



Challenges Experienced by Iranian Patients with Temporary Transvenous Cardiac Pacemakers: A Phenomenological Study

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Abstract

Background: One of the main causes of mortality in patients with heart disease is arrhythmia. A temporary pacemaker is inserted to control arrhythmias, particularly when an intervention is urgently needed. Since this procedure is not benign, patients might experience many challenges. As the first step in the development of nursing interventions, identifying these experiences can help reinforce evidence in this field and enhance the quality of nursing care.

Objectives: The present study aimed to explore the challenges experienced by patients with temporary transvenous cardiac pacemakers (TTCPs).

Methods: This qualitative, interpretive phenomenological study was conducted on 18 patients with pacemakers who were selected by purposive sampling. The data were collected through in-depth semi-structured interviews. All the interviews were recorded and simultaneously analyzed via van Manen's analytical method.

Results: The results of data analysis resulted in three major themes: "disregard for patient's dignity", "dependent life", and "physical and psychological problems".

Conclusions: This study showed the challenges of patients with TTCPs. This group of patients is facing challenges related to the care and hospitalization matter and facing an uncertain future. Therefore, there is a need to pay more attention to patients' needs during hospitalization, such as informing patients about the procedure, respecting patients' dignity and rights, and controlling physical and psychological problems.

Keywords: Cardiac Pacemakers, Qualitative Study, Phenomenology, Nurses

1. Background

Despite the remarkable advances in their prevention, diagnosis, treatment, and rehabilitation, cardiovascular diseases are still regarded as the leading cause of mortality in many countries (1), and arrhythmia is responsible for a significant percentage of these mortalities (2). Using a pacemaker, which is an electronic device used when the heart is unable to generate an effective electrical impulse to initiate contraction and maintain cardiac output, is one of the ways to control and treat Bradyarrhythmias (3). A temporary transvenous cardiac pacemaker (TTCP) is one of the various types of pacemakers whose first successful application was reported by Tancredi et al. in 1967. A temporary transvenous cardiac pacemaker was proposed as a life-saving treatment for patients

with serious arrhythmias (4). This technique is used to treat symptomatic bradycardia and different types of symptomatic cardiac blockages (5). Additionally, when a permanent pacemaker is unavailable or impossible to implant, this temporary treatment can be used to bridge the gap until a permanent pacemaker becomes available (4).

Following the insertion of a temporary pacemaker, patients are often exposed to complications caused by the procedure and other problems. The complications observed have been related to the venous lead (e.g., lead dysfunction and cardiac perforation), venous access, or the need to remain physically still so as to prevent the development of other complications, such as bleeding, infection, and thrombosis, especially in

older individuals, and psychological problems, such as delirium (6-9). In addition to causing problems for the patients, these complications lead to re-intervention and prolonged hospitalization. Moreover, a second procedure is often required to insert a permanent pacemaker after the temporary one, approximately a week following the insertion of the temporary pacemaker, thereby prolonging the treatment process (8). Meanwhile, there are only general care guidelines for these patients, and the details have not been seriously examined, particularly from the patients' point of view (10).

Various studies have argued that investigating the experiences of patients with pacemakers is the first important step toward developing effective interventions (11, 12). In their study, Timmins and Kaliszer argued that nursing care could only be effective when it is based on the patients' experiences of the disease and their perception of their own needs (13). In another qualitative study on the experiences of patients with pacemakers, Hallberg and Malm cited in Speziale et al. stated that understanding the patients' experiences can contribute to their social and psychological rehabilitation (14). Therefore, similar to most clinical interventions, effective nursing care for patients with temporary pacemakers should be unique, based on the patients' experiences and needs, and compatible with their conditions (15). Meanwhile, studies conducted on this subject have been mostly quantitative and have investigated pacemaker insertion techniques (16), training (17), and complications and consequences (4, 18), while the challenges experienced by these patients have remained unexamined. It should be noted that the experiences of these patients can only be explored through qualitative research (13) since qualitative studies clarify participants' knowledge of a phenomenon, enable the comprehension of the issue, and provide new insights into the subject of study (14).

The evidence about patients' experiences and challenges is limited, and a significant number of studies date back to 40 years ago. Moreover, it is unclear how these results will translate into current clinical practice (4). On the other hand, the mortality rate in patients who need TTCP is high (about 15%) (18), and due to the lack of alternative treatments, this treatment is currently unavoidable. Furthermore, about 65% of patients after TTCP need a permanent pacemaker, which increases the rate of infection in these patients up to 2.5 times (19). Therefore, it seems that conducting a qualitative study to explore experiences and challenges and to understand and identify care needs from the perspective of patients with rich experiences can be a fundamental step in reinforcing the evidence in this area.

2. Objectives

This study was performed to discover the challenges experienced by Iranian patients with TTCP.

