

# ORIGINAL ARTICLE

## Exploring the Well-being Experiences of Patients Following Heart Valve Replacement Surgery through the Biopsychosocial-spiritual Model: A Qualitative Content Analysis

Masoud Abdollahi<sup>1</sup>, PhD candidate; Hossein Karimi Moonaghi<sup>2</sup>, PhD; Abbas Ebadi<sup>3</sup>, PhD; Ali Eshraghi<sup>4</sup>, MD; Tahereh Sadeghi<sup>5</sup>, PhD

<sup>1</sup>Department of Medical Surgical Nursing, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran;

<sup>2</sup>Nursing and Midwifery Care Research Center, Medical Sciences Education Research Center, Mashhad University of Medical Sciences, Mashhad, Iran;

<sup>3</sup>Nursing Care Research Center, Clinical Sciences Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran;

<sup>4</sup>Department of Cardiology, School of Medicine, Imam Reza Hospital, Mashhad University of Medical Sciences, Mashhad, Iran;

<sup>5</sup>Nursing and Midwifery Care Research Center, Clinical Research Development Unit of Akbar Hospital, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

### Corresponding Author:

Tahereh Sadeghi, PhD; Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Postal Code: 91771-13355, Mashhad, Iran

Tel: +98 51 38826649; Fax: +98 51 38846734; Email: Sadeghit@mums.ac.ir

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### ABSTRACT

**Background:** Heart valve replacement (HVR) surgery represents a significant life event that can potentially impact the well-being (WB) of patients; however, there is a shortage of research on the understanding of WB in HVR patients. This study aims to elucidate the WB experiences of patients who have undergone HVR surgery.

**Methods:** A qualitative directed content analysis approach was employed, focusing on patients who had undergone HVR surgery at hospitals affiliated with Mashhad University of Medical Sciences in Iran from March 2021 to June 2022. Data collection involved conducting 23 face-to-face, semi-structured, in-depth interviews with HVR patients until data saturation was reached. Data analysis was performed using the Elo and Kyngäs approach in MAXQDA software version 10.

**Results:** The analysis revealed 11 generic categories based on the Biopsychosocial-Spiritual (BPSS) model, encompassing the WB experiences of HVR patients. These categories included physical improvements, facilitated treatment compliance, personal and environmental mastery, optimism in life, resilience, healing therapeutic communication of medical staff, a positive supportive atmosphere, job and financial assurance, faith in a higher power, optimism regarding a purposeful future, and gratitude mixed with generosity.

**Conclusion:** The findings of the current study revealed that the experience of WB in HVR patients was influenced by various conditions. By recognizing these conditions, healthcare providers can develop targeted interventions to improve the WB experience in these patients. Also, the findings provide a foundation for future research on WB in medical contexts.

**Keywords:** Biopsychosocial model, Heart valve disease, Qualitative research, Well-being

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## INTRODUCTION

Around 200,000 people worldwide undergo heart valve replacement (HVR) surgery annually, making it the second most common procedure in Iran, with 50,000 cardiac surgeries performed annually. The burden of HVR is increasing in developing countries like Iran due to the aging population.<sup>1,2</sup>

Patients who had undergone HVR may encounter a spectrum of complications including weakness, chest discomfort, dyspnea, thrombosis, and embolism.<sup>3, 4</sup> Patients commonly report lack of adequate social support, increased healthcare visits, work-life balance disruptions, reduced libido, and financial burdens associated with treatment.<sup>5, 6</sup> Post-surgical complications following HVR significantly impact patients in physical, psychological, social, and spiritual dimensions.<sup>3, 7, 8</sup>

Despite the diligent care provided by healthcare providers, patients often endure postoperative complications, which they describe as a state of unwellness.<sup>9</sup> The studies suggest that prioritizing well-being (WB) can help individuals recognize their physical and mental capacities, alleviate anxiety and stress, mitigate physical problems, and promote disease adaptation for faster recovery.<sup>10, 11</sup> WB involves internal and environmental resources that individuals can utilize to achieve life satisfaction and feel good.<sup>12</sup> In other words, WB is the art of living well and maintaining a positive mood despite facing various challenges.<sup>13</sup>

