Original Article

Caregiving Burden in Family Caregivers of Patients with Coronary Artery Bypass Graft Surgery: A Content Analysis Qualitative Study

Fateme Beheshtaeen[1], **Zahra Molazem**[2], **Majid Najafi Kalyani**[2], **Zinat Mohebbi**[2]

[1]Department of Nursing, Student Research Committee, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran, [2]Department of Nursing, School of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran

Abstract

Background: Family caregivers are crucial for the post-discharge recovery of patients who undergo coronary artery bypass graft surgery. They encounter caregiving burdens in various aspects, affecting their well-being and quality of life. This study explored the contributing and alleviating factors of care burden in family caregivers of patients with coronary artery bypass graft surgery through qualitative content analysis. **Materials and Methods:** In this qualitative study, sixteen family caregivers of patients who had undergone coronary artery bypass graft surgery, were included by purposeful sampling from February to September 2023. In-depth semi-structured interviews were conducted. Interviews were recorded and then transcribed. Conventional content analysis was used for data analysis. **Results:** To explain the factors leading to caregiver burden, the three main categories of onslaught of physical and psychological tension, confrontation with multiple roles and tasks, and lack of resources were identified. Furthermore, the two categories of support systems and adaptive coping emerged as factors that alleviate the care burden. Also, 13 subcategories were extracted from the results. **Conclusions:** Family caregivers of patients undergoing coronary artery bypass graft surgery face numerous caregiving challenges in different physical, psychological, social, and financial aspects. In addition to strengthening and applying adaptive coping strategies, it is necessary to plan for the educational and psychological needs and financial support of caregivers.

Keywords: *Care burden, coronary artery bypass graft, family caregivers, qualitative research*

Introduction

Globally, cardiovascular diseases (CVDs) are the main contributor to morbidity and mortality. According to the Global Burden of Disease, Injuries, and Risk Factors Study (GBD) 2019, there was a significant rise in the general population in terms of the total number of CVD cases (from 272 million to 523 million) and deaths (from 12.1 million to 18.6 million) from 1990 to 2019.[1] CVD stands as the primary cause of death, accounting for 46% of all fatalities and 20%–23% of the disease burden in Iran.[2] Due to the increasing prevalence of coronary artery disease, coronary artery bypass graft surgery (CABG) is considered an essential approach in the treatment of CVD,[3] leading to significant improvement in angina pain and quality of life in patients.[4] The average CABG volume was 36.7 per 100,000 population per year in high-income countries.[5] Because of the high cost of cardiac surgery, discharge usually occurs on the third and fourth day after surgery,[6] resulting in the patient spending most of their recovery time at home with their family.[7] Therefore, most of the care tasks are taken over by family members who are also confronted with the negative physical and psychological effects of the surgery.[8] According to the Centers for Disease Control and Prevention report (2018), 22.3% of adults reported providing care or assistance to a friend or family member in the past 30 days in the USA.[9]

Postoperative care of CABG patients includes pain management, wound care, adequate sleep and rest, daily activities, weight control, diet and exercise, attending medical appointments, lifestyle changes, and recognizing signs of postoperative complications as expected to be done by family caregivers.[10] Caregivers are responsible for the patient's physical and mental well-being. The tension caused by caring for a CABG patient imposes burden to caregivers.[11] Dirikkan, quoting

Address for correspondence:
Dr. Zahra Molazem,
Department of Nursing, School of Nursing and Midwifery,
Shiraz University of Medical Sciences, Shiraz 71936-13119, Iran.
E-mail: molazem@sums.ac.ir

Access this article online
Website: https://journals.lww.com/jnmr
DOI: 10.4103/ijnmr.ijnmr_129_24
Quick Response Code:

How to cite this article: Beheshtaeen F, Molazem Z, Najafi Kalyani M, Mohebbi Z. Caregiving burden in family caregivers of patients with coronary artery bypass graft surgery: A content analysis qualitative study. Iran J Nurs Midwifery Res 2025;30:433-40.

Submitted: 27-Apr-2024. **Revised:** 28-Nov-2024. **Accepted:** 30-Nov-2024. **Published:** 08-May-2025.

