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Original Article

Patient Experiences after Open Heart Surgery: A Qualitative Systematic Review

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What is already known on this topic?

- *Open heart surgery significantly impacts patients' physical, psychological, and emotional well-being, often leading to prolonged recovery periods and lifestyle adjustments.*
- *Social support and access to adequate postoperative education are key to reducing anxiety and improving recovery outcomes, yet these are inconsistently provided.*
- *Postoperative recovery after open heart surgery is often non-linear, with patients experiencing persistent symptoms such as fatigue, pain, cognitive changes, and emotional distressfor weeks or months post-discharge.*

What this study adds on this topic?

- *Synthesis of qualitative data from 21 studies provided in-depth understanding of patients' lived experiences throughout recovery from open heart surgery highlighting critical gaps in patient education—especially around sensitive topics like sexual intimacy and medication adherence—and emphasises the need for continuous, holistic educational support.*
- *The findings of this qualitative systematic review demonstrate the importance of integrating emotional, social, and spiritual support into care plans to improve resilience, satisfaction, and long-term quality of life for patients after open heart surgery.*

Abstract

AIM: The aim of this systematic review was to synthesize findings from qualitative studies exploring patients' experiences in hospital or at home following open heart surgery.

METHODS: Systematic searches were conducted in CINAHL, MEDLINE, PsycINFO, ProQuest Dissertation and Theses, and Web of Science covering the period from 2006 to 2023. Studies were selected if they reported a qualitative inquiry into patients' experiences after open heart surgery. The quality of eligible studies was assessed using the JBI Critical Appraisal tool. A meta-aggregation approach was used to synthesize the findings.

RESULTS: Twenty-one studies were included, representing 266 patients across 10 countries. Findings were aggregated into five synthesized findings: (1) information and education needs; (2) adaptation to post-surgical life and financial considerations; (3) support mechanisms; (4) the paradox in lifestyle adjustments post surgery; and (5) recovery trajectory and patient perception of life. These findings highlight the complex nature of recovery, emphasizing educational and support needs. Patients maintained a positive stance toward their surgical outcomes, viewing the surgery as an opportunity for health revival. They viewed the surgery as an appreciation for their lives and those around them.

CONCLUSION: While the findings offer valuable insights into the patient's physical and social well-being following open heart surgery, they underscore the necessity of patient education, tailored support, and holistic care. Establishing a comprehensive support system by encompassing family members, healthcare professionals, and spiritual resources is imperative for effectively addressing the multifaceted challenges encountered during recovery.

Keywords: Experiences, patients, perceptions, qualitative research, review, thoracic surgery

Introduction

Open heart surgery is a surgical procedure where the chest is opened to allow for corrections of heart muscles, valves, and arteries. Over one million cardiac surgeries are performed annually worldwide (Vervoort et al., 2024). In Europe, 136,100 cardiac surgeries were performed in 2024 (Commission, 2024), while the figures in the UK (England, Wales, and Northern Ireland) were 26,529 surgeries (National Institute for Cardiovascular Outcomes Research, 2025), and in the USA, around 400,000 surgeries (Bachar & Manna, 2023).

Advancements in cardiac surgery have significantly reduced post-surgical mortality rates, shifting attention to other critical outcomes, such as patients' health status, functional changes, and overall well-being (Guzelhan et al., 2020). Open heart surgery is a profound and life-altering phenomenon for patients, with substantial lasting impacts on physical, social, and psychological

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outcomes (Plach & Stevens, 2001). Postoperative cognitive dysfunction affects between 10% and 40% of individuals in the first six weeks post cardiac surgery (Vu & Smith, 2022). Persistent postoperative pain occurs in 37% of patients within the first six months of surgery and continues beyond two years in 17% of patients (Guimarães-Pereira et al., 2017). The prevalence of depression in patients undergoing coronary artery bypass graft (CABG) surgery was between 15% and 33%, with symptoms often persisting long after surgery (Correa-Rodríguez et al., 2020). Furthermore, patients living alone are more likely to have prolonged hospitalization and lack of social support may delay recovery (Cromhout et al., 2022).

Coronary artery bypass graft is the most common open heart surgical procedure and generally improves patients' health-related quality of life by enhancing their physical and mental health (Schmidt-RioValle et al., 2020). However, it is important to note that while CABG improves the quality of life overall, outcomes may differ between men and women (Schmidt-RioValle et al., 2020). A meta-analysis on gender differences after CABG demonstrated that women experience worse cardiac and cerebrovascular outcomes than men within the first five years after surgery, regardless of the surgical techniques used (Gaudino et al., 2021). Age is another factor that impacts postoperative outcomes, with younger age associated with higher levels of postoperative depression, while older age is linked to increased postoperative anxiety (Sabuncu & Ai, 2022). Younger patients also face additional challenges due to limited preparation time, milder symptoms, and less prior healthcare experience (Karlsson et al., 2010). Cultural background can also influence patients' psychological responses and adaptation strategies following open heart surgery. Cultural perceptions significantly shape patients' experiences and coping mechanisms after a cardiac event (Bhattacharyya et al., 2016). These findings highlight the importance of considering age, gender, and cultural background when examining patients' postoperative outcomes, prioritizing rich narratives and contextual factors essential to understand how and why patients experience their recovery in certain ways.

A literature review on patients' experiences following CABG identified five key themes: supportive relationships and loneliness, self-disruption, loss, fear, resilience, and moving forward (Leegaard & Fagermoen, 2008). While these findings provide valuable insights, they mainly focus on CABG patients and do not account for other open heart surgeries. The surgical techniques and postoperative care advancements have enhanced patient outcomes, yet differences in recovery experiences persist (Gaudino et al., 2021; Sabuncu & Ai, 2022). Age and gender differences continue to shape physical and psychological recovery, while cultural background plays a critical role in how patients perceive and cope with their surgical journey (Bhattacharyya et al., 2016). Considering diverse patient perspectives is essential to better understand the physical, emotional, and social challenges they face, as well as the factors influencing their adaptation and well-being. Therefore, the aim of this qualitative systematic review is to provide a comprehensive understanding of patients' experiences after open heart surgery, offering insights into their overall recovery journey. This understanding can contribute to improving better care and support for individuals recovering from open heart surgery.

Research Question

1. What are the experiences of patients who underwent open heart surgery?

Method

Study Design

The review protocol was published in PROSPERO, CRD42023427805. This review was conducted and reported in accordance with the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) (Tong et al., 2012) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). A meta-aggregation approach was employed to synthesize the findings.

Eligibility Criteria

Studies were included if they involved participants over 18 years, undergoing open heart surgery and examined their general, short-term (up to three months post surgery, inclusive of intensive care, hospital recover or home recovery), or long-term (beyond three months post surgery) experiences. Qualitative or mixed-method studies containing qualitative data on postoperative experiences were also included. Additionally, studies that investigated both pre-and postoperative experiences were included if the findings related to postoperative experiences could be clearly distinguished from preoperative ones.

Studies on congenital heart diseases, heart transplantation, specific diagnoses, treatments, surgical methods, interventions, or general health were excluded. Case reports and systematic review articles were also excluded.

Search Strategy

A comprehensive systematic literature search was conducted across five electronic databases, including CINAHL, MEDLINE, ProQuest Dissertation and Theses, PsycINFO, and Web of Science, to include studies published between October 2006 and November 2023. The time frame was limited to 2006–2023 to update the body of knowledge and evidence since the last published review (Leegaard & Fagermoen, 2008). This ensures the inclusion of studies from the past 17 years while clarifying that the previous review covered research published up to 2006. The search strategy was developed with a combination of MeSH terms and keywords (please see Supplementary Table 1). The MeSH terms of the search strategy included "cardiac surgery," "coronary artery bypass," "thoracic surgery," "qualitative studies." Qualitative methodology search terms included "focus group," "grounded theory," "phenomenology," "qualitative method," "qualitative research," "qualitative study," "thematic analysis" (Barroso et al., 2003). The free text keywords were added to enhance the search strategy, including "open heart surger,"* 'heart surger,"* "heart valve surger,"* or "valve surger."* Language limitation was applied to accept only articles reporting a study in English. The first author (H.K.) manually checked the references for the included studies to identify further relevant studies.

Selection Process
Only articles with a qualitative research design, including mixed methods, exploring the experiences of patients after open heart surgery were selected. Articles published in English from October 2006 onward were included. Two reviewers (H.K. and O.L.) independently screened all retrieved titles and abstracts. Following this, the two reviewers independently screened the articles eligible for full-text screening. Any disagreements that occurred between the two reviewers regarding inclusion or exclusion were resolved by the third reviewer (J.M.L.).

Data Collection Process and Data Items
All studies retrieved from the search were exported to a reference manager tool, EndNote v.20 (Clarivate Analytics, PA, USA), to remove duplication. They were then transferred to JBI SUMARI, a web-based software that facilitates the systematic review process from protocol to reporting the findings (JBISUMARI). Screening, data extraction, and synthesis were conducted using JBISUMARI. Data were extracted from the included studies into a data extraction form, featuring country, phenomenon of interest, population characteristics, context, methodology, and main findings (Table 1).

Study Selection and Quality Assessment
The quality of the included studies was assessed using the JBI Critical Appraisal Checklist for Qualitative Research in JBISUMARI (Lockwood et al., 2015). The checklist consists of ten questions, with response options of "yes," "no," "unclear," or "not applicable." Two reviewers (H.K. and O.L.) independently completed the checklist. The third reviewer (J.M.L.) resolved any disagreements between the two reviewers when necessary. No studies were excluded based on the quality assessment results.

Data Synthesis
The findings of the included studies were synthesized using a meta-aggregation approach. This synthesis process includes generating categories by assembling the findings of the included paper and aggregating the categories into synthesized findings (Lockwood et al., 2020). In the first step, the initial findings of the themes, subthemes or categories from the included studies, along with supporting illustrations, were pooled into JBISUMARI by the first author (H.K.). The extracted findings were identified as unequivocal, credible, or not supported. Findings that were not supported by any patient narratives or quotations were excluded. In the second step, the extracted findings were assembled into categories based on relevance. In the final step, these categories were synthesized into a comprehensive set of synthesized findings explaining patients' experience after open heart surgery. Inductive analysis was conducted by one researcher (H.K.) to generate synthesized findings, and all researchers subsequently reviewed and agreed upon these findings.