3. Methods

3.1. Study Design

The present qualitative, interpretive phenomenology study was conducted to explore the challenges experienced by patients with temporary cardiac pacemakers based on the six steps proposed by van Manen. According to van Manen, phenomenology provides researchers with a systematic approach to studying and interpreting a phenomenon (20). This type of study is applied when the researcher needs to elucidate a lesser known or unknown phenomenon through the in-depth investigation of the lived experiences of individuals affected by that phenomenon (21).

3.2. Participants and Study Setting

A total of 18 patients undergoing temporary cardiac pacemaker insertion entered the study by purposive sampling. Patients were interviewed during the time they had TTCP in place. The study setting consisted of two hospitals affiliated with Urmia University of Medical Sciences, Urmia, Iran, that admit these patients. Visiting the cardiac care wards in the selected hospitals enabled the acquaintance of the eligible patients, who were then selected for participation in the study. The study inclusion criteria were willingness to take part in the study, ability to establish communication and express one's experiences, a minimum of 48 hours of TTCP use, and femoral access vein. Patients without rich experiences and those who did not provide the researcher with complete information were excluded from the study. Table 1 shows the participant's characteristics.

3.3. Data Collection

The data were collected using in-depth semi-structured face-to-face interviews. A total of 20 interviews were conducted with 18 participants. After obtaining the patients' demographic details, the interviews began with open-ended questions, such as "How come you had a pacemaker inserted?" and "What happened during, before, and after the insertion of the pacemaker?" and then steered to exploratory questions, such as "What was your experience of the temporary cardiac pacemaker?", "Describe the challenges and problems you faced during hospital admission and pacemaker insertion", and "What is your life like with a

Table 1. Demographic Details of the Participants

Interview Time, min	TTCP Duration, d	Primary Diagnosis	Marital Status	Education Level	Gender	Age, y	ID
110	3	Bradycardia	S	High school dropout	Male	70	P1
45	2	Second-degree AV block type Mobitz 2	M	High school diploma	FM	58	P2
50	3	CHB	M	High school dropout	Male	64	P3
55	4	second-degree AV block type Mobitz 2	M	High school diploma	FM	48	P4
50	3	Bradycardia	M	High school dropout	FM	66	P5
55	5	CHB	M	High school dropout	Male	51	P6
45	3	Bradycardia	M	High school dropout	Male	78	P7
60	2	MI	M	High school dropout	FM	70	P8
75	3	Second-degree AV block type Mobitz 2	M	High school dropout	FM	72	P9
100	3	Second-degree AV block type Mobitz 2	S	Higher education	FM	48	P10
45	4	Bradycardia	M	High school diploma	FM	68	P11
90	3	Bradycardia	M	High school dropout	Male	55	P12
40	3	CHB	S	High school dropout	Male	69	P13
75	2	Second-degree AV block type Mobitz 2	M	High school dropout	FM	60	P14
60	2	Bradycardia	M	Higher education	FM	58	P15
55	3	Bradycardia	M	High school diploma	Male	60	P16
60	2	Second-degree AV block type Mobitz 2	M	Higher education	FM	51	P17
65	4	Bradycardia	M	High school dropout	Male	62	P18

^a P indicates participant.

Abbreviations: FM, female; M, married; S, single; CHB, complete heart block; MI, myocardial infarction.

temporary cardiac pacemaker?”. Probing questions were then asked to obtain greater richness, such as “Please elaborate on this”, “What do you mean by that?”, and “Could you give us an example?”

With their consent, the patients’ voice was recorded. Interviews with the patients who did not consent to the voice recordings (two patients) were written down manually. The interviews were conducted using Turkish and Farsi and then translated into English by an English-speaking person. Each interview was transcribed on paper at the first opportunity. The corresponding author listened to the interviews and reviewed the transcriptions several times. The views of all the research team members were implemented and confirmed. The duration of the interviews was based on each patient’s ability to cooperate, and each interview lasted 60 minutes on average (minimum of 40 and maximum of 110 minutes). The interviews were conducted at the hospital in each patient’s ward of admission and continued until the saturation of data. The non-emergence of new codes in the last two interviews was taken to indicate data saturation, and a total of 18 interviews were ultimately conducted.

3.4. Data Analysis

The data were analyzed using van Manen’s six-step method (20). His two holistic and selective approaches were used to separate thematic sentences and extract themes. According to this method, the text of the interviews was transcribed and reviewed several times by the corresponding author to confirm its accuracy and to gain a general understanding of it. Then, the general understanding gained from the text was written down in two or three paragraphs, which helped the researcher to immerse himself in the data. Then, the text of each interview was read several times, and sentences and phrases that seemed to describe the nature of the phenomenon or reveal it were selected, and themes were extracted. In the analysis process, the research team went over these steps several times and exchanged views on extracting topics and themes. In order to resolve any discrepancies and inconsistencies in the interpretations, the process of returning to the texts continued regularly and repeatedly until the resulting themes were connected in the best possible way. Finally, the main themes emerged through these frequent forward and backward reviews, and 13 subthemes and 3 themes were obtained.

