Original Article

Access this article online

Quick Response Code:

Website: www.jehp.net

DOI: 10.4103/jehp.jehp_828_20

Exploring the consequences of patient commitment to cardiac rehabilitation program: A qualitative study

Neda Sanaie[1], Ali Darvishpoor Kakhki[2], Fazlollah Ahmadi[3]

Abstract:

BACKGROUND: Commitment to implementing cardiac rehabilitation (CR) plays an important role in managing the problems caused by heart diseases. Commitment to the treatment plan implementation is accompanied by numerous positive consequences. This study was carried out to explain the consequences of commitment to CR.

MATERIALS AND METHODS: Data were collected through semi-structured individual interviews with 26 participants (13 CR specialists and 13 patients), using purposeful sampling. Interview questions focused on the factors influencing the formation of commitment to the CR and its consequences. Conventional content analysis with Graneheim and Lundman's approach was used to analyze the data. To obtain data trustworthiness, Lincoln and Guba's criteria were used.

RESULTS: The findings were classified in three categories: purposeful of a purposeful behavior structure (sense of controlling and managing the condition, sense of responsibility, sense of security), formation of active performance structure (interaction between the patient-family-treatment team, stabilization of behavior and prevention of intermittent behavior, no cessation of the treatment plan and adherence to it, directing behaviors and adaptation to conditions) and achieving dynamic and effective care (active follow-up of the treatment plan, sense of satisfaction, reduced readmission, reduced costs, improved quality of life, reduced anxiety and concerns about treatment failure, increased self-care ability).

CONCLUSION: The results show that the patient's commitment to CR is accompanied by optimal consequences. The results of this study can help design the training plan for the CR staff and develop the clinical practice guidelines to provide educational-care approaches to patients to reinforce their commitment.

Keywords:

Cardiac rehabilitation, commitment, qualitative research

[1]PhD Candidate, Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran, [2]Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran, [3]Department of Nursing, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Address for correspondence:
Dr. Ali Darvishpoor Kakhki, Vali-Asr Avenue, Cross of Vali-Asr and Hashemi Rafsanjani Highway, Opposite to Rajaee Heart Hospital, Tehran, Iran.
E-mail: ali.darvishpoor@yahoo.com

Received: 14-07-2020
Accepted: 25-07-2020
Published: 28-01-2021

Introduction

Cardiovascular diseases (CVDs) are among the most common chronic disorders in the world. They are considered as the most common causes of death and life-threatening factors and are estimated to be responsible for >23 million deaths worldwide by 2030.[1] The American Heart Association predicts that the prevalence of CVDs and their associated health-care costs will increase significantly by 2030.[2] CVDs are the leading cause of death in Iran, and the treatment of patients with CVDs is associated with countless problems.[3] Using cardiac rehabilitation (CR) is an effective intervention to reduce the problems caused by CVDs.[4]

CR is a multidisciplinary approach that aims to improve the patient's ability to perform daily activities and return to work, provide psychological support to the patient and family, improve the patient's knowledge about the disease and treatment plan,

How to cite this article: Sanaie N, Kakhki AD, Ahmadi F. Exploring the consequences of patient commitment to cardiac rehabilitation program: A qualitative study. J Edu Health Promot 2021;10:30.

adjust and correct improper behaviors and risk factors, and manage lifestyle.[5,6] In the past, CR focused on implementing center-based rehabilitation programs; today, with increased home-based programs and electronic telerehabilitation, efforts are being made to make CR available to all patients.[7,8] Commitment to CR plays a key role in achieving the therapeutic goals of patients with CVD.[9]

There are limited definitions of patient commitment to the treatment program, for instance, Higgins *et al*. described the commitment to treatment as the patient's effort over time, which is deeper than a simple motivation, and leads to the patient's tendency toward independent care.[10] García-Moyano *et al*. have defined commitment to treatment as a kind of obligation and responsibility that no one forces an individual to do it, is voluntary, and leads to active participation in the act.[11] Creamer has introduced commitment as a factor in shaping effective treatment.[12] Moreover, studies have shown that patients' commitment is accompanied by positive consequences, including acceptance of illness and treatment,[13] enhancing the ability to perform independent or participatory care, strong motivation to change wrong behaviors,[10] building trust, satisfaction, and adherence to the treatment plan[14]. In the study by Sage, commitment to CR has been introduced to be a key factor in achieving therapeutic goals.[9] In a study by Nijjar, patients' commitment to CR helped improve the learning process and strengthen the willpower to continue the treatment.[15] Therefore, identifying the consequences of commitment to CR is a key strategy to facilitate achieving CR goals. The qualitative study provides the possibility to identify the consequences of commitment to CR, especially from the perspective of the individuals who have direct experience in this field.

