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Predictors of Quality of Life in Hospitalized Cardiac Patients

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Abstract

This cross-sectional investigation examined relationships between Sense of Coherence (SOC), age, gender, race, education, length of illness, and Quality of Life (QOLS) in 121 hospitalized cardiac patients (mean age 61.7 years), varying in condition and treatment regimen. QOLS scores were relatively good; SOC scores were slightly lower than other groups. SOC predicted QOLS alone, and in conjunction with age, gender, race, length of illness, and education, which did not predict QOLS separately. Thus, an important interdisciplinary goal is to help cardiac patients perceive life as comprehensible, manageable, and meaningful (as measured by SOC), as this greatly influences Quality of Life.

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- cardiac patients
- Quality of Life
- Sense of Coherence
Introduction

QUALITY OF Life (QOL) has become increasingly important in cardiac care over the last few decades, not only as a measure for health care workers and administrators to evaluate the efficacy and economy of different treatment protocols, but also as a criterion for patient decision-making (Hawthorne, Richardson, & Osborne, 1999). QOL has also been of value in predicting mortality and the need for further hospitalization among cardiac patients (Konstam et al., 1996; Rumsfeld et al., 1999).

Different approaches have been taken to measuring QOL, depending on the target population and purpose. Distinctions have been made between conceptual or generic measures, which deal with life domains (e.g. psychological, social, physical, occupational well-being) and operational or disease-specific measures, which deal with the effects of particular medical conditions (e.g. symptoms of an illness, side-effects of a particular treatment) (Montazeri, Gillis, & McEwan, 1996). Conceptual, generic measures deal with domains relevant to the general population, and therefore can be used across healthy and ill populations, and regardless of diagnosis; whereas operational or disease-specific measures of QOL cover domains relevant to a particular illness (e.g. specific cardiac condition), and therefore are best used for the intended population (Montazeri et al., 1996). Fayers, Hand, Bjordal, and Groenvold (1997) also noted that generic measures are sensitive to both high and low levels of QOL, whereas disease-specific measures are better measures of low QOL.

Both types of QOL measures have been used in cardiac research. Since the present study is concerned with patients with a variety of cardiac conditions, undergoing different treatments, a conceptual or generic measure of QOL was most appropriate. As used here, QOL is defined as the extent to which a person perceives basic psychosocial areas of life as fulfilling (Anderson & Burckhardt, 1999).

The significance of QOL in cardiac care, a significant research agenda has been to identify those variables that predict QOL. Previous research has shown that both age and gender may predict QOL, as variously measured; however, the relationships are not straightforward. QOL may increase or decrease with age, depending on cardiac condition, domain of QOL, and co-existing symptoms. For example, Anderson (1995) found that QOL increased with age in patients with chronic obstructive pulmonary disease (COPD); Bosworth et al. (2000) found that, in cardiac catheterization patients, physical aspects of QOL decreased with age, while mental aspects increased; Chocron et al. (1996) found that, in post-surgical heart patients, age interacted with energy, sleep, and pain in its effects on QOL. Females generally report lower QOL than males (Falcoz et al., 2006), but this seems to depend upon cardiac condition, and the domain of QOL measured. For example, Taillefer, Dupuis, Hardy, and LeMay (2005) found that women who had undergone valvular surgery improved more than men on leisure, affectivity, and social functioning, but men improved more on mental health; however QOL also varied according to type of valve. As for other demographics, very little is known about whether race and education predict QOL among cardiac patients. Interestingly, length of time following surgical intervention is positively associated with improvement in QOL (Myles, Viira, & Hunt, 2006).

Of particular interest to the present study is the role of Sense of Coherence (SOC), a measure of the extent to which an individual finds life comprehensible, manageable, and meaningful (Antonovsky, 1987). Research has shown that SOC is significantly related to various measures of Quality of Life (QOL) in: cardiac arrest survivors (Motzer & Stewart, 1996), persons who have undergone coronary artery bypass surgery (CABG) (Dantas, Motzer, & Ciol, 2002), persons who have had percutaneous transluminal coronary angioplasty (PTCA) (Kattainen, Meriläinen, & Sintonen, 2006), and elderly people with severe chronic heart failure (Ekman, Fagerberg, & Lundman, 2002). SOC is inversely related to loneliness, depression, stress, and chest pain in CABG patients one year after surgery (Karlsson, Berglin, Larsson, & Karlsson, 2000).