Collins (1994), describes the concept of burden as psychological distress, physical, economic, and social health problems.[12] Family caregivers report significant burdens during the first year following a patient's heart surgery.[13] Halm (2016)[7] showed that concerns about preparation and lack of information about patients' needs after discharge were the main causes of stress and burden in the first three months of care. Findings from a systematic review study expressed the complexity and change in the caregiver role, loss of role, and change in identity.[14] Financial and economic constraints[15] and reduced social activities are further challenges for caregivers, leading to caregiver burden.[16] The increased caregiver burden significantly affects the physical and psychological recovery process of CABG patients.[17] Caregivers invest a lot of time and effort in caring for their family members, while rarely prioritizing themselves.[15] As a result of the stress, depression, and poor lifestyle that arise from these challenges, caregivers are at higher risk of developing chronic conditions.[18] Cui *et al*. (2024)[19] investigated the mediating role of psychological distress in the relationship between caregiver burden and caregiver quality of life.

The literature review shows that studies on the concept of caregiver burden often take a quantitative approach and focus on the care of the mentally ill, such as Alzheimer's[20] and dementia,[21] and the chronically ill, such as cancer patients.[22] The majority of studies on caregiving burden in CVD focus on caregivers of patients with heart failure, while research on caregivers of CABG patients is limited. These studies have also concentrated on the experiences of caregivers who care for CABG patients, as well as other caregiving aspects. For instance, Halm[7] conducted a qualitative study to investigate the needs and concerns of caregivers. Another research by Pashaee in Iran explored the experiences of caring for CABG patients,[23] but in both studies, the different dimensions of the caregiving burden phenomenon remained unknown. Due to the weakness of caregiver support and follow-up systems in Iran, it seems that caregivers are not a priority in the health system. Since several factors such as culture, available resources, personality, and social issues affect the caregiver burden, conducting a comprehensive study in sociocultural context of Iran is necessary. Additionally, because of the limitations of quantitative studies in exploring the various dimensions of caregiver burden in CABG patients, a qualitative study is needed to explain the experience of caregiver burden. Therefore, this qualitative study was conducted to explore the contributing and alleviating factors of caregiver burden among family caregivers of CABG patients.

Material and Methods

This study is the first phase of a mixed-method study which was conducted from February to September 2023. In accordance with the research question, a qualitative research design with a conventional content analysis approach was used. Sixteen family caregivers who were mainly responsible for the care of CABG patients were included in the study. The study was conducted in the hospitals affiliated to the Shiraz University of Medical Sciences in Iran. Participants were selected through purposive sampling. Inclusion criteria include being the patient's primary caregiver, being over 18 years of age, being able to understand and speak Persian and express feelings and experiences, not having a history of caring for CABG patients, being the caregiver of a patient who has passed 6 weeks since the date of his discharge after CABG surgery, and being willing to participate in the study. The exclusion criteria: a terminal and chronic illness, responsible for the care of other chronic and severe physical and mental patients in their family, mental and cognitive problems as self-reported by the caregiver, employment as a Healthcare Provider (HCP), and unwillingness to continue participation in the study.

Data collection involved semi-structured interviews. Most interviews were conducted face-to-face, but due to the presence of coronavirus and the unwillingness of some participants, two interviews were recorded by phone at the request of the participants. After receiving the code of ethics from the ethics committee of Shiraz University of Medical Sciences, the researcher contacted the caregivers by telephone, explained the research objectives, and encouraged them to participate in the study. After the participants gave their consent to take part in the study, they decided on the time, place, and method of the interview (face-to-face or by telephone). All interviews were recorded after consent was obtained from the participants. Individuals who had been unable for face-to-face interviews were provided with an informed consent form via email following a phone call and explanation. Interviews took place within a quiet room at a hospital or clinic. The researcher who was the PhD candidate in nursing conducted the interviews. The interviews lasted between 20 and 98 minutes. The interview questions were: *"What factors lead to burden when providing care to patients? How do you feel when faced with situations of tension? How do you cope with situations that cause stress and tension? What factors reduce your care burden*?" As the interview continued, probing questions such as "*Can you elaborate further? What do you mean? Explain what you mean by an example of your personal experience. Why? And how?*" Interviews were conducted until data saturation was achieved, and no additional data was collected.

The data were analyzed using the Graneheim and Lundman content analysis approach. The researchers read the transcripts several times to immerse themselves in the data and gain a general understanding of the overall content. Meaning units were then identified, and the text was condensed while preserving the original concepts. Codes were derived from the participants' own words, and a comparative method was used to form subcategories.