Qualitative studies help to understand individuals' inner worlds and gain valuable information arising from their experiences by collecting context-based data.[16] Given the impact of culture and context in understanding a phenomenon and the lack of qualitative study on identifying the consequences of commitment to CP, there was a need to conduct research to identify the consequences of commitment to CR. Therefore, in this study, a qualitative content analysis approach was used to explain individuals' perceptions of the consequences of commitment to CR.

Materials and Methods

Design

Content analysis has a good position in qualitative research due to its high sensitivity to describe the phenomenon as well as the appropriate flexibility to design studies.[17] Given that commitment to CR is related to the context in which the phenomenon occurs, the use of qualitative content analysis with the conventional method helps to understand this phenomenon.[18]

Participants

This study setting was five CR wards of educational hospitals affiliated with two Universities of Medical Sciences in Tehran. Totally, 26 participants (13 CR specialists and 13 patients) participated in the study. The inclusion criteria for the group of specialists included the willingness to participate in the research and at least 2 years of work experience in the CR department, and for patients included the experience of participating in CR programs. Participants' information is described in detail in [Table 1].

Ethical considerations

Before the interview, the purpose and the use of the tape recorder were explained to the participants, and the written permission to record their voice was obtained from them. The time and location of the interviews were chosen according to the participants' convenience. The audio file of the interview and the participants' information were kept confidential by the researcher.

Data collection

To collect data, a semi-structured interview was used. The interviews were conducted individually and in a private setting selected by the participants. Some of the main questions from the specialists included "Considering the work experience you had in the CR department, what factors can help patients to follow their treatment carefully?", "In your opinion, how important is the patient's commitment to the treatment plan in managing the disease and its treatment?" and "If patients follow their treatment plan carefully, what positive consequences do you think it will have?". And the main questions from patients included: "Can you mention the points that make it harder or easier for you to control symptoms of your heart disorder?" and "What are the effects of being committed to a heart treatment plan on your life?" The common questions both groups were asked included, "Explain the problems that you may face in adhering to the heart treatment program?" and "What are the ways to minimize the problems on a treatment pathway?" The interviews lasted approximately 50 min and were recorded by a tape recorder. After the interviews ended, the recordings were transcribed verbatim carefully. Data collection and analysis were performed simultaneously until the data saturation was reached.

Data analysis

To analyze the data, the approach proposed by Graneheim and Lundman was used.[19] Initially, after the completion of each interview, its content was fully transcribed. Afterward, to entirely understand

Table 1: Characteristics of study participants

Specialists' code	Gender	Age	Education	History of working with a heart patient (year)	Type of specialization
P1	Female	47	BSc	13	Head nurse
P2	Female	30	BSc	6	Nurse
P3	Female	37	MSc	10	Nutritionist
P4	Male	61	Associate professor	18	Cardiac surgeon
P5	Male	39	PhD	10	Clinical psychologist
P6	Male	55	PhD	5	Faculty member of nursing department
P7	Female	34	BSc	4	Physiotherapist
P8	Male	33	BSc	9	Nurse
P9	Female	40	PhD	5	Faculty member of nursing department
P10	Male	36	MSc	11	Nurse
P11	Female	44	Cardiologist	10	Cardiologist
P12	Male	39	MSc	11	Occupational therapist
P13	Female	36	MSc	7	Clinical psychologist
Patients' code	**Gender**	**Age**	**Education**	**Duration of disease**	**The reason for rehabilitation**
P14	Female	63	Bachelor's degree	4 months	CABG
P15	Male	66	PhD	18 months	CABG
P16	Female	69	Diploma	12 months	Heart failure
P17	Female	54	Bachelor's degree	1 months	CABG
P18	Female	58	Illiterate	13 months	Myocardial infraction
P19	Male	66	Bachelor's degree	7 months	CABG
P20	Male	72	Diploma	3 years	Heart failure
P21	Female	44	Diploma	4 months	Aortic valve replacement
P22	Male	67	Illiterate	5 months	CABG
P23	Male	49	Diploma	12 months	Myocardial infraction
P24	Male	68	Master's degree	6 months	Heart failure
P25	Male	68	Illiterate	2 years	Heart failure
P26	Female	71	Diploma	13 years	Heart failure

CABG=Coronary artery bypass graft

the content, the full text of each interview was read. Subsequently, the meaning units and the primary codes were determined, and the classification of the identical primary codes was done in the more comprehensive categories. Ultimately, the main theme of the categories was formed. [Table 2] shows an example of the inductive formation of the consequence of commitment to CR.