Results

Study Selection
A comprehensive literature search strategy retrieved 1637 studies, which were then exported to EndNote 20 to organize and remove duplicates. Following deduplication, 1003 records were reviewed by title and abstract screening. Through the screening process, 84 studies were eligible for full-text screening. As a result of the full-text screening, 21 studies met the inclusion criteria and were included in the analysis after quality appraisal. Common reasons for exclusions were ineligible phenomena of interest ($n = 11$), specific experiences ($n = 10$), diagnosis ($n = 5$), secondary data ($n = 5$), and duplicate studies ($n = 6$) (Figure 1).

Study Characteristics
The included studies represent experiences of 266 patients after open heart surgery across 10 countries. Phenomenology was the most common qualitative approach reported by eight studies. Furthermore, thematic analysis was used as a qualitative design in six studies. While 17 studies included men and women, with 126 and 66, respectively, one study only included men, and three studies included only women. Studies generally included individuals undergoing CABG, heart valve surgery, or a combination of heart surgery techniques. Only one study included acute aortic dissection and CABG. Most studies were conducted in Brazil ($n = 4$), Iran ($n = 4$), and USA ($n = 4$) (Table 1).

Study Quality Assessment
No study was excluded because of the quality assessment of the included articles. All included studies mostly met the criteria of the JBI critical appraisal checklist. However, 19 studies did not meet the questions regarding the statement of "locating the researcher culturally and theoretically" and "the influence of the researcher on the research" (Table 2).

Synthesis of Findings
The aggregation of the results of the included studies was generated into five synthesized findings: "Information and education needs," "Adaptation to post-surgical life and financial considerations," "Support mechanisms," "The paradox in lifestyle adjustments post surgery," and "Recovery trajectory and patient perspective" (please see Supplementary Table 2 for synthesis of findings). Synthesized findings and categories are presented in Table 3.

Synthesized Finding One: Information and Education Needs
This synthesized finding underlines the significant impact of information and education on patients' postoperative experiences. A lack of knowledge about recovery symptoms led to increased anxiety and reduced engagement in daily activities. One patient expressed their own concern over chest pain due to lack of information: "*It is very difficult to differentiate types of chest pain: there is muscular pain, sternum pain, and pain from the heart. I am wondering … if I can exercise, yeah, I am unsure of criteria, symptoms, pain, etc., I lack information (*Martinsen & Moen, 2010*, p. 17)*."

Patients also highlighted a need for detailed information on specific topics, such as sexual intimacy during the post-surgical period. Challenges and ambiguities in the resumption of sexual activity post surgery added emotional burdens on partners. One patient shared: "*What worried my spouse was whether sexual intercourse was dangerous now or not. When I breathe fast, he/she was scared and said for a few days, I wish we did not have sex not to put pressure on your heart (*Pourebrahimi et al., 2021*, p. 5)*."

Table 1.
Characteristics of Included Studies

Study/ Country	Phenomena of Interest	Population/ Demographics	Context/Setting/ Time of Interview	Methodology/ Method/Data Analysis	Main Findings (Themes/Subthemes/Conclusion of Findings)
(Abbasi et al., 2014) Iran	The lived experiences of patients after CABG	11 participants (7 men, 4 women)/ mean age 59.60 (SD = 3.77)	The follow-up clinic/ interviewed at home or the treatment centres/ lived experiences after the surgery at least six months	A hermeneutic phenomenological approach/in-depth semi-structured interviews/Van–Manen analysis	Theme: re-birth Sub-themes: feels younger, vigorous heart, intrepid life, oriented to be healthy Participants are more likely to be appreciated to life, feeling youthfulness and improved quality of life
(Abbasi et al., 2017) Iran	Patients' spiritual experiences after CABG	11 participants (7 men, 4 women)/ mean age = 59.6 (SD = 2.55)	Outpatient clinic at Tehran Heart Centre Hospital/experienced CABG at least six months	Hermeneutic phenomenology/ semi-structured interviews/Van–Manen analysis	Theme: spirituality Sub-themes: trust in God, supplicating to the Prophet and Imams, accepting the will of God Participants are more likely to be orientated to spirituality after CABG and they feel them close to God and Imams in difficult circumstances
(Ahmad et al., 2021) Pakistan	The challenges patients' face after CABG.	14 participants: 11 men with mean age = 50.81 (SD = 5.61), 3 women with mean age = 63.33 (SD = 6.02) Aged between 40 and 70 years	Outpatients' department of cardiac surgery/Lady Reading Hospital, Peshawar, Pakistan/have had CABG surgery at least three months earlier	A qualitative descriptive phenomenological study/ semi-structured interviews/thematic analysis	Themes: 1) Challenges 2) Perceptions about CABG procedure 3) Coping with the challenges 4) Perceptions about nurses and doctors The result of study indicated patients are face with physical, psychological, and financial challenges
(Albanesi et al., 2022) Italy	Cardiac surgery patients' lived experiences in ICU	11 participants (9 men, 2 women)/ aged = 42–75 years	The Cardiac ICU of a cardiology research hospital/had been discharged from the postoperative ICU at least 2 weeks	A qualitative phenomenological study/ in-depth and focused interviews/interpretative phenomenological analysis	Themes (sub-themes): 1) Will not wake up anymore 2) Endless time in ICU 3) Something keeps me from breathing 4) Anchor in the storm
(Amorim et al., 2015) Brazil	Women's existential movement after cardiac surgery	10 women	A hospital in Minas Gerais/more than three months after hospital discharge	Qualitative phenomenological study (Martin Heidegger)/ interviews/ hermeneutic analysis	Meaning units: 1) Remembering what it was like and what they could do before surgery; 2) Daily life after surgery involves dependency on others, discrimination, disorientation, doubts and many restrictions; 3) Expressing their needs, limitations and fears: the threat of death every day Women experienced physical, social, and emotional impairments, and willing to go back to the time before their diagnosis due to still having heart disease
(Banner et al., 2012) United Kingdom and Wales	The experience of women diagnosed with CHD and undergoing CABG surgery.	30 women/ aged = 53–80 years	Regional cardiothoracic centrers at two urban teaching hospitals/pre-operation, six weeks and six months post-operation	A constructivist grounded theory/longitudinal design/semi-structured interviews/coding and constant comparison analysis	Theory of the public-private dialogue of normality Four key processes underpinned this theory with 16 major categories: 1) Preserving normality 2) Disrupted normality (preoperative interviews) 3) Relinquished normality (early recovery interviews) 4) Renegotiated normality (long-term recovery interviews) Increasing insights into this illness experience among women can assist healthcare professionals in developing gender-sensitive preventive and management interventions to enhance recovery from the surgery

(*Continued*)

Table 1.
Characteristics of Included Studies (Continued)

Study/ Country	Phenomena of Interest	Population/ Demographics	Context/Setting/ Time of Interview	Methodology/ Method/Data Analysis	Main Findings (Themes/Subthemes/Conclusion of Findings)
(Berg et al., 2013) Denmark	The experience of recovery at home after heart valve replacement	10 participants (5 men, 5 women)/ mean age = 66 (range 20–85)/ 6–9 months post operation	Home (not mentioned where patients were recruited)/times of the interviews were not mentioned	A phenomenological-hermeneutic approach/ semi-structured interviews/Ricoeur's theory of interpretation	Overall concept: suffering weakness, struggling to resume normality These concepts were interpreted as the following themes (units): 1) Disturbed network 2) Disturbed body 3) Recovery 4) Reflections Participants feel week and fragile but later they resumed their normality
(Callegaro et al., 2012) Brazil	The meaning of living for patients after CABG	12 patients 6 health professionals (physicians, nurses, a physical educator, a nurse technician) 5 family members	A hospital in the state of Santa Catarina (a referral center for cardiac surgery)/at least 90 days after discharge	Grounded theory Semi structure interview Comparative data analysis	Categories (sub-categories): 1) Realizing the process of experiencing CABG surgery as an opportunity for the maintenance of life associated with the management of significant changes in lifestyle (patients, family members, health and nursing professionals) 2) Facing changes and consequent limitations, difficulties and adaptations to new lifestyle after CABG
(Chang & Tsai, 2017) Taiwan	Patients' experiences in the early stages of recovery following emergency heart surgery (after being transferred from intensive care and before being discharged)	13 participants (4 women, 9 men)/ aged = 36–89 years	A medical center (cardiothoracic surgical ward)/ ≥ 6 days after transferring from the ICU to the ward	An exploratory qualitative descriptive study/ semi-structured interviews/content analysis	Five themes (sub-themes): 1) Sudden and serious symptoms 2) Nightmares and vivid dreams 3) Physical and emotional disturbances (sleep disruption and physical discomfort, shock and uncertainty, wanting to die) 4) Establishing a new life after emergency surgery (actively facing the facts, passively accepting the facts) 5) Support for a new lifestyle (faith/religion, family relationships/ assistants' support, multidisciplinary support)
(Chunta, 2009) Pennsylvania	CABG or valve replacement patients' expectations of open heart surgery and recovery	18 participants (13 men, 5 women)/ 89% were 50–79 years old	The Cardiac Rehabilitation and Wellness Department at a mid-size teaching hospital in rural/times conducting the focus group was not mentioned	The study design was not mentioned/ focus groups/ thematic analysis	Five themes: 1) Acknowledging the disease 2) The preoperative perceptions 3) Identifying expectations 4) Health and illness transitions 5) Acceptance of recovery
(Cielo et al., 2015) Brazil	Patients' expectation after CABG	10 participants (80% were male)/ aged = 33–78 years	Patients' expectation before discharge hospital At a University Hospital/ 36–48 hours post operation	A descriptive-exploratory study of qualitative approach/semi-structured interview/ content analysis	Category: expectations before the recovery process and return to daily activities Sub-categories: challenges after surgery, the return of everyday activities Patients are anxious and worried about future and have weakness regarding to the knowledge to change the habits imposed by the illness

(*Continued*)

Table 1.
Characteristics of Included Studies (Continued)

