Research Article

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Investigating Patient' Perspectives on Open Heart Surgery Based on Gender: A Metaphorical Study

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Abstract

Objectives: Gender plays a crucial role in shaping experiences and needs in healthcare. Investigating metaphors used by men and women provides valuable insights into gender-based differences, particularly in the context of complex surgeries like open-heart surgery (OHS). However, the use of metaphors to understand patient perspectives in such surgeries remains underexplored. This study aimed to explore the emotions and insights of patients before OHS through metaphorical expressions.

Materials and Methods: The study was conducted using the metaphor analysis technique based on the phenomenological method. Metaphor analysis, as a qualitative research approach, provides an in-depth understanding of lived experiences. The COREQ statement, a 32-item checklist for reporting qualitative studies, was followed to ensure transparency and rigor. The sample consisted of 62 patients.

Results: More than half of the patients (n=33) were male. Most patients (n=38) were primary school graduates, 28 of them were retired, and almost all of them (n=57) were married. Coronary artery bypass grafting was planned for 45 of the patients. The patients' ages ranged from 37 to 85 years. Patients produced 38 different metaphors for OHS, frequently including repair, salvation, recreation, goodness, fear, anxiety, and guidance. The metaphors were categorized into four themes: the mechanical perspective, the spiritual perspective, the cognitive-emotional perspective, and the accepting perspective. Male patients more frequently used mechanical and accepting metaphors, whereas female patients predominantly expressed spiritual and cognitive-emotional metaphors.

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Abstract

Conclusion: This study highlights the importance of understanding the metaphors patients use to express their experiences before OHS. Recognizing these metaphorical representations can enhance patient care by addressing emotional and spiritual needs. Providing spiritual support, such as prayers and rituals, can reduce anxiety and positively influence recovery. Importantly, considering gender-based differences in metaphorical expressions can help healthcare professionals tailor patient education and support strategies more effectively, offering a more holistic approach to care. Future studies should further investigate how gender-specific metaphorical expressions influence coping strategies and recovery outcomes in patients undergoing OHS.

Keywords: Bypass, cardiovascular surgery, heart

Introduction

Open-heart surgery (OHS) is a primary intervention in treating heart disease. Apart from its therapeutic properties, it causes significant anxiety and fear in patients due to its complexity and life-threatening risks[1]. Therefore, understanding patients' perspectives on the disease in the preoperative period is crucial for in developing intervention strategies by social work professionals and the healthcare sector. Social work professionals play an essential role in addressing inequalities in the healthcare sector by participating in and leading integrated patient care initiatives aimed at reducing these inequalities[2].

A critical factor in postoperative recovery is patients' perceptions of their illness before surgery[3]. This is because the role of illness perceptions in psychological well-being is substantial[4]. In a quantitative study examining perceptions of cardiovascular disease (CVD), women were more likely than men to attribute CVD to causes beyond their control and to perceive CVD as a chronic, uncontrollable condition[5]. In a quantitative study n=187), state and trait anxiety scores of female patients undergoing coronary artery bypass grafting (CABG) were found to be significantly higher than those of men before and six months after surgery[6]. A study examining the impact of gender differences on coping and anxiety in patients after CABG surgery in Taiwan found that women, compared to men, were more likely to blame themselves, and had higher state-trait anxiety scores[7].

Language is an important example of human symbolization. The ability to use symbols makes metaphor possible. Metaphor is the art of analogies with words[8]. To make a metaphor, one must use language well. Language is defined not as an isolated, autonomous concept but as a system that other information systems should interact with. Language is related to cognitive processes and is defined as "a means of creating and expressing ideas, storing and sharing information in the human mind[9]". One thing can replace or signify something else. Moreover, people act according to the subjective meanings or interpretations of their physical and social environment. Metaphor is not just about language. It is thought, action, and language[10]. Unlike simile, which is an explicit comparison indicated by the words "like" or "as," a metaphor is an implicit comparison In Kövecses's[11] metaphor, "achilles fought like a lion," the characteristic of the lion and achilles is their courage and strength. It is essential to use metaphorical words consciously. Metaphors are used to understand human thought, to better explain concepts, and to reason. They do not aim to establish general similarities[11,12]. Metaphors allow language to gain meaning in the mind in a sense that has never been used before. Meanings are constructed by individuals in particular environments and situations, based on interactions in specific roles. For example, the meanings assigned to the symbol and surgery assigned by the patient and the surgeon differ in their differentiation, complexity, feeling, tone, expectations, and associated behaviors. Meaning regulates attention, perception, interpretation, and action[8]. Conceptual Metaphor Theory[10] provides a useful framework for understanding how patients conceptualize their experiences through metaphor.

According to symbolic interactionists, human behavior cannot be understood apart from the symbolic meaning of objects (defined to include people) in particular situations. Because of this characteristic, metaphors have exploratory aspects. Metaphors explain how the emotions, thoughts, or concepts being analyzed are perceived. Abstract and challenging-to-perceive concepts can be understood more easily with the help of metaphors[13]. These metaphors influence how patients perceive their condition, cope with stress, and prepare for surgery. By understanding patients' metaphors, healthcare professionals can gain insights into their psychological and emotional states, which are crucial for effective preoperative counseling and support. This perspective helps identify specific fears or misconceptions patients may have about surgery, enabling more tailored and empathetic communication that addresses their concerns[14].

