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Exploring Patients' Perspectives On Home-Based Cardiac Rehabilitation: Preferences For Follow-Up, Exercise Readiness, And Telephonic Guidance

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Abstract
Background: After a myocardial infarction, cardiac rehabilitation (CR) is essential to the patient's recovery. However, due to limited CR facilities, many patients are not offered CR as a routine procedure, and those who are offered show reluctance due to CR expectations. Therefore, it is important to explore the preferences of patients who survived a heart attack and made changes to their lifestyles and health behaviors.
Purpose: This study aimed to explore patients' challenges in the uptake of physical follow-ups and preferences about follow-up, exercise readiness, and telephonic guidance through in-depth semi-structured interviews.
Methods: To address the research questions, a qualitative descriptive study approach was employed. Purposive sampling was used to choose participants who had dealt with heart attacks for more than six months. A total of 20 patients were approached from the outpatient departments of a public tertiary care hospital located in Lahore, Pakistan. Participants who consented were asked to participate in semi-structured in-depth interviews in specific rooms within the same hospital. NVIVO software was used to organize and analyze the data. To create the codes, categories, and themes, an inductive coding technique was applied.
Results: Out of 20 interviewees, the majority were males (n-14), 11 were smokers, 12 were treated with PCI and the remaining 8 were treated without coronary intervention. Five themes emerged from participants' data: 1) challenges of physical follow-up, 2) benefits of telephonic guidance, 3) readiness for home-based exercise, 4) patients' suggestions, and 5) patients' preference mode of follow-up.
Conclusion: The results showed a distinct viewpoint from the patients regarding what kind of home-based cardiac rehabilitation they would like. Insights shared by patients can help healthcare professionals design tailored interventions for swift recovery after myocardial infarction.

Key Words: Patients' readiness for home-based cardiac rehabilitation, Patients' perspectives, Heart attack, home-based exercises, telephonic follow-ups

Ethical Statement: This study was approved by The Ethics Review Committee. All participants provided written informed consent before enrollment in the study.

Introduction

Globally, cardiovascular diseases (CVD) are a major contributor to morbidity and mortality.[1] Unique strategies are the need of time to reduce CVD burden and improve patient outcomes.[2] Home-based cardiac rehabilitation (HBCR) has emerged as a favorable alternative to center-based cardiac rehabilitation (CBCR) programs. HBCR offers a more flexible and accessible approach for patients recovering from cardiac events.[3] Recent advancements in e-health tools have further enhanced the feasibility and appeal of HBCR. It provides opportunities for personalized care that can be adapted to individual needs and preferences.[4]

Despite the increasing implementation of HBCR in developed countries, a significant gap exists in the understanding of how patients perceive and want to engage with these programs. Insights into patients' experiences, particularly regarding their preferences for follow-up after discharge, home-based exercise readiness, and telephonic guidance, are some necessary components for optimizing HBCR delivery and ensuring it meets patients' needs effectively.

Understanding patients' perspectives about HBCR is critical for many reasons: 1) Patient preferences for follow-up can greatly influence their adherence to HBCR. Furthermore, by identifying these preferences, healthcare providers can tailor follow-up schedules to better align with patients' expectations. 2) Exercise readiness is fundamental to the success of any cardiac rehabilitation program. Patients' readiness to engage in prescribed exercises can vary significantly, influenced by psychological, physical, and situational factors. Therefore, assessing patients' readiness for exercise in a home-based setting helps in designing interventions that accommodate individual barriers and motivations, thereby enhancing participation and effectiveness. 3) Telephonic guidance is an integral component of HBCR. Understanding how patients perceive and utilize telephonic guidance can inform the development of more effective communication strategies, ensuring that patients receive the support to get a speedy recovery. This study seeks to contribute valuable insights into the patient perspectives on HBCR, ultimately guiding improvements in design and delivery to enhance patient satisfaction and HBCR outcomes.

Research Purpose

This study aimed to explore patients' challenges in the uptake of physical follow-ups and preferences about follow-up, exercise readiness, and telephonic guidance through in-depth semi-structured interviews.

Methods

To address the research questions, a qualitative descriptive study approach was employed.

Study Setting

The public sector tertiary care hospital in Lahore Pakistan was selected to cater to patients from diverse socioeconomic backgrounds.