Study/ Country	Phenomena of Interest	Population/ Demographics	Context/Setting/ Time of Interview	Methodology/ Method/Data Analysis	Main Findings (Themes/Subthemes/Conclusion of Findings)
(Dunckley et al., 2007) United Kingdom	The recovery trajectory after CABG, facilitators, and barriers to recovery	11 patients (5 men, 6 women)/ aged = 55–79 years 10 health professionals (i.e., nurses, surgeon, rehabilitation team, physiotherapist)	Home/the study setting was not mentioned/ patients were 6–12 months post-operation/times of the interviews were not mentioned	The study design was not clearly mentioned/ semi-structured interviews/ thematic analysis	Themes: 1) Definition and timeline of recovery 2) Recovery (a return to normal activities) 3) Preparation for surgery (attitude toward surgery, confidence in staff, information provision) 4) Clinical factors (age, gender, presence of co-morbidities) 5) In-patient experience (family encountered emotional trauma, a lack of appetite slowed them from recovery, unpleasant sleep)
(Groebner, 2013) United States	The role of spirituality in the lives of female CABG patients	10 women/ aged = 47–77 years	Home/three-interview series after discharge focused on 1) cardiac history and surgical experience, 2) pre-surgical and recovery process experience, 3) spirituality during the post-operative recovery (no more than 1 week between the interviews)	An interpretive qualitative design/ semi-structured interviews/ Glaser and Strauss's (1967) constant comparative method	Seven sub themes of analysis of data were related to post-surgical spiritual experiences Giving thanks Sense of connection Awareness of God Life, other, and surroundings Purpose Evangelism and Serving Others Behavior Spirituality during the post-operative recovery: believing God was responsible for their second chance at life caused them to experience a deeper awareness of their spirituality and a change in their perspectives and behaviors. They perceived themselves as having experienced a new spiritual awakening in their lives
(Hansen et al., 2016) Denmark	Cardiac rehabilitation patients' perspectives on the recovery process following heart valve surgery (narratives changed during the first nine months)	9 patients (6 men, 3 women)/ aged = 40–79 years	Home/2–3 weeks, 3–4 months, and 8–9 months after discharge at home	A qualitative prospective study/serial narrative interviews (semi-structured interviews)/ narrative methods (analyzed narrative structures using the actantial model developed by the French-Lithuanian linguist Greimas, then used Robinson's narrative types to categorize narrative changes over time)	Four courses of recovery with 3 non-linear complex pathways deviating from the classic restitution narrative: 1) The restitution narrative 2) The frustrated struggle to resume normality 3) The challenged expectation of normality-being in a limbo 4) Becoming a heart patient
(Keane, 2016) United States	Older adult cardiac surgical experiences	13 patients (5 women, 8 men)/ aged = 74–84 years	A 500-bed teaching hospital & home/ pre-operative period and post-operative period (4–6 weeks and 8–10 weeks after surgery)	A qualitative, narrative design/ interviews/ narrative analysis (restoring of narrative content and thematic analysis)	Three themes: 1) Engaged in and appreciating life while conscious of time passing 2) Moving toward healing 3) Struggling with the primacy and burden of symptom experience Participants noticed changes and alterations in physical symptoms prior to surgery and struggled with the burden of symptoms after surgery

(*Continued*)

Table 1.
Characteristics of Included Studies (Continued)

Study/ Country	Phenomena of Interest	Population/ Demographics	Context/Setting/ Time of Interview	Methodology/ Method/Data Analysis	Main Findings (Themes/Subthemes/Conclusion of Findings)
(Makino et al., 2023) Japan	Patients' physical, psychological, and social distress and care needs	12 patients (11 male, 1 female) Mean age = 66.5	Cardiovascular surgery outpatient department at Hospital A. Post discharge (2–3 weeks, after 3 months and 3 months to 1 year after surgery.	A qualitative descriptive stud design/ Semi structure interview Face to face	31 subcategories to 14 categories 1) Recognizing a decline in physical function 2) Experience of unanticipated symptoms 3) Anxiety about uncertainty of recovery 4) Conflicts with our changed selves 5) Anxiety about life-threatening situations 6) Conflicting acceptance 7) Gap in perception of surroundings 8) Anxiety about the uncertainty of recovery 9) Reaffirmation of having had major life-threatening surgery 10) Acceptance of a changed self 11) A sense of recovery felt as symptoms improve 12) Reaffirmation of the fact that one is not fully recovered 13) Rebuilding a life that is uniquely one's own 14) Gap in perception of surroundings
(Maldaner et al., 2018) Brazil	The changes and self-care of patients after CABG	10 participants (7 men, 3 women)/ aged = 45–58 years/a maximum of 120 postoperative days	At a University Hospital in Rio Grande do Sul/a private room	A qualitative descriptive study/narrative interview/ thematic analysis	Categories: 1) changes caused by CABG, 2) revascularized individuals self-care Sub-categories: now I take care of myself, care as two-way process, care as imposition, valuing life, changed attitude in relationships, closest relatives The individuals participant attitude to themself and other people, valuing their life, health and family changed Everyday problems and material possessions become less important to them
(Martinsen & Moen, 2010) Norway	Information and communication needs reported by convalescents in the intermediate recovery period following CABG	10 participants (6 women, 4 men)/ women aged = 45–64 years, men aged = 52–53 years	Home/heart clinic/ three-month post-CABG	A qualitative, descriptive-exploratory study/ semi-structured interviews/content analysis	Three themes: 1) The drama 2) Unexpected challenges 3) Information experiences
(Mohammadi et al., 2015) Iran	The lived experience of Iranian patients after CABG	11 participants (7 men, 4 women)/ aged = 49–80 years	The outpatient clinic (two heart centers, Tehran, Iran; a quiet room in the clinic)/ undergone CABG in the preceding six months	Hermeneutic phenomenological study/ Van Manen's Method/ semi-structured interviews/ the detailed, selective, and holistic approach of thematic analysis	Theme: passion for life Sub-themes: receiving attention from family, being hopeful, being spiritually oriented Findings indicated participants were hopeful and optimistic about life and the future because of improvement in their condition and feeling of trust. This also highlighted the significance of family support and spirituality after the surgery

(*Continued*)

Table 1.
Characteristics of Included Studies (Continued)

Study/ Country	Phenomena of Interest	Population/ Demographics	Context/Setting/ Time of Interview	Methodology/ Method/Data Analysis	Main Findings (Themes/Subthemes/Conclusion of Findings)
(Pourebrahimi et al., 2021) Iran	The experiences of male patients with sexual problems after CABG	12 men/ aged = 54–66 years	The hospital cardiac surgery clinic and the surgeon's clinic/did not identify the time of the interviews	A qualitative study/ semi-structured interviews/conventional content analysis suggested by Graneheim and Lundman (used MAXQDA 10 software)	The main category is confusion in sexual intercourse: they had doubt, fear, and ambiguity about their sexual intercourse after the surgery because they did not receive appropriate training They had not been educated sexually in the hospital and during discharge Four subcategories: 1) Challenges of the first intercourse after surgery 2) Ambiguity in the way of getting information 3) The ambiguity of sexual issues after surgery 4) Spouse's concern about having sexual intercourse
(Scheckel et al., 2020) United States	Understandings of rural cardiac surgery patients' experiences of their learning needs following the surgery	18 rural residents (9 men, 9 women)/ aged = 41–85 years	A regional Midwestern medical centre/ first interview was prior to discharge (within 24 hours) from the medical center, and the second was 6 weeks following their discharge at home	A hermeneutic study/ non-structured interviews/ interpretation analysis	Three themes: 1) Learning: family history informing preventive care 2) Learning: the notebook, Blue's Clues, and explanations 3) Learning: lifestyle changes and confronting mortality

Synthesized Finding Two: Adaptation to Post-surgical Life and Financial Considerations

Patients experienced disruptions in daily routines and activities, leading to a redefinition of limitations and new normalities. Financial concerns emerged as an important issue, with changes in employment status introducing additional stress.

During the early discharge period, patients experienced a physical decline, with their bodies and the reactions of their hearts defining their boundaries and limiting their physical activities. "*And I am not a baby where pain is concerned, but you could not do it. Your body was telling you no, no, no (*Dunckley et al., 2007*, p. 204)*."

Patients struggle to transition to their normal daily activities, underestimating their post-surgery limitations. Despite attempting to resume their activities as before the surgery, they soon realized that previous activities required more time and effort, forcing them to establish new normalities. "*When I first tried to cut the grass, it is like, my God, I am not going ever to get this finished. It used to take me an hour and fifteen minutes to do it, and now it is taking me three hours (*Chunta, 2009*, p. 4)*."

Financial concerns emerged as a significant issue post surgery due to temporary or permanent changes in employment. "*I wanted to get back to driving a truck…I am on disability because it pays the bills. I had my own business…I enjoyed what I did, I made nice money, I could give to my boys, and now the big thing is the extra money is not there, and that is what hurts (*Chunta, 2009*, p. 5)*."

Synthesized Finding Three: Support Mechanisms

The finding highlights the significance of support mechanisms and subsequent impact on patient post-surgery experiences. Support from family, friends, and healthcare professionals, and spirituality played a vital role in patient recovery, by providing essential physical, psychological, and spiritual support, helping them cope with challenges and navigating the recovery journey.

Patients' relationships with family members and friends underwent positive changes during recovery. These individuals provided essential physical, psychological, and spiritual support, strengthening patients' resistance against recovery challenges. Patients reflected this strength, as one patient reported: "*After heart surgery, my family members were around me and helped me; I had not realised how important I am in the family (*Mohammadi et al., 2015*, p. 131)*."

The presence and readiness of healthcare professionals provided patients with relief and strength throughout their hospital stay. Patients appreciated the care provided, noting, "*When you are not autonomous enough, nurses' eyes follow your movements and are there to answer all your needs (*Albanesi et al., 2022*, p. 209)*."