This study incorporates Cognitive Behavioral Theory (CBT) and Conceptual Metaphor Theory, to understand these perceptions better. CBT is used to help identify and address the maladaptive thoughts and anxieties that patients may have prior to surgery, which can significantly impact their recovery[15,16].When the literature is examined, studies examining the effects of gender on postoperative outcomes in many countries and cultures have been found[17-20], and a metaphor study with patients who will undergo OHS could not be reached. The metaphors obtained in this study are essential for understanding and supporting patients undergoing OHS in the preoperative period. However, the metaphors healthcare professionals use to make sense of their perspectives on complex surgeries like OHS have yet to be adequately explored. The results of this study should contribute to the development of individualized care protocols for men and women with OHS in the preoperative period. In addition, patient care and support can be further improved by understanding the healthcare perspective on OHS.

The study aimed to explore and gain insights into the feelings of male and female preoperative patients regarding their varied experiences related to surgery. It employed metaphors to conceptualize and describe their experiences figuratively, thereby providing valuable information for health professionals involved in their care.

Materials and Methods

Study Design

This study used a qualitative research model to determine the patients' perceptions of surgery before OHS through metaphor analysis. The phenomenology design was preferred within the scope of the qualitative research model. This pattern is a method that reveals the essence of a phenomenon to enable a more in-depth and detailed understanding. Phenomenology focuses on the meaning of the investigated phenomenon. It reveals the significance of individuals' experiences and their relationship to the subject[21].

Collecting data with metaphors is a powerful strategy to illuminate previously unrecognized aspects of phenomena and add depth to understanding. Applying familiar concepts to lesser-known phenomena helps to clarify and broaden the understanding of less familiar ones. Metaphors can exemplify behaviors and processes by simplifying concepts and emphasizing some features over others[22,23].

Conceptual Framework

The Conceptual Metaphor Theory emphasizes how deeply metaphors are embedded in human cognition and communication. It demonstrates how metaphors shape language and our understanding of complex ideas, problem-solving strategies, and cultural worldviews. Recognizing these underlying metaphors allows people to understand how language influences thought and vice versa[14]. Metaphors help reveal how emotions, thoughts, or concepts are perceived. Concepts that are abstract and difficult to perceive can be understood more easily with the help of metaphors[12,24,25].

CBT, which plays a significant role in studying human behavior and cognition, underscores the importance of metaphors in shaping an individual's thoughts, feelings,

and behaviors. This theory suggests that cognitive restructuring, a core component of cognitive-behavioral therapy, often involves identifying and challenging metaphorical thinking patterns that contribute to maladaptive behaviors and emotional states[26]. CBT can be an effective tool for changing patient behaviors and developing long-term health habits. It is reported that within the scope of prehabilitation, counseling aimed at addressing patients' emotional needs and enhancing their self-efficacy plays an important role in improving adherence to multimodal interventions to ensure overall well-being before surgery[15,16]. Therefore, the examination of metaphors in the context of this study is particularly relevant, as it aligns with the principles of CBT, shedding light on how metaphors influence individuals' perceptions and responses in the context of their experiences before OHS[26].

By integrating Conceptual Metaphor Theory with CBT, this study provides a solid framework to analyze how metaphors shape patients' experiences, emotions, and behaviors before undergoing OHS. This dual-theoretical approach allows for a deeper understanding of the cognitive and emotional elements at play, ultimately aiming to enhance patient care by addressing the psychological needs of individuals preparing for major surgery.

Research Team and Reflexivity

The research team consists of three female academic nurses, and all researchers have received training in qualitative research. The first researcher took the qualitative research course in his doctoral education, and he is doing qualitative research. She completed her master's and doctoral thesis in cardiovascular surgery nursing and has conducted research in this field. She was a cardiovascular surgery intensive care unit nurse for 2.5 years. Anticipations of bias due to the researcher's own experiences influenced the decision not to collect data. This researcher did not do the analyses, so that the findings would not be affected. The second researcher (NGOO) took the qualitative research course during his doctoral education. She has also received training in the MAXQDA program organized by a private statistics and research center. She was a clinical nurse in the pediatric surgery department for seven years. Since the researcher has experience in qualitative and metaphor studies, they collected all the data. Therefore, different views were not affected during the data collection process. The third researcher is an associate professor in the Department of department of surgical nursing at the nursing faculty and has previously worked as a nurse in the cardiovascular surgery clinic. She supervised the thesis studies of master's and doctoral students in cardiovascular surgery nursing. She received qualitative research training from national and international courses. She has mentored nurses in the qualitative research course program. She has conducted qualitative research in surgical nursing and nursing education. During her 30 years of professional life, she has given many conferences on surgical nursing.