Previous studies have predominantly focused on negative aspects such as the challenges associated with living with an artificial heart valve, quality of life, mortality, epidemiology, and surgical complications in patients undergoing HVR.<sup>3, 6, 14-18</sup> However, there is a notable gap in the literature concerning the WB experiences of these individuals. By exploring WB dimensions, we can uncover valuable insights into the positive internal and environmental resources that have the potential to enhance the life

satisfaction of patients with HVR.<sup>19</sup>

Based on the literature review, a singular available study, predominantly relies on interviews with healthcare providers, neglecting the crucial individuals' perspectives of HVR patients.<sup>20</sup> Also, qualitative studies in Iran have delved into the life experiences of HVR patients, but a focused analysis on WB remains scarce.<sup>6, 18</sup> Given the context-dependent nature of WB,<sup>21</sup> and the pivotal role of qualitative studies in grounding quantitative research, there is a pressing need for in-depth qualitative investigations into the WB experiences of HVR patients. As suggested by Elo and Kyngäs, the directed content analysis method, ideal for issues with established theories or models,<sup>22</sup> emerges as a fitting approach to probe the diverse WB experiences of HVR patients within the realm of varied WB theories and models.

In exploring models and theories of WB, it is evident that the field is rich with diverse frameworks offering unique perspectives on the nature of WB and its determinants.<sup>23</sup> Within this landscape, the biopsychosocial-spiritual (BPSS) model stands out for its holistic approach, and integration of biological, psychological, social, and spiritual dimensions.<sup>24</sup> Originating as the biopsychosocial model in 1977 by George Engel,<sup>25</sup> the framework evolved to incorporate spiritual elements, culminating in the comprehensive BPSS model.<sup>24</sup> Therefore, this study aimed to explore the WB experiences of patients who had undergone HVR surgery based on the dimensions of the BPSS model.

## METHODS

This qualitative-directed content analysis was conducted from March 2021 to June 2022 at the hospitals affiliated with Mashhad University of Medical Sciences. This analysis is part of a larger study employing a sequential exploratory mixed-method to develop a WB instrument specifically tailored for patients with HVR surgery.

A total of 23 participants who had undergone HVR surgery were included in our

study. They were selected based on various criteria, including age, sex, education level, duration since the surgery, and type of surgery to ensure maximum variation. Inclusion criteria for patients required a minimum post-surgery period of three months following HVR surgery, no advanced chronic diseases, and absence of other prior cardiac surgeries. Exclusion criterion was unwillingness to participate in the study.

Patients referred to the rehabilitation departments of hospitals affiliated with Mashhad University of Medical Sciences each had a file that was contacted using the contact numbers mentioned in it, and if they agreed to participate in the study, the time of the interview was fixed with them. Data were collected using face-to-face, semi-structured in-depth interviews with patients by the first author, a Ph.D. candidate in nursing at Mashhad University of Medical Sciences. Data collection continued until data saturation was reached, meaning that no new information emerged from the analysis, and all aspects were adequately covered. The location of interviews was decided based on the participant's convenience, such as a private room at the hospital, in their home or workplace. Each interview lasted between 17 and 107 minutes. The interview process began by collecting demographic information and was followed by targeted open-ended questions about the main categories of the BPSS model of WB, as presented in Table 1. Questions such as "Please explain more" or "Can you give an example?", and "Do you think there was anything you wanted us to talk about that I didn't ask?" were

used to encourage the participants to share more and probe.

Immediately after each interview, the recordings were transcribed using WORD software on the same day. If any ambiguities arose, or there was a need to explore the participants' experiences further, a follow-up interview was conducted to clarify different aspects of the subject. In this study, the second round of interviews was also performed for the second, third, and seventh interviews. The deductive approach proposed by Elo and Kyngäs was employed for content analysis, and data analysis was conducted using MAXQDA version 10 software.<sup>22</sup> In the preparation phase, each interview was transcribed verbatim and thoroughly read several times to gain in-depth understanding. In the organization phase, an unconstrained matrix was created according to the main categories of the BPSS model. Subsequently, the categories were placed in the matrix, and if any categories were not covered, new categories were generated.

To ensure the rigor of the data in this study, we applied the criteria recommended by Lincoln and Guba (1985).<sup>26</sup> Credibility was enhanced through prolonged engagement in the research setting, use of maximum variation sampling technique, active interaction with participants, and dependability was ensured using peer checking. To achieve transferability, we meticulously documented the study steps and processes in detail. Finally, to approve confirmability, we employed an auditor familiar with qualitative research to audit the study findings.

This qualitative study is a part of a doctoral

**Table 1:** Examples of interview guide questions

Questions
Can you describe a recent experience where you felt particularly happy or content?
What is your opinion on how exercise and physical activity can contribute to feeling good?
What role does physical health play in your sense of well-being?
How do your relationships with family, friends, and community contribute to your sense of well-being?
Can you think of a time when you felt a sense of accomplishment or mastery over a difficult situation?
What activities or practices do you engage in to promote your well-being?
How do you think your cultural background and personal values influence your perception of well-being?
What does it mean to you to feel psychologically well?
Express your opinion about being hopeful about life after the surgery and how it affects having a good mood?

dissertation in nursing which received ethical approval from the Ethics Committee of Mashhad University of Medical Sciences (Code: IR.MUMS.NURSE.REC.1400.090). Patients' participation in the study was voluntary. Before involvement, the research objective was elucidated to the participants, and written informed consent was obtained for both their participation and the recording of interviews. Participants were assured of confidentiality, anonymity, and the right to withdraw from the study at any time with no disruption to their treatment process.