3.5. Rigor

To confirm the trustworthiness of the data, Lincoln and Guba's cited in Speziale et al. evaluative criteria, including credibility, reliability, confirmability, and transferability, were employed (14). Credibility was achieved through an appropriate rapport and close interaction with the participants. The interview texts were given to the participants, and their views were implemented. Through prolonged engagement with the data, all the stages of the study were reviewed by the research team, and their views were also implemented. Moreover, the participants were selected with the maximum diversity possible. For reliability, all the stages of the study were reviewed by the research team and externally checked (by someone familiar with qualitative research and clinical settings) through discussion. These views were implemented for all the stages, and the results were confirmed. To ensure confirmability, the study stages were documented for availability to and use by others in the future. All the study stages were accurately described so as to enable the application of the research findings in other societies with similar characteristics and to achieve transferability.

4. Results

A total of 18 patients with TTCP hospitalized in the hospitals of Urmia, Iran, who had the greatest information about the research phenomenon, took part in this study. They comprised 10 females and 8 males, with 15 married and 3 single, and their mean age was 61.55 years (mean \pm SD = 61.55 \pm 9.2). The analysis of the data obtained from the interviews with the patients produced 13 subthemes and three themes, as shown in Table 2.

4.1. Theme 1: Disregard for Patient's Dignity

Respecting the patients' dignity is one of the crucial ethical concepts in nursing and a basic patient right. In the present study, the patients had experienced disregarding of their rights, privacy, and values in various ways. This theme included three subthemes: disregard for patients' rights, lack of privacy, and disregard for patients' values.

4.1.1. Disregard for Patient's Rights

Occasionally, some measures intended to help the patients would threaten their personal independence. The patients had experienced this threat in different ways, such as not having the right to choose and not having permission to go to the bathroom without other individuals' help. One of the patients said:

"I was taken to the operating room as soon as I went into the hospital. I had no idea what they were going to do at all.

No one explained things fully to me as if I had no right to make comments or choice treatments." (P2, female, 58 y)

4.1.2. Lack of Privacy

Most patients considered physical contact without permission, not receiving care by same-sex personnel, and disregard for their preferred clothing as a violation of their personal identity. One of the male patients explained:

"A female physician came to my bedside, pushed my clothes aside, and placed her stethoscope on my thigh at the site of the lead insertion without asking for my permission. It was very disturbing because I was not ready to be touched at all." (P3, male, 64 y)

Additionally, most patients stated that their privacy had not been respected in the hospital, their anxiety had elevated, and their security needs had not been met. They considered the disrespect for their personal space and their exposure to other individuals as a violation of their personal security. One of the patients described:

"My room was not like a private room. There were curtains, but the nurses would not allow them to be closed either. I could be seen by everyone, and it was disturbing since I did not have proper clothing, so I felt insecure." (P10, female, 48 y)

4.1.3. Disregard for Patient's Values

While undergoing treatment with a temporary cardiac pacemaker, the patients were faced with conflicts that were not within the framework of their previous values and experiences, which annoyed them. Religious matters were among the patients' foremost priorities, and performing religious duties, such as saying prayers, was one of its components. One of the patients explained:

"My body was in blood, and it was not right to say prayers like that. Moreover, they would not allow me to sit down, saying it would disconnect the lead. I had to say my prayers, but no one cared or helped. They kept telling me to be careful with the lead." (P6, male, 51 y)

Additionally, cultural diversity among the patients was another issue. The patients cared a lot about their own culture; however, the values ruling the ward were sometimes in conflict with the patients' cultural priorities. A patient explained:

"I am a Kurd, and in our culture, the entire family comes to visit when someone falls ill. But they do not allow my family to come visit me here. When I protested, they said they could not allow so many visitors for each patient." (P7, male, 78 y)

Another patient said:

"I have to wash up each time after going to the bathroom, but they do not let me do it here; they say that I must get used to it, which is very difficult for me." (P15, female, 58 y)

4.2. Theme 2: Dependent Life

One of the experiences discussed by the patients was the sense of dependence, which was not pleasant for them; in brief, they felt they were not themselves. This theme consisted of two subthemes, including depending on others and depending on the pacemaker.

4.2.1. Depending on Others

After treatment with the pacemaker, the patients felt the burden of dependence on others and disclosed their experiences. Dependence on the wife, children, and nurses was not pleasant for them. One of the patients said:

"After this illness, I can no longer get my medications myself, and my children and wife have to help me. My wife has grown old, and the children have to help, but poor things, they are busy themselves" (P1, male, 70 y)

Another patient said:

"From now on, I became dependent on my children, and I could not do my work without their help. This bothers me. I do not want to be a burden on them." (P9, female, 72 y)

4.2.2. Depending on the Pacemaker

The patients regarded the pacemaker as a donated heart that had saved their lives for now, and therefore, their lives depended on the pacemaker's functioning. They had, therefore, become very sensitive about its proper functioning. A patient told us:

"I kept watching the nursing station to see if the nurses were paying any attention to my pacemaker or not because I would die if it did not function well. My life is now dependent on the proper functioning of this device." (P4, female, 48 y)

4.3. Theme 3: Physical and Psychological Problems

Despite saving their life, the patients also experienced many problems with TTCP. With regard to physical and psychological problems, they pointed out issues that made up the following subthemes: back pain, problems related to the legs, constipation caused by immobility, fear, anxiety, life in prison, wishing to return to normal life, and a disturbed outlook.