The research team maintained a reflective approach throughout the study. Regular meetings of the research team were held, and the presence of the second author during the first interview, data analysis, and review of field notes, enhanced sensitivity to the research. Data analysis was discussed with the research team, and themes were deliberated, modified, reviewed, and agreed upon. Reflexive steps in thematic analysis were followed to ensure a rigorous analytical process. Furthermore, it was acknowledged that the primary researcher might bring theoretical commitments or professional assumptions that could influence the research. Therefore, a preliminary interview was conducted among the researchers before data collection. In this interview, the primary researcher was asked questions about assumptions and urged to remain reflexive and attentive to narratives that might reveal hidden meanings. This added passage elaborates on how the reflexive process was applied within the research team and how assumptions were addressed to maintain the integrity of the research.

Participants

The study consisted of patients scheduled for OHS in a university hospital's cardiovascular surgery inpatient clinic. Criterion sampling was used as the sample type.

A criterion sample studies all cases that meet a predetermined set of criteria. The researcher creates the requirements, or a previously prepared criterion list can be used. Criterion sampling was used in the study for patients planned for OHS.

The inclusion and exclusion criteria for selecting the sample were carefully defined. Only patients scheduled for OHS in the preoperative period, who had person-place-time orientation, spoke Turkish, and had stable general health were included in the study. Patients scheduled for minimally invasive cardiac surgery using the off-pump technique and those who underwent transcatheter aortic valve replacement were excluded. These patients' surgical procedure differs from OHS. Therefore, the study group only included patients who underwent CABG and valve surgery using the open-heart technique. This comprehensive approach ensured the rigor and reliability of the study.

While determining the sample size in the research, attention was paid to the focus of the study, the amount of data, and theoretical sampling principles. The focus of the study is on metaphorical perceptions of OHS. The theoretical framework was unclear, as there was no literature on the metaphorical perceptions of individuals with OHS. For this reason, data were collected until the data saturation point. The data reached the saturation point in the 57th patient. However, a total of 62 patients who met the inclusion criteria and agreed to participate were included in the study to ensure a balanced representation. Among these, 33 were male and 29 were female, reflecting the composition of the eligible patient population during the study period.

Data Collection

The study data were collected using a semi-structured schedule, which was developed in line with the literature and based on the experiences of the researchers. This form consisted of two parts. In the first part, there were questions about descriptive characteristics and OHS. In the second part, to determine the metaphorical perceptions of the patients about the surgery, the sentence "OHS like/similar to ... because ....." was asked. Opinions and suggestions were received from the cardiovascular surgeon, clinician, and academic nurse for this form. No changes were made in line with the views. In addition, a literature review was conducted for the metaphor sentence[13,27,28].

Study Procedure

The NGOO, who was on the research team, asked the patients admitted to the cardiovascular surgery inpatient clinic the questions in the first part of the data collection form. The hospitalized patients were followed daily in the clinic, and data collection was performed in the ward at least one day before the scheduled OHS. This ensured that all patients were in the preoperative period. Later, the researcher gave an example of the sentence "the nurse is like an angel because she is accommodating", so that the patients could understand the metaphor better. A sample metaphor sentence for the surgery was not given to avoid affecting the patients' perception.

In the clinic where the data were collected, preoperative education was routinely provided both by the surgical team and by the nurses. This education included information about what OHS is and how it differs from other cardiac surgeries. Thus, the patients were aware of the meaning of OHS when producing their metaphors. After the example sentence, the patient was asked for their metaphor sentence, which was written down exactly as expressed and later confirmed by the patient. While the researcher was collecting the data, the caregivers of the patients were present, ensuring the patients' comfort and well-being. Their presence did not influence the metaphors produced by the patients.

Statistical Analysis

All metaphor analyses in this study were conducted manually by the research team; no computer software was used. The researchers carefully read, coded, and categorized the metaphors themselves, ensuring that each step of the Metaphor Identification Procedure and subsequent thematic analysis, was performed rigorously and collaboratively[24,25].

The method of analysis and interpretation of the metaphors to be put forward in the Metaphor Identification Procedure takes place in three stages, although there is no definite chronological order.

Step 1: Metaphor Definition and Selection

First, the researchers carefully read the metaphor texts several times and made metaphor markings to get a general idea of the metaphors found in each text. The purpose of repeated reading is to make the metaphors clearer. Sixty-two metaphors produced by the patients were evaluated. The relations of the metaphors produced, with the research subject, were considered. As a result of the evaluation, metaphors with ordinary meaning, and similarity were extracted and grouped from a total of 62 metaphors.

Step 2: General Metaphor Analysis

Because metaphors are part of a communication process, their overall meaning has been questioned. How do people understand this metaphor, and what might the speaker mean by it as a member of a larger social group? Therefore, the metaphor was taken as it was without questioning the wider context. This step also includes taking a certain distance from the whole text, which means temporarily setting aside the immediate context of the metaphor to reason more freely about the metaphor being studied.

Metaphors deemed valid, produced by the patients, and metaphors with common meanings for OHS were classified by the researchers based on their descriptions. Each metaphor has been analyzed in terms of the subject, the source, and the connection between the subject and the source. Then, they were analyzed according to their ability to express the concept of OHS, and conceptual themes were created. As a result of the analysis, metaphors were categorized into four themes: mechanical perspective (physical renovation), spiritual perspective (recreation), cognitive and emotional perspective (life or death), and accepting perspective (necessity)[25].