## RESULTS

In our study, a total of 23 participants with an age range of 27 and 67 years were interviewed, and their characteristics are displayed in Table 2. The categories were systematically classified into the overarching categories of Biological Well-Being (BWB), Psychological Well-Being (PWB), Social Well-Being (SWB), and Spiritual Well-Being (SpWB), as outlined in the BPSS model. This

process resulted in the identification of 11 generic categories and 27 subcategories, were obtained, as comprehensively listed in Table 3.

### 1. Biological Well-being

Within the dimension of BWB, two generic categories emerged, namely "physical improvements" and "facilitated treatment compliance".

#### 1.1. Physical Improvements

The generic category of physical improvements corresponds to the fact that after the HVR surgery, patients experience physical recovery in comparison to their pre-surgery state. This progression instills a sense of BWB within them, which is achieved by the presence of the following items.

##### 1.1.a. Diminished Complications

Most participants expressed their contentment and joy regarding the diminished distressing complications associated with valve replacement disease. A participant said:

**Table 2:** Characteristics of the participants (N=23)

Participant	Age (years)	Sex	Job	The number of valves that have been replaced	Name of the valve	The length of time since surgery
P.1	48	Female	Housekeeper	1	Mitral	3 months
P.2	47	Female	Housekeeper	1	Tricuspid	5 months
P.3	37	Male	Worker	1	Tricuspid	4 months
P.4	67	Female	Housekeeper	1	Mitral	4 months
P.5	45	Female	Housekeeper	1	Mitral	6 months
P.6	55	Female	Teacher	1	Aortic	11 years
P.7	29	Male	Self-employment	2	Aortic/Tricuspid	6 years
P.8	27	Female	Accountant	1	Aortic	3 years
P.9	33	Male	Nurse	1	Tricuspid	4 years
P.10	36	Female	Housekeeper	1	Mitral	11 years
P.11	37	Female	Employee	1	Aortic	2 years
P.12	50	Female	Housekeeper	1	Mitral	2 years
P.13	38	Female	Driving instructor	1	Mitral	3 years
P.14	45	Female	Accountant	1	Mitral	8 years
P.15	55	Male	Worker	2	Aortic/Mitral	1 years
P.16	38	Female	Housekeeper	1	Mitral	10 months
P.17	35	Male	Ambulance driver	1	Aortic	5 years
P.18	57	Female	Retired	1	Mitral	2 years
P.19	65	Female	Retired	1	Tricuspid	10 years
P.20	55	Female	Retired	1	Mitral	7 months
P.21	55	Male	Retired	1	Mitral	3 months
P.22	40	Female	Nurse	1	Aortic	3 months
P.23	45	Female	Nurse	1	Mitral	12 years

**Table 3:** Main categories, Generic categories, and Subcategories of the study

Main-categories	Generic-categories	Sub-categories
Biological Well-being	Physical improvements	Diminished complications Improved physical abilities Satisfaction with fulfilled physiological needs Improved paraclinical and physiological indicators Wound healing
	Facilitated treatment compliance	Enhanced Physical Ability for Treatment Follow-Ups Facilitated treatment follow-ups
Psychological Well-being	Personal and environmental mastery	Independence and self-confidence A sense of self-satisfaction The sound of valves as the sound of life Enhanced sexual intimacy
	Optimism in life	Change of attitude and maturity Simplistic and positive thinking
	Resilience	Self-acceptance and promoting flexibility Patience and forbearance
	Healing therapeutic communication of medical staff	Positive therapeutic communications Compassionate and hopeful care of healthcare provider
Social Well-being	A positive supportive atmosphere	Family and entourage support Positive societal interactions and understanding Fostering a sense of financial empowerment
	Job and financial assurance	Improving job performance
Spiritual Well-being	Faith in a higher power	Reliance on miracles and Trust in God Strengthening spirituality
	Optimism regarding a purposeful future	Hope for the future and liveliness Finding meaning based on purposefulness
	Gratitude mixed with generosity	Generosity Gratitude

