Factors Associated With Hope and Quality of Life in Patients With Coronary Artery Disease

Mohammad Ali SOLEIMANI1 • Simin ZARABADI-POUR2 • Yiong HUAK CHAN3 • Kelly-Ann ALLEN4 • Morteza SHAMSIZADEH5*

ABSTRACT
Background: Psychological resources such as hope have been suggested to affect quality of life (QoL) positively in patients with heart disease. However, little information regarding the relationship between these two constructs is available.

Purpose: This work was aimed at examining the factors associated with hope and QoL in patients with coronary artery disease.

Methods: In this descriptive work, perceived QoL and hope were assessed in 500 patients with heart disease. The information was collected using the McGill QoL Questionnaire, demographic variables, and the Herth Hope Index. The Pearson correlation test and general linear model were used to examine correlations through SPSS Version 22.

Results: A considerable correlation was discovered between QoL and hope (r = .337, p < .001). Multivariate analyses with regression revealed that religious beliefs and social support both had significant and positive effects on the total perceived hope of patients and that patient age had a considerable negative impact on QoL (p < .05). None of these factors had a significant impact on hope (p < .05). In addition, the total QoL had a significant and positive effect on patient feelings and thoughts, whereas the physical problems component of QoL had a significant and negative effect on hope (p < .05). Participants with higher levels of education reported more hope.

Conclusions: QoL relates significantly to self-perceived hope in patients. Understanding QoL and hopefulness in patients with coronary artery disease has implications for nurses and other healthcare professionals.

Key Words: quality of life, hope, coronary artery disease.

Introduction
Coronary artery disease (CAD), a main cause of death, is responsible for some 17.3 million deaths each year worldwide. This number is predicted to increase to over 23.6 million deaths per year by 2030. In China, India, Pakistan, Iran, and the Middle East, the prevalence of CAD is rising sharply (Zipes, 2018). Studies conducted in the United States and Europe show a similar pattern of prevalence. However, the prevalence is highest in Iran, where 39.3% of deaths are related to CAD, making it the most significant cause of death in this country (Varaei et al., 2017).

Both objectively and subjectively, CAD affects the psychological, social, and physical aspects of a patient’s life, including quality of life (QoL; Komalasari & Yoche, 2019). According to the World Health Organization, QoL is defined as “the perception of an individual regarding his/her position in life within the value systems and culture where they live related to their objectives, prospects, concerns and standards.” QoL has also been defined with regard to the spiritual life quality of the individual and how this interplays with their physical, mental, cultural, and financial contexts (Moryş et al., 2016). QoL in patients with CAD has been found to be strongly and negatively associated with physical impairment or limitations caused by the disease. Poor QoL has been found to affect social, family, work, and recreational activities and to increase the risk of hospitalization and death (Buck et al., 2015).

Many factors have been found to impact the QoL of patients with CAD. Physical symptoms may cause social isolation and a disturbance in sexual relations and, consequently, change the patient’s role in the social context and their family (Valtorta et al., 2018). The use of medications such as diuretics may also disrupt patients’ social relationships and affect their QoL. The loss of physical functioning may lead to a decline in independence and reliance on others. Furthermore, difficulties with mobility related to dyspnea, fatigue, decreased muscle strength, and poor balance have been shown to lead to disruptions or changes in activities of daily living (Ishihara et al., 2019).

This work was aimed at examining the factors associated with hope and QoL in patients with heart disease. However, little information regarding the relationship between these two constructs is available.

Methods: In this descriptive work, perceived QoL and hope were assessed in 500 patients with heart disease. The information was collected using the McGill QoL Questionnaire, demographic variables, and the Herth Hope Index. The Pearson correlation test and general linear model were used to examine correlations through SPSS Version 22.

Results: A considerable correlation was discovered between QoL and hope (r = .337, p < .001). Multivariate analyses with regression revealed that religious beliefs and social support both had significant and positive effects on the total perceived hope of patients and that patient age had a considerable negative impact on QoL (p < .05). None of these factors had a significant impact on hope (p < .05). In addition, the total QoL had a significant and positive effect on patient feelings and thoughts, whereas the physical problems component of QoL had a significant and negative effect on hope (p < .05). Participants with higher levels of education reported more hope.

Conclusions: QoL relates significantly to self-perceived hope in patients. Understanding QoL and hopefulness in patients with coronary artery disease has implications for nurses and other healthcare professionals.

Key Words: quality of life, hope, coronary artery disease.

Introduction
Coronary artery disease (CAD), a main cause of death, is responsible for some 17.3 million deaths each year worldwide. This number is predicted to increase to over 23.6 million deaths per year by 2030. In China, India, Pakistan, Iran, and the Middle East, the prevalence of CAD is rising sharply (Zipes, 2018). Studies conducted in the United States and Europe show a similar pattern of prevalence. However, the prevalence is highest in Iran, where 39.3% of deaths are related to CAD, making it the most significant cause of death in this country (Varaei et al., 2017).