Back pain: This subtheme describes how the patients experienced pain in the course of the treatment. Most patients complained about their backache. One of them described his experience of pain as follows:

"My back ached all the time for lying on my back, and the pain was very severe. If there was a kind nurse in the shift, she would give me a painkiller to relieve the pain a bit; otherwise, the back pain would kill me." (P13, male, 69 y)

Problems related to the legs: Other physical complications experienced by the patients were problems related to the legs. A patient described his experience:

"They bandaged my legs every morning as I woke up; as if they were bandaging a corpse. It made me feel bad, but they said they had to bandage my legs." (P8, female, 80 y)

In addition, the immobility of the lower extremities due to restrictions caused numbness in the patient's legs. A patient described:

"Both my legs had become numb since I was told not to move them. I thought I had no limbs waist down, but they ached when I moved them." (P11, female, 68 y)

Constipation due to immobility: The majority of the patients complained about constipation and recalled it as a bad and annoying experience. One patient explained:

"The thing that annoyed me most was constipation. I had not been to the bathroom for three days, and my stomach ached, and the medicine they gave did not work." (P7, male, 78 y)

Fear: Patients, especially those with no previous experience of heart disease, had a sense of fear following their experience with the temporary pacemaker and gave various reasons for their fear, including fear of dying, fear of returning to the operating room, and fear of lead dislodgement. One of the participants said:

"When I went to the operating room and came back, I thought I would die. They had inserted a lead through my leg into my heart; how could I live after that? I was so afraid. I did not sleep that night until the morning." (P5, female, 66 y)

Anxiety: Most participants had experienced pre-operative anxiety, which had been caused by their unfamiliarity with the procedure and delayed treatment. One of the participants said:

"When their work was finished in the emergency ward, they took me to the operating room, where I lied down on the bed for half an hour, and they said that the doctor had not arrived yet. The doctor's late arrival had gotten me very anxious." (P11, female, 68 y)

Another patient described:

"It was my first time seeing these, and I was very anxious. I had no idea what they were going to do." (P10, female, 48 y)

Living in prison: The physical limitations caused by the temporary pacemaker lead inserted into their groin and the loss of freedom in personal affairs resembled life in prison for most patients. One patient explained:

"I was on my back the whole time, and they would not even let me sit up. I felt I was imprisoned. As soon as I wanted to turn to one side, they told me to lie on my back. It was very unpleasant." (P4, female, 48 y)

Wishing to return to life quickly: The participants had accepted the insertion of the temporary cardiac pacemaker as a way of being saved from death and wished to recover as soon as possible to be able to return to their normal life. One participant said:

"I had no choice. I wished to be released from this situation, so I could get out of the bed, eat like I always did, and do my

things as usual.” (P12, male, 55 y)

Disturbed outlook: A wide range of ambiguities and concerns about the future had mentally preoccupied the patients. A farmer patient explained:

“I kept thinking what would happen to my plots, and who would attend to them; the children would not. It is highly unlikely for me to be able to work again; that is, if I survive at all.” (P3, male, 64 y)

Another participant described:

“I am deeply worried. I do not know what the future will be like. I do not know if I will get well or if I will be involved in this disease. I have no hope for a good future.” (P12, male, 55 y)

5. Discussion

The present study was conducted to explore the experiences of patients with temporary cardiac pacemakers using van Manen’s theme analysis approach. Three main themes emerged from the analysis of the data, as follows: disregard for the patient’s dignity, dependent life, and physical and psychological problems. Although TTCP is only inserted for a few days, the patients encounter many problems during this time that require examination and attention. One of the problems disclosed by the patients was disregarding their dignity and lack of privacy in a variety of ways. The threat to their personal independence, other individuals touching them without their permission, their body’s exposure to other individuals, the lack of appropriate private space, the disregard for their preferred clothing, and receiving care by nurses of the opposite sex were some of the instances of the violation of the patient’s rights and privacy. Although previous studies conducted on patients’ privacy in clinical settings have yielded similar results and emphasized the importance of nurses’ own role in their ethical performance and in maintaining the patients’ privacy and independence (22-24), this issue has not been investigated with regard to patients with TTCP, demonstrating the disregard for these patients’ experiences.

Disregarding the patient’s values was another important problem experienced by the participants that emerged during their treatment with TTCP. Due to certain conditions imposed by the disease and the inevitable restrictions, the patients were required to observe matters that were not within their value system and which mentally preoccupied them, leading to a clash between their value system and the clinical setting’s value system and making them annoyed and resentful. The patients gave priority to their own personal values, including religious values, personal hygiene, and previous habits; nevertheless, the hospital, especially the nurses,

prioritized health values in giving care so that the patient’s life would not be at risk. These conflicts can be largely resolved and the patients’ understanding of the circumstances can be improved by incorporating the patients’ needs into the process of care, ensuring that the patients’ problems are well understood, and reaching a common mentality. The outcome will then be improved patient cooperation, participation, and satisfaction.