In addition, data from male and female patients were analyzed separately to explore potential gender-related differences in metaphorical perceptions. After coding and categorizing the metaphors, the frequency and types of metaphors were compared between male and female participants to identify any patterns or distinctions.

Step 3: Text-Immanent Metaphor Analysis

Finally, researchers explored the implications of metaphors to gain a deeper, more comprehensive understanding. The researchers scrutinized the data to gain a deeper understanding of the metaphors. A trustworthiness study was conducted by all researchers to examine whether the created categories represent the metaphors expressed by the patients in the study. During the validity phase of the metaphors, the statements used by the patients were included, and the data analysis process (especially the labeling of the data and how the five conceptual themes were reached) was explained in detail.

Peer debriefing was conducted on the metaphors obtained to ensure their reliability. The lists of themes and codes were reviewed by an expert as part of the peer review process the lists of themes and codes. The matching made by the expert and the themes created by the researcher were compared. Inter-coder reliability (ICR) assessment has been used in metaphor analysis as it provides numerous benefits for qualitative research, which includes improving the systematic nature, distribution, and transparency of the coding process.

Although there are different opinions about ICR, it was used to evaluate the reliability of metaphors in this study. The Miles and Huberman[29] formula was used to evaluate the ICR. This formula is confidence = consensus / (consensus + disagreement). The first expert's metaphor coding specific to the research was slightly different because it overlapped with the themes. However, a 95% reliability (consensus =38 / (38 + 2)=0.95] rate was obtained. The research team discussed and resolved any disagreements on themes through meetings, ensuring consensus was reached before finalizing the categorization of metaphors.

Trustworthiness in Research

The trustworthiness of the research was ensured through credibility, transferability, confirmability criteria.

Credibility: When patients were asked about their metaphorical perceptions, they were asked to explain why, and their consent was obtained. Peer debriefing was requested to examine the process and the metaphor analysis.

Transferability: In this study, criterion sampling from the purposeful sampling method was used, acceptance criteria were determined, the place where the research was conducted was introduced, and detailed information about the participants was given.

Reliability: Two researchers collected, analyzed, and interpreted the data. A literature review was conducted to ensure reliability. The research method is explained in detail.

Verifiability: Statements of the participants were included in the findings. Additionally, field notes for raw data are included. The development process of the findings is provided in detail[21,30].

Ethical Considerations

The study was conducted according to the Declaration of Helsinki and approved by the Non-interventional Ethics Committee of Dokuz Eylül University (approval no: 7019, date: 16.02.2022). In addition, informed consent was obtained from the patients who agreed to participate in the study. Encodings were made with "P" to protect the patient's anonymity.

Results

The study sample consisted of 62 patients. As shown in Table 1, more than half of the patients (n=33) were male. Most patients (n=38) were primary school graduates; 28 were retired, and almost all (n=57) were married. CABG was planned for 45 of the patients. The patients' ages ranged from 37 to 85.

It was observed that the patients expressed 38 different metaphors for OHS and frequently used the metaphors of repair, salvation, recreation, goodness, fear, anxiety, and angel (Table 2).

The metaphors produced by the patients consisted of four categories. These themes were the mechanical perspective, the spiritual perspective, the cognitive and emotional perspective, and the accepting perspective (Figure 1). The metaphors produced by including quotations from patients' statements were evaluated within the framework of the determined categories. Men's perceptions were mechanical, spiritual, cognitive, emotional, and accepting. Women's perceptions were included mechanical, spiritual, cognitive, emotional, and accepting perspectives. There was only one narrow perspective in the perception of women. The codes of the metaphors of male and female patients in all documents are given in Figure 2.

Theme 1: Mechanical perspective (physical renovation): In this theme, patients produced metaphors for OHS. Eight of the patients in this theme were male; one was female. In this theme, patients used expressions such as fuel pump, resetting the engine, renewing the engine, and repairing it. Sample expressions related to the metaphors in this theme are given below.

"OHS is like replacing a fuel pump. Because we are the driver, if the fuel pump fails, the car will not start; similarly, the heart is the fuel pump of the body." (P1, male, 57 years old, scheduled CABG).

"OHS is like overhauling an engine. Because both the heart and an engine can fail as they age, they need to be renewed." (P2, male, 50 years old, scheduled aneurysm repair surgery).

"OHS is like repairing a broken structure. Because i am a builder, the system can get old and regenerate." (P16, male, 56 years old, scheduled surgery CABG).

"OHS can be compared to dirty glass, as it may obscure clear visibility and understanding of an underlying issue. Because when you wipe the glass, it is clean." (P25, female, 37 years old, scheduled heart valve repair surgery).