Both objectively and subjectively, CAD affects the psychological, social, and physical aspects of a patient’s life, including quality of life (QoL; Komalasari & Yoche, 2019). According to the World Health Organization, QoL is defined as “the perception of an individual regarding his/her position in life within the value systems and culture where they live related to their objectives, prospects, concerns and standards.” QoL has also been defined with regard to the spiritual life quality of the individual and how this interplays with their physical, mental, cultural, and financial contexts (Moryş et al., 2016). QoL in patients with CAD has been found to be strongly and negatively associated with physical impairment or limitations caused by the disease. Poor QoL has been found to affect social, family, work, and recreational activities and to increase the risk of hospitalization and death (Buck et al., 2015).

Many factors have been found to impact the QoL of patients with CAD. Physical symptoms may cause social isolation and a disturbance in sexual relations and, consequently, change the patient’s role in the social context and their family (Valtorta et al., 2018). The use of medications such as diuretics may also disrupt patients’ social relationships and affect their QoL. The loss of physical functioning may lead to a decline in independence and reliance on others. Furthermore, difficulties with mobility related to dyspnea, fatigue, decreased muscle strength, and poor balance have been shown to lead to disruptions or changes in activities of daily living (Ishihara et al., 2019).
After a diagnosis of CAD, the lives of patients may become disrupted through physical symptomatology (e.g., dyspnea and chest pain), mental health, psychological concerns (e.g., grief, loss, stress, anxiety, and depression), and social issues (e.g., availability of social support and limitations in social participation). The loss and limitations of physical, psychological, and social functioning have been found to affect patients’ perceptions of their QoL (Staniute et al., 2013). In addition, the lengthy duration of chronic diseases such as CAD and the side effects of treatment may also affect the QoL of patients negatively. Social support, strong religious beliefs and spirituality, desirable financial status, and higher levels of education have been found to improve QoL in some patients experiencing illness and treatment (Li et al., 2016).

Cardiovascular disease poses a challenge to many health-related and psychological variables, including a patient’s sense of hope/hopefulness toward the future or a desired outcome. Hope is considered to be an important coping mechanism for managing challenges throughout life (Broadhurst & Harrington, 2016). In another sense, hope is an effective way of motivating and planning to achieve therapeutic goals. Instilling and maintaining hope in patients is, therefore, a crucial consideration for treating chronic diseases and should be targeted in psychological interventions. Interestingly, hope is a considerable mediator of the association between QoL and depression in youth who are obese (Van Allen et al., 2016).

A sense of hopefulness in people with CAD is strongly associated with reduced stress, lowered psychological distress, and increased physical capacity and agency. People who are hopeful are better able to develop more strategies to achieve their goals and will be further motivated to achieve desired outcomes. Although sufficient empirical evidence points to the benefits of hope in patients with chronic illness, the impact of hope on the QoL of patients with CAD has yet to be determined (Chen et al., 2020).

Optimistic feelings and hope are closely correlated with the mental and psychosocial health of individuals, especially patients. Colby and Shifren conducted a study on patients with breast cancer in 2013 that considered optimism and sense of hope as factors affecting the physical health and reducing mental health problems such as depression and anxiety (Colby & Shifren, 2013). Therefore, having a sense of hope, especially in patients with chronic illness, may increase an individual’s motivation to maintain physical, psychological, emotional, and social health during times of illness (Schiavon et al., 2017).

The balance between hope and disappointment in patients plays a key role in QoL. Although the issue of QoL in patients with CAD has been investigated, the role of hope in this relationship is yet to be well understood. Therefore, the main aim of this study was to examine the relationships between QoL and hope in patients with CAD under the assumption that higher levels of hope would relate positively to QoL. A second aim of this study was to assess the role of sociodemographic factors (marital status, gender, age, socioeconomic, and educational status), religiosity, and social support as indicators of hope and life quality in these patients.

Methods

Design and Participants

A cross-sectional, descriptive, correlational design was utilized to assess the association between QoL and hopefulness in a convenience sample of patients hospitalized at Bo Ali Sina Hospital. Data were gathered over a 4-month period (May–August 2016). The inclusion criteria for the sample were as follows: (a) a diagnosis of CAD given by a qualified doctor (only stable angina), (b) no indicators or diagnosis of a psychological problem (e.g., depression, anxiety) for at least 4 weeks before the survey date, (c) steady vital signs, (d) hospitalization for at least 24 hours, and (e) stable vital signs and cardiac hemodynamics. The patients were chosen postdischarge from the cardiac care units of the target hospital. On the basis of a previous study (Wang et al., 2014), a power calculation was performed to determine the required sample size, with a power of 80% and a confidence level of 95%. At least 500 patients were required for this study. From the 563 hospitalized patients recruited, 540 met the inclusion criteria and 500 agreed to respond to the survey, giving a response rate of 92.6%. After informed consent, the authors asked participants to answer the survey, which took around 1 hour to complete.

Instruments

The questionnaire in this study comprised three sections: (a) a basic demographics datasheet, (b) the 17-item McGill QoL (MQoL) Questionnaire, and (c) the Herth Hope Index (HHI). Questions on the datasheet gathered information on the participant’s gender, age, educational level, marital status, main income source, and socioeconomic status. In addition, data were collected on self-perceived religiosity and social support using experimentally validated analysis scales provided by the nursing researchers. The abovementioned scales were simplified to minimize the burden on participants. Each item was rated using a 10-point Likert-type scale. For religious belief strength, the participants rated their response from 1 (the weakest) to 10 (the strongest). For amount of social support received, the participants rated their response from 1 (the least) to 10 (the most).