Meanwhile, the patients’ resistance to complying with the nurses’ recommendations can be reduced by ensuring proper nurse training. There is an abundance of literature on the conflict between nurses and patients (25-28); however, none of these studies has dealt with the complexities and theoretical perspectives of conflict in relation to patients with TTCP inserted. Moreover, the literature review did not show any studies on the importance of patients’ preferences in this area, which shows the need for further research on the subject.

Feeling dependent on others was another unpleasant experience for the patients. They saw their life as dependent on the pacemaker and other individuals’ help. They understood that they had lost the normal functioning of their heart and viewed their life as dependent on others from then on. They carefully followed the pacemaker’s functioning and saw their continued survival dependent on the proper functioning of the pacemaker. They also envisioned a life of dependence on others, including their spouse and children, after their discharge. This finding indicates that therapeutic goals in these patients are not met by the implantation of a TTCP alone. To be successful in this field, there must always be patient control and regular patient education during care to accelerate the patient’s return to normal life. There was a tangible need for supportive measures and interventions to improve their adaptation.

Che et al. (29) argued that adapting to the pacemaker is a challenging matter. The maladaptation of patients with a temporary pacemaker was evident since the failure to understand the patients’ experiences could be one of the causes of their maladaptation (30). The patients also had the worst ideas about life after discharge. In their study, Deaton et al. (31) argued that coming to terms with reality and accepting losses are inevitable. Therefore, patients should be directed toward greater adaptation to these circumstances through effective care programs. Various studies have also reported dependence on permanent pacemakers (15, 32).

Physical and psychological problems were another theme that emerged from data analysis, which included eight subthemes for these patients: Back pain, problems related to legs, constipation due to immobility, fear, anxiety, life in prison, wishing to return to normal life,

Table 2. Themes and Subthemes

Themes	Subthemes	Codes	Frequency
Disregard for the patient's dignity	Disregard for patient's rights	Not being allowed to use the bathroom alone	16
		Having no right to choose	12
	Lack of privacy	Physical touch without permission	25
		Disregard for the patient's preferred clothing	21
		Not receiving patient care by same-sex personnel	14
		Being in other individuals' sight during the procedures	16
		No respect for their private space	14
	Disregard for patient's values	Not being able to perform their religious duties	31
		Previous personal habits	17
		Personal hygiene culture	18
Cultural diversity		10	
Dependent life	Depending on others	Feeling dependent on the nurses	19
		Dependent on the children	18
		Dependent on the spouse	18
	Depending on the pacemaker	Pacemaker as the pulse of life	16
		Sensitivity to the pacemaker's functioning	22
		Understanding the need for a pacemaker through Simulation	9
Physical and psychological problems	Back pain	Constant backache	35
		Great back pain	31
		Constantly being in the supine position and back pain	35
		Severe back pain and receiving no treatment for it by nurses	18
	Problems related to the legs	Feeling tightness in the groin at the site of lead insertion	12
		Pain in the operated leg after removing the lead	14
		Pain in the groin during lead insertion	18
		Numbness in the legs	15
		Inflammation and having no sense in the legs	13
		Numbness in the legs, especially in the operated leg	11
		Having no sense in the lower limbs	10
		Unpleasant feeling in the legs during the day caused by bandages	23
		Assimilating their bandages to the way a corpse is wrapped	17
		Leg bandaging as an imitation of death	14
	The leg bandages are painful	11	
	Constipation caused by immobility	Having a tight stomach due to lack of bowel movement	32
		No bowel movement for 3 days	27
		Stomachache due to lack of bowel movement	25
		Stomachache caused by the inability to defecate on the bed	22
	Fear	Fear of dying	29
		Fear of going back to the operating room	18
		Fear of lead dislodgement	22
	Anxiety	Anxiety caused by unfamiliarity with the procedure	26
		Anxiety due to delayed treatment	13
	Living in prison	Imprisonment	24
		Annoying physical limitations	26
	Wishing for a quick return to life	Wishing for recovery	19
		Hoping to recover with a pacemaker	16
		Treatment acceptance	15
	Disturbed outlook	Concern about the future	17
Ambiguities about the future		14	

and a disturbed outlook. The majority of the patients complained about their back pain and described it as occasionally very severe, in which case the palliative interventions provided by the nurses did not relieve the pain either. The patients' other unpleasant experiences during the course of treatment included problems arising from immobility, such as numbness in the legs and constipation.