Finally, the extracted subcategories were compared and merged to obtain the main categories.[24]

In the present study, trustworthiness was ensured by employing Lincoln and Guba's criteria.[25] Maximum variation, allocating enough time to data collection, and continuous data immersing were used to increase credibility. To ensure the accuracy of the findings, some interviews, codes, and categories were reviewed by three nursing professors, experts in qualitative research, and one nursing PhD student (peer review). The researcher reduced the likelihood of bias in collecting, analyzing, and coding participants' statements by bracketing her previous experiences and improved the validity of the data by limiting the literature review at the beginning of the study. To achieve dependability, stages of work were independently reviewed by external reviewers, and then the results were compared. To achieve confirmability, the steps of data collection and analysis were described and audited step by step. Transferability was also accomplished by providing clear explanations of participants' selection, data collection, work process, and research data.

Ethical considerations

The project was approved by the vice-chancellor of Shiraz University of Medical Sciences. The code of ethics was obtained from the Ethics Committee of Shiraz University of Medical Sciences (IR.SUMS.NUMIMG.REC.1401.110). The research objectives were explained to hospital officials and participants. Participants were assured that their information would be confidential and that their participation was voluntary. Informed written consent was obtained from them for participation in the study and recording of their voices. The location and time of the interview were also determined based on the participants' opinion.

Results

Eighteen interviews were conducted with sixteen family caregivers. For greater clarity of interviews, it was necessary to conduct interviews of two participants twice. Demographic findings showed that the caregiver's average age was 45.9 years. Most of them were female, married, daughters, or wives of patients, and their education levels ranged from illiterate to graduate students [Table 1].

In the first stage of data analysis, 1020 open codes were found. After removing duplicate codes and data reduction, five main categories, 13 subcategories, and 43 sub-subcategories were created. The three main categories were the onslaught of physical and psychological tension, confrontation with multiple roles and tasks, and lack of resources as factors leading to caregiver burden. The two categories of adaptive coping and the support systems emerged as factors that alleviate the caregiver burden [Tables 2 and 3].

Onslaught of physical and psychological tension

Most family caregivers had reported that they had experienced many psychological problems in the form of anxiety, fear, anger, and indecisiveness, which had diminished their resilience. In relation to the stressfulness of care, one participant remarked: "*The care period was very stressful for me. I was always stressed that something unfortunate could happen to my father after open heart surgery.*" P1

The participants stated that caring for the CABG patients was accompanied by the onset or exacerbation of physical problems for them. So, the physical pain, the weakness, the disability, and the disturbance in the sleep and rest patterns of the caregivers were the reasons that caused the burden for them. "*I struggled with tasks such as patient carrying and*

Table 1: The demographic characteristics of the included participants

ID	Age	Gender	Education	Profession type	Marital status	Relationship with the patient
P1	41	F	Bachelor	Employee	Single	Daughter
P2	44	F	Graduate student	Employee	Married	Daughter
P3	54	F	Illiterate	Housekeeper	Married	Wife
P4	26	M	Associate degree	Freelance job	Single	Son
P5	47	F	Diploma	Housekeeper	Married	Daughter
P6	45	F	Diploma	Housekeeper	Married	Wife
P7	62	F	Secondary education	Housekeeper	Married	Wife
P8	43	F	Diploma	Housekeeper	Married	Sister
P9	62	F	Eighth elementary	Housekeeper	Married	Sister
P10	35	F	diploma	Housekeeper	Married	Bride
P11	53	F	Bachelor	Teacher	Married	Wife
P12	40	F	Bachelor	Housekeeper	Married	Wife
P13	54	F	Secondary education	Housekeeper	Married	Wife
P14	43	F	Secondary education	Housekeeper	Married	Sister in law
P15	46	F	Diploma	Housekeeper	Married	Wife
P16	40	F	Fifth elementary	Housekeeper	Married	Daughter

*P: Participant, F: Female, M: Male

Table 2: Explanation of the factors leading to the care burden of family caregivers of CABG patients