*“Following my surgery, I saw notable progress. I used to have episodes of rapid heartbeat, shortness of breath, and swelling in my hands and feet. I was hospitalized after experiencing a fainting episode, and later on, I found out that my heart valve was the source of these syncopal episodes. These issues have now decreased, and I am very happy for that.” (P8)*

#### 1.1.b. Improved Physical Abilities

Many participants reported experiencing a sense of happiness as their physical capabilities improved, allowing them to engage in activities such as stair climbing, walking, sports, and personal tasks. Also, they understood that engagement in rehabilitation programs significantly enhanced their physical performance. Two participants said:

*“Now, I am much better than before the surgery, and because I can exercise and my*

*ability to walk has improved, I enjoy more vitality and cheerfulness.” (P11)*

*“Rehabilitation programs helped me discover and enhance my abilities. Additionally, seeing people of different ages involved in these programs was highly motivating. For instance, during my rehabilitation, interacting with my peers taught me ways to maintain a positive mood and provided me with the support I needed to improve my lifestyle.” (P12)*

#### 1.1.c. Satisfaction with Fulfilled Physiological Needs

These fulfilled physiological needs included the ability to effectively balance their dietary and medication regimens, as well as establishing regular and sufficient sleep patterns.

*“I eat everything, but I control my*

*international normalized ratio (INR) all the time. I have come to realize that, for example, if I eat more lettuce or green vegetables, I take more warfarin. Now, this ability to establish balance among my diet and medications makes me very happy.” (P10)*

#### *1.1.d. Improved Paraclinical and Physiological Indicators*

This subcategory focuses on enhancing physiological indicators like vital signs, optimizing paraclinical markers such as echocardiography reports and achieving normal test results, all linked to HVR. A patient stated:

*“On the day, the doctor took an echocardiogram and said the results were excellent. Then again, a few months later, he did an echocardiogram and said it was amazing. At present, when I showed my tests to my surgeon, he said it was fantastic, and this issue made me very happy.” (P2)*

#### *1.1.e. Wound Healing*

Participants recognized that the presence of individuals exhibiting qualities such as empathy and comprehension could contribute to the patient’s process of adapting to the wound, referred to as the BWB experience. Some participants conveyed their contentment regarding the inherent recuperative abilities of the wound, which exhibited a gradual improvement over time.

*“Initially, after the surgery, the site of my surgical wound was red and quite irritating, but as soon as I saw that the redness and deformity were getting better over time, it made me feel better.” (P11)*

#### *1.2. Facilitated Treatment Compliance*

This generic category includes the subcategory of “Enhanced Physical Ability for Treatment Follow-Ups” and “Facilitated treatment follow-ups” for patients.

##### *1.2.a. Enhanced Physical Ability for Treatment Follow-Ups*

The participants in the study expressed

their satisfaction with the increase in their physical energy, which enabled them to effectively carry out treatment follow-ups. They also reported a greater compatibility with this issue, regarding it as a valuable experience of BWB. One participant said:

*“I feel better now because my energy has increased, and I can take the follow-ups of my treatment, such as doing the INR test and doctor visits.” (P14)*

##### *1.2.b. Facilitated Treatment Follow-ups*

This subcategory demonstrates that patient with HVR experience BWB when there is ease of disease-related follow-ups and their reduction. A patient implied:

*“Compared to before the surgery, the follow-ups are fewer. Presently, the only thing that can be said to exist is to adjust the warfarin dose based on the INR, and I feel better about myself now because of this.” (P3)*

## *2. Psychological Well-being*

Based on the data analysis, four categories were identified in the psychological dimension of WB: “personal and environmental mastery”, “optimism in life”, “resilience”, and “Healing therapeutic communication of medical staff”.

### *2.1. Personal and Environmental Mastery*

The first generic category that emerged in the context of PWB was personal and environmental mastery, which was further elucidated by four subcategories: “independence and self-confidence”, “a sense of self-satisfaction”, “the sound of valves as the sound of life”, and “enhanced sexual intimacy”.

#### *2.1.a. Independence and Self-confidence*

After surgery, the participants experienced a noteworthy sense of PWB emanating from their enhanced independence and perceived authority in conducting their work without constraints. A participant told:

*“I am glad that I regained my confidence after the surgery and can now confidently handle my responsibilities and make*

*independent choices.” (P5)*

### 2.1.b. A Sense of Self-satisfaction

Some participants indicated notable improvements in their roles and a general sense of satisfaction with their post-surgery conditions. They perceive these improvements as indicative of a heightened sense of PWB. A patient stated:

*“The fact that I have been able to play a useful role in families by dealing with all the problems that children face and have realized that I have improved my skills in this area gives me great joy.” (P15)*