Table 1. Descriptive characteristics of the patients

Patient code	Gender	Years	Educational status	Profession	Marital status	Surgery
P1	Male	57	Primary education	Driver	Married	CABG
P2	Male	50	Bachelor's degree	Teacher	Married	Aneurysm repair
P3	Male	66	Primary education	Retired repairman	Married	CABG
P4	Female	67	Bachelor's degree	Retired nurse	Married	CABG
P5	Female	72	Primary education	Housewife	Married	CABG
P6	Male	64	Bachelor's degree	Retired	Married	CABG
P7	Male	70	Primary education	Retired	Married	CABG
P8	Male	52	High-school graduate	Retired	Married	CABG
P9	Male	70	High-school graduate	Retired	Married	CABG
P10	Female	56	Primary education	Housewife	Married	Heart valve repair
P11	Male	66	Primary education	Retired	Married	Heart valve repair
P12	Female	67	Bachelor's degree	Retired	Single	Heart valve repair
P13	Male	64	High-school graduate	Retired	Married	CABG
P14	Male	64	Primary education	Retired	Married	Aneurysm repair
P15	Female	67	High-school graduate	Retired	Married	CABG
P16	Male	56	High-school graduate	Master builder	Married	CABG
P17	Female	56	Bachelor's degree	Economist	Married	CABG
P18	Female	73	Primary education	Housewife	Married	Heart valve repair
P19	Male	73	Primary education	Retired	Married	CABG
P20	Female	63	Primary education	Housewife	Married	CABG
P21	Male	60	High-school graduate	Retired	Married	CABG
P22	Female	85	İlliterate	Housewife	Married	CABG
P23	Male	51	Bachelor's degree	Officer	Single	CABG
P24	Female	64	İlliterate	Housewife	Married	CABG
P25	Female	37	Primary education	Housewife	Married	Heart valve repair
P26	Male	51	Primary education	Worker	Married	CABG
P27	Female	53	Primary education	Worker	Married	CABG
P28	Male	54	Literate	Worker	Married	CABG
P29	Male	58	Primary education	Retired	Married	Heart valve repair
P30	Male	57	High-school graduate	Retired	Married	CABG
P31	Female	77	Primary education	Housewife	Married	CABG
P32	Male	71	Primary education	Worker	Single	CABG
P33	Male	67	Primary education	Retired	Married	CABG
P34	Male	69	Primary education	Retired	Married	CABG
P35	Male	69	Bachelor's degree	Retired	Married	CABG
P36	Male	58	Primary education	Self-employment	Married	CABG
P37	Male	58	Primary education	Retired	Married	CABG
P38	Male	53	Bachelor's degree	Self-employment	Married	CABG
P39	Female	56	Primary education	Housewife	Married	CABG
P40	Female	66	İlliterate	Housewife	Married	Aneurysm repair
P41	Male	51	High-school graduate	Retired	Married	CABG
P42	Male	63	Bachelor's degree	Retired	Single	Aneurysm repair
P43	Female	73	Primary education	Housewife	Single	CABG

Table 1. Continued

Patient code	Gender	Years	Educational status	Profession	Marital status	Surgery
P44	Male	62	Primary education	Retired	Married	Heart valve repair
P45	Female	51	High-school graduate	Officer	Single	Heart valve repair
P46	Male	56	Bachelor's degree	Tax professional	Married	CABG
P47	Male	62	Primary education	Retired	Married	CABG
P48	Male	57	Primary education	Watcher	Married	CABG
P49	Male	62	Bachelor's degree	Retired	Married	CABG
P50	Male	69	Primary education	Retired	Married	CABG
P51	Female	48	High-school graduate	Worker	Married	CABG
P52	Female	55	Primary education	Housewife	Married	CABG
P53	Female	65	Primary education	Housewife	Married	Heart valve repair
P54	Female	62	Primary education	Housewife	Married	Heart valve repair
P55	Female	62	Primary education	Housewife	Married	CABG
P56	Female	72	Primary education	Housewife	Married	CABG
P57	Female	73	Primary education	Housewife	Married	Heart valve repair
P58	Female	62	Primary education	Housewife	Married	Heart valve repair
P59	Female	73	Primary education	Retired	Married	CABG
P60	Female	78	Primary education	Housewife	Married	Heart valve repair
P61	Female	75	Primary education	Housewife	Married	CABG
P62	Female	63	Primary education	Housewife	Married	CABG

CABG: Coronary artery bypass grafting

Table 2. Metaphors produced by patients

Category	Male patients' metaphors	Female patients' metaphors
Mechanical perspective	Repair (n=3) Fuel pump (n=1) Engine overhaul (n=1) Overhauling the engine (n=1) Engine (n=1) Playing with an old toy (n=1)	Dirty glass (n=1)
Spiritual perspective	Salvation (n=6) Recreation (n=2) Goodness (n=1) Power (n=1) Marathon (n=1) Flatness (n=1) Resignation (n=1)	Salvation (n=6) Recreation (n=2) Goodness (n=1) End of pain (n=1) A second chance (n=1) Happiness (n=1) Struggle (n=1) Hope (n=1)
Cognitive and emotional perspective	Fear (n=1) Anxiety (n=1) White light (n=1) Addiction (n=1) Excitement (n=1) Dark world (n=1) Hook in the butcher (n=1) Russian roulette (game) (n=1) Fried chicken (n=1)	Fear (n=4) Anxiety (n=2) Locket (n=1) Closed box (n=1) Anxiety (n=1) Dead (n=1) Lifeblood (n=1) Nuisance (n=1)
Accepting perspective	Angel (n=1) Necessity (n=1) Nurse (n=1) A long narrow road (n=1)	Part of life (n=1)

Theme 2: Spiritual perspective (recreation): in this theme, patients produced metaphors such as salvation, rebirth, flatness, and hope, using a spiritual perspective, toward OHS. This theme includes the most expressed metaphors in both women and men.