Main Category	Subcategory	Sub-subcategory
Onslaught of physical and psychological tensions	Psychological reactions	Mental disturbances
		Reduced resilience
	Physical complications	Physical pain
		Disruption of sleep and rest patterns
Confrontation with multiple roles and tasks	Role strain	Increased household duties
		Intensification of care duties
		Excessive expectations from the caregiver
		The compulsion to accept care
	Role conflict	Disruption in individual life
		Job-related problems
		Limitation of family/social relationships
Lack of resources	Information poverty	Lack of caring knowledge
		Seeking for care information
		Caregiver training requirements
		Patient and caregiver learning challenges
	Inefficient involvement of the family in the provision of care	The family’s ineffective collaboration in care
		Family interference in care
		Ingratitude of family members towards the caregiver performance
	Financial constraints	Exorbitant expenses
		Decreased income
		Consequences of financial poverty
	Inefficient health system services	Lack of hospital facilities
		Poor performance of HCPs
		Poor access to HCP after discharge
		Lack of proper training programs
		Lack of access to a psychologist

Table 3: Explanation of the factors that reduce the care burden of family caregivers of CABG patients

Main Category	Subcategory	Sub-subcategory
Adaptive coping	Problem-based coping	Physical self-care
		Help-seeking
		attempting to accelerate patient’s recovery
	Emotion-based coping	Sense of commitment and forgiveness
		Striving to boost personal morale
		Resorting to spirituality
Support system	Family and colleagues’ support	Family involvement in care
		Providing emotional support
		Financial support
		Support from colleagues
	Patient advocacy	Trying to become independent
		Gratitude for the caregiver
		Patience and pain tolerance
	Effective interactions of the HCPs	Appropriate response
		Emotional support
		Providing information support

completing tasks. I suffer from rheumatism. I encountered additional difficulties and experienced discomfort during care period. During the night, I had to wake up several times for caring. I did not get any sleep or rest.” P15

Confrontation with multiple roles and tasks

The caregiving of the CABG patients caused role strain and role conflicts for caregivers. Many participants stated that during the care period, the rise in domestic duties, the intensification of care duties, the excessive expectations from the caregiver, and the compulsion to accept care led to role strains. In this regard, one participant stated: “*Taking care of my patient has made my responsibilities overwhelming. I have to get up early in the morning and serve him breakfast. I should give him his meds and then go to the market to buy necessary supplies if needed. I’ve never had these tasks before*.” P12

Due to heightened role strain, caregivers often experience conflicts in various aspects of their personal lives. Factors such as individual life disruptions, career issues, and family/social relationship limitations contributed to the burden. One participant stated about her career issues and life disruption: *“Because of caring, my life is completely messed up now….My husband is so angry. Also, I’m afraid I’ll lose my job, because of my absence from work.*” P2

Lack of resources

This category includes four subcategories: caregiver information poverty, inefficient family participation in care, financial constraints, and inefficient health system service. Participants mentioned that they were deficient in the required expertise in patient care and had a variety of educational requirements. In this regard, one of the participants stated: "*At the time of discharge, we were not provided with instructions on drug administration. I didn't know what this drug was used for. So, I needed to obtain the drug details from the internet."* P12

The inefficient involvement of the family in the provision of care is one of the major factors contributing to caregiver burden among family caregivers of CABG patients. Ineffective collaboration, sometimes family interference in care, and even the ingratitude of family members towards the performance of the caregiver increased the caregiver's burden. One caregiver said about the ineffective collaboration of family members: "*We are currently five siblings; however, all of my mother's caregiving responsibilities fall solely on me. My brothers and their wives do not help out at all. I am frustrated and on the verge of breaking down.*" P16

The exorbitant expenses, declining income as a result of illness and patient care, and the consequences of financial poverty reflected the economic problems of participants. One caregiver said: "*The cost of treatment is very high; Echo and medication cost became one million tomans in the last follow-up. I'm not at work anymore, and I receive no pay. My father and I are under pressure*." P2

Caregivers mentioned that the burden of care has been worsened by the lack of hospital facilities, lack of access to a psychologist, poor performance of the HCPs, insufficient training, and limited access to the HCPs after discharge. One participant stated about insufficient training: "*The training provided was inadequate. On a piece of paper, they wrote a bunch of handwritten tutorials. They gave us a device (spirometer) that we didn't know for a long time what it was.*" P1

The support systems and adaptive coping were among the other experiences of caregivers that could be the basis for reducing the burden in caregivers.

