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# Sense of Coherence and Quality of Life in Women Family Members of the Seriously Mentally Ill

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## Abstract

Providing care to a family member with serious mental illness (SMI) can reduce a family's quality of life. Quality of life, however, can be positively influenced by the caregiver's sense of coherence (SOC). Antonovsky's Salutogenic Health Model was examined in this secondary analysis of data from 60 women family members of adults with SMI. The results indicated that greater perceived stress decreased SOC and QoL, greater SOC enhanced QoL, and SOC partially mediated the effects of perceived stress on QoL. The findings suggest the need for reducing stress and strengthening SOC to promote optimal QoL for family members of adults with SMI.

Few families in the United States are untouched by mental illness (U.S. Department of Health and Human Services, 1999). Mental disorders are the leading cause of disability among persons ages 15–44 in the U.S. and Canada (Palpant, Steimnitz, Bornemann, & Hawkins, 2006). In fact, mental illness accounts for 15% of the disease burden in the U.S.—more than the disease burden caused by all cancers (Mathers, Lopez, & Murray, 2006). It has been estimated that more than 26% of the U.S. population will be diagnosed with a mental disorder annually (Palpant et al., 2006). Almost 10% of these individuals experience functional impairment (Opler, Ramirez, & Mougios, 2002) and more than 5% have a serious mental illness (SMI) that interferes with social functioning (Rusinova, Wewiorski, & Cash, 2002). About half of those persons with SMI (or 2.6% of all adults) have at least one severe and persistent mental illness (SPMI) (Narrow, Rae, Robins, & Regier, 2002), including schizophrenia, bipolar disorder, clinical depression, panic disorder, and obsessive compulsive disorders.

Deinstitutionalization has been a policy of successive governments for the past 30 years ([Chien & Norman, 2003]). The shift in the locus of treatment for people with SPMI from mental institutions into the community is increasing the number of families forced to assume the role of caregiver ([Chang & Horrocks, 2006]; [Webb et al., 1998]). Estimates indicate that between one-third and two-thirds of persons with long-term psychiatric problems are living with family members ([Dyck, Short, & Vitaliano, 1999]), and 50% of persons with severe mental illness live with families ([Beeler, Rosenthal, & Cohler, 1999]; [Solomon, Cavanaugh, & Gelles, 2005]). There is growing awareness of the difficulties and burdens family members experience in managing and adjusting to complex unpredictable mental illness at home ([Bulger, Wandersman, & Goldman, 1993]; [Ostman, Wallsten, & Kjellin, 2005]). The literature indicates that family caregivers face a range of practical and emotional stresses ([Tsang, Tam, Chan, & Cheung, 2003]) and burdens ([Chang & Horrocks, 2006]). [Muhlbauer (2002)] pointed out that 4 million American families struggle with burdens imposed by a member's severe mental illness. A number of caregiving burdens have been identified in the literature, including financial responsibilities, missed work, disturbance of domestic routines, constraints on social and leisure activities, and reduced attention to other family members ([Dyck et al., 1999]). Studies have found clients' lack of independence in performing activities of daily living was positively associated with caregivers' burden ([Chappell & Reid, 2002]). Both positive and negative symptom behaviors of the mentally ill have been related to the burden experienced by caregivers. Positive symptom behaviors are dynamic behaviors such as pacing and hallucinations; negative symptoms are static, such as social withdrawal and apathy ([Schultz, North, & Shields, 2007]; [Webb et al., 1998]). Although positive symptoms make treatment seem more urgent, negative symptoms create challenges associated with independent living, employment, and maintaining social relationships (Schultz et al., 2006).

Given the difficulties and stresses experienced by family members of persons with severe persistent mental illness, it is important to examine the quality of life in families caring for these persons. [Fleischman and Klupp (2004)] who assessed the effects of mental illness on the quality of life of 304 relatives of the mentally ill, found that the relatives perceived their quality of life, especially their emotional well-being, as significantly worse than the general population.