McGill Quality of Life Questionnaire

The MQoL Questionnaire (Cohen et al., 1995) is a 17-item multidimensional measure that is used to assess QoL in individuals with life-threatening illnesses. The MQoL has been translated into Persian, with documented reliability and validity for assessing QoL in Iranian patients with cancer (Shahidi et al., 2008). The MQoL includes three subscales: general QoL (one question), the psychological component (12 questions), and physical symptoms (four questions). Scoring the MQoL items is based on a 0–10 scale, with higher scores reflecting higher QoL (total range of 0–170). The individual subscale scores and a total composite score were used to evaluate the MQoL. This tool is reliable (Cronbach’s alpha = .83) and has been validated in the heart disease context (Abshire...
et al., 2015). Content validity has been confirmed using content experts, including professors and nurse practitioners. The Cronbach’s alpha value for this tool indicates that the information utilized in this work is greatly consistent.

**Herth Hope Index**

The HHI was developed based on the explanation of hope provided by Dufault and Martocchio (1985) using the same three subscales as the Herth Hope Scale, representing the three combined domains of the conceptual model, including (a) temporality and future, (b) positive expectancy and readiness, and (c) interconnectedness. The HHI includes 12 items scored using a 4-point Likert response format (ranging from completely disagree to completely agree), with possible scores ranging from 12 to 48 and higher scores indicating higher hopefulness. The reliability and validity of the existing scale were approved in a previous study conducted in Iran (M. Soleimani et al., 2019). In addition, the HHI was found to be a reliable and valid instrument for assessing hope in patients with heart disease (Chan et al., 2012). In this work, the content validity of this scale was approved by 10 experts. The Cronbach’s alpha value for the 12-item HHI was .79, representing satisfactory internal consistency.

**Ethical Consideration**

The Qazvin University of Medical Sciences Ethics Committee approved this study, and informed consent was obtained from all of the study participants. By completing all of the examination processes in a quiet treatment area, patient confidentiality was guaranteed. All personal information was anonymized. All of the researchers involved in data collection and analysis underwent privacy training and signed a legally binding data confidentiality agreement. All of the participants signed informed consent and a confidentiality agreement. The participants were assured that their responses to the research team would remain confidential.

**Statistical Analysis**

The data were analyzed using IBM SPSS Version 20.0 (IBM Inc., Armonk, NY, USA). The percentages and frequencies for categorical variables as well as the mean and standard deviation (SD) values for the ratio scale variables were used to summarize the demographic variables. Using Pearson correlation analysis, the association between the main variables was examined. The general linear models with Bonferroni corrections for pairwise comparisons were used to determine the predictors related to hope and QoL scores. Statistical significance was defined as p < .05 for all processes.

**Results**

Five hundred patients were eligible for this study. Forty patients refused to participate because of either lack of interest (n = 25) or no time to fill in the survey questionnaires (n = 15), resulting in a response rate of 92.6%.

**Sample Demographic Characteristics**

The respondents’ demographic profiles are provided in Table 1. Slightly over half (n = 262, 52.4%) of the participants were women, most were married (n = 406, 81.2%), more than half (n = 266, 53.2%) reported a family income in the middle-income range, and nearly three quarters (n = 353, 70.6%) had no formal education.

**Level of Hope and Quality of Life**

The total mean score for QoL was 38.86 (SD = 12.75), indicating higher than moderate levels of QoL. The mean overall score for hope was 34.13 (SD = 4.05, range: 22–43), indicating a moderate level of hope (Table 1).

**Table 1**

Table 1
Demographic Characteristics of the Study Participants (N = 500)

| Characteristic                     | n  | %    |
|-----------------------------------|----|------|
| Gender                            |    |      |
| Male                              | 238| 47.6 |
| Female                            | 262| 52.4 |
| Marital status                    |    |      |
| Married                           | 406| 81.2 |
| Widowed/divorced                  | 94 | 18.8 |
| Educational status                |    |      |
| No formal education               | 266| 53.2 |
| Primary                           | 19 | 21.8 |
| Intermediate                      | 58 | 11.6 |
| High school                       | 55 | 11.0 |
| Collegiate                        | 12 | 2.4  |
| Economic status                   |    |      |
| Poor                              | 127| 25.4 |
| Average                           | 353| 70.6 |
| Good                              | 20 | 4.0  |
| Main source of income             |    |      |
| Personal                          | 211| 42.2 |
| Family                            | 32 | 6.4  |
| Friends                           | 5  | 1.0  |
| Pension from the government       | 203| 40.6 |
| Charitable giving                 | 49 | 9.8  |

| Characteristic                     | Mean | SD | Range  |
|-----------------------------------|------|----|--------|
| Age (years)                       | 60.68| 10.34| 30–96  |
| Social support                    | 5.92 | 2.58| 1–10   |
| Religious belief                  | 9.06 | 1.14| 0–10   |
| Total hope                        | 34.13| 4.05| 22–43  |
| McGill Quality of Life            |      |    |        |
| Total score                       | 38.86| 12.75| 23–46  |
| Holistic view well-being          | 3.28 | 1.79| 0–10   |
| Physical problems                 | 23.25| 3.94| 7–34   |
| Feeling and thoughts              | 72.32| 11.95| 34–95  |
Association Between Hope and Quality of Life Domains

QoL was found to be associated with the main source of income ($r = .11$, $p < .001$). Furthermore, the relationships among hope ($p < .001$), social support ($p = .004$), and age ($p = .006$) were shown to be significant. Furthermore, a weak correlation was found between religious belief and social support ($r = .11$, $p < .05$), and a considerable correlation was discovered between QoL and hope ($r = .34$, $p < .001$). As shown in Table 2, a significant and positive correlation was identified between hope and QoL, supporting that hope and QoL are positively correlated.