Support systems

The components of the support systems include support from family and relatives, patients, and colleagues, and the effective interactions of the healthcare practitioners, which played an important role in reducing the caregiver burden. One participant explained regarding family and patient support: *"At night, my two sons or my brother-in-law would come in shifts and take care of my husband, so that I wouldn't get tired. At night I was resting, furthermore, my husband was very patient. He did much of his work alone.*" P7

Another employed participant expressed about colleagues' support "*While my husband was hospitalized, my school colleagues showed great kindness by covering my classes despite their busy schedules. So that I wouldn't have to deal with the stress of my work.*" P11

Adaptive coping

Participants utilized coping strategies for alleviating the burden. Problem-based strategies include seeking help, attempting to accelerate patient's recovery, and physical self-care. Sense of commitment and forgiveness in care, striving to boost personal morale, in addition to resorting to spirituality were among the emotion-based coping strategies that were used by caregivers. One caregiver commented on her sense of commitment and dedication: "*Even though I have back pain myself, I loved my brother and endured the pain. I was responsible for looking after him. I am quite pleased with what I did, I adore it*." P9

Another caregiver shared how she attempted to boost her spirits by mentioning "*I felt extremely sad while looking after my husband. Whenever I thought of God, I would feel a sense of peace. Sometimes, I would spend time in my garden, enjoying the beauty of the flowers."* P6

Discussion

The results of this qualitative study showed that the three categories of onslaught of physical and psychological tension, confrontation with multiple roles and tasks, and lack of resources were factors that contributed to the burden of family caregivers of CABG patients. In this study, physical tension in family caregivers was found to be associated with the occurrence or exacerbation of physical pain, weakness, and disturbances in sleep and rest patterns. Many of these tensions stem from the pressures of providing care and the growing responsibilities of caregivers. Aligning with recent research, Hayashi *et al*. (2021)[26] showed that about 44% of caregivers of heart failure patients felt physically tired. Additionally, a significant number of caregivers reported that caregiving had been physically hard work and made it difficult to sleep. Another study by Yoltay *et al*.[27] demonstrated that caring for CABG patients is associated with increased physical exhaustion.

The psychological stresses inflicted on caregivers were another dimension of the care burden. The primary cause of mental distress came from worries and anxiety about potential hazards in the patients' treatment period. Fears of a delay in recovery and possible complications of surgery such as heart attacks, infections, and re-hospitalization were prevalent among participants. However, the conflicts in the caregiver's interpersonal relationships with the patient and the family caused psychological problems for them. The patient's failure and unwillingness to adhere to the treatment plan, as well as the inappropriate reactions of family members, led to stress and anger, which diminished their resilience. In this context, similar studies have shown that caring for CVD patients was associated with the development of symptoms of depression,[28] anxiety, and fear[29] which is consistent with the findings of the present study.

Caring for patients with chronic CVDs involves adopting additional duties and obligations. In this research, numerous caregivers reported that their household and caregiving responsibilities grew due to taking care of patients. Tasks such as adhering to medication schedules, attending medical appointments, following-up, sticking to dietary restrictions, carrying patients, and providing bathing and wound care were included in the list. It emerged from the statements of the caregivers that the role strain has led to disruptions in various dimensions of individual, social, and professional lives. Wingham *et al*. stated that role strain and changing role as a result of heavy responsibility and their challenges can be associated with disruption of daily schedules[30] which is consistent with the present study.

Lack of resources such as educational requirements, absence of caring knowledge about medications, diet, pain management, proper wound care, and the management of surgical complications were some of the most important problems of these caregivers. To address this shortage, caregivers sought information from sources like the Internet, peers, and HCPs. Some caregivers found it difficult to learn care instructions and either forgot or didn't understand the training provided by the HCPs. In a qualitative study, Bahrami *et al*.[31] concluded that four themes of "lack of carerelated knowledge," "inaccessibility to responsible source of information," "lack of guidance from healthcare team," and "caring with ambiguity due to unpredictable nature of the disease" were among the important educational needs of heart failure caregivers. Another research conducted by Dalirirad *et al*.[32] indicated that providing educational support to caregivers has substantially alleviated the demands of caregiving, highlighting the crucial role of addressing caregivers' educational needs.

Another challenge for caregivers is the inefficient participation of the family in providing care, as some family members are not cooperative and fail to assist with patient care, leaving caregivers to handle it on their own. However, the family's interference in caregiving and underestimation of the caregiver's efforts has increased the burden of care.

