)	8-item FSSQ subscale	160 women with invasive stage I or II node negative breast cancer from three cancer treatment centers in Washington, DC	Internal consistency reliability not reported.	Social support and three mental health indices were significant; however, the FSSQ explained little of the variance when other factors such as past trauma history and treatment were controlled.	

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TABLE 1
Reliability and Validity of the FSSQ in Prior Research (Continued)

Author/year	Scale Used	Sample	Reliability	Validity	Comments
Hall et al. (1991)	8-item FSSQ subscale	225 low-income single mothers recruited from clinics of a county health department	Cronbach's alpha = .78	Four dimensions of social resources were measured: functional support, quality of family relationships, tangible support, and quality of primary intimate relationships. All were significantly intercorrelated with increased chronic stressors.	Increased active-behavioral coping with decreased avoidance coping was associated with increased social resources.
Hall et al. (1998)	8-item FSSQ subscale	206 low income mothers recruited from a county health department	Cronbach's alpha was .85	Each measure of social resources made a significant contribution to the prediction of abuse potential.	Tangible and functional social support were independent predictors of the probability of child abuse.
Harley & Eskenazi (2005)	8-item FSSQ subscale	568 pregnant low-income women of Mexican descent enrolled in prenatal care in the Salinas Valley, CA	Internal consistency was supported for the modified 10-question version of the FSSQ, Cronbach's alpha = .86	Higher social support was associated with increased prenatal vitamin use, decreased smoking, and better quality of diet. No correlation was found between social support and early prenatal care. The longer the amount of time in the US the higher level of social support.	
Laxton & Perrin (2003)	14-item FSSQ	19 patients with degenerative spine disease who had spinal decompression surgery within the past 14 months	Cronbach's alpha = .91	Social support was positively associated with health related quality of life and non-health related quality of life.	The more social support and decreased life stress patients reported, the more satisfied they were with their overall quality of life following spinal decompression surgery.
Morrell et al. (2000)	FSSQ version not identified; Broadhead (1988) cited	623 postnatal women		There was no difference between control and intervention groups in relation to FSSQ scores and rates of breastfeeding.	

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TABLE I
Reliability and Validity of the FSSQ in Prior Research (Continued)

Author/year	Scale Used	Sample	Reliability	Validity	Comments
Nelson et al. (2002)	FSSQ version not identified; Broadhead (1988) cited	162 patients from palliative care facilities who had a life expectancy of < 6 months	Internal consistency reliability not reported	Social support was associated with total spiritual well-being as well as individual dimensions of well-being. Moderate positive correlation between social support and meaning/peace and positive correlation of social support and faith as well as social support and religiosity index.	No association of depressive symptoms found with social support and physical functioning ability.
Sachs et al. (1999)	8-item FSSQ subscale	48 mothers of LBW children discharged 2 weeks–18 months earlier from a regional level III NICU	Cronbach's alpha = .89	Intercorrelations of the FSSQ, CES-D, Family Function, and Child Abuse Potential were significant at the $p \leq .0001$ level ranging from .57–.90.	
Slade et al. (2007)	8-item FSSQ subscale	151 men and women attending an infertility center for their first appointment	Cronbach's alpha = .88	Negative relationships between stigma consciousness and perceived social support were identified for both males and females; however, social support predicted psychological distress only in men.	Construct validity was supported for men, but not for women.

TABLE 2
Personal/Sociodemographic Sample Characteristics
(*N* = 186)

Characteristics	<i>n</i>	%
Marital Status		
Separated/Divorced	10	5
Married	83	42
Cohabitated	33	17
Never Married	71	36
First Pregnancy		
Yes	92	47
No	91	46
Annual Salary		
\$15,000 or less	100	51
\$15,001–30,000	89	45
\$30,001 and greater	8	4
Ethnicity		
White	121	61
African American	76	39

each of ten statements was true or false. Statements include “being bailed out of jail,” “borrow a car,” and “borrow money.” The responses are summed resulting in a cumulative score ranging from 0–10. Higher scores indicate greater tangible support. Research has been conducted using the ISEL with college students (Brookings & Bolton, 1988), pregnant women (Feldman et al., 2000), low-income mothers (Hall et al., 1998) and postpartum women (Black, 2007). Cronbach’s alpha ranged from .81–.95 in these studies. Significant relationships between the ISEL and increased birth weight as well as decreased stress, nausea, and vomiting were shown. Both tangible and functional support were significant predictors of increased Child Abuse Potential Index scores (Hall et al., 1998). In the present study, Cronbach’s alpha for this sample of low-income single mothers was .83.

The Center for Epidemiologic Studies-Depression Scale (CES-D) was developed by Radloff (1977) and is a 20-item scale used to measure depressive symptoms in adults. The components include the measurement of feelings and behaviors such as appetite, mood, self-esteem, concentration level, sleep quality, and physical activity. Items are scored using a 4-point Likert scale with choices including “rarely or none of the time,” “some or a little of the time,” “occasionally or a moderate amount of time,” and “most or all of the time.” Individuals are asked to rate each item based on how they felt or behaved over the past week. Scores can range from 0–60 with higher scores indicating more depressive symptoms. The CES-D has good internal consistency in adults (Carter, Baker, & Brownell, 2000; Radloff, 1977; Sharp & Lipsky, 2002). It has been used for research with a diverse group of participants, including pregnant women, mature adults, pregnant women with a history of depression, low-income women, and rural mothers. Internal consistency of the CESD is supported by Cronbach’s alpha ranging from .85–.93 (Hall et al., 1991; Radloff, 1977; Sachs et al., 1999). Significant relationships were found between increased risk of depressive symptoms and increased spontaneous preterm birth (Orr, James, & Prince, 2002), physical illness (Radloff, 1977), poor family function (Hall et al., 1991), stress (Hall et al., 1991), avoidance coping (Hall et al., 1991), and risk for abuse (Sachs et al., 1999). Cronbach’s alpha for this sample of low-income employed mothers was .87.