Sampling Strategy

Using a purposive sample approach, participants of both sexes (male and female) who have been experiencing heart attacks for at least the previous six months and who can speak and comprehend Punjabi or Urdu were chosen. The purpose of using a purposive sample technique was to include people who could provide detailed data and who fit the inclusion criteria. Based on data saturation, 20 people in total were interviewed. Data saturation in this study was reached when no additional information from the participants was received.

Ethical Issues about Human Subjects

The Aga Khan University Ethics Review Committee in Karachi, Pakistan, granted its approval for this study. The participants gave their informed written consent. The transcription of the recording interviews was done. Written interview notes were stored in a cabinet, while the recorded interview files were password-protected.

Data Collection Methods

In-depth semi-structured interviews were carried out to collect the data. The interview lasted between 40 and 50 minutes. Participants could choose to answer it in person in a medical facility room or over the phone at their convenience.

Data Collection Instruments and Technologies

An interview guide was developed using the research team's experience and help from the literature. Before initiating the final interviews with research participants, cardiac patients participated in pilot qualitative interviews to assess the comprehensibility and clarity of their questions. Following the pilot interviews, several questions were changed, and final interviews were held until the data was saturated (Table 1).

Data analysis

Using NVIVO software, an inductive coding method was applied for thematic analysis. The coding was done by finding similar quotes, which were then categorized. Similar categories were organized to generate themes. Two independent transcribers transcribed the recorded interviews' data into verbatims. The transcriptions from both transcribers were evaluated for any discrepancy. The transcriptions were translated into English, and integrity was maintained by asking participants if there were any changes to their responses. The transcription remained anonymous and coded with a unique number.

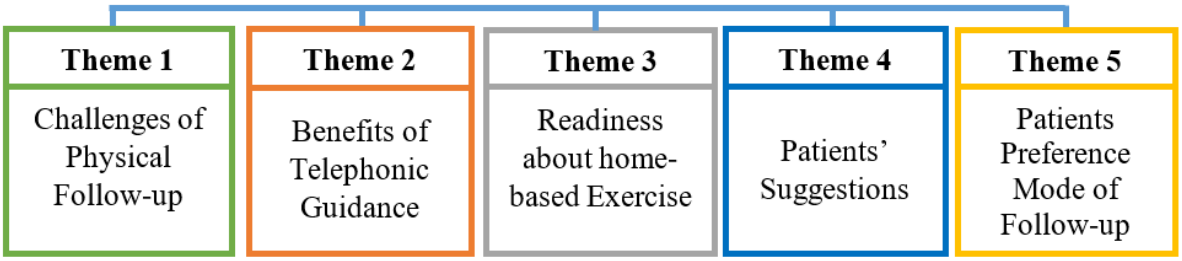
Techniques to enhance trustworthiness

A member was involved in verifying the accuracy of the data in the transcripts of the interviews, which guaranteed the credibility of the qualitative findings. In case any clarification was needed regarding the responses, the participants were also contacted. To ensure the trustworthiness nature of the qualitative data, Lincoln and Guba's (1985) criteria were applied.

Results

The data from participants revealed different perspectives about readiness for home-based cardiac rehabilitation. For example, participants shared the challenges they faced during physical follow-up, exhibited an understanding of the benefits of telephonic guidance, shared their readiness about home-based exercises, shared suggestions to include home-based cardiac rehabilitation, and were also given different views about preference mode for follow-up (Figure 1).

Figure 1: Readiness for Home-based Cardiac Rehabilitation



Theme 1: Physical Follow-up Challenges

In this subtheme, participants shared different challenges they faced during physical follow-ups after being treated for heart attack. The analysis of interviews revealed that patients spent most of their time earning to feed their families and considered coming physically to the hospital for follow-up as trouble for them. Acknowledging the intention to change behavior for a short period after initial treatment reflects the transitional shift of priorities from self to family. Participants also reported that it was tough to take time for themselves because they were the only family members with a job and were unable to take even a single day off from work. As the participant mentioned:

They asked me to take medicines as prescribed and to come for follow-ups regularly. Now, if one person alone is earning, how can he come for follow-ups? Therefore, it becomes difficult to attend…in the initial days, the person actively follows the instructions and does hospital visits frequently when required…but…after some time, the priorities change. Other family responsibilities do not allow that person to stay without earning. (P1, M, 55, Labour)