Trustworthiness

Identifying the trustworthiness involves the use of appropriate research techniques and approaches as an internally consistent manner to achieve the research goal.[20] The data credibility and reliability were identified by reviewing the codes by the participants and the supervisors and prolonged engagement with the research topic. To check participants' comments, they reviewed a part of the interview transcriptions along with the extracted primary codes, and the similarity and consistency of the extracted items were compared with participants' comments. To observe the unbiased interpretation and to identify the confirmability, the coding process was performed by all three authors and compared with each other. Lastly, the disagreements were resolved by consensus. In supervisors' reviews, the extracted categories and subcategories were checked by the qualitative research experts, and their fitness level was controlled, and approval, as well as a consensus, was achieved. Maximum variation sampling was performed to help identify the transferability of data.[21]

Results

The results of the analysis were extracted in the form of three categories including "formation of active performance structure with five subcategories," "formation of purposeful behavior structure with three subcategories," and "achieving dynamic and effective care with eight subcategories" [Table 3]. Below, the meaning of each category and subcategory has been explained using direct quotations.

First category: formation of active performance structure

Participants explained how commitment to CR leads to companionship and interaction between family, patient, and treatment team. Despite all the potential problems on a treatment pathway, the treatment plan directs patients' therapeutic behaviors, and this, in turn, leads to the prevention of intermittent behaviors and adherence to the

Table 2: An example of the inductive process of data analysis to develop the consequences of commitment to cardiac rehabilitation

Main category (consequence)	Subcategories (sub-consequences)	Quotation	Primary code
Formation of purposeful behavior structure	Ability to control and manage conditions	Commitment to CR increases the patient's ability to control and manage stressful and acute conditions following illness (P2)	Commitment leads to increased patient control and management of acute conditions, reduces the need for external control, creates a sense of control over the condition, increases sensitivity and efforts for better management of disease and treatment
		Commitment to CR increases the patients' sensitivity to treatment and their further efforts to manage illness and treatment better (P13)	
	A sense of responsibility and duty	The patient's greater sense of responsibility following a commitment to CR leads to the active participation of the patient in the treatment plan and more attention to their health (P8)	Commitment outcome is the sense of duty to observe treatment instructions. Commitment increases the patient's sense of responsibility towards the treatment plan and the family
		Commitment to CR makes people consciously feel responsible for the tasks that occur in different conditions (P19)	
	A sense of security	Commitment can create a sense of having control over the situation and feeling safe (P3)	Commitment leads to a sense of security in the patient. Adherence to the CR program over time creates peace of mind and comfort in the family
		Proper adherence to treatment plans and the doctor's satisfaction with the heart condition will make the patient have peace of mind, and this feeling of security will calm the patient and the family (P24)	

CR=Cardiac rehabilitation

Table 3: Overview of the theme, categories and subcategories

Categories	Subcategories
Formation of purposeful behavior structure	A sense of controlling and managing the condition
	A sense of responsibility
	A sense of security
Formation of active behavior structure	Interaction between the patient, family, and treatment team
	Stabilization of behavior and prevention of intermittent behavior
	No cessation of the treatment plan and adherence to it
	Directing behaviors
	Adaptation to conditions
Achieving dynamic and effective care	Active follow-up of the treatment plan
	A sense of satisfaction with the treatment
	Reduced hospital readmission
	Reduced costs of treatment
	Improved quality of life
	Reduced anxiety and concerns about treatment failure
	Increased self-care ability

CR program. This category includes five subcategories: interaction between patient, family, and treatment team, stabilization of behavior and prevention of intermittent behavior, no cessation of the treatment plan and adherence to it, directing behavior, and adaptation to conditions.

P5 stated: "*The relationship between the patient and the family and members of the treatment team starts from the patient's visit and will continue for many years. Commitment to CR and strict adherence to treatment instructions over time will cause patients to accompany with the physician and healthcare staff.* "(Patient-family and treatment team interaction and companionship).