Moreover, spirituality emerged as a factor in aiding patients through the challenges of post-surgery recovery. Prayer and gratitude served as effective coping mechanisms, with faith providing the strength to overcome obstacles. One patient

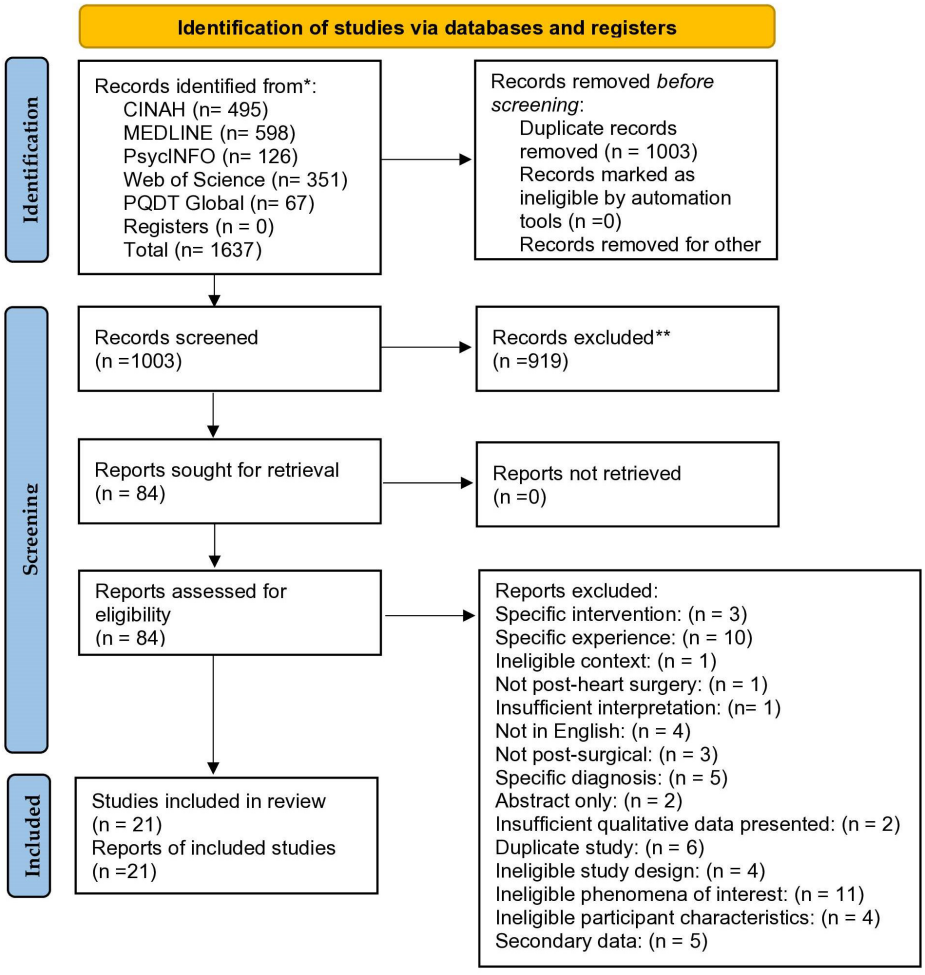

Figure 1.
Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Diagram for New Systematic Reviews, which Included Searches of Databases and Registers Only.

shared: "*My religious beliefs helped me a great deal to cope with the surgery (*Mohammadi et al., 2015, *p. 132)*."

Synthesized Finding Four: The Paradox in Lifestyle Adjustments Post Surgery

This finding stressed that adjustments in patients' lives post-surgery cause self-contradictory behaviors. Patients aimed to adopt a new and healthier lifestyle to maintain the health benefits achieved through cardiac surgery. While aiming for a healthier lifestyle post surgery, patients faced difficulties adapting to changes, particularly regarding medication adherence and physical activities.

Efforts to adopt healthier lifestyles included modifications to eating habits, physical activities, and other personal habits to preserve the health gains from surgery. These changes reflect the patients' appreciation for life and determination to maintain their postoperative health. "*I take care of my health after the CABG procedure as it was a difficult experience, and I do not want to take risks again to experience this problem again (*Ahmad et al., 2021, p. 1829*)*."

However, patients faced difficulties in accepting these necessary healthful changes. Adapting to physical activities and their medication regimens proved particularly challenging, revealing the complexities of post-surgery life adjustments. One patient shared, "I hate exercising! I have never enjoyed it. I think it's a waste of time [...] (Martinsen & Moen, 2010, p. 16)."

Synthesized Finding Five: Recovery Trajectory and Patient Perception of Life

The recovery process involved physical and emotional challenges that influenced patients' perceptions of surgery and life. Despite initial disappointments, improvements in health caused a renewed appreciation for life. The finding highlights patients' changing attitudes to surgery and life over time and the renewed appreciation of life.

One individual described a profound sense of disconnect with their body after the surgery, recounting, "*I felt my body completely inert. He did not answer! He did not answer! even to an input, only the body did not respond! (*Albanesi et al., 2022, *p. 208)*." The experience of time distortion caused confusion and

Table 2.
Critical Appraisal of Eligible Results for Included Studies

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
(Abbasi et al., 2014)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Abbasi et al., 2017)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Ahmad et al., 2021)	Y	Y	Y	Y	Y	N	N	Y	Y	N
(Albanesi et al., 2022)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Amorim et al., 2015)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Banner et al.. 2012)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Berg et al., 2013)	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
(Callegaro et al., 2012)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Chang & Tsai, 2017)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Chunta, 2009)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Cielo et al., 2015)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Dunckley et al., 2007)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Groebner, 2013)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
(Hansen et al., 2016)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Keane, 2016)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
(Makino et al., 2023)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Maldaner et al., 2018)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Martinsen & Moen, 2010)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Mohammadi et al., 2015)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Pourebrahim et al., 2021)	Y	Y	Y	Y	Y	N	N	Y	Y	Y
(Scheckel et al., 2020)	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
%	100	100	100	100	100	9.5	19	100	100	95.2

Q1. Is there congruity between the stated philosophical perspective and the research methodology?
Q2. Is there congruity between the research methodology and the research question or objectives?
Q3. Is there congruity between the research methodology and the methods used to collect data?
Q4. Is there congruity between the research methodology and the representation and analysis of data?
Q5. Is there congruity between the research methodology and the interpretation of results?
Q6. Is there a statement locating the researcher culturally or theoretically?
Q7. Is the influence of the researcher on the research, and vice- versa, addressed?
Q8. Are participants, and their voices, adequately represented?
Q9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?
Q10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

psychological distress, with nightmares further intensifying these mental and emotional challenges. "*I could doze because I never understood what exactly the time was. There was a clock, but I did not understand. I could not understand the time (…) later relatives arrive, and I realised that it was 6 in the afternoon (*Albanesi et al., 2022*, p. 208)*."

Initially, patients expressed disappointment with surgical results during the early stage of recovery. However, their health outcomes gradually improved, increasing encouragement and a more positive outlook, as one patient said: "*It took a month or at least a month before I began to feel improvements. And after three months I could feel I was getting better every day. (*Dunckley et al., 2007*, p. 202)*."

Patients maintained a generally positive stance towards their surgical outcomes, viewing the surgery as a critical opportunity for health regeneration. The improvements in their health led to a deeper appreciation for their lives and those around them. "*Heart surgery was an opportunity given to me to live again and to start a new life with the new heart. I was reborn and it was as a gift from surgery (*Abbasi et al., 2014*, p. 237)*."

Discussion

This systematic review synthesized the findings of 21 studies exploring patients' short- and long-term experiences after open heart surgery. The study findings were aggregated into five synthesized findings, providing insight into the patient's experiences. Synthesized findings highlight the complex nature of recovery, underlining patients' physical, psychosocial, and educational needs. Patients' positive attitudes and the support they received during the recovery impact the

Table 3.
Presentation of Synthesized Findings

Synthesized Findings	Categories
1. Information and education needs	Lack of information
	Emotional turmoil
	Concerns and complexities of sexual intimacy post surgery
2. Adaptation to post-surgical life and financial considerations	Post-discharge physical decline
	Dependency and activities resumption challenges
	Disruption in daily activities
	Transition and renegotiation of normalcy
	Financial issues
3. Support Mechanisms	Healthcare provider interactions
	Family and social support dynamics
	Spiritual coping strategies
4. A paradox in lifestyle adjustments post surgery	Thetrigger for positive changes
	Challenges to medication and lifestyle changes
5. Recovery trajectory and patient perspectives	Physical and dependency challenges
	Temporal and psychological disturbances
	Early postoperative disappointments and confidence regain
	Divergent perception of health and recovery
	Enhanced life valuation and purpose

recovery process positively and facilitate overcoming challenges. However, uncertainty and physical limitations caused anxiety and worry, making adaptation to life after the surgery challenging.

The lack of information and education following open heart surgery might cause uncertainty and anxiety among patients, particularly regarding the interpretation of symptoms and topics such as sexual intimacy during recovery. Pre- and post-surgery education can increase patients' knowledge, reduce anxiety, potential complications, and rehospitalization directly enhancing patients' knowledge, satisfaction, and quality of care (Acqualagna et al., 2021; Lilly et al., 2024; Shahmoradi et al., 2022). Research reveals that educational programs provided before and after surgery are more effective than those provided only at one-time point, recommending a continuous and holistic approach to patient education (Blokzijl et al., 2021).

Cultural barriers, such as taboos around discussing sexual health, and emotional barriers, such as fear of judgment or embarrassment, may prevent open conversations about sensitive topics. These barriers underscore the challenges in patient education and support, particularly in addressing issues related to sexual intimacy during recovery (Acqualagna et al., 2021; Blokzijl et al., 2021; Curcio et al., 2022). Although healthcare professionals have recognized the importance of sexual activity and intimacy, they are often not discussed with patients (Blokzijl et al., 2021). Cultural diversity may also impact healthcare professionals' ability to address, highlighting the need for culturally sensitive patient education. Therefore, cultural, socioeconomic, and gender factors are essential when planning patient education to prevent discomfort, improve patient outcomes and quality-of-life (Acqualagna et al., 2021; Blokzijl et al., 2021; Çağlar et al., 2021; Curcio et al., 2022; Lilly et al., 2024).