No studies were found on the QOL and SOC of hospitalized patients with various cardiac conditions, undergoing different treatments, as usually found in a general hospital. The purpose of the present study was to assess the current QOL of inpatients hospitalized for various cardiac conditions and treatments, and to determine whether Sense of Coherence, age, length of illness, gender, race, or education predict QOL. The measure used in this study is an adapted version of the Quality of Life Scale (QOLS) (Anderson & Burckhardt, 1999), which is a generic rather than disease-specific measure, and thereby permits comparison of individuals with different cardiac conditions and treatment regimens. This is an important topic because identifying
predictors of QOL among a diverse cardiac population may help target those at risk of recurrent cardiac disease and mortality who are in need of more intensive psychoeducational interventions within the general hospital setting.

**Method**

**Participants**

Participants were inpatients at an urban university hospital in the northeast USA who met these criteria: (1) hospitalized with a cardiac condition; (2) sufficient physical and mental stamina to participate; (3) English-speaking; and (4) informed consent. The study underwent ethical review.

Approximately 180 participants were recruited based on weekly admissions to the hospital and referrals by the cardiac nursing staff over a nine month period. A total of 121 patients met criteria, consented, and completed all three questionnaires.

**Procedure**

Each participant was interviewed individually to determine suitability for participation. Those who met inclusion criteria were individually tested immediately. Three questionnaires (see later) were administered orally or in writing, depending upon participant preference, taking approximately 20 minutes.

**Measures**

The first measure used in this study is an adapted version of Flanagan’s (1978) Quality of Life Scale (QOLS). The adapted version is a 16-item questionnaire (Anderson & Burckhardt, 1999), covering the following domains: physical and material well-being; relationships; social, community, and civic activities; personal development and fulfillment; recreation; and independence. To answer each question, the participant rates his/her level of satisfaction, using a seven-point scale, ranging from delighted to terrible. The adapted QOLS has high internal consistency and test–retest reliability (Burckhardt & Anderson, 2003), as well as convergent and discriminant construct validity (Burckhardt, Anderson, Archenholtz, & Hägg, 2003).

The Sense of Coherence (SOC) used in this study is a 29-item self-report inventory, with 11 items on comprehensibility, 10 on manageability, and eight on meaningfulness (Antonovsky, 1993). To answer each question, the participant uses a seven-point scale ranging from most to least. Based on an analysis of hundreds of studies, Eriksson and Lindstrom (2005) concluded that the scale has good reliability and validity.

As for demographic variables, gender was dichotomized. Race was dichotomized as African-American or non-African-American. The Shapiro-Wilk test revealed the distributions for education and length of illness did not meet the standard for normality of > .05. Since neither could be transformed into a normal distribution, education was dichotomized as high school or less versus went to college, and length of illness was dichotomized as two or less years versus three or more years. The distribution for age also did not meet the standard for normality; however, it was successfully transformed by squaring the values.

**Results**

Of the 121 participants, 55 percent were male. Diagnoses included: congestive heart failure (38%); coronary artery disease (19%); post-transplant complications (14%); arrhythmia (9%); valve disorder (6%); myocardial infarction (6%); and various others (8%). Ages ranged from 32 to 87, with a mean of 61.7 (SD = 13.0). The length of illness (i.e. number of years since initial diagnosis) ranged from under one year to 54 years, with a mean of 6.7 years (SD = 8.0), dichotomized as follows: 43 percent two years or less, and 57 percent three to 10 years. With regard to race, 59 percent were African-American, 41 percent were non-African-American (34% Caucasian, 7% other). Sixty percent had high-school education or less; 40 percent had gone to college.