The inefficient service delivery of the health system as another element of the lack of resources led to a significant care burden. The limited facilities for caregivers included the lack of accommodation and proper nutrition. Early discharge of patients despite lack of recovery, and poor knowledge and skills of nurses were examples of the weak performance of the HCPs. Inadequate access to surgeons and hospital staff after discharge, and the absence of psychologists for patient and family counseling were additional issues within the health care. Defects in training programs such as incomplete training and lack of written instructions were other challenges in the health system that could potentially increase the burden of care in caregivers. Studies have shown that the need for support from the healthcare services has always been a concern for caregivers.[12]

The financial and economic problems faced by patients and their caregivers were a contributor to the burden. The high cost of treatment and medical follow-up and the reduction in income due to leaving the job can result in negative outcomes for caregivers and their patients. Insufficient funding for the diet of CVD patients, the supply of blood pressure and glucometer devices, and the emotional burdens on the patients and their family members were some of the outcomes. Several research studies indicated that the provision of patient care was linked to financial hardships, such as decreased income, job abandonment, and unemployment, which is consistent with the findings of the current study.[7,27]

Adaptive coping and support systems as care-reducing factors were other findings of the study. One's active efforts to address stressors through practical solutions are among the problem-based coping. Roth *et al*. showed that there is a correlation between the use of coping strategies and the burden of care in caregivers of CVD patients, so the more burdens a person faces, the more coping strategies they use.[33]

Some individuals mentioned that they focused on their physical well-being to prevent or exacerbate their underlying disease, which could potentially have negative effects on care and sought to take care of themselves by adopting a healthy lifestyle. However, because of the significant responsibility of caregiving, some caregivers asked for assistance from people in their vicinity.

The efforts of caregivers to improve the health of patients as quickly as possible shorten the difficult recovery period through constant attention to physical, mental, and psychological health, and increase patient independence are other strategies to deal with the caregiving strain.

The sense of commitment and forgiveness in care was another factor in reducing the burden of care. Cheng *et al*. found that forgiveness and sacrifice were associated with reduced care burdens and potentially harmful behaviors in caregivers of dementia patients.[34] In addition, comprehending care as a positive experience and an optimistic view of life can significantly reduce the difficulties of caregiving, enabling caregivers to handle their duties more effectively.[35]

Seeking solace in activities like talking with others, reading books, and having fun can help caregivers cope with the stress of providing care. In Iranian culture, where spirituality plays a significant role, turning to practices like thanking God, praying, and pilgrimage to religious places can also help ease the burden of caregiving. In the study of Zheng *et al*.,[36] which examined spiritual interventions on caregivers of patients with terminal illness, it was found that these interventions had positive outcomes for caregivers; so that anxiety and depression, spiritual well-being, and quality of life of caregivers were significantly improved.

The study also discovered the significance of having strong support systems from family, relatives, and colleagues for caregivers. This support includes participating in caregiving, providing hope and emotional support, offering financial assistance, and sharing responsibilities at work. The patient's determination to regain independence in daily life, patience while recovering, gratitude toward the caregiver, as well as effective interactions with healthcare professionals all played a crucial role in lessening the care burden. Research by Cravello *et al*.[37] demonstrated that family support interventions reduce the burden in family caregivers of elderly patients with cognitive decline. In addition, Singh Solorzano *et al*.[38] showed that change in perceived social support mediates the relationship between caregiver burden and mental health of CABG caregivers.

This research is the initial one to delve into extensive results regarding the challenges of caregiving and the factors that alleviate it in caregivers of CABG patients using a qualitative approach. Lack of focus on the perspective of male caregivers due to limited number of male caregivers and their reluctance to take part in the research was one of the limitations.

Conclusion

The current research discovered that family caregivers of CABG patients face numerous challenges in different physical, psychological, social, and financial aspects, negatively impacting the patients' care quality and health outcomes. In addition to strengthening and applying adaptive coping methods, it is necessary to plan to meet the educational and psychological needs and financial support of caregivers. Providing support at home and regular check-ins to identify caregiver issues can assist lessen their burden. It is recommended that an action research study be used to address the caregiving burden. Also, by utilizing the findings of this study, it is advised to design and implement a caregiving burden reduction program for caregivers of CABG patients.

Acknowledgements

This study is a part of a mixed methods study conducted in partial fulfillment of a PhD degree in nursing with project number 26429. The authors would like to thank all the caregivers for their willingness to participate in this study.

Financial support and sponsorship

Shiraz University of Medical Science.

Conflicts of interest

There are no conflicts of interest.