P13 said: "*Commitment to CR changes the patient's lifestyle by increasing knowledge and skills and reduces the likelihood of intermittent behavior, and the created commitment results in a lot of consistency in a person's behavior*." (Stabilization of behaviors and prevention of intermittent behaviors).

P17 said: "*When a patient and family accompany CR and believe that the plan will improve the disease and will make them achieve health, over time, with the effectiveness of treatment due to the commitment to treatment instructions, they don't stop treatment and continue it.*" (No cessation of the treatment plan and adherence to it).

P10 stated: "*Commitment to cardiac-rehabilitation programs taught to patients makes them focus on the tasks they need for achieving their health, and by adhering to those programs, they can direct their behaviors correctly to be adapted to the treatment plan, which includes all aspects such as diet, physical activity, and medication instructions, etc*." (Directing behaviors).

P9 said: "*Commitment to CR is accompanied by the acceptance of the disease as a part of self and adaptation of the disease to the living conditions, and this commitment is associated with consequences such as active participation……. and adaptation to conditions and consistency in behavior*." (Adaptation to conditions).

Second category: formation of purposeful behavior structure

Commitment explains how individuals feel responsible for themselves and their families in different situations,

committed individuals have more control over events and conditions, and they consider changes as natural challenges and a motive to progress.[22] This category includes three subcategories: the ability to control and manage conditions, a sense of responsibility and duty, and a sense of security.

P14 said: "*When the patient follows the treatment plan with* his/her *willingness, over time, they'll gain a correct understanding of the treatment usefulness, and reinforcing this feeling will increase the patient's ability to form the belief that they can control the events of their lives,.commitment to CR, over time increases the patient's ability to control the problems related to the disease and the course of treatment and. When a person has control over the situation around* him/her*, they can manage those conditions better*." (The ability to control and manage the situation).

P19 said: "*Commitment to CR makes people consciously feel responsible for tasks that occur in different conditions and situations such as worsening of the disease and so on. And this sense of responsibility causes the patient to participate in the treatment plan actively and pay more attention to* his/her *health*" (A sense of responsibility and duty).

P24 stated: "*Observing treatment plans correctly and the doctor's satisfaction with the heart condition make the patient feel safe, and this feeling of security calms the patient and the family*." (A sense of security).

Third category: achieving dynamic and effective care

This category describes that commitment to CR leads to the formation of a line of activities that results in the formation of consistent and effective care and is accompanied by positive therapeutic consequences. This category includes seven subcategories: active follow-up of the treatment plan, a sense of satisfaction with the treatment, reduced hospital readmissions, reduced treatment costs, improved life quality, reduced anxiety and concerns about treatment failure, and increased self-care ability.

P5 stated: "*Commitment is the sense of following the responsibilities that the patient believes* he/she *must always follow them to achieve health, and it is not necessary to remind the patient of these things….. And this active follow-up by the patient doesn't need any external control over the patient and* he/she *participates in the treatment plan on* his/her *motivation*." (Active follow-up of the treatment plan).

P1 said: "*When a patient feels healthy after heart treatment and* his/her *physical and mental condition improves with CR, they have a lot of satisfaction with their treatment plan, which in turn reduces anxiety and concerns both in the patient and the family*." (A sense of satisfaction with the treatment).

P20 said: "*By adhering to the training provided during CR and correcting the wrong behaviors over time, many changes including reduced hospitalizations, financial problems, physical and even mental illnesses of the patient and family and….are possible*." (Reduced hospital readmissions).

P6 stated: "*Paying attention to training and following treatment instructions after discharge reduces future referrals, costs of re-hospitalizations, and length of stay. Also, an increased commitment of the patient, the family, and the treatment team, in the long run, has a great impact on reducing the financial burden of the health system by reducing costs*." (Reduced treatment costs).

P2 said: "*Commitment is the willpower of an individual that makes a patient try hard to achieve health and enhance living conditions, and it improves the quality of life and physical and mental well-being*." (Improved quality of life).

P 25 stated: "*When we constantly pay attention to what the doctor says, the disease progresses less, and this improvement of the heart condition reduces stress and anxiety, but it occurs when we always follow the doctor's instructions*." (Reduced anxiety and concerns about treatment failure).