"OHS is considered an essential or critical component, akin to salvation in its capability to provide significant benefits or protection. I will be cured of the fire in my chest, the disease that constricts my heart." (P7, male, 70 years old, scheduled CABG).

"OHS is like a plateau. I want my pain to stop. My back hurts while traveling. I cannot run fast. I feel like i have fallen into a ditch. That is why i am going immediately after the surgery." (P48, male, 57 years old, scheduled CABG).

"OHS is like hope. Because i cannot breathe, i am looking to relax even though i am undergoing surgery." (P59, female,73 years old, scheduled CABG).

"OHS is like recreation. I am in so much pain right now. My heart hurts severely. I will recover after surgery,

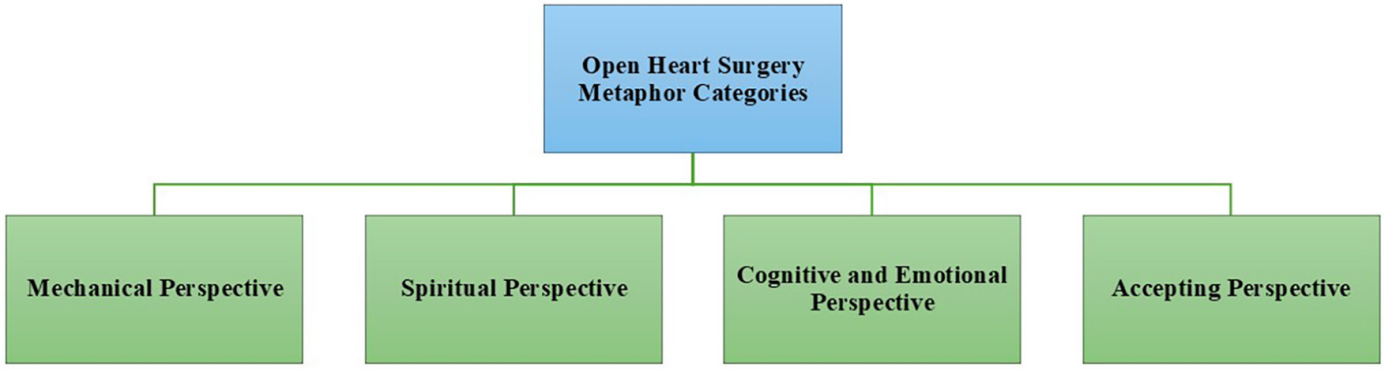

Figure 1. Open heart surgery metaphor themes

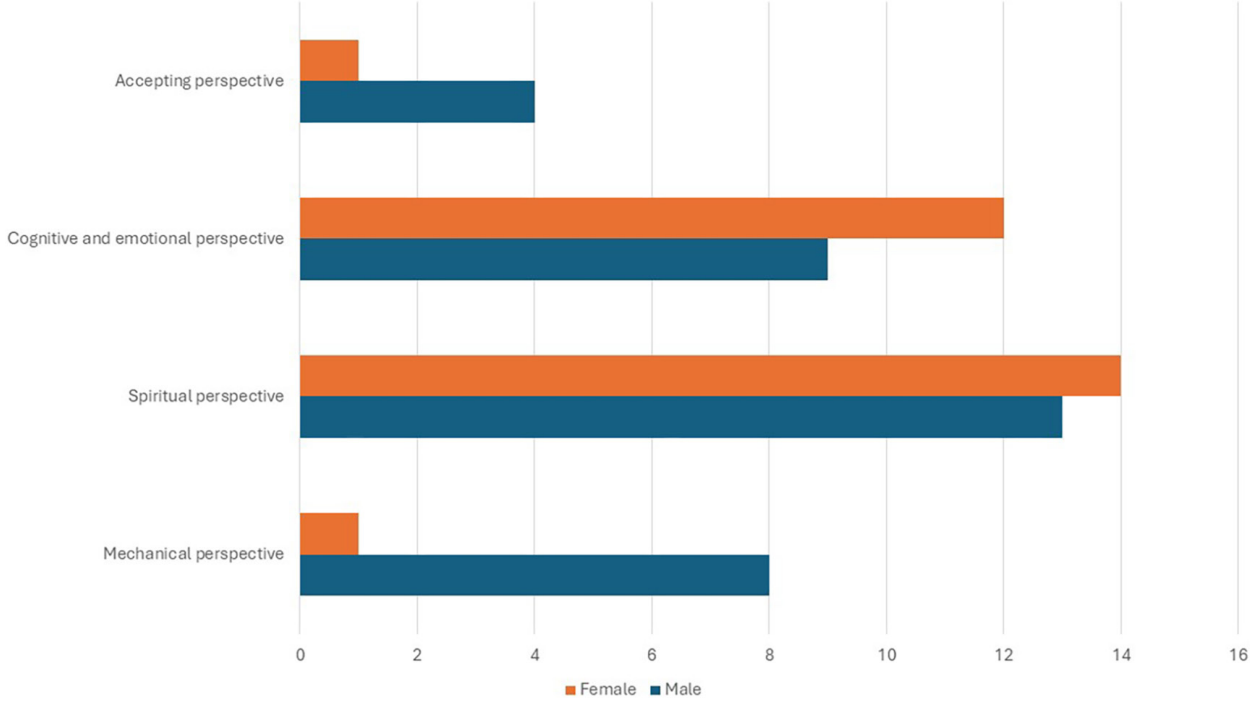

Figure 2. Metaphor codes of male and female patients patients

and i want to get rid of this pain." (P39, female, 56 years old, scheduled CABG).

"OHS is like resignation. I know what bypass is because i have seen it in my family. I trust in God and am a faithful person." (P41, male, 51 years old, scheduled CABG).

Theme 3: Cognitive and emotional perspective (life or death): using a cognitive perspective for OHS, patients produced metaphors such as seeing a white light, a closed box, fear, and stress in this theme. This theme was the second most frequently mentioned by patients. The experiences of relatives and environment cause uncertainty and fear. Patients experienced situations such as fear of death and environmental stressors.

"OHS is like seeing white light. Either life will end and i will walk towards the white light, or i will return to life when the doctors and nurses pull my arm." (P6, male, 64 years old, scheduled CABG).

"OHS is like a locket. It has two faces. Either life or death. I will put on my locket and go home as soon as possible." (P4, female, 67 years old, scheduled CABG).

"OHS is like a closed box. We do not know what will happen in the surgery. Life is full of surprises." (P18, female, 73 years old, scheduled heart valve repair surgery).

"OHS is like anxiety/stress. Because surgery scares me, i wonder if i should give up the idea of surgery. I was adversely affected by the patient in the next bed. Before that, i was not that scared." (P43, female, 73 years old, scheduled CBAG).

"OHS is like fear. We had a relative who died during heart surgery. My mom and sister underwent CABG surgery. I also have a stent. My younger brother has it, too. I am not afraid of dying, but i have fears." (P20, female, 63 years old, scheduled CBAG).

"OHS is like a butcher's hook, implying it serves as a crucial support mechanism in workplace safety by "hooking" various elements together. When i went to the operating room yesterday, i saw a hook there and compared it to this. Surgery scared me." (the patient goes to the operating room, and the surgery is postponed due to high blood sugar). (P37, male, 58 years old, scheduled CBAG).

Theme 4: Accepting perspective (necessity): in this theme, patients accepted OHS as a necessary condition for their health and produced metaphors. In this theme, male patients produced the most metaphors.