The physical complications and problems experienced by patients with TTCP have been addressed in various studies, and similar results have been obtained (6-9). Given the patients' statements in this study, despite its importance in saving their lives, TTCP also entailed psychological problems for the patients and sometimes made them unhappy and uncomfortable. Fear of death, fear of being sent back to the operating room, and fear of lead dislodgment in their leg were disturbing notions for them. Anxiety due to delayed treatment and unfamiliarity with the procedure were other problems faced by these patients.

Psychological symptoms can be the result of a lack of education and attention to patient's needs and TTCP care. The results of the present study showed that patients have uncertainty and do not provide useful information that can indicate the importance of patient education. Although the psychological problems faced by patients with permanent pacemakers have already been investigated in the literature, it should be noted that the nature and origin of these issues differ for patients with TTCP (33, 34). Moreover, the limitations caused by the pacemaker insertion induced a sense of isolation and a perception of life in prison in these patients. Concern about the future was another issue that disturbed the patients' outlook. Tagney *et al.* examined patients with implanted defibrillators and obtained similar results regarding these patients' concerns about the future (15). In the present study, the patients revealed that they wished to return to normal life and get rid of the present state as soon as possible.

5.1. Limitations

The present study had some limitations. One limitation pertained to the selection of participants, as the coronavirus disease 2019 (COVID-19) outbreak had limited patient referrals and dispatch to medical centers. It is better to know that the identification and treatment of a large number of patients with COVID-19 has caused the health systems of many countries, including Iran, to be under unprecedented pressure and to go beyond their existing capacities to deal with this pandemic. Therefore, COVID-19 can affect the present study in factors, such as the duration of patient visits by their families, the concern

of the medical staff about the infection, the reduction of the hospital's medical capacity to care for non-coronavirus patients, and the selection of participants. Moreover, the high prevalence of consciousness disorders and delirium in these patients meant that some of the patients had to be excluded from the study, especially those who had experienced physical restraints. Another limitation of this study was that only patients implanted with a femoral venous approach were included. This issue might be explained by the fact that the femoral venous approach method for pacemaker implantation is the most frequently used access site for TTCP in selected centers.

5.2. Conclusions

The present study reveals the important aspects of challenges experienced by Iranian patients with TTCP. This group of patients is facing challenges related to the care and hospitalization matter, as well as facing their fears and uncertain future. Therefore, there is a need to pay more attention to patients' needs during hospitalization, such as informing patients about the procedure and the probabilities in the future and respecting patients' rights, values, and dignities. The patients found TTCP placement difficult due to physical problems, such as pain, that should be considered. Additionally, given that the patients' psychological strength is usually reduced during this procedure, it should be accepted that the dimension of the problem is not limited to the procedure as such but to other problems that emerge or the deeper needs of the patients. Future studies are also recommended to address the experiences of nurses providing care to these patients so that the results can be used to design comprehensive care plans.

5.3. Implications for Clinical Practice

(1) Nurses in clinical practices can improve the experience of patients with TTCP by treating all of them with equal kindness and concern when ill, respecting their dignity, rights, and values.

(2) Providing ongoing TTCP advice and access to nursing support and informing patients might facilitate patients to cope with the feeling of dependence.

(3) Many patients with TTCP described physical problems, such as back pain, problems related to legs, and constipation caused by immobility, and nurses can minimize these problems by providing appropriate care.

(4) The physical limitations and psychological challenges (i.e., fear and anxiety) caused by TTCP, in addition to threatening the patient's personal independence, instill a sense of isolation and imprisonment, which should be taken seriously in clinical settings and nursing care interventions.

(5) Most patients in this study found themselves suffering from a heart disease that they cannot easily get rid of and facing their fears and uncertainty, which necessitates more supportive measures and paying more attention.

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Footnotes

Authors' Contribution: F.M. and R.B. devised the protocol and data collection methods. F.M. collected the data. N. M. performed parts of the data analysis, helped draft the manuscript, and helped in translation. L.A. re-evaluated the data and helped in interpretation. F.M. and R.B. analyzed the data. All the authors read and approved the manuscript.

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Data Availability: The dataset presented in the study is available on request from the corresponding author during submission or after publication. The data are not publicly available due to privacy and ethics.

Ethical Approval: The study was approved by the Ethics Committee of Urmia University of Medical Sciences (IR.UMSU.REC.1399.228). Prior to commencement, the study objectives were explained to the participants, and their informed consent was obtained for conducting the interviews and recording the voices or writing down the interview texts. The reason for recording their voices was also explained to them. The participants were ensured that their data would remain confidential and that they could have access to the study results.