### 2.1.c. The Sound of Valves as the Sound of Life

A large number of participants expressed their satisfaction with the gradual transformation of their initial negative perception towards the sound of the valve over time. Consequently, they underwent a profound redefinition, shifting their understanding from perceiving the valve sound as unpleasant to recognizing it as symbolic representation of vitality. A participant said:

*“I used to be quite worried when I heard the sound of the valve. I recall asking my doctor, while being worried, “Will this sound ever go away?” My doctor responded with a smile, “I hope this voice never stops”. In that instant, I realized that as long as this voice continued, I was alive.” (P6)*

### 2.1.d. Enhanced Sexual Intimacy

Many participants expressed that their spouses' sexual preferences shifted from simply enjoying sex to prioritizing the spouses' health, which they found very pleasant. Additionally, being able to engage in sexual activity without the fear of death and to satisfy their spouses over time after surgery was considered a significant aspect of their BWB experience. Participants told:

*“After undergoing surgery, my spouse’s perspective on intercourse has shifted from pure enjoyment to helping me feel better.” (P16)*

*“After the surgery, despite replacing the valve and becoming resistant to many*

*problems, there is still a fear of death during sex, but I was happy that I was able to overcome this fear and experience a satisfying relationship with my spouse.” (P5)*

## 2.2. Optimism in Life

Another contributing factor to the participants' PWB after surgery was their optimistic outlook on life, which was explained with two subcategories: “change of attitude and maturity” and “simplistic and positive thinking”.

### 2.2.a. Change of Attitude and Maturity

The presence of factors such as personal growth and maturation when confronted with challenges has positively impacted the participants' sense of WB and overall life satisfaction, as one of them said:

*“I observed a difference in my emotional condition before and after the surgery. It’s as if my heart began producing new hormones, allowing me to approach challenges with more maturity and wisdom. This has helped me feel happy and better about my life.” (P9)*

### 2.2.b. Simplistic and Positive Thinking

The participants observed that cultivating simplicity and fostering a positive outlook in life contributed to their enhanced WB. One said:

*“Surgery is hazardous and difficult. Afterward, especially after a near encounter with death, you want to strive to be a better version of yourself; you attempt to be gentler with yourself, nicer to others, and retain a good attitude on everything, so that you can feel better.” (P11)*

## 2.3. Resilience

The participants highlighted adaptability as a significant factor contributing to the experience of PWB. This category was further elaborated with two subcategories: “self-acceptance and promoting flexibility” and “patience and forbearance”.

### 2.3.a. Self-acceptance and Promoting Flexibility

The participants recognized that their

WB improved when they actively accepted their current situation and consciously chose to overlook the hardships associated with treatment and illness, so their WB improved. A participant implied:

*“I’ve made a concerted effort to accept and embrace the truth that this condition is a permanent part of my life.” (P7)*

### 2.3.b. Patience and Forbearance

Most participants expressed that by cultivating patience and endurance in the face of obstacles, they were able to overcome them and finally attain personal growth and contentment. One of them said:

*“After my surgery, I realized that recovery would not be a straight path; there were many discomforts and frustrations, but I learned to be patient and make compromises with my body. Each small step forward required a lot of patience and forbearance, but it also taught me to appreciate the progress and remain hopeful.” (P11)*

## 2.4. Healing Therapeutic Communication of Medical Staff

The fourth category that emerged in the psychological dimension of WB was healing therapeutic communication, which was explained by two subcategories “positive therapeutic communications” and “compassionate and hopeful care”.

### 2.4.a. Positive Therapeutic Communications

According to participants, two factors were identified as significant in facilitating feelings of satisfaction and happiness. Firstly, they mentioned that the cheerful demeanor exhibited by the nurses and medical staff played a crucial role. Secondly, frequent visits by the doctor’s post-surgery were seen as contributing to the sense of PWB. A participant said:

*“My family paid me a visit once when I was in the intensive care unit. Unfortunately, they couldn’t see me and had to leave. However, seconds later, a sympathetic nurse arrived, opened a window within the ICU, played a*

*song for me, and even assisted me in changing my clothing. Those precious hours spent with the nurse offered me much comfort and raised my spirits.” (P10)*

### 2.4.b. Compassionate and Hopeful Care of Healthcare Provider

The patients highlighted the compassionate and hopeful care provided by the treatment staff, which contributed to a positive experience. They emphasized that when the treatment staff demonstrated compassion and optimism, it had a profound impact on the patient’s PWB.