"OHS is considered a necessity. Because if it is necessary for health, it is necessary; if not, it is unnecessary." (P32, male, 71 years old, scheduled CBAG).

"OHS is considered as a part of life. I will have my surgery and recover successfully." (P5, female, 72 years old, scheduled CBAG).

"OHS is like a long, narrow road. Human life is a long and narrow road. When you fall, the hospital becomes your rest stop on the way." (P38, male, 53 years old, scheduled CBAG).

Discussion

Metaphors are used to understand human thought, explain concepts better, and reason. Although there are studies in the literature that reflect the perspective of gender perception in surgical patients[18,31-33], no metaphorical research exists before OHS. In this study, metaphorical perspectives of pre-OHS patients were discussed. As a result of the research, four perspectives were identified. These perspectives are analyzed under five categories: mechanical, spiritual, cognitive affective, active, and receptive. These metaphors parallel the understanding of human beings as biopsychosocial and holistic entities.

When the mechanical point of view was examined, male patients perceived OHS to be a physical renovation, producing metaphors such as an engine and the repair of a structure. From this perspective, it was observed that male patients are predominant; however, among female patients, only one compared OHS to window cleaning. This point of view stems from the differences between the female and male minds, which philosophers have emphasized since ancient times. According to Lloyd[34], the female mind is ambiguous and uncertain, while the male mind is

clear and precise. Throughout the ages, masculinity has been characterized by an active and determined form; femininity, a passive and undetermined form[34,35]. Another factor in the emergence of the mechanistic perspective is thought to be "gender." While repair work is integrated with men in Türkiye, window cleaning is the first area that comes to mind when thinking of women. Housework is accepted as the primary responsibility of women in all societies[36,37]. Metaphors related to surgery also reflect this reality.

Another category in our research was identified as the spiritual point of view. In this category, patients stated that they see OHS as a means of salvation, rebirth, and relief from pain. It has been observed that some patients try to cope with their anxieties about surgery through their beliefs. This category includes the most expressed metaphors in both men and women. Another quantitative study showed that OHS patients tolerate excessive anxiety and have low hopes for survival. In addition, a systematic review found that the optimistic perspective was significantly associated with various recovery categories, including a decreased rehospitalization rate, complications, physical symptoms, such as pain, and psychological status, in CABG patients[38]. Spirituality and religion are essential to Turkish culture, and many Turkish citizens use their spirituality to cope when faced with a problem. In the literature, it has been determined that, similar to our research, spiritual emotions are used in coping and reducing anxiety and depression[39,40].

