



Sense of Coherence: Potential Mediators between Perceived Stress and Quality of Life among Caregivers of Family Members with Brain Injury

Melissa Ivins-Lukse, Samantha DeDios-Stern, and Eun-Jeong Lee
Illinois Institute of Technology

Introduction

Brain injury (BI) is associated with many physical and psychiatric conditions, with survivors often experiencing problems long after their injury (Chan, Parmenter, & Stancliffe, 2009). Following an individual's BI, family members often step in to serve as full- or part-time caregivers, a role which challenges caregivers with demands that often require a variety of physical, emotional, and social resources. Providing these resources often contributes to caregivers' stress, which has been shown to have negative impacts on caregiver quality of life (QoL). However, caregivers with similar levels of stress may experience different QoL. Therefore, it is necessary to explore factors that may explain variation observed in this relationship.

One such factor is sense of coherence (SoC), a construct that explores factors contributing towards one's health state. SoC includes three factors: comprehensibility (view of world as ordered and oneself as able to mobilize resources), manageability (view that one understands the challenge and has the resources needed), and meaningfulness (belief that coping is rational and feeling one wants to cope) (Jakobsson, 2011). The purpose of this study was to investigate these three SoC factors as mediators between stress and QoL in caregivers of individuals with BI.

Methods

Participants

- 102 caregivers providing care for their family member with brain injury
 - Gender: 80% women
 - Participant Age: $M = 47.19$; $SD = 12.31$
 - Caregiver Role: 60% full-time, 40% part-time
 - All participants were recruited online and completed the study survey using Qualtrics

IV: Perceived Stress Scale is a 14-item self-report inventory that measures the perceived level of stress.

Sense of Coherence (SoC) Scale is a three factor, 13-item self-report scale assessing internal factors contributing to health. For this study, each of the three subscales was investigated as a potential mediator:

M1: SoC Comprehensibility Subscale is 5-item factor assessing one's orientation to life and stress as predictable and understandable.

M2: SoC Manageability Subscale is 4-item factor assessing one's view that he or she has the ability and resources to respond to stressors.

M3: SoC Meaningfulness Subscale is 4-item factor assessing one's perception that daily activities, including coping, are meaningful.

DV: EUROHIS-QOL 8-item Index is an 8-item self-report scale measuring QoL.

Data Analysis

- Bootstrapping analyses (5,000 samples, 95% CI) were conducted to investigate the mediating effects of SoC Subscales on the relationship between caregiver stress and QoL using 'INDIRECT' macro (Hayes, 2013).

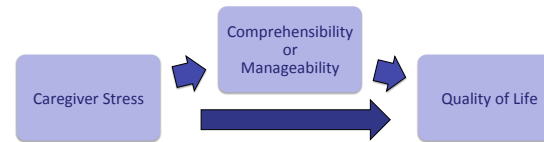
Results

- Pearson Correlation statistics (Table 1) demonstrated that all variables were significantly inter-correlated ($p < .01$), except for meaningfulness and perceived stress. Therefore, for subsequent mediation analyses:
 - Quality of life was the DV investigated
 - Comprehensibility and manageability were the two mediators investigated
- Multiple regression analyses indicated no moderation effects for comprehensibility or for manageability on the relationship between stress and QoL ($p > .05$)

Table 1. Descriptive Statistics and Pearson Correlations among Study Variables

Variable	M (SD)	1	2	3	4	5
1. Caregiver Stress	21.36 (2.83)	-	-	-	-	-
2. Comprehensibility	20.85 (6.60)	.27*	-	-	-	-
3. Manageability	15.94 (5.72)	.37*	.80*	-	-	-
4. Meaningfulness	14.71 (4.47)	.12	.65*	.72*	-	-
5. Quality of Life	25.58 (6.94)	-.26*	-.47*	-.48*	.26*	-

NOTE: * $p < .01$



Mediation Analysis 1: Caregiver Stress – Comprehensibility – Quality of Life

- Results supported comprehensibility as a full mediator between caregiver stress and quality of life, explaining 23% of the variance in quality of life (Table 2)
- This was supported by a significant Sobel Test, $Z = -2.42$, $p < .05$