Predictors of Quality of Life

After multivariate analyses, the considerable predictors of QoL were found to be educational status, socioeconomic status, main source of income, age, religious belief, social support, and hope. A negative correlation was identified between age and QoL ($B = -0.2$, 95% CI [−0.3, −0.05], $p = .006$), whereas positive relationships were found between age and the following variables: social support ($B = 0.7$, 95% CI [0.2, 1.2], $p = .004$), religious belief ($B = 0.9$, 95% CI [0.1, 1.6], $p = .34$), and total hope ($B = 1.1$, 95% CI [0.8, 1.4], $p < .001$). The participants for whom the main source of income came from family or government pension and who had received either a college or intermediate level of education reported better QoL. Surprisingly, the participants with a poor or average socioeconomic status reported better QoL than their more-affluent peers (Table 3).

Predictors of Hope

The significant predictors of hope identified using multivariate analyses included socioeconomic status, educational status, and total QoL. A positive correlation was found to exist between total QoL ($0.11$, 95% CI [0.08, 0.14], $p < .001$), with a positive relationship identified for the feeling and thoughts component of QoL ($0.14$, 95% CI [0.11, 0.17], $p < .001$) and a negative relationship identified for the physical problem component ($-0.10$, 95% CI [−0.19, −0.01], $p = .025$). The participants with a college education had a higher level of hope, whereas socioeconomic status exhibited a positive, ordinal relationship (Table 4).

Discussion

In this study, the associations between QoL and hope and among the predictive factors of these two constructs were assessed in a sample of Iranian patients with CAD. On the basis of the findings, QoL was relatively good (higher than moderate) overall and was significantly influenced by sociodemographic factors. The findings of this work support a positive and significant association between QoL and hope, which echoes the results of past research. For example, Evangelista et al. (2003) showed a significant and positive relationship between hope and QoL in female patients who had undergone heart transplant surgery. In addition, hope was shown to be an independent predictor of mood states and QoL, suggesting that interventions directed at fostering hope among heart transplant recipients may be key to improving their QoL (Evangelista et al., 2003). In addition, Li et al. (2016) found similar results in patients with bladder cancer (Li et al., 2016). In Chinese patients diagnosed with oral cancer, hope and perceived social support were both positively associated with QoL (Zhang et al., 2020). QoL is a complex concept that is influenced by multiple factors. Hope, on the other hand, is an important factor that may lead people to improve their QoL, well-being, and mental health (Cherry et al., 2017).

Level of education was a positive predictor of QoL in this study, which also echoes the findings of many earlier studies (e.g., Li et al., 2016). However, Bovero et al. (2016) found that low educational levels may have a protective and positive effect on psychological health in patients, leading to better QoL and satisfaction at the end of life than experienced by patients with higher levels of education. Two factors seem to be involved in this situation: level of trust and awareness in the physician and timing of the illness evaluation (Bovero et al., 2016). Better educated patients are more likely to possess a decent job, earn a good income, and enjoy better social status. Furthermore, people with higher levels of education may be expected to have greater compliance with the disease and have better adherence with treatment plans (Muhammad et al., 2016).

The findings of this work indicate that people with a moderate or poor socioeconomic status had better QoL than those with a high socioeconomic status. Consistent with this finding, Adjaye-Gbewonyo et al. (2018) concluded that subnational district income inequality is related to CAD risk factors in the high-inequality setting of South Africa. In contrast, Sadoughi et al. (2017) found a positive and significant association between socioeconomic status and QoL among patients with breast cancer. The findings of M. A. Soleimani et al. (2016) suggest a positive association between socioeconomic status and QoL in patients with cancer. However, in a study of cancer survivors in San Diego, USA, no significant relationship was found between QoL and socioeconomic status.
Household income has been strongly associated with CAD (Lemstra et al., 2015). Income inequality is an ignored risk factor worthy of proper public debate and policy intervention. High-income individuals are 2 times less likely to experience hypertension than individuals with low incomes (Lee et al., 2009). The good news is that the World Health Organization has reported that improving family income has been responsible for 75% of the increase in life expectancy observed over the past 50 years. Although individuals in middle- and low-income countries with a lower educational level experience higher mortality rates from CAD, they possess better overall risk factor profiles. Nevertheless, these people receive significantly poorer healthcare. Policies for reducing the global health inequities must involve plans to overcome barriers to care, particularly for people with lower levels of education (Rosengren et al., 2019).