Antonovsky pointed out that all human beings experience stressors that are, in fact, “omnipresent in human existence” ([Antonovsky, 1979], p. 70). He further pointed out that the way a person reacts to stressors depends on what he called “Generalized Resistance Resources (GRRs),” which he defined as the characteristics of the person, environment, and the group that facilitate effective tension management ([Antonovsky,], p. 99). He theorized that healthy individuals have what is called a “sense

of coherence" (SOC), or a perception of the world as comprehensible, manageable, and meaningful ([Mroziak et al., 1997]). SOC represents a salutogenic personality trait that facilitates optimal adjustment in a number of domains of functioning ([Hart, Wilson, & Hittner, 2006]). SOC develops during childhood and youth and it is thought to be fully developed by the age of 30, after which it remains stable unless radical changes in living or social surroundings take place ([Moons & Norekval, 2006]).

SOC has been found to be low in neurotic patients and even lower in depressed patients ([Mroziak, et al., 1997]; [Skarsater, Languis, Agren, Haggstrom, & Dencker, 2005]). A recent study found a significant negative association between SOC and the total burden experienced by caregivers of dementia patients ([Andren & Elmstahl, 2005]). Furthermore, SOC has been negatively related to state anxiety in stressful situations ([Antonovsky & Sagy, 2001]) and the amount of SOC was found to effect the degree of vulnerability or resistance to both burnout and depression ([Tselebis, Moulou, & Ilias, 2001]). SOC has been found important in managing stress and remaining both physically and psychologically healthy ([Bowman, 1996]), and it appears to buffer the impact of recent stressful life events on self-reported health status ([Richardson & Ratner, 2005]). SOC also is thought to increase coping and adaptation, mediate tension caused by stressors, and decrease the amount of overall stress experienced ([Landsverk & Kane, 1998]).

However, no studies have examined whether SOC mediates or moderates the effects of perceived stress on quality of life in women family members of the seriously mentally ill. Therefore, this study investigated the intervening effects of SOC on the relationship between perceived stress and quality of life among women family members caring for adults with serious mental illness.

In this study, the following research questions were addressed: (1) What are the effects of perceived stress on quality of life? (2) What are the effects of SOC on quality of life? (3) What are the effects of perceived stress on SOC? (4) Does SOC moderate the relationship between perceived stress and quality of life? and (5) Does SOC mediate the relationship between perceived stress and quality of life?

## METHODS

### Design

Data for the study were obtained from a cross-sectional study of family members of adults with serious mental illness. The results of that study have been reported elsewhere ([Zauszniewski, Suresky, & Bekhet, 2006a], [2006b]).

### Sample

The convenience sample was comprised of 60 women family members (ages 23 to 65 years) of adults (ages 18 to 62) with serious mental illness (schizophrenia: 45%, bipolar disorder: 45%, major depression: 8%, panic anxiety: 2%) ([Zauszniewski et al., 2006a], [2006b]). The inclusion criteria for the parent study did not specify that the mentally ill person must live in the same household with the study participant; 60% of the mentally ill individuals lived apart from the identified family member ([Zauszniewski et al., 2006a], [2006b]). The sample size for this analysis was adequate for testing the mediating and moderating effects of SOC with a power of .80 and significance of .05. Based on the findings from the parent study, a large effect size was expected ([Zauszniewski et al., 2006a], [2006b]).

Prior to subject identification and recruitment, approval was obtained from the University Institutional Review Board (IRB). To recruit the women family members, notices describing the research were

posted in community mental health centers, local churches, places of business (grocery stores, department stores, restaurants, coffee houses, bookstores, libraries, etc.), and community support groups. Interested family members contacted the researchers to learn more about the study and to schedule an appointment for data collection. Equal numbers of Caucasian and African American women were included in the study.

## Instruments

Instruments included measures of perceived stress (including stigma), sense of coherence, and quality of life.