*“When I see my doctor, he delivers fantastic care and thoroughly explains everything. He gives me soothing words, telling me that these circumstances and problems are common and that I will recover from them in the future. This approach significantly improves a patient’s mood.” (P16)*

## 3. Social Well-being

Our study revealed two generic categories of positive social components that can effectively promote a positive mood and improve WB in patients who had undergone HVR surgery. These generic categories encompass: “a positive supportive atmosphere”, and “job and financial assurance”.

### 3.1. A Positive Supportive Atmosphere

The initial generic category within the scope of SWB was “a positive supportive atmosphere”, and is further delineated by two sub-categories: family and entourage support, and positive societal interactions and understanding.

#### 3.1.a. Family and Entourage Support

The participants indicated that the presence of a range of positive behaviors within the family context can effectively contribute to a sense of SWB. Specifically, they emphasized that factors such as the familial displays of affection, transmission of positive energy to the patient, and feeling of value by the spouse and family members which were instrumental



in fostering their overall satisfaction. They implied:

*“After the surgery, I couldn’t even hold a simple glass of tea. During this difficult time, my family gave unflinching support for three months, and it was at this point that I realized the essential benefits of having a caring and supporting family.” (P12)*

*“My spouse has significantly increased his supportive efforts on my behalf since my surgery. He manages all aspects of my transportation, ensuring I attend necessary follow-up appointments and adhere to my prescribed treatment regimen. In essence, he has dedicated himself to my care.” (P5)*

### *3.1.b. Positive Societal Interactions and Understanding*

According to the participants, their levels of satisfaction, happiness, and overall SWB are significantly elevated when engaged in social activities such as socializing with others, attending gatherings, or simply spending time with friends. The participants also stated that people within the community who demonstrate awareness and possess a solid comprehension of these patients’ conditions contribute to making them experience higher levels of SWB. A patient told:

*“One of the things that can help a HVR patient to feel good is the way people in society look at us. When people demonstrate an accurate understanding of our condition, we experience a greater sense of positivity and contentment.” (P9)*

### *3.2. Job and Financial Assurance*

The second generic category within SWB pertains to job and financial assurance. This category is further explained by two subcategories: “fostering a sense of financial empowerment” and “improving job performance”.

#### *3.2.a. Fostering a Sense of Financial Empowerment*

According to the participants, especially

providing reassurance to patients, particularly from their spouse or immediate family, regarding the financial implications of their treatment can significantly enhance the patient’s SWB. One of them said:

*“My wife has been really gracious about my treatment costs, opting not to declare the cost to me. Witnessing her thoughtful gesture brings about a positive and comforting emotion.” (P8)*

#### *3.2.b. Improving Job Performance*

Some participants stated that when the work environment and the employer provide supportive facilities, the individuals are more likely to excel in their job responsibilities, resulting in heightened levels of SWB. One emphasized:

*“Experiencing the support of both your employer and colleagues in the workplace and witnessing the implementation of various measures to enhance the comfort of your work environment, especially after surgery, are truly uplifting.” (P11)*

### *4. Spiritual Well-being*

Within the dimension of SpWB, the analysis illuminated the emergence of generic categories, including “faith in a higher power”, “optimism regarding a purposeful future”, and “gratitude mixed with generosity”. These categories can play a role in inducing a good mood for the HVR patients, thus contributing to the overall experience of SpWB.

#### *4.1. Faith in a Higher Power*

The initial generic category identified within the dimension of SpWB pertained to faith in a higher power. This category exemplified the positive impact of embracing a belief in a higher power on mood enhancement and the elevation of SpWB levels among patients. Also, two subcategories emerged, namely “reliance on miracles and trust in God” and “strengthening spirituality”, which were employed to elucidate and expound upon the multifaceted nature of this category.

#### 4.1.a. Reliance on Miracles and Trust in God

According to the perspectives of HVR patients, relying on their reliance on faith and entrusting their fates to God plays a vital role in fostering a greater sense of contentment and satisfaction with their lives. A patient stated:

*“I feel that my recovery after surgery is a miracle, and that God is always my supporter and is with me wherever I go.” (P6)*

#### 4.1.b. Strengthening Spirituality

After the surgery, most patients acknowledged experiencing a profound strengthening in their relationship with God. This particular approach brought them immense gratification and solace. One emphasized:

*“Receiving major surgery is a critical and precarious circumstance and is a life-or-death situation. It is solely by the grace of God that an individual can endure such a burdensome procedure. I had the privilege of experiencing God’s benevolence, which not only deepened my connection with Him but also fortified our relationship.” (P7)*

#### 4.2. Optimism Regarding a Purposeful Future

The study found that the patients who had undergone HVR surgery experienced improved SpWB when they maintained a hopeful outlook towards the future and possessed a clear sense of purpose in their daily lives. The analysis of interviews yielded two subcategories: “hope for the future and liveliness” and “finding meaning based on purposefulness”.