The main source of participant income variable in this study had a positive and significant relationship with QoL. This means that patients supported by their family or the government reported a better QoL. In an earlier study on patients with cancer, this variable did not have a significant relationship with their QoL. After the diagnosis of a chronic disease such as CAD, patients and their families will bear significant economic burdens and thus spur significant concerns about the costs of treatment and medical and care services. Accordingly, financial support may improve QoL by reducing the related financial anxieties of patients and their families (Lathan et al., 2016).

In addition, the results indicate that age is also a predictor of QoL in cardiac patients. Lower QoL was reported in a previous investigation of patients who had received coronary artery bypass graft surgery, even among the older patients.

### Table 3

| Result of the Multiple Linear Regression in Predicting Quality of Life |
|---------------------------------------------------------------|
| **Model** | **Unstandardized Coefficients** | **Standardized Coefficients** | **p** | **95% CI for B** |
|-----------|--------------------------------|-----------------------------|------|----------------|
|          | **B** | **SE** | **Beta** |       | **Lower** | **Upper** |
| Constant | 25.286 | 13.08 | .053 | −0.37 | 50.94 |
| Gender   |       |      |       |       |          |          |
| Male     | 0.858 | 0.54 | .039 | .575 | 0.12 | −0.21 |
| Female   |       |      |       |       |          |          |
| Marital status |       |      |       |       |          |          |
| Married  | −1.172 | 0.63 | −.043 | .062 | −2.40 | 0.06 |
| Widowed/divorced | 0.0 |      |       |       |          |          |
| Educational status |       |      |       |       |          |          |
| No formal education | −3.933 | 1.37 | −.065 | .004 | −6.63 | −1.24 |
| Primary | −0.424 | 4.08 | −.002 | .917 | −8.42 | 7.58 |
| Intermediate | −0.079 | 0.18 | −.010 | .654 | −0.42 | 0.27 |
| High school | 0.636 | 2.41 | .006 | .792 | −4.10 | 5.37 |
| College | 0.0 |      |       |       |          |          |
| Economic status |       |      |       |       |          |          |
| Poor | −5.481 | 7.59 | −.016 | .471 | −20.38 | 9.41 |
| Average | 2.009 | 2.25 | .020 | .372 | −2.41 | 6.42 |
| Good | 0.0 |      |       |       |          |          |
| Main source of income |       |      |       |       |          |          |
| Personal | −9.680 | 2.03 | −.410 | <.001 | −13.65 | −5.71 |
| Family | 0.075 | 0.05 | .035 | .125 | 0.02 | 0.17 |
| Friends | 0.003 | 0.01 | .009 | .705 | 0.01 | 0.02 |
| Pension from the government | 0.083 | 0.03 | .088 | .005 | 0.03 | 0.14 |
| Charitable giving | 0.0 |      |       |       |          |          |
| Death experience |       |      |       |       |          |          |
| Yes | 0.011 | 0.01 | .051 | .340 | −0.01 | 0.04 |
| No | 0.0 |      |       |       |          |          |
| Age | −0.2 | 0.17 | −.023 | .006 | −0.3 | −0.05 |
| Social support | 0.7 | 0.45 | .004 | .004 | 0.2 | 1.2 |
| Religious belief | 0.9 | 0.62 | .054 | .340 | 0.1 | 1.6 |
| Total hope | 1.1 | 0.80 | .710 | <.001 | 0.8 | 1.4 |

Note. CI = confidence interval.  
*a* Reference level.
In contrast, in another investigation of patients with cancer, no significant association was found between QoL and age (Sunkarapalli et al., 2016). Limitations on physical and social function, insomnia, fatigue (Brunet et al., 2017), and psychiatric disorders such as depression and anxiety (Saraçlı et al., 2015) are among the issues faced by older people with chronic diseases such as heart disease, which may lead them to experience low QoL (Erceg et al., 2013).

Social support was one of the indicators of QoL in the patient having CAD. The findings in this work are consistent with the results of previous studies. Patients with higher social support may be better able to adapt to stressful situations. Moreover, social support may speed up patients’ clinical recovery and reduce disease-related complications. Therefore, social support has a positive influence on the psychological, physical, and social status of individuals and ultimately leads to improved QoL (Gonzalez-Saenz de Tejada et al., 2016). The results of this study reinforce the benefits that social support may have in terms of improving life quality in patients with CAD.

The results of this study showed that patients with higher religious beliefs experienced better QoL. Similarly, Krägeloh et al. (2015) stated that medical students with a religious background had higher QoL. In another study, a high level of religious faith in depressed patients significantly reduced