Because stress and burden have been used interchangeably ([Takano & Arai, 2005]; [Lazarus & Folkman, 1984]; [Rubio, Berg-Weger, & Tebb, 1999]), perceived stress was measured by the 27-item Overall Caregiver Burden Scale ([Biegel, Milligan, Putnam, & Song, 1994]), which contains four subscales: stigma (6 items), family disruption (11 items), client dependence (4 items), and caregiver strain (5 items). Internal consistency estimates have been reported for the total scale ( $\alpha = .89$ ), and for the subscales: stigma ( $\alpha = .83$ ), family disruption ( $\alpha = .79$ ), client dependence ( $\alpha = .67$ ), and caregiver strain ( $\alpha = .64$ ). Confirmatory factor analysis revealed four factors reflecting the four dimensions. Construct validity was supported by significant correlation between each subscale with the total scale and moderate correlation with other subscales, ranging from  $r = .37$  to  $r = .56$ . ([Biegel et al., 1994]).

Sense of coherence was measured by the 13-item Sense of Coherence Scale (SOC-13; [Antonovsky, 1993]). The alpha values in 127 studies that used the SOC-13 range from .70 to .92 ([Eriksson & Lindstrom, 2005]). Construct validity for this scale has been supported by significant correlations with theoretically related constructs in the expected directions: self-esteem ( $r = .65, p < .001$ ), mastery ( $r = .68, p < .001$ ), adequacy of attachment ( $r = .37, p < .001$ ), and psychopathology ( $r = -.44, p < .001$ ), ([Bengtsson-Tops & Hansson, 2001]).

Quality of life was measured by the Short Form 12-item Survey (SF-12; [Ware, Kosinski, & Keller, 1996]), a measure containing two subscales: physical function (PCS-12) and psychological well-being (MCS-12). The 12 items comprising this instrument are weighted to yield scores on both subscales. The two subscales have demonstrated internal consistency reliability, with Cronbach's alphas for both scales exceeding the recommended level of .70 ([Luo et al., 2003]), and there is published evidence for its criterion validity with the SF-36. Construct validity was demonstrated with strong correlations between baseline PCS-12 and PCS-36 ( $r = .96; p < .001$ ) and between baseline MCS-12 and MCS-36 ( $r = .96; p < .001$ ) ([Müller-Nordhorn, Roll, & Willich, 2004]). Reported evidence of its sensitivity to change over time and in response to intervention also has been reported ([Müller-Nordhorn et al., 2004]; [Salyers, Bosworth, & Swanson, 2000]). PCS-12 and PCS-36 change scores (12 months-baseline) were strongly correlated ( $r = .94; p < .001$ ). Similarly, MCS-12 and MCS-36 change scores were strongly correlated ( $r = .95; p < .001$ ) ([Müller-Nordhorn et al., 2004]).

## RESULTS

Three separate simple linear regression equations were used to determine the effects of perceived stress on quality of life, the effects of perceived stress on SOC, and the effects of SOC on quality of life in order to answer the first three research questions. Two simple regressions were used to examine the effects of perceived stress and SOC on quality of life (Table 1). Thus, quality of life was regressed on perceived stress (equation 1) and SOC (equation 2), respectively. In the first equation perceived stress accounted for 17% of the variance in quality of life and in the second equation, SOC accounted for 41%

of the variance in quality of life. Both regression models were significant ( $F(1, 58) = 12.8, p < .001$ ;  $F(1, 58) = 41.2, p < .001$  respectively). Perceived stress was found to have a negative effect on quality of life ( $B = -.43, p < .001$ ) while SOC had a positive effect on quality of life ( $B = .65, p < .001$ ).

**TABLE 1** Summary of regression analyses for variables explaining Quality of Life

Equation	Predictors	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	Adj. $R^2$
1	Perceived stress	-.38	.11	-.43	-3.58	.17
2	Sense of Coherence	.83	.13	.65	6.42	.41

\* $p < .001$ .

In a third simple regression (equation 3, Table 2), SOC was regressed on perceived stress to determine the effects of perceived stress on SOC. This model was significant ( $F(1, 58) = 7.01, p < .01$ ) and perceived stress accounted for 9% of the variance in SOC. Perceived stress was found to have a negative effect on SOC ( $B = -.33, p < .01$ ).

**TABLE 2** Summary of regression analyses for variables explaining Sense of Coherence

Equation	Predictors	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	Adj. $R^2$
3	Perceived stress	-.23	.09	-.33	-2.65	.09**

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

Next, two hierarchical regressions were used to examine the mediating and moderating effects of SOC on the relationship between perceived stress and quality of life (research questions four and five).