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References

1. Thompson JM. *Mosby's clinical nursing*. Mosby; 2002.

2. Zipes DP. *Braunwald's heart disease: a textbook of cardiovascular medicine*. 5. BMH Medical Journal; 2018. 63 p.
3. Ellenbogen KA, Kaszala K. *Cardiac Pacing and ICDs*. John Wiley & Sons; 2014. <https://doi.org/10.1002/9781118459553>.
4. Tjong FVY, de Ruijter UW, Beurskens NEG, Knops RE. A comprehensive scoping review on transvenous temporary pacing therapy. *Neth Heart J*. 2019;**27**(10):462-73. [PubMed ID: 31392624]. [PubMed Central ID: PMC6773795]. <https://doi.org/10.1007/s12471-019-01307-x>.
5. Gregoratos G. Indications and recommendations for pacemaker therapy. *Am Fam Physician*. 2005;**71**(8):1563-70. [PubMed ID: 15864898].
6. Chun KJ, Gwag HB, Hwang JK, Park SJ, On YK, Kim JS, et al. Is transjugular insertion of a temporary pacemaker a safe and effective approach? *PLoS One*. 2020;**15**(5). e0233129. [PubMed ID: 32396565]. [PubMed Central ID: PMC7217466]. <https://doi.org/10.1371/journal.pone.0233129>.
7. El Nasasra A, Alnsasra H, Zahger D, Lerman TT, Kobal S, Cafri C, et al. Feasibility and safety of exclusive echocardiography-guided intravenous temporary pacemaker implantation. *J Echocardiogr*. 2019;**17**(3):157-61. [PubMed ID: 30426465]. <https://doi.org/10.1007/s12574-018-0406-4>.
8. Gammage MD. Temporary cardiac pacing. *Heart*. 2000;**83**(6):715-20. [PubMed ID: 10814641]. [PubMed Central ID: PMC1760886]. <https://doi.org/10.1136/heart.83.6.715>.
9. Knight PH, Maheshwari N, Hussain J, Scholl M, Hughes M, Papadimos TJ, et al. Complications during intrahospital transport of critically ill patients: Focus on risk identification and prevention. *Int J Crit Illn Inj Sci*. 2015;**5**(4):256-64. [PubMed ID: 26807395]. [PubMed Central ID: PMC4705572]. <https://doi.org/10.4103/2229-5151.170840>.
10. Carroll DL, Hamilton GA. Quality of life in implanted cardioverter defibrillator recipients: the impact of a device shock. *Heart Lung*. 2005;**34**(3):169-78. [PubMed ID: 16015221]. <https://doi.org/10.1016/j.hrtlng.2004.10.002>.
11. Davis LL, Vitale KA, Irmieri CA, Hackney TA, Belew KM, Chikowski AM, et al. Body image changes associated with dual-chamber pacemaker insertion in women. *Heart Lung*. 2004;**33**(5):273-80. [PubMed ID: 15454905]. <https://doi.org/10.1016/j.hrtlng.2004.04.005>.
12. Eberhardt F, Bode F, Bonnemeier H, Boguschewski F, Schlei M, Peters W, et al. Long term complications in single and dual chamber pacing are influenced by surgical experience and patient morbidity. *Heart*. 2005;**91**(4):500-6. [PubMed ID: 15772212]. [PubMed Central ID: PMC1768857]. <https://doi.org/10.1136/hrt.2003.025411>.
13. Timmins F, Kaliszer M. Information needs of myocardial infarction patients. *Eur J Cardiovasc Nurs*. 2003;**2**(1):57-65. [PubMed ID: 14622649]. [https://doi.org/10.1016/S1474-5151\(02\)00089-0](https://doi.org/10.1016/S1474-5151(02)00089-0).
14. Speziale HS, Streubert HJ, Carpenter DR. *Qualitative research in nursing: Advancing the humanistic imperative*. Lippincott Williams & Wilkins; 2011.
15. Tagney J, James JE, Albarran JW. Exploring the patient's experiences of learning to live with an implantable cardioverter defibrillator (ICD) from one UK centre: a qualitative study. *Eur J Cardiovasc Nurs*. 2003;**2**(3):195-203. [PubMed ID: 14622627]. [https://doi.org/10.1016/S1474-5151\(03\)00061-6](https://doi.org/10.1016/S1474-5151(03)00061-6).
16. Suarez K, Banchs JE. A Review of Temporary Permanent Pacemakers and a Comparison with Conventional Temporary Pacemakers. *J Innov Card Rhythm Manag*. 2019;**10**(5):3652-61. [PubMed ID: 32477730]. [PubMed Central ID: PMC7252718]. <https://doi.org/10.19102/jicrm.2019.100506>.
17. Atae E, Haghjoo M, Dalvandi A, Bakhshandeh H. [Effect of self-care education on quality of life among patients with permanent pacemaker]. *Iran J Cardiovascular Nurs*. 2013;**4**(4):40-7. Persian.
18. Metkus TS, Schulman SP, Marine JE, Eid SM. Complications and Outcomes of Temporary Transvenous Pacing: An Analysis of > 360,000 Patients From the National Inpatient Sample. *Chest*. 2019;**155**(4):749-57. [PubMed ID: 30543806]. <https://doi.org/10.1016/j.chest.2018.11.026>.