The Shapiro Wilk test revealed that both QOLS and SOC had normal distributions. QOLS scores ranged from 54 to 112, out of a possible 112; the mean was 85.5 (SD = 11.3). The mean item scores ranged from 4.0 (Mixed) to 5.9 (Mostly satisfied) out of a possible 7 (Delighted). Fourteen of the 16 items had mean scores in the mostly satisfied range (5.0 to 5.9). The two items with lower mean scores, rated ‘Mixed’ were: Recreation (4.9) and Health (4.0). SOC scores ranged from 80 to 183 out of a possible 203; the mean was 136.5 (SD = 23.3).

Standard multiple linear regression was computed using SPSS to determine the extent to which six variables (SOC, gender, length of illness, age, race, and education) could predict QOLS. The analysis revealed the multiple R between the six
predictor variables and QOLS to be .65; the six predictor variables accounted for .42 of the variance in QOLS (adjusted \( R^2 = .39 \)). An ANOVA was used to determine significance; the results showed that these six variables when taken together were significant predictors of QOLS (\( F = 13.9; p < .001 \)).

Computation of standardized beta coefficients showed that, of the six variables, SOC contributed most significantly to the prediction of QOLS (standardized beta = .63; \( p < .001 \)). Race (African-American versus non-African-American) also contributed significantly to the prediction (standardized beta = −1.98; \( p < .05 \)). The beta coefficients of the other four variables (gender, education, age, length of illness) were not significant (\( p > .05 \)). A \( t \)-test comparing QOLS according to race revealed no significant difference (\( p < .05 \)).

Based on the above findings, a refined model of regression was tested with SOC as the independent variable and QOLS as the dependent variable. The analysis revealed the multiple R to be .61; SOC accounted for .38 of the variance in QOLS (adjusted \( R^2 = .37 \), \( p < .001 \)).

Discussion

The results showed that cardiac inpatients have a relatively good QOL; their mean score (85) was only five points below the mean of 90 for a healthy population (Burckhardt & Anderson, 2003). Moreover, mean item scores indicated that they are mostly satisfied with all domains on the QOLS, except for active recreation and health. These findings confirm those of Dantas, Góis, and daSilva (2005) for CABG patients.

Cardiac inpatients had a slightly lower mean SOC (136) when compared to general population means in Sweden (152) (Holmberg, Thelin, & Sternerström, 2004) and Germany (145) (Schumacher, Gunzelmann, & Brähler, 2000). Because SOC norms do not exist for cardiac patients or the general population in the USA, a lower SOC does not necessarily mean that cardiac patients have a weak SOC.

SOC was a powerful predictor of QOLS in cardiac inpatients. Those who found life more comprehensible, manageable, and meaningful (as measured by SOC) tended to be more satisfied with psychosocial dimensions of everyday life (as measured by QOLS). This finding confirms those of other research studies on specific groups of cardiac patients (see Introduction).

Race contributed significantly to the prediction of QOLS when combined with SOC and other demographics, however, when tested alone, there were no differences in QOLS when comparing African-Americans with non-African-Americans. Age, gender, education, and length of illness were not predictors of QOLS except when combined with SOC and race. This finding is inconsistent with previous research showing relationships between QOL and age, and QOL and gender (see Introduction).

The implications of the study are: (1) the QOLS provides general hospital staff with a valuable tool in assessing and addressing the psychosocial needs of a wide variety of cardiac inpatients, and comparing them to the general population; (2) the overall QOL of cardiac inpatients is a function of both medical and psychosocial variables such as SOC, thus warranting the use of more integrative, holistic modalities throughout their hospital stay; (3) an important goal in cardiac care is to help patients perceive their lives as comprehensible, manageable, and meaningful, as this orientation to life (as measured by SOC) greatly influences Quality of Life.

A limitation of the study is that it was a cross-sectional investigation, and as such, cannot establish cause–effect relationships between SOC and QOLS. Another limitation was the small sample size, which calls for caution in generalizing the findings. Future research should examine the role of other variables previously associated with QOL but not examined in the present study, including comorbidities, previous cardiac rehabilitation, employment, and marital status.

References


**Author biographies**

KENNETH BRUSCIA is Professor of Music Therapy at Temple University where he founded the bachelor’s, master’s, and doctorate in music therapy. He has clinical experience with diverse clientele, and specializes in Guided Imagery and Music, improvisation, and qualitative research.

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