Procedure

Both the original and secondary analyses were approved by the University of Kentucky Medical Institutional Review Board. All women gave informed consent in the original study. The Statistical Package for the Social Sciences (SPSS) version 17.0 was used for data analysis. Descriptive statistics were run on the demographic data (Table 2). Internal consistency reliability of the FSSQ was evaluated by conducting item-total correlations and Cronbach’s alpha. Dimensionality of the FSSQ was evaluated using principal components analysis. This method was used

TABLE 3
Principal Components Analysis of the FSSQ and Descriptive Statistics for Each Item in a Sample of Low-Income Pregnant Women (*N* = 186)

# Item	Component 1	Item Mean ± <i>SD</i>	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
4. Talk about Personal Problems	.78	4.4 ± 0.93	.68	.79
8. Help when Sick in Bed	.73	4.3 ± 1.00	.60	.80
7. Get Useful Advice	.72	4.4 ± 0.89	.61	.80
1. Care what Happens to Me	.71	4.8 ± 0.53	.60	.81
5. Can Talk about Money Matters	.71	4.3 ± 1.00	.60	.80
3. Talk about Work Problems	.69	4.4 ± 0.87	.56	.81
6. Invite to Go Out	.61	3.9 ± 1.10	.48	.82
2. Get Love/Affection	.53	4.4 ± 0.56	.41	.83

because the underlying structure of the FSSQ has not been evaluated in pregnant women. Concurrent validity was evaluated by correlation of the FSSQ with another measure of social support, the ISEL. Construct validity was evaluated by correlation of the FSSQ with the CES-D.

RESULTS

Internal Consistency

Reliability of the FSSQ was supported by a strong Cronbach's alpha of .83 for this sample of pregnant women. Corrected item-total correlations ranged from .50–.78, which indicates the FSSQ items are homogenous. Deletion of any one item did not substantially increase alpha. See Table 3.

Dimensionality

Principal components analysis was conducted to examine the dimensionality of the FSSQ. There were two resulting eigen values above one; however, the scree plot suggested a single dimension. In addition, the second component had no primary loadings. Seven of the nine items had primary loadings on the one component. Factor loadings ranged from .60–.70. This one dimension explained 47% of the item variance. Thus, the findings support the unidimensionality of the FSSQ. See Table 3.

Concurrent Validity

The concurrent validity of the FSSQ was evaluated based on correlation with the ISEL. Concurrent validity is a type of criterion-related validity comparing a measure and criterion at the same point in time. The FSSQ was compared with the ISEL, which is a highly regarded measure of social support. The correlation between the FSSQ and the ISEL was moderate and positive ($r = .50, p < .001$), providing support for the hypothesis.

Construct Validity

Construct validity was evaluated by testing the hypothesis that the FSSQ would be inversely associated with the CES-D. The construct validity is an assessment of whether a particular measure relates to other measures consistent with theory. The correlation was modest, but significant ($r = -.30, p < .001$).

DISCUSSION

The purpose of this secondary analysis was to evaluate the psychometric properties of the FSSQ in a sample of pregnant women. The specific aims were to evaluate the internal consistency reliability, the dimensionality, concurrent validity, and construct validity of the FSSQ. This study is important because the psychometric soundness when used with low-income pregnant women in their third trimester has not been evaluated previously in the literature. The analysis demonstrated strong internal consistency reliability supported by Cronbach's alpha,

and moderate to strong corrected item-total correlations. Principal components analysis provided evidence that this is a unidimensional scale. Moderate support for validity was found by correlating the FSSQ with other measures, suggesting similar constructs and hypothesized theoretical linkages.

Limitations

A limitation of the study is that the results pertain only to the sample of low-income pregnant women in their third trimester in the three clinics sampled in Kentucky. Additional testing is needed to further evaluate the reliability and validity of the FSSQ in other samples.

Implications

For research to advance, it is necessary for nurse scientists to use the same measures to evaluate the construct of interest. Concepts can be related and compared to generate knowledge on a much larger scale. Much of the current issue with research is that each project is conducted in isolation of the body of knowledge existing in the literature for that particular construct. Using the same measurement tool consistently with similar and diverse samples across a variety of studies would allow for greater generalizability of the results and build nursing science.

This secondary analysis adds to the body of knowledge regarding the measurement of social support in low-income pregnant women in their third trimester. The FSSQ has shown psychometric soundness in this sample which will assist researchers when choosing a tool to measure social support in future studies. The FSSQ is comprised of only eight items and requires a minimum amount of time for respondents to complete the measure. Having just a few items also increases the ease of scoring. Future studies should be conducted to support the results of this study when examining social support using the FSSQ in low-income pregnant women.

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