Challenges of adaption to post-surgical life and financial considerations, especially in early recovery and returning to normal daily activities, are addressed in many studies. The patients' functionality can be affected by age, intensive care unit length-of-stay, history of acute myocardial infarction, expiratory muscle weakness or cardiac or respiratory arrest (Bauer et al., 2023). Patients struggle with physical limitations and performing their daily tasks as before the surgery, which can last up to one year (Emamzadehashemi et al., 2024). Therefore, the emotional and financial issues associated with adjusting to new normalities post-surgery underscore the importance of continuous support and guidance (Blokzijl et al., 2021).Patients in different age groups may need different support and help during recovery. For example, middle-aged patients who worked before the surgery must return to work after surgery to earn income, and more attention should be given to the patient group (Emamzadehashemi et al., 2024). Due to returning to their work, young and middle-aged patients need different care and support after the surgery. Special rehabilitation programs or follow-ups for those returning to their careers and work are necessary because of their age range (Emamzadehashemi et al., 2024).

Support mechanisms from family, friends, and healthcare professionals, along with spiritual care, play a significant role in facilitating patients' recovery and well-being during intensive care and post-surgery recovery. Stress management and building resilience are essential parts of patient care and recovery, and it can be provided with consistent emotional support, psychological interventions, and preoperative education that promote a holistic approach to patient care (Curcio et al., 2022; Eglin et al., 2023; Iryanidar & Irwan, 2023; Torke et al., 2023). The supportive care network positively impacted patient outcomes (Curcio et al., 2022). Patients' support from family, friends, and healthcare professionals eased their recovery and helped them overcome challenges. Support mechanisms can help patients in their physical, social, and psychological well-being throughout their recovery trajectory.

Spiritual care, tailored to patients' cultures and preferences, can relieve emotional distress and increase resilience, consequently enhancing the patient's recovery process and quality-of-life (Curcio et al., 2022; Torke et al., 2023). Preoperative spirituality support increases patient resilience and positively impacts the patient's mental and physical health (Curcio et al., 2022). There is a need for healthcare professionals to recognize and integrate sources of support in the care plan, including spiritual support, which has been shown to aid in coping with postoperative challenges regardless of religious affiliation (Curcio et al., 2022; Dos

Santos et al., 2024). A comprehensive spiritual care program can increase the quality-of-life of patients, especially those with chronic diseases (Movahedi et al., 2021; Mueller et al., 2001). Some patients struggled to maintain healthy lifestyle changes such as adhering to medication regimes, exercise, and dietary habits post surgery, emphasizing the need for interventions to support these adaptations. The involvement of patients and family members in the intervention or cardiac diet after cardiac surgery may provide easier adherence to a healthy diet and physical activities and prevent conflicts between them (Rowland et al., 2018).

Lifestyle adjustment is required to maintain and enhance health outcomes after cardiac surgery. However, adherence to these lifestyle changes and medication regimens can vary among patients. The results of a study involving 265 patients who underwent CABG revealed that approximately 45% were non-adherent to dietary recommendations, 41% to exercise routines, and 26% to prescribed medications (Ali et al., 2017). Unwillingness to adopt new lifestyles, frequent social gatherings, busy schedules, and concerns about heart conditions through exercise were the main reasons for non-adherence to healthy lifestyle changes. Interventions that reflect individual needs can enhance adherence to lifestyle changes and medication regimens, thus improving long-term outcomes (Salzmann et al., 2020). Moreover, lifestyle adjustments may differ between men and women after cardiac surgery. The results of a meta-analysis investigating cardiac rehabilitation adherence between men and women reported that cardiac rehabilitation adherence is lower among women than men (Oosenbrug et al., 2016). However, a result investigating medicine adherence after CABG stated that women and younger patients are more likely to adhere to medicine (Pakpour et al., 2014). This review included studies that recruited men and women, or only men or women, across a wide range of age groups. However, these studies did not compare their result based on gender or age. Therefore, a study comparing the differences between men and women across various age groups is needed to understand both the differences and similarities.

The recovery trajectory of patients after cardiac surgery is complex, and they experience physical, psychological, and social challenges due to loss of control of their body and being dependent on others, which brings anxiety and frustration. The nature of recovery after cardiac surgery is not a linear process and patients might experience changes, including fatigue, pain, and emotional distress even months post surgery (Chou et al., 2023). Furthermore, patients' expectations and postoperative experiences can be different, and this can cause them to be dissatisfied with the surgery results and make them anxious (Mani et al., 2023). Thus, patients' expectations and coping mechanisms should be enhanced by preoperative education and support system (Mani et al., 2023). Despite these challenges, patients have been more optimistic about their recovery trajectory and life after surgery. Physical health improves and becomes a mediator for patients to regain their confidence and hope for the future (Rakhshan et al., 2020). Clear communication and holistic post-surgical care can help to reduce the gap between expectations and reality, promoting a more positive recovery experience.

Study Limitations

One of the strengths of this review is to conduct a comprehensive and systematic search strategy across multiple databases, ensuring a broad capture of relevant literature. Focusing on qualitative studies, this review provides in-depth insights into patients' experiences after open heart surgery, highlighting psychological, social and physical aspects. The use of ENTREQ and PRISMA reporting guidelines and the JBI critical Appraisal checklist for assessing the quality of studies provided a rigorous methodological approach for synthesizing the qualitative evidence. The findings of this review represent a diverse population by including studies from ten different countries and demographics that offer a wide range of post-surgical experiences across different cultures.

Some limitations need to be addressed. Firstly, the review included only studies published in English. Studies published in other languages might have contributed to different findings. Secondly, the methodological quality of the included studies varied, especially the researcher's cultural position and influence on the research, which could impact the trustworthiness and transferability of the findings. Thirdly, the review only focused on the qualitative data, which provided in-depth insights but might not capture the overall patient experiences and outcomes identified in quantitative studies.

Conclusion and Recommendations

This systematic review synthesizes findings from studies exploring the experiences of following open heart surgery and reveals the significance of comprehensive patient education, support systems, and personalized care plans. Patients' recovery is enhanced significantly with the help of support from family, healthcare professionals, and spiritual resources despite the challenges of adaptation to post-surgical life, both physically and financially. To improve patient outcomes and quality-of-life, holistic and continuous education, culture-sensitive support mechanisms, and integrated spiritual care should be applied to future interventions. These perspectives will allow the development of more effective, patient-centred approaches to post-surgery care of patients after open heart surgery. It is important to understand patients' long-term recovery trajectory after open heart surgery. This review includes studies that collected data between two weeks and one year after surgery and generally collected their data at a single time. Thus, future studies should focus on a long-term recovery trajectory and more than one data collection point to understand their recovery process over time.

Healthcare providers should develop comprehensive pre- and postoperative education, addressing general and specific concerns, such as postoperative complications and sexual intimacy, to reduce anxiety and enhance post-surgical outcomes. A support system that integrates family, healthcare professionals, and spiritual resources is essential. This can provide a holistic approach to patient care by facilitating physical, psychological, and spiritual recovery. Patients' post-surgical plans should be more personalized, and factors such as age, gender, and cultural background should be considered. Young and middle-aged

patients returning to work require specific attention, with tailored support to meet their distinct needs. Long-term rehabilitation programs should be applied to maintain a healthy lifestyle and adhere to medication and physical activities to improve quality-of-life and health outcomes. Spiritual care should be included in care and support programmes that are integrated with individual preferences and cultural contexts to improve resilience during recovery.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

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Supplementary Table 1.
Search Strategy

	CINAHL Plus with Full Text (EBSCO)	MEDLINE (Ovid)	PsycINFO	Web of Science	ProQuest Dissertations & Theses Global
OHS Subject Headings (MeSH)	(MH "Cardiac Surgery+") (S1)	exp Coronary Artery Bypass/ (1)	mainsubject("coronary artery bypass") (1)	(TI=("coronary vessels")) OR AB=("coronary vessels") (1)	mainsubject("heart surgery") (1)
	(MH "Coronary Artery Bypass+") (S2)	"coronary vessels".ti,ab,kf. (2)	mainsubject("coronary vessels") (2)	(TI=("cardiac surgical procedures")) OR AB=("cardiac surgical procedures") (2)	mainsubject("coronary vessels") (2)
	(MH "Coronary Vessels +") (S3)	exp Cardiac Surgical Procedures/ (3)	mainsubject("cardiac surgical procedures") (3)	(TI=("thoracic surgery")) OR AB=("thoracic surgery") (3)	mainsubject("thoracic surgery") (3)
	TI "cardiac surgical procedures" OR AB "cardiac surgical procedures" (S4)	exp Thoracic Surgery/ (4)	mainsubject("thoracic surgery") (4)		
	TI "thoracic surgery" OR AB "thoracic surgery" (S5)				
OHS Keywords	TI ("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR CABG OR "heart valve suger*" OR "valve surger*") OR AB ("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR CABG OR "heart valve suger*" OR "valve surger*") (S6)	("open heart surger*" or "heart surger*" or "cardiac surger*" or "coronary artery bypass" or "coronary artery bypass graft" or cabg or "heart valve surger*" or "valve surgery").ti,ab,kf. (5)	tiab("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR cabg OR "heart valve surger*" OR "valve surger*") OR if("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR cabg OR "heart valve surger*" OR "valve surger*") (5)	(TI=("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR CABG OR "heart valve surger*" OR "valve surger*")) OR AB=("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR CABG OR "heart valve surger*" OR "valve surger*" (4)	title("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR cabg OR "heart valve surger*" OR "valve surger*") OR abstract("open heart surger*" OR "heart surger*" OR "cardiac surger*" OR "coronary artery bypass" OR "coronary artery bypass graft" OR cabg OR "heart valve surger*" OR "valve surger*") (4)
Qualitative Study Subject Headings (MeSH)	(MH "Qualitative Studies+") (S7)	exp Qualitative Research/ (6)	mainsubject(interviews) (6)		mainsubject("qualitative research") (5)
	(MH "Interviews+") (S8)		mainsubject("qualitative research") (7)		mainsubject(interviews) (6)