## Moderation

To test moderating effect, an interaction term was created by “centering” the scores on measures of perceived stress and SOC, then multiplying the two. [Baron and Kenny (1986)] suggested that variables need to be “centered” in order to reduce the correlation of the interaction term with its component. Centering was achieved by subtracting the mean of each variable from each individual datum. To examine the moderating effect of SOC on the relationship between perceived stress and quality of life (Table 3), perceived stress and SOC were entered together on the first step followed by entry of the interaction terms on the second step (equation 4). The regression model for both steps was significant ( $F(2, 57) = 24.93, p < .001$ , and  $F(3, 56) = 16.84, p < .001$ , respectively). On the first step, perceived stress and SOC together accounted for nearly 45% of the variance of quality of life. The addition of the interaction term on step 2 did not contribute to variance; the incremental  $R^2$  was not significant. Thus, SOC was not found to moderate the effects of perceived stress on quality of life in the women family members who participated in the study.

**TABLE 3** Summary of regression analyses for the moderating effect of Sense of Coherence on the relationship between perceived stress and quality of life

Equation	Predictors	Step 1 $\beta$	Step 2 B
4	Perceived stress	-.24	-.26
	SOC	.57***	.56***
	Perceived stress $\times$ SOC		-.09
	F value	24.9***	16.84***
	Total R <sup>2</sup>	.467	.474
	Adjusted R <sup>2</sup>	.448	.446
	Incremental R <sup>2</sup>		-.01

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

## Mediation

To examine whether the effects of perceived stress on quality of life were mediated by SOC (Table 4), perceived stress was entered in the first step of the regression model and SOC was entered in the second step (equation 5). Following step 1, the model was significant ( $F(1, 58) = 12.78, p < .001$ ) and perceived stress accounted for 17% of the variance of quality of life. When SOC was added on step 2, the model remained significant ( $F(2, 57) = 24.93, p < .001$ ), and the incremental R<sup>2</sup> increased significantly to .29. There was a substantial drop in the beta weight of perceived stress from  $B = -.43$  to  $-.24$  when SOC entered the equation. However, the effect of perceived stress on quality of life continued to be significant, suggesting that the effects of perceived stress on quality of life may be partially mediated by SOC.

**TABLE 4** Summary of regression analyses for the mediating effect of Sense of Coherence on the relationship between perceived stress and quality of life

Equation	Predictors	Step 1 $\beta$	Step 2 B
5	Perceived stress	-.43***	-.24
	SOC		.57***
	F value	12.8***	24.93***
	Total R <sup>2</sup>	.43	.68
	Adjusted R <sup>2</sup>	.17	.45
	Incremental R <sup>2</sup>		.29

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

## DISCUSSION

This study represents the first attempt to examine the mediating or moderating effects of sense of coherence (SOC) on the relationship between perceived stress and quality of life in women family members of adults with severe mental illness. The results indicated that perceived stress had a direct negative effect on SOC and quality of life ( $F(1, 59) = 7.01, p < .01$ ;  $F(1, 59) = 12.8, p < .001$ , respectively). The results were similar to the results of the study conducted by [Wolff and Ratner (1999)], who also found a significant negative correlation between personal stress and SOC. In their study, people who experienced higher levels of chronic stress, higher levels of personal stress, and more life events over a 12-month period tended to have a lower SOC. Similarly, previous results showed that greater SOC was associated with both lower burden and fewer depressive symptoms in informal caregivers during the first month after stroke ([Chumbler, Rittman, Van Puymbroeck, Vogel, &

Qin, 2004]). Furthermore, [Yun-He and YHe and Shiu (2006)] found that Chinese patients with high SOC perceived less diabetes-specific stress than those with low sense of coherence.