Table 2. Mediation Analysis 1: Caregiver Stress (IV) – Comprehensibility (M) – Quality of Life (DV)

Relationship	Variable	Coefficient	SE	CI	F	R ²
IV – DV					7.27	0.07
IV – M	Caregiver Stress (IV)	-0.69*	0.25	-1.189, -0.181	14.88	0.23
	Caregiver Stress (IV)	0.68*	0.23	0.212, 1.157		
IV – M – DV	Caregiver Stress (IV)	-0.38	0.24	-0.858, 0.100		
	Comprehensibility (M)	-0.31**	0.12	-0.581, -0.102		

Note. DV = quality of life as measured by the WHOQOL-BREF. * $p < .01$, ** $p < .001$

Mediation Analysis 2: Caregiver Stress – Manageability – Quality of Life

- Results supported manageability as a full mediator between caregiver stress and quality of life, explaining 23% of the variance in quality of life (Table 3)
- This result was supported by a significant Sobel Test, $Z = -3.06$, $p < .01$

Table 3. Mediation Analysis 2: Caregiver Stress (IV) – Manageability (M) – Quality of Life (DV)

Relationship	Variable	Coefficient	SE	CI	F	R ²
IV – DV					7.10	0.07
IV – M	Caregiver Stress (IV)	-0.69*	0.26	-1.196, -0.175	14.95	0.23
IV – M – DV	Caregiver Stress (IV)	0.82**	0.20	0.422, 1.217		
IV – M – DV	Caregiver Stress (IV)	-0.24	0.25	-0.747, 0.258		
	Manageability (M)	-0.44**	0.14	-0.768, -0.212		

Note. DV = quality of life as measured by the WHOQOL-BREF. * $p < .01$, ** $p < .001$

Major Findings

Two of the three SoC subscales, comprehensibility and manageability, were found to independently fully mediate the relationship between caregiver stress and QoL. In each case, the mediation model explained 23% of the variance in QoL. Comprehensibility and manageability have been described as the cognitive and behavioral aspects of SoC, respectively. These results suggest that higher levels of comprehensibility and manageability may contribute to increases in caregiver QoL.

Comprehensibility captures a person's beliefs regarding the predictability of his or her world. This factor may be particularly valuable for BI caregivers, as the events leading up to BI and care recipients' behaviors following BI may often seem unpredictable. Being able to view the world as understandable, even in the midst of uncontrollable events, may increase one's ability and motivation to respond with adaptive coping strategies, thus contributing to higher QoL.

As manageability reflects individuals' perceptions that they can access the resources necessary to cope, this factor is likely to promote adaptive behaviors to obtain and use resources. Providing care for an individual with BI places substantial physical, emotional, financial, and time demands on a caregiver, making it especially important that caregivers are able to utilize all available resources. Optimizing available resources likely facilitates greater QoL.

Limitations & Implications

Limitations of this study include the relatively small sample size, the homogeneous nature of the caregiver sample (mainly Caucasian women), the heterogeneous brain injuries of the care receivers, and the cross-sectional design. As a result of these limitations, the results may not be generalizable to other populations and it is not possible to determine causation. However, despite these limitations, the results are consistent with the salutogenic model and the idea that higher levels of sense of coherence could reduce the negative effects of stress on one's wellbeing. Future research should seek to further clarify this relationship in caregivers using longitudinal studies to identify causal factors and relationships.

Overall, higher levels of caregiver comprehensibility and manageability each fully mediated the relationship between stress and QoL. Given the strong cognitive and behavioral aspects of these factors, these findings suggest that psychologists may be able to use cognitive behavioral therapy to help caregivers reframe parts of their world as predictable and also to increase behaviors leading to resource utilization. Such interventions may serve to reduce the impact of caregiving stressors and consequently to increase QoL. Such effects are likely to benefit not only the caregiver, but also their care recipient.