Table 4

| Variable                        | Unstandardized Coefficients | Standardized Coefficients | p     | 95% CI for B |
|--------------------------------|----------------------------|---------------------------|-------|--------------|
|                                | B  | SE  | Beta |       | Lower Bound | Upper Bound |
| Constant                       | 9.23 | 4.66 | .048 | 0.09 | 18.37       |
| Gender                         |    |     |      |      |             |             |
| Male                           | 0.06 | 0.53 | .031 | .489 | 0.19 | −0.31 |
| Female (a)                     | 0.00 |     |      |      |             |             |
| Marital status                 |    |     |      |      |             |             |
| Married                        | 0.47 | 0.45 | −.047| .058 | −2.14 | 0.07 |
| Widowed/divorced (a)           | 0.00 |     |      |      |             |             |
| Educational status             |    |     |      |      |             |             |
| No formal education            | −3.00 | 1.21 | −.054| .004 | −5.63 | −1.54 |
| Primary                        | −0.43 | 2.06 | −.001| .811 | −7.33 | 6.68 |
| Intermediate                   | −0.07 | 0.17 | −.020| .684 | −0.44 | 0.24 |
| High school                    | 0.62 | 2.01 | .005 | .624 | −1.07 | 6.37 |
| Collegiate (a)                 | 0.00 |     |      |      |             |             |
| Economic status                |    |     |      |      |             |             |
| Poor                           | −2.40 | 4.54 | −.014| .451 | −14.21 | 4.99 |
| Average                        | 1.87 | 2.12 | .018 | .541 | −2.87 | 3.47 |
| Good (a)                       | 0.00 |     |      |      |             |             |
| Main source of income          |    |     |      |      |             |             |
| Personal                       | −6.68 | 2.08 | −.437| .000 | −10.65 | −3.71 |
| Family                         | 0.05 | 0.01 | .027 | .258 | −0.09 | 0.80 |
| Friends                        | 0.01 | 0.01 | .004 | .795 | −0.01 | 0.18 |
| Pension from the government    | 0.04 | 0.03 | .047 | .049 | 0.07  | 0.13 |
| Charitable giving (a)          | 0.00 |     |      |      |             |             |
| Death experience               |    |     |      |      |             |             |
| Yes                            | 0.02 | 0.02 | .001 | .451 | −0.02 | 0.08 |
| No (a)                         | 0.00 |     |      |      |             |             |
| Age                            | 0.03 | 0.07 | .004 | .118 | −0.01 | 0.08 |
| Social support                 | −0.09 | 0.24 | −.020| .273 | −0.25 | 0.07 |
| Religious belief               | −0.01 | 0.10 | −.003| .911 | −0.27 | 0.24 |
| Total hope                     | 0.11 | 0.14 | .023 | <.001| 0.08  | 0.14 |
| Holistic view well-being aspect| −0.13 | 0.07 | −.009| .167 | −0.32 | 0.06 |
| Physical problems aspect       | −0.10 | 0.90 | −.041| .025 | −0.19 | −0.01 |
| Feeling and thoughts aspect    | 0.14 | 0.42 | .031 | <.001| 0.11  | 0.17 |

(a) Reference level.

(Kidd et al., 2016). In contrast, in another investigation of patients with cancer, no significant association was found between QoL and age (Sunkarapalli et al., 2016). Limitations on physical and social function, insomnia, fatigue (Brunet et al., 2017), and psychiatric disorders such as depression and anxiety (Saraçlı et al., 2015) are among the issues faced by older people with chronic diseases such as heart disease, which may lead them to experience low QoL (Erceg et al., 2013).
Quality of Life and Hope in Patients With CAD

Vol. 30, No. 2, April 2022

Their risk of suicide and improved their QoL (Mosqueiro et al., 2015). Several studies have noted that, according to the cultural and religious beliefs of Muslims, especially in Iran, the relationship to immortal power and religious beliefs has beneficial effects on the social, emotional, and emotional support realms as well as optimism, meaning, and meaning of life. These factors enhance life quality, particularly in patients (Vizehfar & Jaberi, 2017). Spirituality among cancer caregivers was previously shown to be related to lower psychological distress and higher well-being. Moreover, intrinsic religiosity has been found to be related to positive life adjustment (Krause & Hayward, 2014). Religious coping seems to have a key role for these patients in buttressing life quality. However, in other research, distress over spiritual concerns was found to be related to decreased life quality.

The finding that the average hope score in individuals with a university education was higher than those with other levels of education is consistent with the findings of Yaghoobzadeh et al. (2018), which found that patients with heart surgery who had higher levels of education had greater hope (Yaghoobzadeh et al., 2018). Higher levels of education enhance the likelihood of having a good job and income. CAD typically presents during the fourth and fifth decades of life. Having a high income can increase hope and life expectancy, even in the event of CAD.

In this study, economic status was found to be another predictor of hope in cardiac patients, with patients in favorable economic situations having more hope. Similar to the findings of this work, Yaghoobzadeh et al. (2018) and Sadoughi et al. (2017) found a positive correlation between hope and economic status in patients with heart disease and in women with breast cancer (Sadoughi et al., 2017; Yaghoobzadeh et al., 2018). Favorable economic situations improve the social position of individuals, which provides greater levels of social protection (Goldzweig et al., 2016) and more self-esteem as well as better access to more and better care. Therefore, they may be expected to receive more favorable medical and nursing care, which can affect hope.

Conclusions

The findings in this article highlighted a positive relationship between life quality and hope in patients with CAD. The importance of screening for psychological distress and of providing mental health resources for these patients was also emphasized. In addition, with sensitivity to the diverse characteristics and needs of the patients, using strategies and programs that instill a sense of hope in cardiac patients may enhance their perceived QoL.