In our study, SOC had a direct positive effect on quality of life ( $F(1, 59) = 41.2, p < .0001$ ). These results are consistent with the results of the study by [Kattainen, Merilainen, and Sintonen (2006)], who found a correlation between health-related quality of life and SOC in coronary artery bypass graft and percutaneous transluminal coronary angioplasty patients. Patients who had poor or moderate SOC had lower health-related quality of life than patients with a strong SOC. Results of a study of older caregivers indicated that higher health-related quality of life was predicted by using self-sustaining coping strategies and by high SOC ([Ekwall, Sivberg, & Hallberg, 2007]). In a Swedish study, those with strong SOC had more general motivation and less somatic and psychic anxiety, as well as less hostility ([Languis, Bjorvell, & Antonovsky, 1992]). Similar results were obtained by [Tselebis, Moulou, and Ilias (2001)], who found that SOC in nursing staff was correlated negatively with burnout and depression. It also has been found that both SOC and social support were resources that reduced reported stress and improved quality of life, with SOC especially important in reducing stress in mothers of children with hearing impairment ( $N = 235$ ; [Hintermair; 2004]). In hypertensive patients, strong SOC was associated with the ability to control expression of anger and with low levels of suppressed or openly expressed anger; Anger control and SOC were related to good health related quality of life ([Julkunen & Ahlstrom, 2006]). In addition, social workers who had a strong SOC experienced less burnout than those with a weak SOC ([Gilbar, 1998]).

In this study, SOC had a partial mediating effect on the relationship between perceived stress and quality of life. These results are similar, in part, to the results of [Ying and colleagues (1997)], who found that SOC mediated the effects of external stressors and resources on psychological dysfunction in refugees. The results are also similar to the results of [Hogh and Mikkelsen (2005)], who reported that SOC acted as a mediator and not as a moderator of relationships between exposure to violence and psychological, psychosomatic, and cognitive stress reactions in a randomized cross-sectional sample of 4,000 Danish adult citizens between 20 and 60 years of age.

Moderation and mediation are often examined in basic and applied research ([Baron & Kenny, 1986]; [Edwards & Lambert, 2007]). Moderation occurs when the effect of an independent variable (perceived stress) on a dependent variable (quality of life) varies according to the level of a third variable (the moderator, SOC). Therefore, in the case of the moderator, the independent variable (perceived stress) interacts with the moderator variable (SOC). On the other hand, the mediation occurs when the indirect effect of an independent variable (perceived stress) on a dependent variable (quality of life) passes through a mediator variable (SOC). So, in this case, the effect of perceived stress on quality of life passed through SOC ([Baron & Kenny, 1986]; [Edwards & Lambert, 2007]). The results of this study suggest that both perceived stress and SOC have important effects on family members' quality of life.

Because SOC acted as a partial mediator on the relationship between perceived stress and quality of life in this study, this raises the question as to whether SOC is a stable or unstable construct ([Hogh & Mikkelsen, 2005]). Given the cross-sectional design of the study reported here, is difficult to infer whether SOC is open to change even after exposure to stressful experience. Studies are equivocal in reporting the stability of the SOC construct. While some studies reported moderate stability of SOC in both genders and over time ([Feldt, Kinnunen, & Mauno, 2000]; [Hogh & Mikkelsen, 2005]; [Kivimaki et al., 2000]), others reported changes in SOC that resulted from exposure to violence and financial difficulties ([Kivimaki et al., 2002]). Still others ([Snekkevik, Anke, Stanghelle, & Fugl-Meyer, 2003])

claim, based on their longitudinal study, that under stable life conditions, SOC is stable but it could be changed, even permanently, as a result of traumatic life event. Additional longitudinal studies would be useful.

The results from this study draw attention to the importance of identifying and reducing stress encountered by caregivers of persons with mental illness as well as the need to focus on developing and testing interventions to strengthen one's SOC in order to promote optimal quality of life in women who experience considerable stress in their caregiving of a family member with SMI. The study points to a clear need to focus on the family unit as the client of concern when planning care for a person with severe mental illness. Family members provide reinforcement for the ill member in the struggle to comply with treatment recommendations. Compliance decreases the likelihood of relapse and additional medical expense thereby reducing stress on the client and family members. Family members might benefit from organized groups that provide illness and treatment education, social support, and a sense of belonging to strengthen the family member's SOC in terms of comprehensibility and manageability. To address the meaningfulness component of SOC, which may not happen as readily, short-term cognitive therapy may be helpful for family members experiencing high stress levels related to caring for a SMI adult.

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