References

1. Roth GA, Mensah GA, Johnson CO, Addolorato G, Ammirati E, Baddour LM, *et al*. Global burden of cardiovascular diseases and risk factors, 1990-2019: Update from the GBD 2019 study. J Am Coll Cardiol 2020;76:2982-3021.
2. Sarrafzadegan N, Mohammmadifard N. Cardiovascular disease in iran in the last 40 years: Prevalence, mortality, morbidity, challenges and strategies for cardiovascular prevention. Arch Iran Med 2019;22:204-10.
3. Modolo R, Chichareon P, Kogame N, Dressler O, Crowley A, Ben-Yehuda O, *et al*. Contemporary outcomes following coronary artery bypass graft surgery for left main disease. J Am Coll Cardiol 2019;73:1877-86.
4. Pačarić S, Turk T, Erić I, Orkić Ž, Petek Erić A, Milostić-Srb A, *et al*. Assessment of the quality of life in patients before and after coronary artery bypass grafting (CABG): A prospective study. Int J Environ Res Public Health 2020;17:1417.
5. Vervoort D, Lee G, Ghandour H, Guetter CR, Adreak N, Till BM, *et al*. Global cardiac surgical volume and gaps: Trends, targets, and way forward. Ann Thorac Surg Short Rep 2024;2:320-4.
6. Park EO, Yates BC, Meza J, Kosloski K, Pullen C. Spousal caregivers of coronary artery bypass surgery patients: Differences between caregivers with low vs. high caregiving demands. Rehabil Nurs 2016;41:260-9.
7. Halm MA. Specific needs, concerns, strategies and advice of caregivers after coronary artery bypass surgery. Heart Lung 2016;45:416-22.
8. Farzadmehr M, Fallahi Khoshknab M, Hosseini M, Khankeh H. The effect of nursing consultation on anxietyand satisfcation of patient's family in cardiac surgical intensive care unit. J Nurs Educ 2016;4:57-64.
9. Centers for Disease Control and Prevention. Caregiving for Family and Friends — A Public Health Issue. 2019 [Internet]. Available from: https://www.cdc.gov/aging/caregiving/caregiver-brief.html [Last accessed on 2024 Aug 05].
10. Abdollahpour I, Nedjat S, Salimi Y. Positive aspects of caregiving and caregiver burden: A study of caregivers of patients with dementia. J Geriatr Psychiatry Neurol 2018;31:34-8.
11. Moieni M, Poorpooneh Z, Pahlavanzadeh S. Investigating the effect of family-focused nursing intervention on caregiver burden of the family members of the patients undergoing coronary bypass surgery in Isfahan Shahid Chamran Hospital during 2012. Iran J Nurs Midwifery Res 2014;19:187-92.
12. Dirikkan F, Baysan Arabacı L, Mutlu E. The caregiver burden and the psychosocial adjustment of caregivers of cardiac failure patients. Turk Kardiyol Dern Ars 2018;46:692-701.
13. Halm MA, Bakas T. Factors associated with caregiver depressive symptoms, outcomes, and perceived physical health after coronary artery bypass surgery. J Cardiovasc Nurs 2007;22:508-15.
14. Noonan MC, Wingham J, Taylor RS. 'Who Cares?' The experiences of caregivers of adults living with heart failure, chronic obstructive pulmonary disease and coronary artery disease: A mixed methods systematic review. BMJ Open 2018;8:e020927.