19. Brignole M, Auricchio A, Baron-Esquivias G, Bordachar P, Boriani G, Breithardt OA, et al. 2013 ESC Guidelines on cardiac pacing and cardiac resynchronization therapy: the Task Force on cardiac pacing and resynchronization therapy of the European Society of Cardiology (ESC). Developed in collaboration with the European Heart Rhythm Association (EHRA). *Eur Heart J*. 2013;**34**(29):2281-329. [PubMed ID: 23801822]. <https://doi.org/10.1093/eurheartj/ehi150>.
20. van Manen M. *Researching lived experience: Human science for an action sensitive pedagogy*. Routledge; 2016.
21. Burns M, Peacock S. Interpretive phenomenological methodologists in nursing: A critical analysis and comparison. *Nurs Inq*. 2019;**26**(2). e12280. [PubMed ID: 30666788]. <https://doi.org/10.1111/nin.12280>.
22. Kim K, Han Y, Kim JS. Nurses' and patients' perceptions of privacy protection behaviours and information provision. *Nurs Ethics*. 2017;**24**(5):598-611. [PubMed ID: 26811392]. <https://doi.org/10.1177/0969733015622059>.
23. Martinez KA, Kurian AW, Hawley ST, Jagsi R. How can we best respect patient autonomy in breast cancer treatment decisions? *Breast Cancer Manag*. 2015;**4**(1):53-64. [PubMed ID: 25733982]. [PubMed Central ID: PMC4342843]. <https://doi.org/10.2217/bmt.14.47>.
24. Neame RL. Privacy protection for personal health information and shared care records. *Inform Prim Care*. 2014;**21**(2):84-91. [PubMed ID: 24841409]. <https://doi.org/10.14236/jhi.v21i2.55>.
25. Greenhalgh T, A'Court C, Shaw S. Understanding heart failure; explaining telehealth - a hermeneutic systematic review. *BMC Cardiovasc Disord*. 2017;**17**(1):156. [PubMed ID: 28615004]. [PubMed Central ID: PMC5471857]. <https://doi.org/10.1186/s12872-017-0594-2>.
26. Josi R, Bianchi M, Brandt SK. Advanced practice nurses in primary care in Switzerland: an analysis of interprofessional collaboration. *BMC Nurs*. 2020;**19**:1. [PubMed ID: 31908597]. [PubMed Central ID: PMC6941298]. <https://doi.org/10.1186/s12912-019-0393-4>.
27. Lai CK. Nurses using physical restraints: Are the accused also the victims? - A study using focus group interviews. *BMC Nurs*. 2007;**6**:5. [PubMed ID: 17640345]. [PubMed Central ID: PMC1939996]. <https://doi.org/10.1186/1472-6955-6-5>.
28. Sarafis P, Rousaki E, Tsonis A, Malliarou M, Lahana L, Bamidis P, et al. The impact of occupational stress on nurses' caring behaviors and their health related quality of life. *BMC Nurs*. 2016;**15**:56. [PubMed ID: 27708546]. [PubMed Central ID: PMC5039891]. <https://doi.org/10.1186/s12912-016-0178-y>.
29. Che X, Abdelwahed YS, Wang X, Fang Y, Wang L. Pacemaker implantation in patients with major depression, should it be of concern? A case report and literature review. *BMC Cardiovasc Disord*. 2020;**20**(1):279. [PubMed ID: 32517791]. [PubMed Central ID: PMC7285466]. <https://doi.org/10.1186/s12872-020-01565-3>.
30. Magnusson P, Liv P. Living with a pacemaker: patient-reported outcome of a pacemaker system. *BMC Cardiovasc Disord*. 2018;**18**(1):110. [PubMed ID: 29866050]. [PubMed Central ID: PMC5987385]. <https://doi.org/10.1186/s12872-018-0849-6>.
31. Deaton C, Dunbar SB, Moloney M, Sears SF, Ujhelyi MR. Patient experiences with atrial fibrillation and treatment with implantable atrial defibrillation therapy. *Heart Lung*. 2003;**32**(5):291-9. [PubMed ID: 14528186]. [https://doi.org/10.1016/s0147-9563\(03\)00074-8](https://doi.org/10.1016/s0147-9563(03)00074-8).
32. Kamphuis HC, Verhoeven NW, Leeuw R, Derksen R, Hauer RN, Winnubst JA. ICD: a qualitative study of patient experience the first year after implantation. *J Clin Nurs*. 2004;**13**(8):1008-16. [PubMed ID: 15533107]. <https://doi.org/10.1111/j.1365-2702.2004.01021.x>.
33. Duru F, Buchi S, Klaghofer R, Mattmann H, Sensky T, Buddeberg C, et al. How different from pacemaker patients are recipients of implantable cardioverter-defibrillators with respect to psychosocial adaptation, affective disorders, and quality of life? *Heart*. 2001;**85**(4):375-9. [PubMed ID: 11250956]. [PubMed Central ID: PMC1729685]. <https://doi.org/10.1136/heart.85.4.375>.
34. Malm D, Hallberg LR. Patients' experiences of daily living with a pacemaker: a grounded theory study. *J Health Psychol*. 2006;**11**(5):787-98. [PubMed ID: 16908473]. <https://doi.org/10.1177/1359105306066642>.