##### 4.2.a. Hope for the Future and Liveliness

According to the perspectives of HVR patients, the presence of hope for the future is perceived as beneficial. They observed that when they envision a more optimistic and promising future, they experience an enhanced WB and perceive it as a significant contributor to their sense of SpWB. A participant told:

*“The encounter with a near-death experience and recovery from it increases*

*your hope for life, as you tell yourself that God got me to the edge of the blade and brought me back and that if he was going to take my life, he would. Thus, now I have to live the rest of my life with hope.” (P9)*

##### 4.2.b. Finding Meaning Based on Purposefulness

The participants declared life possesses intrinsic meaning and purpose. They further posited that in order to attain excellence and experience WB, individuals ought to actively pursue a purpose that aligns with the overarching purpose of existence. In addition, they conveyed a sense of elation regarding how the surgery improved their life aspirations. A patient said:

*“In my opinion, without a goal, life becomes routine and boring. However, setting unrealistic goals can be detrimental to our health and WB, particularly for people who have had valve replacement surgery. Small goals can provide motivation and fulfillment. One advantage of surgery is that it has allowed me to concentrate on long-term goals, which has been a pleasant and rewarding experience.” (P11)*

#### 4.3. Gratitude Mixed with Generosity

The third generic category within the dimension of SpWB was labeled as “gratitude mixed with generosity”. This generic category shows that individuals who are patients are likely to live a better life and experience enhanced levels of SpWB when providing material and other forms of assistance to those in need.

##### 4.3.a. Generosity

The patients mostly reported a sense of improvement and an enhanced experience of SpWB following their surgeries when they had the ability to provide assistance to others, whether through financial means or in various other ways. One of them told:

*“I experienced a very good feeling after being able to help someone after the surgery or when I met patients who had similar conditions to mine and helped them.” (P15)*

#### 4.3.b. Gratitude

This topic is very closely related to the generosity subcategory, as affirmed by the patients who assert that their acts of helping others constitute a means of expressing gratitude towards God. These individuals engage in such acts as a means of expressing their appreciation for their successful recovery, effectively conveying their gratefulness to the Divine. Thus, this profound sense of gratitude serves as a catalyst for experiencing elevated levels of SpWB. A patient stated:

*“After surgery, I’ve learned to appreciate life’s little moments. Being thankful keeps me happy, so I try to express my gratitude by helping others and being generous towards patients who are experiencing financial difficulties.” (P6)*

### DISCUSSION

The current study aimed to explore the patients’ experience of WB after undergoing HVR surgery while being guided by the BPSS model. Finally, the analysis revealed the emergence of four main categories including BWB, PWB, SWB, and SpWB, alongside eleven generic categories.

Within the category of BWB, our study found that attaining physical balance and compliance with treatment can improve the level of WB. Also in this regard, after the surgical procedure, most of the patients expressed positive feelings during the rehabilitation phase. Participation in a rehabilitation program acts as a motivating factor in increasing physical activity, enabling people to improve their WB by strengthening and mobilizing their potentials.<sup>27</sup> Furthermore, the result of a study indicates that facilitating interactions between patients and their peers fosters the development of supportive friendships, allowing for shared experiences and creating a positive and encouraging environment for those in recovery.<sup>28</sup> Such findings are in line with the perspectives and experiences shared by participants in our study. The authors attribute this to the role

of peer groups in strengthening psychosocial skills, such as adopting a healthy lifestyle, increasing motivation, and enhancing decision-making capabilities.

The findings of our study underscore the importance of mastery in enhancing PWB. Mastery, defined as the ability to control one’s environment and outcomes, plays a crucial role in fostering a sense of independence, self-confidence, and self-satisfaction.<sup>29, 30</sup> People who believe in their ability to control themselves and their environment tend to experience more positive outcomes and higher levels of PWB.<sup>31</sup> Previous studies found that the ability to reinterpret negative experiences positively can lead to higher levels of PWB.<sup>32, 33</sup> The similarity between our study results and previous research can be attributed to the fundamental psychological principles underlying mastery and its impact on WB. This alignment of findings ensures that the reported effects of mastery on PWB are not artefacts of varying research designs or assessment methods and reinforcing the reliability of our findings in the context of existing literature.

Post-surgery sexual satisfaction is impacted by spousal behavior, including showing indifference or refraining from discontent, which in turn contributes to PWB. Furthermore, patients reported satisfaction with their partners prioritizing their spouse’s health over sexual relations during postoperative periods. A study on women with high-risk pregnancies found that positive personality traits of spouses protect against stress from marital problems. Spouses adjust their priorities in such a way that during these periods they focus on protecting and restoring their partners’ health,<sup>34</sup> which may be explained by the great value Iranian society places on personality qualities like selflessness, loyalty, and humanity, particularly within the context of families.