In addition, when the participant was asked to share the experience of physical follow-ups after the heart attack treatment, he tended to be stressed because of difficulty in managing family expenses and personal health needs. The worry about children's needs and successful lives induced stress in the participant, as she shared, *"Yes, I feel stressed because you are a single-earning family member. It is hard to stay home and rest. My children are my biggest stress, which I do not think will be reduced until I see them succeeding in my life." (P15, F, 51, Employed)*

Participants also expressed worries about the time and expense of traveling back to the same hospital for a follow-up visit. This reflects the experiences of patients who develop symptoms of heart attack; however, due to low accessibility to tertiary care hospitals and the finances involved, they cannot reach the hospital in a timely. The response from participants warrants a need for flexible follow-up mechanisms for participants living in remote areas, as participants shared, *"Even if they develop any symptoms after the treatment, they cannot come to the same doctor or hospital due to the travel expenses and time required to reach the same hospital again." (P4, M, 61, DM, HTN, Teacher)*

A participant reported a similar insight that physical follow-up causes patients to take loans and manage the finances involved in deciding to reach the hospital. The response indicates disappointment by the patient regarding the minimal respect and empathy received in the hospital. Another unique perspective that appeared in participants' data is about the consumption of unhealthy diets in the restaurant they stayed at when they used to come for physical follow-ups from distant areas. The participant considered a telephonic follow-up convenient as compared to a physical one based on the reasons mentioned, as mentioned by participant:

"It will be very convenient for patients because they face troubles in the hospital during physical follow-ups. Patients should be treated with respect and empathy. They come from long distances and take loans to bear the expenses to reach the hospital for follow-ups. They live in hotels and eat unhealthy diets in the hotels." (P1, M, 55, Labour)

The response by a patient who was labor by occupation reflects receiving less time in the OPDs to address their concerns and questions. The participants shared heightened readiness for telephonic follow-up and the benefits involved. The preference for telephone follow-up over physical follow-ups exhibits an understanding of the challenges with physical follow-ups. The participants agreed to the telephone guidance based on periodic checks and constant health education provisions. Participants perceived that the strategy of telephonic guidance would work if patients realized that they would be asked for implementation of guidance regularly:

"Patients want to talk to their doctors, but they do not have enough time to listen…if it is possible, then who wants to waste time and money by traveling and reaching the hospital getting so much tired…if someone is there on the phone then I would know I will be asked for the instructions to be followed, why don't I follow then? It will be for my benefit, of course. I will follow…". (P6, M, 70, DM, HTN, Smoker, Labour)

On the contrary, participants' data indicate that the hospital environment induces stress. About the stress induced by the hospital's environment, the participant confidently said, *"Patients would have preferred online checkup if they offered believe me."* This highlights an experience of hardship with physical follow-ups and the belief that online follow-ups will benefit more in terms of money, time, and effort involved. The participants considered most of the physical follow-up as not necessary, as the participant shared, *"Hospitals are full of patients in clinics…that environment stresses the patient more…patient would prefer online checkup if they offered believe me…I was used to going physically, but that was not necessary…they asked to come, and I used to go…". (P11, M, 47, DM, HTN, Smoker, Shopkeeper)*

Theme 2: Patients' Perception of Telephonic Follow-up and Guidance

The analysis of participants' interviews revealed a sense of relief with telephonic guidance. Most of them share readiness that if they had offered such while they were under acute treatment, they would have gone for telephonic follow-up and guidance. However, they were offered such in their times. Participants also perceived telephonic guidance and follow-up as convenient, considering financial, travel distance, family disturbance, and employment issues as barriers to physical follow-up and guidance.

The findings further highlight the importance of telephonic follow-up and guidance for people who earn daily wages. However, contextually, people in Pakistan want to have their doctor's contact numbers to share their concerns, the same as what participants considered the telephonic follow-up as if they would be called by their doctors directly. This misconception needs clarity. A participant shared a concern that "*it is not easy to talk directly to the doctors on the telephone. They hesitate to give us even if we ask for their telephone numbers."* which highlights the incomplete understanding of telephonic follow-up. However, despite having little known about it, still, participant considered it beneficial not only in terms of getting guidance to manage health after a heart attack but also to save their and their family's time and money:

"If this happens (HBCR). I think it will greatly help poor people who work on daily wages. In our country, it is not easy to talk directly to the doctors on the telephone. They hesitate to give us even if we ask for their telephone numbers. As you are saying, it can happen…then…I think patients can use in-hand information whenever required, and if check-ups are done on telephones, then it (HBCR) will also help patients save money in terms of travel costs."