Qualitative Study Keywords	TI ("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis") OR AB ("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis") (S9)	("case stud*" or "constant comparison" or "content analysis*" or "descriptive analysis" or "discourse analysis" or ethnography or exploratory or feminist or "focus group" or "grounded theory" or hermeneutic or interview* or narrative or naturalistic or "participant observation" or phenomenology or "qualitative method*" or "qualitative research" or "qualitative study" or "thematic analysis").ti,ab,kf. (7)	tiab("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis") OR if("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis") (8)	(TI=("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis")) OR AB=("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis") (5)	title("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis") OR abstract("case stud*" OR "constant comparison" OR "content analysis*" OR "descriptive analysis" OR "discourse analysis" OR ethnography OR exploratory OR feminist OR " focus group" OR "grounded theory" OR hermeneutic OR interview* OR narrative OR naturalistic OR "participant observation" OR phenomenology OR "qualitative method*" OR "qualitative research" OR "qualitative study" OR "thematic analysis") (7)
Experiences Keywords	TI (experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*) OR AB (experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*) (S10)	(experience* or "lived experience*" or percept* or view* or attitude* or feel*).ti,ab,kf. (8)	tiab(experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*) OR if(experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*) (9)	(TI= (experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*)) OR AB=(experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*) (6)	title (experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*) OR abstract(experience* OR "lived experience*" OR percept* OR view* OR attitude* OR feel*) (8)
	(S1 OR S2 OR S3 OR S4 OR S5 OR S6) (68,694) (S11)	(1 OR 2 OR 3 OR 4 OR 5) (297,190) (9)	(1 OR 2 OR 3 OR 4 OR 5) (2,367) (10)	#1 OR #2 OR #3 OR #4 (115,679) (7)	(1 OR 2 OR 3 OR 4) (3,864) (9)
	(S7 OR S8 OR S9) (592,128) (S12)	(6 OR 7) (814,007) (10)	(6 OR 7 OR 8) (957,138) (11)	#5 AND #6 AND #7 (453) (8)	(5 OR 6 OR 7) (709,968) (10)
	(S10 AND S11 AND S12) (748) (S13)	(8 AND 9 AND 10) (850) (11)	(9 AND 10 AND 11) (193) (12)		(8 AND 9 AND 10) (147) (11)
	2006 to 2023 (495)	2006 to 2023) (598)	2006 to 2023 (126)	2006 to 2023 (351)	2006 to 2023 (67)
Results	1637	After duplicate was removed through the Endnote 20 (1003)			

Supplementary Table 2.
Synthesis of Findings

Findings	Categories	Synthesized findings
Information experiences (U): "...about my chest pain – it is very difficult to differentiate types of chest pain: there is muscular pain, sternum pain, and pain from the heart. I am wondering ... if I can exercise, yeah, I am unsure of criteria, symptoms, pain, etc., I lack information..." (p.17)(Martinsen & Moen, 2010)	**Lack of information** Patients lack information about symptoms and management of these symptoms shortly after their discharge. These issues make them worry and anxious.	**Information and education needs** Patients have limited knowledge regarding symptoms that might have occurred during the recovery process and have struggled to distinguish normal and abnormal symptoms. Uncertainty and anxiety about the time to go back to normal life caused emotional turmoil. Therefore, any unusual situation brings them anxiety and fear. Education, especially sexually intimacy, has been raised by patients, and lack of information makes patients and partners anxious and worried.
Early recovery (U): "When you get home on your own you realize, every pain you get you are not sure if you should have it... One night I'd had a bad coughing and sneezing fit and I thought I'd pushed the bone out. I lay there thinking, 'please God, let it go back'. It's not knowing within yourself what's right or wrong, you know a pain, a bit of shortness of breath... It's those sorts of things that wouldn't happen if you knew a bit more... I suppose I didn't know what was normal." (p924)(Banner et al., 2012)		
Expressing their needs, limitations and fears: the threat of death every day (U): "The fear that I'm going to have another heart attack, you know, that fear of 'Did I do everything right? Am I really having a problem here again?' So, I started walking, he told me to walk 5 km every day! But I can't do it all, no. When I got back to having an activity, I started to get better, you know?" (p751)(Amorim TV, 2015)		
Care needs in the life after cardiac surgery self-management daily living (U): "I don't really know how much to eat or if I should be concerned about anything" (p7)(Makino et al., 2023)		
Experience of unanticipated symptoms (U): I was dizzy on my feet and suddenly went completely dark and squatted at home. I worry when there are a lot of people around (to see if symptoms occur). (p3)(Makino et al., 2023)		
Anxiety about life-threatening situations (U): "After all, it was the heart (that was operated on) ...When the heart beats a little faster, I sometimes think, "Oh?" (p4)(Makino et al., 2023)		
Anxiety about the uncertainty of recovery (U): "I look fine, but I'm kind of sluggish. I am a little worried about what will happen if this condition continues for a long time at work." (p6)(Makino et al., 2023)		
Conflicts with our changed selves (U): "When I got home, I felt as if I'm twice as tired as I was when I was in the hospital, if anything."(p.4)(Makino et al., 2023)		
The frustrated struggle to resume normality (U): "I think that I have managed to deal with the anxiety, but of course small symptoms appear that trigger everything again and I get scared and think: do you have to live like this for the rest of your life? Will you never get normal?" (p1103)(Hansen et al., 2016)	**Emotional turmoil** Patients struggle to go back to normality, and uncertainty regarding going back to normal life causes anxiety and worry.	
Anxiety about the uncertainty of recovery (U): "I wake up every morning wondering what is going to happen next." (p4)(Makino et al., 2023)		
The drama (U): "About my mood, everything is looking feeling dark. I've heard it can last for ten years. I'm wondering how it really is [...]"(p.16)(Martinsen & Moen, 2010)		
Becoming a heart patient (C): 'For a long time, my time span was until next week only, right. The idea of deciding what to do next month seemed so ... what I need is some time, a least half a year without anything happening." (p1105)(Hansen et al., 2016)		
The challenges of the first sexual intercourse after surgery (U). We were both scared. I had heart beating during the intercourse, and at that moment, I felt a torment of conscience about why I had sexual intercourse. I had a bad memory from that day because I was so scared, and it was a horrible experience," (p4)(Pourebrahimi et al., 2021)	**Concerns and complexities of sexual intimacy post-surgery.** Patients are faced with challenges and ambiguities about how and when they should start sexual intimacy after surgery. They and their partners experience bad experiences that cause anxiety and fear, leading to extra emotional burdens.	
Ambiguity in the way of getting information (U): "After the surgery, either the doctor or those who have information in this field should tell us, for example, tell us when to start sexual intercourse, when to stop, and how, and I don't know exactly. Who should say when the intercourse should start, doctor or nurse, and where and from whom I should ask, but no one said, we will be confused when nobody tells us, and we have doubts about what we think is right." (p4)(Pourebrahimi et al., 2021)		
The ambiguity of sexual intercourse after surgery (U): "These issues have been investigated a lot, but it's incomplete. I feel the sexual problems are still not very clear, and we've complicated it. I don't know, my feeling becomes low to my spouse, is it normal or not, or how long can I have intercourse? Less or more or how? All these are questions that have no answer in my mind." (p5)(Pourebrahimi et al., 2021)		
Spouse's concern about having sexual intercourse (U): "What worried my spouse was whether sexual intercourse was dangerous now or not. When I breathe fast, he/she was scared and said for a few days, 'I wish we didn't have sex not to put pressure on your heart.' And he/she was afraid that I would have a problem in the coming days. He/she once told me, maybe not to have sex anymore and I had to ask the doctor." (p5)(Pourebrahimi et al., 2021)		
Recognizing a decline in physical function (U): "At first, I was so tired from just washing my face and brushing my teeth in the washroom. I was surprised at how tired I felt at first." (p3)(Makino et al., 2023)	**Post-discharge physical decline** Patients experienced physical decline during the early discharge period and their body, and the reactions of their hearts defined their physical activities.	**Adaptation to post surgical life and financial considerations** Disturbance in the patient's daily routines and activities causes dissatisfaction. However, they defined their limitations and redefined their normalities. It was still challenging for them to accept their limitations and adapt to their new normalities over time.
Recovery (U): "When I came home, I couldn't do anything", "I felt weak when I walked on the street, I felt everyone pushed me", "I was limited, had to just follow the body." (p5)(Berg et al., 2013)		
In-patient experience (U): " I was in and out and there's blokes been there 3 weeks, 4 weeks, and had the same op and couldn't even stand up, sit up." (p204)(Dunckley et al., 2007)		
Clinical factors affecting recovery (U): "I did walk, but I couldn't do too much. Felt quite weak at the end of it. And I'm not a baby where pain's concerned but you couldn't do it. Your body was telling you no, no, no." (p204)(Dunckley et al., 2007)		
Struggling with the primacy and burden of symptom experience (U): "Yeah. I tire quickly, there's no doubt about it. I was amazed at how much, you know, you're on the table for what, two or three hours? And it seems to suck two or three years' worth of exercise and life out of you. When you come off there you've totally lost all of your strength and muscle tone and everything else. By the time you lay around a few more days, you get up, it's amazing how weak I was, but it was a major thing."(p109)(Keane, 2016)		
Reaffirmation of having had major life-threatening surgery (U): "It seems like there is quite a bit of fatigue, or something like that"(p6)(Makino et al., 2023)		