P4 stated: "*Patients' commitment leads to their long-term involvement with CR, and it increases the knowledge and skills needed for self-care, so the patient becomes able to take care of* himself/herself *in different situations, especially in acute physical conditions*." (Increased self-care ability).

Discussion

The results of the analysis of participants' experiences showed that the consequences of commitment to the CR program have three main aspects that will lead to the formation of active performance structure, purposeful behavior structure, and achieving dynamic and effective care.

One of the findings of this study is the formation of active performance structure following commitment to CR, which focuses on five aspects. Regarding the interaction between patient-family and treatment team, Holmvall believes that commitment is the key factor in the formation of interaction and relationship between professional care providers and patients, which leads to a strong communication network between them and is accompanied by important results including the formation of trust in the patient and adherence to the treatment plan.[14] The patient's commitment to maintaining contact with the treatment team is associated with positive consequences such as treatment adherence and the formation of healthy behaviors, and this effort to maintain relationships helps the patient follow the treatment plan enthusiastically.[23] Moreover,

commitment creates an active relationship over time by establishing an emotional connection between the patient and the treatment team.[24]

Stabilization of behaviors and prevention of intermittent behaviors and also no cessation of the treatment plan and adherence to it are the two other aspects of commitment to CR. Commitment is a concept that helps solve the problem of inconsistency and lack of stability in human behavior and is a factor to explain behavioral consistency in humans that leads to the formation of consistent lines of activity.[25] Rather argues that commitment is a strong personal desire to perform a line of actions without withdrawing, which leads to the formation of consistent actions in individuals.[26] Hadden claims that commitment leads to a tendency in individuals to maintain behavior and act, avoid tempting factors to abandon the action, and strive for greater consistency in behavior.[27] Commitment to the treatment program makes individuals voluntarily resist short-term temptations to abandon treatment.[28]

Directing behaviors is one of the important aspects of the commitment consequences in this category. Chai defines commitment as a sustainable set through which individuals direct their behaviors and thoughts in order to achieve their goals.[29] Agnew believes that commitment defines their domain of behavior, strengthen the formation and orientation of behavior, and prevent the abandonment of action.[30] Commitment is a pledging and attitudinal factor toward behavioral activities, which leads to acceptance of the role and associated behaviors, and its utmost focus is on behaviors formed in individuals.[31] Adaptation to the conditions was the last aspect of this category. Commitment creates a desire in individuals to adapt to the situation as much as possible since commitment to goals causes human beings to adjust their behaviors to different upcoming situations.[30] Committed individuals have more control over events and consider the change as a natural challenge and a motivation for making progress for adaptation to the upcoming conditions and challenges.[32] Accordingly, it can be mentioned that creating appropriate conditions for the formation of commitment in patients will help them create an active performance with all its dimensions, including consistency of behavior, strengthening the relationship with the treatment team, and adaptation to the conditions and challenges hindering treatment process, and this way, patients will not abandon the treatment process over time, regarding the chronic nature of the disease.

Another finding of this study is the formation of a purposeful structure with three aspects. Regarding the ability to control and manage conditions, Kassymova states that commitment in individuals leads to the lack of alienation from self, and this sense enables the individual to have more control over events and situations.[22] Commitment to treatment in patients with heart diseases is a psychological concept that enhances the ability to control issues and face challenges, and this sense of control over the conditions is formed through combining a set of beliefs about self, the universe, and the interaction between them.[33] Lund argues that commitment in individuals creates a sense of control over interpersonal conditions and relationships that help them achieve their goals.[34]

Regarding the sense of responsibility and duty as another consequence of commitment to treatment, Falk states that the formation of commitment in individuals creates a strong sense of responsibility and dependence in them, and this sense of responsibility makes individuals not to reverse their decision, realize its importance and consider commitment as an exercise to achieve freedom of choice.[35] Meyer defines commitment as an attitude and state of mind that creates a kind of desire (interest to accept and continue the activity), need (achieving demands that require the individual's presence in a group), and obligation (responsibility to continue the activity).[36] Boyd argues that commitment, by creating a sense of responsibility, gives the individual the power not to abandon their goals in case of any problem.[37]

The final aspect of this category is a sense of security. In this regard, Meyer states that commitment in individuals leads to the promotion of a sense of security, a positive self-image, and increased effort to achieve goals.[36] Commitment strengthens individuals' motivation to act, maintain relationships, pursue goals and benefits, and it leads to a sense of security and avoidance of hazardous situations.[38] Accordingly, it can be said that commitment to CR creates a sense of duty and responsibility in patients toward their families to achieve optimal health by following CR. Taking into account CR training programs and following treatment instructions over time strengthens patients' self-care ability; therefore, the patient is enabled to control the situation, and this ability to manage the condition provides the patient with a sense of security.