Furthermore, the participant exhibits readiness for telephonic follow-up and guidance. The statement, "*Patients will pray for all of you if this kind of service is offered"* indicates an expectation for home-based follow-ups and guidance after the initial treatment of a heart attack. The physical follow-ups, time-consuming, costs involved, and disruption in the family routine were reported as challenges of physical visits by the participants. Based on these challenges, the participant shared willingness for telephonic home-based guidance as it offers health benefits with feasibility:

"Patients will pray for all of you if this kind of service occurs. There are many other benefits for the family, such as when the patients come to the hospital, family members accompany them due to the physical routine follow-ups, and all the family gets disturbed and reschedules the activity. This is why this telephone will be very helpful and feasible for patients…". (P1, M, 55, Labour)

Telephonic follow-up and guidance were considered a blessing by patients if it happened. The response indicates dissatisfaction with the physical follow-ups after the initial treatment of the heart attack. This dissatisfaction is related to the lack of time given by healthcare professionals in the clinics. As participants stated, "*In the clinics, doctors do not have much time. They ask, "How are you?" and "How is medicine doing with you?" that is it.".* Furthermore, the findings reflect that patients have many concerns about their food and tend to be anxious about which activities to follow and avoid. The participants considered telephonic guidance and follow-up as an opportunity to learn about their health and follow instructions at home given by healthcare professionals remotely.

"It will be a blessing for patients, truly speaking, because I have experienced it so closely…patients after heart attack get anxious even about their food. They fear the effects on the heart and what she/eats…if this happens, it would be an opportunity for them to learn because, in the clinics, doctors do not have much time. They ask, "How are you?" and "How is medicine doing with you?" that is it…I would have been happy If I could have given this telephonic checkup…". (P2, M, 66, Smoker, Police Officer)

The response from another participant considered home-based telephonic guidance important for heart patients, especially for food and exercise after a heart attack. She further mentioned having experienced a lack of guidance received from healthcare professionals about post-heart attack care, as she shared, *"This is good if patients can receive guidance about food and exercise because if I tell you my experience, I was very concerned about these two…".* Participant further shared her interest in enrolling in home-based telephonic guidance, which benefits heart patients. The suggestion to the government to initiate such programs indicates an expectation for healthcare transition in Pakistan in which patients are provided care considering their real challenges and convenience at the same time, *"Yes, if it were offered to me, I would have followed that properly…such things are good for patients. Govt should think about these things which make the patients feel easy by their services…". (P3, F, 45, DM, Housewife)*

Similarly, the response by a housewife also favors telephonic guidance for managing food and exercise at home. The physical follow-up to the hospital has many barriers, especially for females who are housewives. This indicates a need to develop a structured home-based rehabilitation program for patients who have experienced a heart attack. The participant's response further shows ease in sharing health concerns with healthcare professionals having telephonic medium of communication available:

"This is good (talking about telephonic guidance), you know, if patients do not need to visit the hospital and if patients are provided with such information regularly, then it will benefit them with their food and exercise problems if they have any problem, they can send them a message this is so simple and easy…". (P10, F, 52, HTN, Housewife)

The participant shared experiences of challenges during traveling, which had caused him so much stress. The participant wished that home-based telephonic guidance was offered to him. On behalf of other heart patients, he claimed that most of them would be happy to receive home-based guidance compared to routine physical visits, *"I wish I could have offered such because I know how much I suffered on traveling…nobody can realize other than me…as you are saying, if it is possible, then believe me, people will be so happy to do it.". (P6, M, 70, DM, HTN, Smoker, Labour)*

Likewise, the participants showed their willingness to enroll themselves in home-based telephonic guidance and wished that if such had been offered to them at their time, as they shared, *"If I was asked, I must have accepted it…" (P5, M, 59, HTN, Smoker, Shopkeeper),* another participant shared *"I would have enrolled myself in such things if offered to me…" (P7, M, 37, HTN, Smoker, Banker)*