Physical problems (U): "I experience shortness of breath sometimes in doing my routine activities." (p1829)(Ahmad et al., 2021)		
Having physical limitations generating dependence (U): "I do nothing, I sit, I'm afraid of pushing, making effort. I am afraid, afraid, I get upset, because all my life I was independent. " (p152)(Callegaro et al., 2012) **Daily life after surgery involves dependency on others, discrimination, disorientation, doubts, and many restrictions (U):** "Sometimes, I think that the people I live with discriminate against me; they think I am not able to do something as well as I could before. They limit me " (p.751)(Amorim TV, 2015)	**Dependency and activities resumption challenges** Being restricted from doing their daily life activities and depending on other people makes them feel dependent and restricted in their activities.	
Identifying expectations (U): "My girls were home and they bathed me and did everything, but you're mother for kids and you're used to taking care of yourself." (p4)(Chunta, 2009) **Imposition of care: (U)** "They are taking care of me as of a child. They do not let me peel an orange, get a knife. To get up, someone takes my hand; to go in the bathroom, another person leads me. It seems that now I am not the mother, I am daughter " (p.5)(Maldaner et al., 2018)	**Disruption in daily activities** Patients felt uncomfortable being unable to do their routines and different when others did these.	
Resuming domestic functioning (U): "I tried to do a bit of gardening but thought it was no good at all as I immediately ended up on my face in the flower bed. And I fell a couple of times into a bed of nettles when I was walking the dog." (p924)(Banner et al., 2012) **Remembering what it was like and what they could do before surgery (U):** I would like to have the life I had, and now there is no way. When I want to do some housecleaning in my way, I can't lift the weight; and if I lift weight, I feel a little pain here right away, where the surgery was done." (p750)(Amorim TV, 2015) **Health and illness transitions (U):** "When I first tried to cut the grass it's like, my God, I'm not going to ever get this finished, it used to take me an hour and fifteen minutes to do it and now it's taking me three hours." (p4)(Chunta, 2009) **Acceptance of a changed self (U):** "I had always been a fast walker. Now that I realize I can't walk as fast as I used to, I try to enjoy walking slower, taking twice as long." (p6)(Makino et al., 2023) **Renegotiating normal (U):** "I'm back more or less. I'm doing gardening but not lifting anything heavy at the moment and not doing much housework...just the necessities, a bit of dusting and that. I've got someone in to do all my hovering twice a week." (p924/25)(Banner et al., 2012) **Establishing boundaries (U):** "Your body tells you enough is enough, I mean my heart, I get palpitations and I think 'no, don't push it'. So I've learnt to pace myself." (p924)(Banner et al., 2012) **Disturbed body (U):** "I am very aware of my body now", "I am afraid of doing a lot of things, thinking how my heart reacts", "I compensate for my scar by working out, to build muscles." (p5)(Berg et al., 2013) **The return of the daily activities (U):** "Look it's going to be difficult for me [...] I'm going to see if I change the way of living. " (p2677)(Cielo et al., 2015)	**Transition and renegotiation of normalcy** Patients noticed and defined their limitations during their daily activities. They redefined their normality and tried to adapt to new normality.	
Having to stop working (U): "When you stop working, it is so difficult. Then I got sad, really sad! The person's routine, their jobs. I worked a lifetime "[...]". So, if you have money, you can buy something, if you don't, you can't." (p152)(Callegaro et al., 2012) **Physical and emotional disturbances (U):** "My job was gone, because I was a temporary employee. I worried about my future. When the doctor told me that it would take one year to recover fully, I was so depressed." (p283)(Chang & Tsai, 2017) **Financial burden (U):** "... I feel that I am unable to do enough effort during job which I used to do before the bypass operation ..." (p1829)(Ahmad et al., 2021) **Acceptance of recovery (U):** "I wanted to get back to driving a truck...I'm on disability because it pays the bills. I had my own business...I enjoyed what I did, I made nice money, I could give to my boys and now the big thing is the extra money ain't there and that's what hurts. I wish I could get back and I can't and I have a hard time with that and that's what's tough." (p5)(Chunta, 2009) **Challenges (U):** "... I feel that I am unable to do enough effort during job which I used to do before the bypass operation ..." (p1829)(Ahmad et al., 2021) **Conflicting acceptance (U):** "Before I was hospitalized, I was working from morning to night, but now I realize that it will take a long time for me to recover to that level. But I suddenly wonder how long I will stay in this condition." (p6)(Makino et al., 2023)	**Financial issues** A decrease in patients' working performances or temporary or permanent job changes brought emotional and financial problems. They were worried about looking after their families financially and changing their way of living	
Anchor in the storm (U): "Nurses are always present, always available anytime; this is a good thing. When you are not autonomous enough, nurses' eyes follow your movements and are there to answer all your needs (...). " (p209)(Albanesi et al., 2022) **The two-way process of care (U):** "We just have to follow the rules, because it's good for us. The physicians and the nurses help us, but we have to help ourselves too. It is as they say, God may help you, but you have to help yourself too" (p.4)(Maldaner et al., 2018) **Perception about nurses and doctors (U):** "... doctors and nurses cared about me a lot, like my own children did, and I am completely satisfied with their duties..." (p1830)(Ahmad et al., 2021)	**Healthcare provider interactions** (Patients were appreciated for the care and support provided by healthcare professionals during their hospital stay. Healthcare professionals' existence and being ready for them gave strength and support to patients.	**Support Mechanisms** Patients were supported by family members, friends, and health professionals during the recovery. Their support made their recovery more manageable, and their relationship bonds between them improved. Spiritual strength was obtained by believing in and trusting God, which mitigates their recovery process and makes it easier to cope with it.

(*Continued*)

Supplementary Table 2.
Synthesis of Findings (Continued)

Findings	Categories	Synthesized findings
Support for a new lifestyle (U): "Luckily, I have family to look after me and accompany me through this tough time." (p283)(Chang & Tsai, 2017) **Receiving attention from family (U):** "After heart surgery, my family members were around me and helped me, I hadn't realized how important a person I am in the family." (p131)(Mohammadi et al., 2015) **Disturbed network (U):** "If it wasn't for my husband, it would not have gone so well", "Without my wife I could not have returned home so soon", "I bothered my friends with it, so I got a kind of processing, psychologically." (p4)(Berg et al., 2013) **Encouraging one's self, family and social support (U) :** "My wife encouraged me a lot in every sphere to plan my treatment that gave me the strength to cope up with my illness." (p1829)(Ahmad et al., 2021) **Coping with difficulties after cardiac surgery support (U):** "How relieved I am that my wife always comes with me" (p8)(Makino et al., 2023) **The family becoming closer (U):** "Also, the companionship of my wife with me, for all hours, my children. I used to be withdrawn but now not anymore, all because of the surgery" (p.7)(Maldaner et al., 2018) **Change of attitude in relationships (U):** "I lost many friends because they did something, and I had to correct them. I used to have this obsession that a brother of mine could not go wrong! You know, I learned a lot about it. I became more loving. My wife, I now value her even more and people around me, as well. I'm living a new life" (p.6)(Maldaner et al., 2018)	**Family and social support dynamics** Family members and friends are sources of support during the recovery process. They provide physical, psychological, and spiritual support. Knowing they were there and supporting them gave them strength and helped them cope with difficulties during their recovery. Patients' relationships with family members and friends change during recovery, and they get strong bonds.	
Trust in God (U): "It keeps me thinking of God. I was praying and had a vow to help the poor ... just entrusting myself to God. I would say thank God Who gave me a second life." (p12)(Abbasi et al., 2017) **Supplication to the Prophet and Imams (U):** "A problem came up after my surgery and that problem was solved by resorting to the Imams." (p13)(Abbasi et al., 2017) **Acceptance of God's Will (U):** "It was God's will when I had survived. If you could see me ..., Nobody believes that they could see me alive one more time, I faded out ... Now that I am alive is God's Will. And I'm well satisfied with God's Will. His Will is going to occur in any way." (p13)(Abbasi et al., 2017) **Spiritual beliefs (U):** "... life and death is granted by Allah (God) only. Just pray to Allah (God) ..." (p1829)(Ahmad et al., 2021) **Being spirituality oriented (U):** "My religious beliefs helped me a great deal to cope with the surgery. Allah says in the Holy Quran, 'Verily hearts are calm in the remembrance of Allah". (p132)(Mohammadi et al., 2015) **Sense of connection (U):** "I mean it sort of brings tears to my eyes that I feel, that I had uh [pause]. I mean, I have had so many people praying for me and from so many different churches, cause I have so many friends that belong to different kinds of churches. I'm on the prayer list at the Episcopal Church you know, and I think, but I know that prayers are so important." (p126)(Groebner, 2013) **Giving thanks (U):** "It seems like I always pray when I am in the shower. I don't know why. I think it's because there are no people around me. I know that I am by myself, and I know whatever I need to say I can say and I don't have to say it out loud I can say it in my head. It's just my time since nobody's checking on me; it's my time with God. I ask him for continued healing and strength. I thank him how he has helped me through this experience and I ask Him to give me patience with my family." (p123)(Groebner, 2013) **Awareness of God (U):** "...I see it every day and so it is just a reminder that I'm here, how I got here.... It reminds me of what God did for me to heal me, and how thankful I am to Him to still be alive." (p147)(Groebner, 2013) **Purpose (U):** "Knowing that for some reason God left you here, that you have a purpose makes you (pause) feel more like you're going to accomplish some of the things you feel like God wants you to accomplish." (p153)(Groebner, 2013) **Behaviour (U):** My spirituality has made me definitely calmer. I can find a way to walk away from a conversation and the people who really irritate me. They aren't in my life anymore. I take care of myself now, and you know because I take care of myself everything else falls into a much better place (p.159)(Groebner, 2013) **Evangelism and serving others (U): "**Having them become saved has always been a concern for me, but since my heart surgery it is really all that is important to me anymore. I want to see my children accept God into their hearts. I want to know that I will see them again in heaven, so I keep talking to them about it every chance I get and I keep praying that God will help me make them understand that they need to be saved" (p.154)(Groebner, 2013)	**Spiritual coping strategies** Patients trusted and prayed to God during the recovery to help them overcome the challenges during the recovery. Their spirituality made their recovery process easier by providing strengths. They also apricated for being alive and thanked for being given a second chance.	
The Notebook, Blue's Clues, and Explanations (U): "They've been great explaining different things or why I'm getting certain medicines, or different ways I need to move." (P.102)(Scheckel et al., 2020) **Cardiac rehabilitation (U):** "I think the rehab was an essential part of it really. I mean talking to others there you could see what problems they had; I mean some were much better than others, you know... we were all improving which was wonderful." (p.925)(Banner et al., 2012)	**Information and care sources**	
Oriented to be healthy (U): " I'm caring myself now. I follow my instructions in order to not have the heart problems again.'' (p238)(Abbasi et al., 2014) **Establishing a new life after emergency surgery (U):** "After going through this, I will listen to medical personnel's advice and take good care of myself." (p283)(Chang & Tsai, 2017) **Now I take care of myself (U):** "You are not paying much attention to yourself, more to others. After you see what you have gone through, you see that you have to give more value to yourself." (p3)(Maldaner et al., 2018) **Valuing life (U):** "We value life more. Now that I feel refreshed, why am I going to continue with the problem [smoking]? Because I know it can cause it again. Let us be a little conscious and intelligent. Let's get rid of these addictions" (p.6)(Maldaner et al., 2018)	**The trigger for positive changes** **Pat**ients attempt to adopt a healthier lifestyle and to make changes in their lives, such as eating habits, physical activities, and other habits to preserve the health they gained from surgery. These changes demonstrated how they value life.	**The paradox in lifestyle adjustments post-surgery.** Patients tended to adopt a new lifestyle to adopt healthier lives and preserve gained health. However, some of them struggle to accept changes and adopt to their lifestyle and medications during their recovery trajectory.