The last finding of this study was achieving dynamic and effective care with seven aspects. Regarding active follow-up of the treatment program, Putnam states that increasing patients' commitment using strategies such as educating, involving, and consulting the patient and family, increasing perceived satisfaction by identifying the benefits of a commitment to the treatment plan, providing effective interventions to increase commitment, such as increasing rewards or benefits of treatment and taking into account important investment resources lead to an accurate and continuous follow-up of therapeutic

recommendations.[39] Patients' and care providers' commitment increases CR participation, and levels of CR commitment are directly related to the follow-up of the treatment plan.[9] Commitment enhances individuals' motivation to pursue goals and creates relative satisfaction and motivation in individuals to pursue their goals.[38]

A sense of satisfaction was another aspect of this category. Setyajidi believes that satisfaction felt by a patient as a service recipient is a long-term strategy that requires mutual commitment, sufficient and skilled workforce, and financial support to strengthen.[40] The results of the Ruano-Ravina's study show that commitment in the treatment team to provide comprehensible and effective training and in the patient to adhere to the treatment plan is accompanied by patient satisfaction with CR.[41]

Reduction of hospital readmissions and treatment costs were two other important consequences of commitment to CP in this study. Promoting patients' commitment and explaining the benefits of a commitment to the treatment program and providing effective interventions to enhance commitment play a role in reducing the costs of treatment and hospitalization.[39] The results of the study by Vargas showed that cardiac patients' strict adherence to the treatment plan was associated with the reduction in hospitalization costs, re-hospitalization, and length of stay in the hospital.[42]

Improving the quality of life is another important consequence of commitment to CR. García-Moyano states that commitment has positive impacts on quality of life and the level of care, and committed individuals feel that their work situation are part of themselves, and this commitment to care creates a situation that leads to an increase in the quality of life and the improvement of the patient-caregiver relationship.[11] Committed individuals have a belief system that enables them to reduce the perceived threat of any stressful life event, and this commitment affects all areas of life, especially health, social activities, interpersonal relationships, family, and relationships with self and improves the quality of life.[22]

Reduced anxiety and concerns about treatment failure was another important finding of this study. The formation of commitment in individuals by strengthening skills, knowledge, and clinical support following appropriate communication with the treatment team is effective in reducing anxiety in patients with CVDs.[33] Commitment is a source of strong resistance to the effects of stress in individuals' lives, and committed individuals are less likely to be harmed in dealing with a stressful environment, and this ability is effective in reducing their anxiety about dealing with challenging situations.[24] Increasing self-care ability was the last consequence associated with CR in this category. Higgins states that commitment shows an increase in the patient's willingness and ability to participate in self-care, which leads to the formation of the ability to take roles and responsibilities, and the formation of commitment in the patient increases the patient's desire and ability to participate in self-care and reinforces their ability to perform independent or participatory care.[18] Sage has introduced the following as consequences of commitment to CR: the patient's involvement in CR to set treatment goals, using motivation enhancement techniques, involving patients and their families, setting goals based on the patient's needs, respecting the patient's independence, and supporting patients.[9] Due to the chronic nature of heart diseases, the formation of a line of factors such as strengthening self-care ability, active follow-up, and active participation in CR provides conditions that reduce the patient's concerns about treatment failure and disease worsening. In this study, the opinions of rehabilitation specialists and patients were used simultaneously and this issue helped to form multidimensional data. One of the weaknesses of this study, due to limited access to patients' family members, this group was not included as a participant in the study. It is suggested that in future research, the antecedents for the formation of commitment to the treatment plan be studied, also, due to the importance of the role of the family in the care and management of patients with chronic disorders, it is suggested that future research be used the patients' families as participants.

Conclusion

There are several challenges in treating and caring for patients with CVDs. These problems can gradually become challenging for the patient and even the family and may cause the patient to stop CR. Therefore, explaining the consequences of a patient's commitment to CR is effectively involved in positive outcomes. Explaining the consequences of commitment to CR is an important finding that can contribute to the advancement of nurses' knowledge and performance in promoting patients' commitment to treatment. In developing training programs for heart patients receiving CR, members of the treatment team are required to take into account the consequences of commitment to CR and its aspects, especially reinforcement of the strong relationship between the patient, the family and members of the treatment team to properly implement the treatment program, active CR follow-up, responsibility and stability of therapeutic behaviors and adherence to them.