Implications of the Study and Recommendations for Future Works

The demographic variables considered in this work included gender, marital status, educational status, economic status, main source of income, social support, religious belief, and hope. Further experimental studies are necessary, particularly examining the situation with regard to other chronic diseases. In addition, other variables may be operative in clarifying the results. For instance, future research may consider other variables found to be efficacious in the management of patients with CAD such as general self-efficacy, cardiac self-efficacy, self-care behaviors, and adherence to routine. Therefore, it is recommended that other factors be considered in future studies.

Limitations

One limitation of the current work was the use of convenience sampling, which may limit the generalizability of the findings. Furthermore, examination of causal relationships among the constructs is limited by the cross-sectional nature of the work. As with self-report questionnaires in general, although participation was voluntary and information confidentiality was assured, the participants in this study may still have been subject to bias because of the sensitive nature of their health condition.

Acknowledgments

The authors express gratitude to the participants and the Social Determinants of Health Research Center of Qazvin University of Medical Sciences, Qazvin, Iran. This study was funded by the Vice-Chancellor for Research and Technology, Qazvin University of Medical Sciences, Qazvin, Iran.

Author Contributions

Study conception and design: All authors
Data collection: MAS, SZP, MS
Data analysis and interpretation: MAS, YHC, MS
Drafting of the article: All authors
Critical revision of the article: MAS, KAA

Received: July 9, 2020; Accepted: April 20, 2021

*Address correspondence to: Morteza SHAMSIZADEH, No. 125, Shahid Fahmideh Blvd., Hamadan 6517838695, Iran. Tel: +98 81 38380535; Fax: +98 81 38380447; E-mail: mortezashamsizadeh@gmail.com

The authors declare no conflicts of interest.

Cite this article as:

Soleimani, M. A., Zarabadi-Pour, S., Huak Chan, Y., Allen, K. A., & Shamsizadeh, M. (2022). Factors associated with hope and quality of life in patients with coronary artery disease. The Journal of Nursing Research, 30(2), Article e200. https://doi.org/10.1097/jnr.0000000000000476

References

Abshire, M., Xu, J., Dennison Himmelfarb, C., Davidson, P., Sulmasy, D., Kub, J., Hughes, M., & Nolan, M. (2015). Symptoms and fear in heart failure patients approaching end of life: A mixed methods study. Journal of Clinical Nursing, 24(21-22), 3215–3223. https://doi.org/10.1111/jocn.12973

Adjaye-Gbewonyo, K., Kawachi, I., Subramanian, S. V., & Avendano, M. (2018). Income inequality and cardiovascular disease risk factors in a highly unequal country: A fixed-effects analysis from
Hope and social support in elderly patients with cancer and their partners: An actor–partner interdependence model. *Future Oncology*, 12(24), 2801–2809. https://doi.org/10.2217/fon-2016-0267

Gonzalez-Saenz de Tejada, M., Bilbao, A., Bare, M., Briones, E., Sarasqueta, C., Quintana, J., & Escobar, A. (2016). Association of social support, functional status, and psychological variables with changes in health-related quality of life outcomes in patients with colorectal cancer. *Psycho-Oncology*, 25(6), 891–897. https://doi.org/10.1002/pon.4022

Ishihara, K., Izawa, K. P., Kitamura, M., Shimogai, T., Kanejima, Y., Morisawa, T., & Shimizu, I. (2019). Influence of mild cognitive impairment on activities of daily living in patients with cardiovascular disease. *Heart and Vessels*, 34(12), 1944–1951. https://doi.org/10.1007/s10038-019-01437-7

Kidd, T., Poole, L., Leigh, E., Ronaldson, A., Jahangiri, M., & Steptoe, A. (2016). Health-related personal control predicts depression symptoms and quality of life but not health behaviour following coronary artery bypass graft surgery. *Journal of Behavioral Medicine*, 39(1), 120–127. https://doi.org/10.1007/s10865-015-9677-7

Komalasari, R., & Yoche, M. (2019). Quality of life of people with cardiovascular disease: A descriptive study. *Asian Pacific Island Nursing Journal*, 4(2), 92–96. https://doi.org/10.31372/20190402.1045

Krägeloh, C. U., Henning, M. A., Billington, R., & Hawken, S. J. (2015). The relationship between quality of life and spirituality, religiousness, and personal beliefs of medical students. *Academic Psychiatry*, 39(1), 85–89. https://doi.org/10.1007/s40566-014-0158-z

Krause, N., & Hayward, R. D. (2014). Religious involvement and death anxiety. *Omega—Journal of Death and Dying*, 69(1), 59–78. https://doi.org/10.2190/OM.69.1.d

Lathan, C. S., Cronin, A., Tucker-Seeley, R., Zafar, S. Y., Ayanian, J. Z., & Schrag, D. (2016). Association of financial strain with symptom burden and quality of life for patients with lung or colorectal cancer. *Journal of Clinical Oncology*, 34(15), 1732–1740. https://doi.org/10.1002/jco.2015.63.2232

Lee, D. S., Chiu, M., Manuel, D. G., Tu, K., Wang, X., Austin, P. C., Mattern, M. Y., Mitiku, T. F., Svenson, L. W., Putnam, W., Flanagan, W. M., & Tu, J. V., Canadian Cardiovascular Outcomes Research Team (2009). Trends in risk factors for cardiovascular disease in Canada: Temporal, socio-demographic and geographic factors. *Canadian Medical Association Journal*, 181(3-4), E55–E66. https://doi.org/10.1503/cmaj.081629

Lemstra, M., Rogers, M., & Moraros, J. (2015). Income and heart disease: Neglected risk factor. *Canadian Family Physician*, 61(8), 698–704.