15. Liu Z, Heffernan C, Tan J. Caregiver burden: A concept analysis. Int J Nurs Sci 2020;7:438-45.
16. Graven LJ, Glueckauf RL, Regal RA, Merbitz NK, Lustria MLA, James BA. Telehealth interventions for family caregivers of persons with chronic health conditions: A systematic review of randomized controlled trials. Int J Telemed Appl 2021;2021:3518050.
17. Halm MA, Treat-Jacobson D, Lindquist R, Savik K. Correlates of caregiver burden after coronary artery bypass surgery. Nurs Res 2006;55:426-36.
18. Jacob L, Oh H, Shin JI, Haro JM, Vancampfort D, Stubbs B, *et al*. Informal caregiving, chronic physical conditions, and physical multimorbidity in 48 low- and middle-income countries. J Gerontol A Biol Sci Med Sci 2020;75:1572-8.
19. Cui P, Yang M, Hu H, Cheng C, Chen X, Shi J, *et al*. The impact of caregiver burden on quality of life in family caregivers of patients with advanced cancer: A moderated mediation analysis of the role of psychological distress and family resilience. BMC Public Health 2024;24:817.
20. Rodríguez-Alcázar FJ, Juárez-Vela R, Sánchez-González JL, Martín-Vallejo J. Interventions effective in decreasing burden in caregivers of persons with dementia: A meta-analysis. Nurs Rep 2024;14:931-45.
21. Nemcikova M, Katreniakova Z, Nagyova I. Social support, positive caregiving experience, and caregiver burden in informal caregivers of older adults with dementia. Front Public Health 2023;11:1104250.
22. Zhang Y, Ding Y, Liu C, Li J, Wang Q, Li Y, *et al*., Relationships among perceived social support, family resilience, and caregiver burden in lung cancer families: A mediating model. Semin Oncol Nurs 2023;39:151356.
23. Pashaee F, Taleghani F, Tavakol K, Rezae A. Family experiences from caregivering of patient with coronary artery bypass graft surgery: A qualitative study. Iran J Nurs Res 2010;5:61-71.
24. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today 2004;24:105-12.
25. Korstjens I, Moser A. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. Eur J Gen Pract 2018;24:120-4.
26. Hayashi E, Mitani H, Murayama H, Anzai T, Studer R, Cotton S, *et al*. Characterizing the role of, and physical and emotional burden on caregivers of patients with heart failure: Results from a cross-sectional survey in Japan. Geriatr Nurs (New York, NY) 2021;42:379-85.
27. Yoltay HE, Doruker NÇ, Korkmaz FD. Examination of care burden and stress levels of companions of elderly patients undergoing open heart surgery: Descriptive research. Türk Klin Cardiovasc Sci 2022;34:78-86.
28. Laflamme SZ, Bouchard K, Sztajerowska K, Lalande K, Greenman PS, Tulloch H. Attachment insecurities, caregiver burden, and psychological distress among partners of patients with heart disease. PLoS One 2022;17:e0269366.
29. Sedlar N, Lainscak M, Farkas J. Living with chronic heart failure: Exploring patient, informal caregiver, and healthcare professional perceptions. Int J Environ Res Public Health 2020;17:2666.
30. Wingham J, Frost J, Britten N. Behind the smile: qualitative study of caregivers' anguish and management responses while caring for someone living with heart failure. BMJ open. 2017;7:e014126.
31. Bahrami M, Etemadifar S, Shahriari M, Farsani A. Informational needs and related problems of family caregivers of heart failure patients: A qualitative study. J Educ Health Promot 2014;3:113.
32. Dalirirad H, Najafi T, Seyedfatemi N. Effect of an educational support programme on caregiver burden among the family members of patients undergoing coronary artery bypass graft surgery. Sultan Qaboos Univ Med J 2021;21:e266-74.
33. Rath R, Pradhan R, Swain M, Senapati P, Mohapatra B, Sahoo B, *et al*. Burden and coping strategies among caregivers of patient suffering with cardiovascular diseases. Int J Cardiovasc Nurs 2023;9:1-8.
34. Cheng W-L, Chang C-C, Griffiths MD, Yen C-F, Liu J-H, Su J-A, *et al*. Quality of life and care burden among family caregivers of people with severe mental illness: mediating effects of self-esteem and psychological distress. BMC Psychiatry. 2022;22:672.
35. Fauziana R, Sambasivam R, Vaingankar JA, Abdin E, Ong HL, Tan M-E, *et al*. Positive caregiving characteristics as a mediator of caregiving burden and satisfaction with life in caregivers of older adults. J Geriatr Psychiatry Neurol 2018;31:329-35.
36. Zheng Y, Cotton AC, He L, Wuest LG. Spirituality-integrated interventions for caregivers of patients with terminal illness: A systematic review of quantitative outcomes. J Relig Health 2021;60:2939-59.
37. Cravello L, Martini E, Viti N, Campanello C, Assogna F, Perotta D. Effectiveness of a family support intervention on caregiving burden in family of elderly patients with cognitive decline after the COVID-19 lockdown. Front Psychiatry 2021;12:590104.
38. Singh Solorzano C, Leigh E, Steptoe A, Ronaldson A, Kidd T, Jahangiri M, *et al*. The impact of caregiving burden on mental well-being in coronary artery bypass graft surgery caregivers: The mediatory role of perceived social support. Int J Environ Res Public Health 2021;18:5447.