Acknowledgment

This study was excerpted from a doctoral dissertation of Nursing Education with the code number of IR.SBMU.PHARMCY.REC.1397.099. Hereby, the authors feel

obliged to extend their gratitude toward Shahid Beheshti University of Medical Sciences for their support to conduct this research. We are very grateful to the individuals who volunteered and participated in our study.

Financial support and sponsorship

The authors appreciate toward Shahid Beheshti University of Medical Sciences for their support to conduct this research.

Conflicts of interest

There are no conflicts of interest.

References

1. Benjamin EJ, Blaha MJ, Chiuve SE, Cushman M, Das SR, Deo R, *et al*. Heart disease and stroke statistics-2017 update: A report from the American Heart Association. Circulation 2017;135:e146-603.
2. Fryar CD, Fakhouri TH, Carroll MD, Frenk SM, Ogden CL. The association of nativity/length of residence and cardiovascular disease risk factors in the United States. Prev Med 2020;130:105893.
3. 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.
4. Ribeiro GS, Melo RD, Deresz LF, Dal Lago P, Pontes MR, Karsten M. Cardiac rehabilitation programme after transcatheter aortic valve implantation versus surgical aortic valve replacement: Systematic review and meta-analysis. Eur J Prev Cardiol 2017;24:688-97.
5. Mehra VM, Gaalema DE, Pakosh M, Grace SL. Systematic review of cardiac rehabilitation guidelines: Quality and scope. Eur J Prev Cardiol 2020;27:912-28.
6. Prabhu NV, Maiya AG, Prabhu NS. Impact of cardiac rehabilitation on functional capacity and physical activity after coronary revascularization: A scientific review. Cardiol Res Pract 2020;2020:1-9.
7. Bakhshayeh S, Sarbaz M, Kimiafar K, Vakilian F, Eslami S. Barriers to participation in center-based cardiac rehabilitation programs and patients' attitude toward home-based cardiac rehabilitation programs. Physiother Theory Pract 2019:1-11.
8. Cristo DD, Nascimento NP, Dias AS, Sachetti A. Telerehabilitation for cardiac patients: systematic review. Int J Cardiov Sci 2018;31:443-50.
9. Sage S. Cardiac rehabilitation: Motivation and commitment. Br.J Card Nurs 2013;8:237-40.
10. Higgins T, Larson E, Schnall R. Unraveling the meaning of patient engagement: A concept analysis. Patient Educ Couns 2017;100:30-6.
11. García-Moyano L, Altisent R, Pellicer-García B, Guerrero-Portillo S, Arrazola-Alberdi O, Delgado-Marroquín MT. A concept analysis of professional commitment in nursing. Nurs Ethics 2019;26:778-97.
12. Creamer AM. Therapeutic Commitment and Care of Persons with Mental Illness: A Survey of Nurse Practitioners' Role Perceptions; 2011.
13. Salehi-tali S, Ahmadi F, Zarea K, Fereidooni-Moghadam M. Commitment to care: the most important coping strategies among family caregivers of patients undergoing haemodialysis. Scand J Caring Sci 2018;32:82-91.
14. Holmvall C, Twohig P, Francis L, Kelloway EK. Applying justice and commitment constructs to patient–health care provider relationships. Can Fam Physician 2012;58:e159-65.
15. Nijjar PS, Connett JE, Lindquist R, Brown R, Burt M, Pergolski A, *et al*. Randomized trial of mindfulness-based stress reduction in cardiac patients eligible for cardiac rehabilitation. Sci Rep 2019;9:18415.
16. Holloway I, Galvin K. Qualitative Research in Nursing and Healthcare. New York: John Wiley & Sons; 2016.
17. Graneheim UH, Lindgren BM, Lundman B. Methodological challenges in qualitative content analysis: A discussion paper. Nurse Educ. Today 2017;56:29-34.
18. Speziale HS, Streubert HJ, Carpenter DR. Qualitative Research in Nursing: Advancing the Humanistic Imperative. Philadelphia: Lippincott Williams & Wilkins; 2011.
19. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today 2004;24:105-12.
20. Drisko J. Standards for qualitative studies and reports. Qualitative Res Soc Work 2013:3-34.
21. Guba EG, Lincoln YS. Competing paradigms in qualitative research: Theories and issues. Approaches to qualitative research: A reader on theory and practice. Oxford University Press, New York 0.2004: 17-38.
22. Kassymova GK, Tokar OV, Tashcheva AI, Slepukhina GV, Gridneva SV, Bazhenova NG, *et al*. Impact of stress on creative human resources and psychological counseling in crises. Educ Inf Technol (Dordr) 2019;13:26-32.
23. Fowler Davis S, Hinde S, Ariss S. Complex programme evaluation of a 'new care model' vanguard: A shared commitment to quality improvement in an integrated health and care context. BMJ Open 2020;10:e029174.
24. Kramer M. Learning about emotions in illness: Integrating psychotherapeutic teaching into medical education, edited by peter shoenberg and. Psychodyn Psychiatry 2015;43:316-20.
25. Becker HS. Notes on the concept of commitment. Am J Sociol 1960;66:32-40.
26. Rather RA, Tehseen S, Itoo MH, Parrey SH. Customer brand identification, affective commitment, customer satisfaction, and brand trust as antecedents of customer behavioral intention of loyalty: An empirical study in the hospitality sector. J Acad Mark Sci 2019;29:196-217.
27. Hadden BW, Agnew CR, Tan K. Commitment readiness and relationship formation. Pers Soc Psychol Bul 2018;44:1242-57.
28. Ooi J, Francová A, Székely M, Michael J. The sense of commitment in individuals with borderline personality traits in a non-clinical population. Front Psychiatry 2018;9:519.
29. Chai DS, Hwang SJ, Joo BK. Transformational leadership and organizational commitment in teams: The mediating roles of shared vision and team-goal commitment. Perform Improv Q 2017;30:137-58.
30. Agnew CR, Hadden BW, Tan K. It's about time: Readiness, commitment, and stability in close relationships. Soc Psychol Personal Sci 2019;10:1046-55.
31. Cifci SD, Erdogan BZ. Antecedents and measurement of brand commitment and behavioural loyalty. J Cust Behav 2016;15:321-36.
32. Mohiuddin AK. Pharmacist-patient relationship: Commitment to care. Biomed J Sci Tech Res 2019;19:15588-9.
33. Karataş T, Bostanoğlu H. Perceived social support and psychosocial adjustment in patients with coronary heart disease. Int J Nurs Pract 2017;23:e12558.
34. Hadden BW, Harvey SM, Settersten RA Jr., Agnew CR. What do I call us? The investment model of commitment processes and changes in relationship categorization. Soci Psychol Personality Sci 2019;10:235-43.
35. Falk A, Zimmermann F. Information processing and commitment. Economic J 2018;128:1983-2002.
36. Meyer JP, Espinoza JA. Occupational commitment. In: Handbook of Employee Commitment. Cheltenham: Edward Elgar Publishing; 2016.