Patients in the cognitive and emotional perspective category produced metaphors for OHS, such as seeing white light, closed boxes, fear, and stress. This theme was the second most produced by patients. Patients experience uncertainty about whether the surgery will be successful. Since they share their experiences, they are affected by the negative experiences of patients in the same room or their relatives' who have previously undergone surgery. It was thought that the patient who went to the operating room experienced fear as a result. The patients experienced situations such as fear of death and environmental influences. Studies have shown that patients in many cultures experience negative emotions such as anxiety, fear of death, and uncertainty before OHS[1,41]. In a quantitative study conducted in Türkiye, it was determined that female patients' anxiety scores were significantly higher than those of males in terms of state and trait anxiety both before and six months after surgery[6]. The lack of information about the surgery plays a significant role in contributing to high levels of anxiety before cardiac surgery. Even the OHS technique alone is a cause of anxiety for patients[42].

In this research, the themes, under the category of accepting perspective, of trust in healthcare professionals and acceptance of the life cycle were obtained. Patients produced metaphors such as necessity, angel, nurse, part of life, and a long, narrow path in this category. Patients accept that OHS is necessary for their health and a part of their lives, and they have a realistic perspective. This perspective holds particular significance in the context of social work in healthcare. Nurses are crucial in helping patients and their families navigate the emotional and psychological challenges of significant medical procedures such as OHS. They provide support and resources to foster the acceptance of the medical condition, resilience, and coping mechanisms necessary for holistic recovery. Drawing from related research, a study on the effects of acceptance of the disease and helplessness on subjective health in cardiac patients[43] demonstrated that acceptance of the disease positively affects subjective health, while helplessness has a negative impact. These findings underscore the importance of nurses in promoting acceptance, providing emotional support, and enhancing the overall well-being of patients undergoing complex medical procedures like OHS. The acceptance of the disease by the patients was defined by McCracken and Eccleston[44] as stopping the search for definitive solutions to physical complaints, and redirecting attention to the positive aspects of life. Acceptance enables the individual to keeping their health in balance despite restrictions, obstacles, and changes experienced and coping with the troublesome situations faced with their illness.

On the other hand, the acceptance process of the disease affects the trust in healthcare professionals and compliance with the treatment regimen. In this category, male patients produced more metaphors than female patients. This can be attributed to the fact that the minds of male patients are dominant in logic, reasoning, and analysis, and they see surgery as a part of their life cycle, in search of a definitive solution to their physical complaints.

Study Limitations

The study is limited by the subjective nature of metaphor analysis, as patients' expressions may have been shaped by their personal experiences and cultural context. Therefore, the findings should be interpreted with caution.

Conclusion

In this study, the metaphors obtained are crucial in understanding and supporting the experience of patients undergoing OHS in the preoperative period. Patients predominantly produced spiritual metaphors for OHS.

While mechanical and accepting metaphors were prevalent among male patients undergoing surgery, female patients predominantly used spiritual and cognitive-sensory metaphors. These findings shed light on how patient metaphors reflect patients' perspectives and potentially influence their perception of surgery, thus highlighting their significance in enhancing the quality of preoperative care for OHS.

These results are of paramount importance as they demonstrate that metaphors serve as a vital cognitive tool for conveying the distinct characteristics of individuals before undergoing OHS. Furthermore, these metaphors can shape patients' diverse perspectives and impact the quality of care they receive in the preoperative phase.

Consequently, there is a growing need for further research to explore how metaphors impact patients' preoperative perceptions and how they can mediate the relationship between healthcare professionals and the care process. This research aims to understand how language, specifically metaphors, can improve preoperative education and reduce anxiety, drawing insights from theories such as CBT.

Understanding the role of metaphors, in conjunction with CBT, can be instrumental for healthcare professionals, especially nurses, in tailoring preoperative education and support. By recognizing how metaphors shape patients' perceptions and emotional responses to surgery, healthcare teams can develop more effective communication strategies. Nurses, with their expertise in addressing psychological and emotional aspects of healthcare, can play a pivotal role in assisting patients in coping with preoperative anxiety and facilitating a smoother transition into surgery.

Further studies exploring the nuanced relationship between metaphors, patient perceptions, and the healthcare professional-patient dynamic have the potential to significantly improve the preoperative experience and overall patient care.

Ethics

Ethics Committee Approval: The study was conducted according to the Declaration of Helsinki and approved by the Non-interventional Ethics Committee of Dokuz Eylül University (approval no: 7019, date: 16.02.2022).

Informed Consent: Written informed consent was obtained from the patients.

Footnotes

Authorship Contributions

Concept: Kankaya EA, Özer Özlü NG, Design: Kankaya EA, Özer Özlü NG, Data Collection and/or Processing: Özer Özlü NG, Analysis and/or Interpretation: Kankaya EA, Özer Özlü NG, Literature Search: Kankaya EA, Bilik Ö, Writing: Kankaya EA, Özer Özlü NG, Bilik Ö.

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