The study highlighted that attitude change and maturity are important experiences that contribute to increased happiness and life satisfaction when faced with surgical

challenges. This aligns with post-traumatic growth, where individuals report positive psychological changes after adverse events. It has also been demonstrated that encountering health issues causes a re-evaluation of life priorities and an improvement in life satisfaction.<sup>32</sup> The consistency of our findings with previous research may be attributed to the fact that acquiring a mature viewpoint allows individuals to better cope with adversity causing a more stable and optimistic outlook on life.

The study showed that resilience significantly contributed to enhancing PWB, with subcategories such as flexibility and patience playing a crucial role. Promoting flexibility in thinking and behavior was associated with greater resilience and adaptive coping strategies in the face of adversity.<sup>35</sup> Furthermore, cultivating patience and forbearance can enhance resilience and promote psychological WB, particularly in challenging situations.<sup>36</sup> Therefore, the findings of our study are consistent with existing literature and underscore the importance of resilience-focused interventions in promoting PWB.

In exploring the psychological dimension of WB, our study underscores the crucial role of positive therapeutic communication in cultivating a sense of positivity among patients. Our findings illuminate patients' profound appreciation for effective communication from healthcare providers, which significantly helps the perception of the experience of PWB. These results are in the same line with previous research highlighting the vital significance of positive interactions between HVR patients and healthcare professionals, emphasizing the need for comprehensive training during hospitalization and post-discharge care.<sup>6</sup> Establishing powerful therapeutic communication channels not only empowers healthcare professionals to optimize patient outcomes but also significantly contributes to the augmentation of overall patient satisfaction metrics.

Participants in our study emphasized

the importance of increased societal understanding and overall support from individuals in the patient's social environment as critical factors in achieving a positive state in the social sphere. They expressed satisfaction when interacting with people who demonstrated a high level of comprehension regarding their condition and treated them with equal regard. Previous studies found that HVR patients strived to appear normative but often face judgment based on their limitations rather than their abilities.<sup>17, 37</sup> These findings are consistent with our study results, emphasizing the importance of healthcare providers fostering societal understanding and awareness towards these patients while rectifying how society and families interact with them.

Lastly, our study highlights that the spiritual dimension of WB, which is often overlooked in previous research, can considerably contribute to patients' sense of overall WB.<sup>8</sup> Belief in a higher power and the ability to find peace in this faith were prominent illustrations of SpWB. Additionally, optimism and hope regarding present and future circumstances are important in the experience of SpWB. Previous research underscores the protective role of faith during medical crises and major surgeries like open heart surgery, including HVR and coronary artery bypass grafts.<sup>38, 39</sup> While the precise mechanisms linking spirituality and patient WB post-major surgeries remain partially understood, existing literature consistently points towards improved WB among cardiac surgery patients who integrate spirituality into their recovery process.<sup>8, 40, 41</sup>

This study contributes significantly to the enhancement of knowledge and provides valuable insights into the WB experiences of patients following HVR surgery. It recommends that healthcare providers tailor targeted interventions to improve WB and treatment outcomes. Also, they should focus on modifiable components and encourage sustainable practices beyond the rehabilitation period. One of the limitations

of this study is its mere focus on public hospital patients, neglecting perspectives from private healthcare settings. Given the substantial variations in healthcare resources and demographics between public and private institutions, future research should incorporate participants from both sectors for a more comprehensive analysis.

## CONCLUSION

This study indicated that the WB of patients who had undergone HVR surgery depends on various conditions and dimensions, each contributing uniquely to the overall WB experience of HVR patients. Moreover, the manifestations and determinants of WB can vary significantly across different diseases and conditions. Recognizing these variations is crucial for healthcare providers, particularly nurses, as it enables them to have a comprehensive approach to WB and develop targeted interventions aiming at improving the perception of WB among HVR patients and effectively addressing challenges throughout the preoperative and postoperative phases. Consequently, the findings of this study can serve as a foundation for future research endeavors concerning WB.

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## Authors' Contribution

TS and MA were responsible for the conceptualization and design of this study. The interviews were conducted by MA, with assistance from TS. The data analysis and interpretation were carried out collaboratively by MA, TS, HKM, and AE. MA drafted the initial manuscript. All authors critically reviewed, revised the manuscript, and approved

the final version for publication. All authors take responsibility for the integrity of the data and the accuracy of the data analysis. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

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