Avoiding sedentary lifestyle (U): "I take care of my health after the CABG procedure as it was a difficult experience, and I don't want to take risks again to experience this problem again. Therefore, I have planned to keep myself active in my life." (p1829)(Ahmad et al., 2021)

Moving forward toward healing (U): "I don't know how successful that will be, but I went down and talked to the [physical]therapist there and they assured me that they'd, I guess they monitor extremely well there, and they wouldn't let me do too much. They'd keep track of me. I don't know how much I'll be able to accomplish, but, uh, they agreed that I'd only do what I could do..... I've learned that much in this thing. What was it somebody was telling me? For every day I sit and do nothing it's going to take me three days to recover. So, I'm really making a concerted effort to get exercising." (p105)(Keane, 2016)

Long-term support (C): "I'm going to start going to keep fit classes once a week to keep up the good work you know and I try to get two walks a day." (p925)(Banner et al., 2012)

Reaffirmation of having had major life-threatening surgery (U): "in the case of cancer, once the cancer is removed, that is the end of the process, but the heart is always beating. I suddenly remember that I operated on such an important part of the body, and I feel that I have to maintain it all the time." (p.6)(Makino et al., 2023)

Unexpected challenges (C): " I hate exercising! I have never enjoyed it. I think it's a waste of time [...]" (p.16)(Martinsen & Moen, 2010)

Performing the pharmacological treatment (U): "I passed a long time without taking the medication for depression and it worsened my situation." (p153)(Callegaro et al., 2012)

Challenges after surgery (U): "Will be suffering [...] I don't have patience to stay at home, the anxiety makes fat, that is my fear [...] changes everything [...] then it will be difficult [...] I'm going to have to face." (p2763)(Cielo et al., 2015)

Rebuilding a life that is uniquely one's own (U): "I have little trouble with daily life, but there are days when I just can't eat a good meal. Sometimes it is possible to eat with a little rearrangement, and there is no need to force myself to eat even if I can't." (p7)(Makino et al., 2023)

Making changes in eating habits (U): "The diet changed "[...]" at home there was only that pet food and that unsalted food "[...]". I exaggerated, say so. So far, the food has no salt, no fat. She [wife] always makes a very dry food, without much olive oil, without much grease, really dry." (p152)(Callegaro et al., 2012)

Lifestyle changes and confronting mortality (U): "I was a sixty-five-year-old man who could catch bullets in his teeth. [Now] any change, any quirk, any thump. . .Is this it? I've got to learn [to live] with the fear of this arrhythmia. I've got to learn how to re-eat. I've got this heart-healthy diet and what that means to me is, if it tastes good, you can't eat it." (p105)(Scheckel et al., 2020)

I will not wake up anymore (U): "I felt my body completely inert. He didn't answer! He didn't answer! even to an input, only the body did not respond!" (p208)(Albanesi et al., 2022)

Something keeps me from breathing (U): "The tube inside gave me difficulty in breathing (...) it gave me this suffering of suffocation. (...) The trachea is completely ... it's all occluded by this ... and then I felt that I had a lot of mucus inside so all this phlegm that went down and that prevented me even breathing. (...) I felt that there was something inside that didn't keep you from breathing. Perhaps it was mucus, phlegm (...)" (p209)(Albanesi et al., 2022)

Endless time in ICU (U): " I could doze because I never understood what exactly the time was. There was a clock, but I did not understand. I could not understand the time (...) later relatives arrive, and I realized that it was 6 o'clock in the afternoon" (p208)(Albanesi et al., 2022)

Nightmares and vivid dreams (U): "It was like a . . . very long dream. . . many people were walking to and for; quite a lot of them were strangers. I felt that they were praying for me. Among them was my daughter." (p282)(Chang & Tsai, 2017)

The challenged expectation of normality – being in a limbo (U): "... I just have a feeling of inadequacy ... At some point everything was as it should be. Then 2 weeks passed, and I got swollen legs and pain in the neck. I had definitely expected that it would become much better" because actually if you think before and after surgery now, then I think I can do a little more, but otherwise it is more or less the same ... And I don't understand that, because it should be different. Also, because I don't smoke and my heart should be better.' (p1104)(Hansen et al., 2016)

Recovering (U): "I get a lot of aching when I do a lot of walking...I was very disappointed initially. I was expecting to get up and walk round the park, but I couldn't...I've got arthritis in my hip. It could be that." (p924)(Banner et al., 2012)

Definition and timeline of recovery (U): "It took a month or at least a month before I began to feel improvements. And after 3 months I could feel I was getting better every day. I could wake up the next morning and feel different to the day before, it was quite a marked difference for a while. Now it's just a gradual, get better gradually and don't notice it." (p202)(Dunckley et al., 2007)

Evaluating outcome (U): "I don't worry like I did before the operation anymore. I could only walk half way up the lane by my bungalow and I can walk right to the top now." (p925)(Banner et al., 2012)

Challenges to medication and lifestyle changes
Patients had difficulties accepting the changes to be healthy or keep their health. They struggled to adapt to physical activities and their medication.

Physical and dependency challenge
Patients' physical limitations in the ICU, and they could not control their bodies. Therefore, they depend on other people, and this disturbs their independence..

Temporal and psychological disturbance
Distortion in the sense of time caused confusion and psychological distress. Nightmares lead to mental and emotional challenges.

Early post-operative disappointments and confidence regain
Patients had better outcomes regarding the results of surgery and felt disappointed with the results in the early recovery period. Later, their health outcomes improved gradually and encouraged them.

Recovery trajectory and patient perspectives
Patients feel anxiety and disappointment when they lose control of their bodies. They feel they have been restricted and depend on other people. Patients felt differently regarding their health and surgery compared to people around them. They also expected better results after surgery. However, some of the patients are not satisfied with the results.
Improving the health situation makes patients optimistic about life and the future and more hopeful.

(*Continued*)

Supplementary Table 2.
Synthesis of Findings (Continued)

Findings	Categories	Synthesized findings
A sense of recovery felt as symptoms improve (U): "By walking on my own feet and doing other things, I think I have found a rhythm in my life, as well as an appetite." (p6)(Makino et al., 2023)		
The restitution narrative (U): "The worst part was being told I needed to have three teeth removed ... then I needed sleeping pills from my physician. I did not need that for the heart valve surgery; I thought it just had to be fixed." (p1103)(Hansen et al., 2016)	**Divergent perception of health and recovery** (Patients have different perceptions regarding surgery and health situations than other people around them. While patients still had problems, people around thought they looked good. Also, patients think cardiac surgery is more complicated than others expected.	
Gap in perception of surroundings (U): "Sometimes customers ask me, "You look better." Indeed (even though my heart is better, but not well at all)." (p7)(Makino et al., 2023)		
Gap in perception of surroundings (U): "When people hear the word "surgery," they tend to think that they are cured because of it. It is difficult to explain when people ask how long this will last, even though it is harder than they think." (p6)(Makino et al., 2023)		
Feel younger (U): ''After the heart surgery, I felt physically and mentally recovered. I had sensations of freshness, youthfulness and was highly spirited. I felt younger than I was.'' (p237)(Abbasi et al., 2014)	**Enhanced life valuation and purpose** Patients generally had a positive attitude regarding surgery and its outcome and were more hopeful about their future. They have seen the surgery as an opportunity to regain their lost health. Patients' health outcomes improve, and their appreciation regarding life improved by these outcomes. They considerate about their surroundings more.	
Vigorous heart (U): "The surgery repaired my sick heart and now I'm living with a healthy heart." (p237)(Abbasi et al., 2014)		
Attitude to surgery (U): "I just thought I'm one of the lucky ones... If it wasn't for the doctors and nurses, I wouldn't be here now. That's it in a nutshell." (p203)(Dunckley et al., 2007)		
Passion for life (U): "My life has become warmer since the surgery, and I want to live more." (p131)(Mohammadi et al., 2015)		
Being hopeful (U): "Since the surgery, I have improved every day. When I think that my heart problems have been resolved, I feel more hopeful about the future." (p132)(Mohammadi et al., 2015)		
Re-birth (U): ''Heart surgery was an opportunity given to me to live again, and to start a new life with the new heart. I was reborn and it was as a gift from surgery.'' (p237)(Abbasi et al., 2014)		
Reflections (U): I did not regret having it, but I hope it lasts many years", "I expect to have the valve replaced again, but that is ok"," I think my life has been prolonged 2–3 years." (p.6)(Berg et al., 2013)		
Life, Others, and Surroundings (U): "I appreciate the world in a different way. I believe maybe because I've learned more. I've travelled a little bit more lately, and I feel comfortable having a religious discussion with anybody. I take much more notice in the beauty of life because of my heart but because you know what I really do take the time to stop and smell the flowers and they're really pretty you know" (p149)(Groebner, 2013)		
Engaged in and appreciating life while conscious of time passing (U): "And I'm going to be [octogenarian]. I realize all these things are catching up. And it's never gonna be like it was when I was in my twenties, but I want to be able to enjoy these things, what years I've got." (p100)(Keane, 2016)		
Improved effect of health status (U): "I am completely better in my health status and feel that this procedure had positive and successful effects on my health as I can perform my routine activities now without certain constraints." (p1829)(Ahmad et al., 2021)		
Intrepid Life (U): "I am not scared to go out alone anymore.'' (p238)(Abbasi et al., 2014)		