Li, M. Y., Yang, Y. L., Liu, L., & Wang, L. (2016). Effects of social support, hope and resilience on quality of life among Chinese bladder cancer patients: A cross-sectional study. *Health and Quality of Life Outcomes*, 14, Article 73. https://doi.org/10.1186/s12955-016-0481-z

Medeiros, E. A., Castaneda, S. F., Gonzalez, P., Rodriguez, B., Buelna, C., West, D., & Talavera, G. A. (2015). Health-related quality of life among cancer survivors attending support groups. *Journal of Cancer Education*, 30(3), 421–427. https://doi.org/10.1007/s13187-014-0697-8

Morys, J. M., Bellwon, J., Höfer, S., Rynkiewicz, A., & Gruchala, M. (2016). Quality of life in patients with coronary heart disease after myocardial infarction and with ischemic heart failure.
Rosengren, A., Smyth, A., Rangarajan, S., Ramasundarahettige, C., Soleimani, M. A., Lehto, R. H., Negarandeh, R., Bahrami, N., & Nia, H. (2017). The Quality of Life and Hope in Patients With CAD. Journal of Affective Disorders, 28(1), 83–89. https://doi.org/10.1016/j.jad.2015.03.022

Muhammad, I., He, H.-G., Kowitlawakul, Y., & Wang, W. (2016). Narrative review of health-related quality of life and its predictors among patients with coronary heart disease. International Journal of Nursing Practice, 22(1), 4–14. https://doi.org/10.1111/ijn.12356

Soleimani, M., Allen, K., Herth, K., & Sharif, S. (2019). The Herth Hope Index: A validation study within a sample of Iranian patients with heart disease. Social Health and Behavior, 23(2), 108–113. https://doi.org/10.4103/shb.shb_4_19

Soleimani, M. A., Lehto, R. H., Negarandeh, R., Bahrami, N., & Nia, H. S. (2016). Relationships between death anxiety and quality of life in Iranian patients with cancer. Asia-Pacific Journal of Oncology Nursing, 32(2), 183–191. https://doi.org/10.4103/2347-5625.182935

Staniute, M., Brozaitiene, J., & Bunevicius, R. (2013). Effects of social support and stressful life events on health-related quality of life in coronary artery disease patients. Journal of Cardiovascular Nursing, 28(1), 83–89. https://doi.org/10.1097/JCN.0b013e318233e69d

Sunkarapalli, G., Agarwal, A., & Agarwal, S. (2016). Hope and quality of life in caregivers of cancer patients. The International Journal of Indian Psychology, 4(1), Article No. 69. https://doi.org/10.25215/0401.006

Valtorta, N. K., Kanaan, M., Gilbody, S., & Hanratty, B. (2018). Loneliness, social isolation and risk of cardiovascular disease in the English Longitudinal Study of Ageing. European Journal of Preventive Cardiology, 25(13), 1387–1396. https://doi.org/10.1177/2047487318792696

Van Allen, J., Seegan, P. L., Haslam, A., & Steele, R. G. (2016). Hope mediates the relationship between depression and quality of life among youths enrolled in a family-based pediatric obesity intervention. Children’s Health Care, 45(4), 441–454. https://doi.org/10.1080/02739615.2015.1065744

Varaei, S., Shamshizadeh, M., Cheraghi, M. A., Talebi, M., Dehghani, A., & Abbasi, A. (2017). Effects of a peer education on cardiac self-efficacy and readmissions in patients undergoing coronary artery bypass graft surgery: A randomized-controlled trial. Nursing in Critical Care, 22(1), 19–28. https://doi.org/10.1111/nicc.12118

Vizhefar, F., & Jaberi, A. (2017). The relationship between religious beliefs and quality of life among patients with multiple sclerosis. Journal of Religion and Health, 56, 1826–1836. https://doi.org/10.1007/s10943-017-0411-3

Wang, W., Lau, Y., Chow, A., Thompson, D. R., & He, H.-G. (2014). Health-related quality of life and social support among Chinese patients with coronary heart disease in mainland China. European Journal of Cardiovascular Nursing, 13(1), 48–54. https://doi.org/10.1177/1474515113476995

Yaghoobzadeh, A., Soleimani, M. A., Allen, K. A., Chan, Y. H., & Herth, K. A. (2018). Relationship between spiritual well-being and hope in patients with cardiovascular disease. Journal of Religion and Health, 57, 938–950. https://doi.org/10.1007/s10943-017-0467-0

Zhang, Y., Cui, C., Wang, Y., & Wang, L. (2020). Effects of stigma, hope and social support on quality of life among Chinese patients diagnosed with oral cancer: A cross-sectional study. Health and Quality of Life Outcomes, 18, Article No. 112. https://doi.org/10.1186/s12955-020-01353-9

Zipes, D. P. (2018). Braunwald’s heart disease: A textbook of cardiovascular medicine. BMH Medical Journal, 5(2), 63.