37. Boyd NM, Nowell B. Sense of community, sense of community responsibility, organizational commitment and identification, and public service motivation: a simultaneous test of affective states on employee well-being and engagement in a public service work context. Public Manag Rev 2020;22:1-27.
38. Rodrigues D, Lopes D, Kumashiro M. The "I" in us, or the eye on us? Regulatory focus, commitment and derogation of an attractive alternative person. PLoS One 2017;12:e0174350.
39. Putnam DE, Finney JW, Barkley PL, Bonner MJ. Enhancing commitment improves adherence to a medical regimen. J Consult Clin Psychol 1994;62:191.
40. Setyajidi B, Kambuaya B, Tuhumena R, Bharanti E. Influence of patient satisfaction through commitment to loyalty inpatient HOSPITALS Jayapura. Adv Soc Sci Res J 2018;5:370-378. https://doi.org/10.14738/assrj. 54.4298.
41. Ruano-Ravina A, Pena-Gil C, Abu-Assi E, Raposeiras S, van't Hof A, Meindersma E, *et al*. Participation and adherence to cardiac rehabilitation programs. A systematic review. Int J Cardiol 2016;223:436-43.
42. Vargas J, Goel A, Stoner T, Fowler K. Heart failure hospitalist can reduce length of stay, Can Reduce Readmission, and Can Reduce Cost. J Card Fail 2019;25:S121.