Few participants shared their readiness based on their understanding of the benefits of home-based guidance in managing health after a heart attack, *"Yes If I was called. I would have attended it because it is for my benefit…". (P8, M, 49, DM, Smoker, Carpenter),* another participant shared, *"I would have followed it easily because it would benefit me." (P18, M, 59, DM, HTN, Smoker, Driver)*

The data also revealed that participant's readiness depends on what their doctors suggested. The influence of a doctor's recommendation affects patient's readiness based on the level of trust they have in healthcare professionals, as the participant shared, *"If the doctor had told me to attend, I would have attended it." (P14, M, 40, DM, Smoker, Banker)*

Theme 3: Patients' Readiness about Home-based Exercise

Participants shared different perspectives on convincing themselves about home-based exercises in this subtheme. Most of them showed willingness toward home-based exercises subjected to proper education and training by healthcare professionals. The participants' responses revealed that their willingness is based on doctor's recommendations, and most patients follow what their doctors suggest to them. Due to the comfortable environment at home, participants shared that it would be easy for them to walk and exercise as per the guidance received:

"Look…. Whatever doctors suggest patients follow is 80% of the information. If they do something for us and guide us to do something at home, then who will not follow? All patients will follow, I think…It will be easy for patients to walk and follow exercise whatever is suggested at home because of the comfortable environment." (P1, M, 55, Labour)

On the contrary, the response indicates the family's concern associated with physical activity and exercise while the participants witnessed other patients doing it regularly. The response further highlights a lack of guidance and recommendations for exercise by healthcare professionals. The expectation in the response showed regular guidance to reduce the patient's and family's fear attached to the physical activity, as the participant mentioned, *"I saw people running more after they got attacked, and our family fear and do not want to do it…but if doctors guide us regularly, then it would benefit patients more and reduce their anxiety and fear about walking and exercising."*

Participants further indicated a wish for exercise guidance during the initial treatment and believed that if guidance was available, patients could benefit more. The response reflects a deep understanding of the importance of physical activity and exercise after a heart attack and also includes a suggestion for prospective patients to rest minimally after the heart attack, which can help regain their strength and stamina otherwise, it would become difficult get back to routine life:

"I would have asked to do it in the way you are asking, so I would have. Because I feel heart patients need to do physical activity; otherwise, they will lose their stamina if they take rest…they should do even more than before. If someone is there for your guidance, you feel secure because they know better. They can guide you on the best way to exercise." (strength because the time and severity matter a lot, which only they can tell by checking our condition."(P2, M, 66, Smoker, Police Officer)

Another participant shared a similar concern of fear attached to physical activity. The response also suggested that proper training by healthcare professionals in the hospital can reduce the fear and anxiety that hinder them from doing physical activity. With proper training and guidance, participants showed a willingness to do it at home:

"I think exercise is something which I would fear doing on my own…yes, if they train me in front of them first and then they check on me, I would be happy to do it…it benefits the heart, and doctors should guide us properly because we fear any recurrent symptom associated with the walk…if doctors want us to exercise and daily walking then they should teach us…we will do it if it benefits us…" (P6, M, 70, DM, HTN, Smoker, Labour)

The healthcare professionals' suggestions are "important words" for patients. Whatever they suggest, patients follow it, knowing that it would benefit their health. So is doing exercise at home, in view of the participant. If healthcare professionals think physical activity and exercise are good for health after a heart attack and advise for it, then patients' readiness is of no question. They will follow it, as he mentioned, *"The patient would follow what doctors suggest…they consider the doctors' decision as the ultimate one…there is no choice if the doctor says you must come…likewise if they say we should do exercise and it is possible, then the patient will follow this instruction…" (P14, M, 40, DM, Smoker, Banker)*

The findings from interviews further show the patient's trust in healthcare professionals. The image of healthcare professionals as life savers helps patients trust them. Likewise, the participants' responses indicated that healthcare professionals always do good to the patients, and if they suggest patients exercise at home, then patients would follow. In short, every decision related to healthcare can be implemented for patients if healthcare professionals consider it safe, feasible, and beneficial for patients. The responses further highlight a readiness for home-based exercise guided telephonically, as participants shared:

"Doctors know better than us what is good for us and not…if they think this would benefit patients, then they should do it…I do not think patients will have any issues with it…If doctors do a checkup on a phone call, patients will do it, and if doctors check in the clinic again, patients will come and get themselves checked. If doctors think this telephone would help patients, then whatever they tell the patient will follow…" (P12, F, 42, DM, Teacher)

Similarly, a participant shared *"Doctors always think for patients' benefit, so if they tell patients to follow instructions on the phone instead of coming to the hospital, patients will happily follow because doctors suggested…" (P18, M, 59, DM, HTN, Smoker, Driver)*. Another participant showed an in-depth understanding of the advantages of physical activity following a heart attack by considering home-based exercise to be good for heart patients. The response further shows readiness for home-based guidance if offered to him, *"If someone traces you for your diet and exercise, it would be good because it is essential for heart patients; otherwise, they must get into trouble if they do not change their behavior towards health. If I was asked, I must have accepted it." (P5, M, 59, HTN, Smoker, Shopkeeper)*

On the contrary, the responses from interviews further indicate a lack of understanding about physical activity and exercise. He argued that heart patients cannot exercise. However, both modes of receiving guidance from healthcare professionals seem fine to the participant, but he preferred seeing the doctors and getting direct information from them. This indicates a need for comprehensive education about different modes of attending consultation and receiving health information in the current era,

"How does a heart patient exercise? I cannot do it, at least…I cannot do it…even if it is on the phone. After all, it has to be done by myself…I prefer to go to the doctor and get direct information…I think both are fine, depending on which suits what." (P4, M, 61, DM, HTN, Teacher)

Proper guidance by healthcare professionals is thought to be beneficial for patients. The response indicates the passive willingness of patients towards what healthcare professionals guide them. After the heart attack, patients want to change their lifestyles and should be guided regardless of what mode of counseling is followed, as the participant shared, *"It would have benefited patients if they had been given proper guidance to take care of themselves…see patients need guidance and want to change their lifestyle whatever mode of guidance they offer patient would be willing to receive." (P20, M, 55, DM, HTN, Smoker, Farmer)*

Another response from participants' interviews exhibits that patients receive no compulsion by healthcare professionals to do physical activity or exercise. Instead, they were recommended for it once even. However, using different sources for seeking

health information indicates a proactive approach towards behavior change. Furthermore, the response, *"Being active is good"* shows an experience of getting benefits through physical activity and contains a suggestion to prospective patients to engage in physical activity as much as possible:

"Being active is good, but you know doctors do not put pressure that we must do it…they do not tell me a single time, but I have done it on my own…and I think if you want to become healthy, you do not wait for someone to tell you what you need…in this time, you can get whatever information you want from the internet…so it is a good resource for health." (P19, F, 51, DM, Housewife)

Similarly, participants expressed readiness for home-based exercise with telephonic guidance. However, she highlighted the need for assistance in understanding and performing the recommended exercise. The response reflects the inclusion of family members in home-based exercise guidance, *"Yes, I would have attended, but I might need assistance understanding the information…" (P19, F, 51, DM, Housewife)*

Theme 4: Patients' Suggestions Regarding Home-based Guidance

Participants reported many perspectives as concerns and suggestions for home-based telephonic guidance after a heart attack in this subtheme. The response from participants reflects a trust in healthcare professionals regarding remote guidance. It also indicates satisfaction with healthcare professional's guidance about care post-heart attack, *"But who will call patients? It is okay if doctors and nurses call; otherwise, patients will not be satisfied…"*

In response to a question concerning the sources of health information that participants might anticipate following a heart attack, he went on to assert that patients should receive health information in simple terms in writing and that it should also be made available electronically, potentially via a mobile device, so that the information is always available to them, *"I would say it should be given in written on paper in easy language as well send in mobile so that if paper misplaces the other option should be in hand." (P8, M, 49, DM, Smoker, Carpenter)*

In view of a few participants, there are some limitations to using technology for health. Such as a female patient, who was a housewife, shared a concern about telephonic guidance. The limited awareness of using Android mobile devices was a concern shared by a participant; however, she preferred receiving guidance on a simple call. Furthermore, the response indicated a general concern that many patients may not know about using Android devices:

"it seems good that a telephone guidance can be done, but would it be on a simple phone or video call? If both, then people like me may not have a touch mobile. How can they attend then? So I think a simple call would be okay for many people who do not know how to use touch mobile…" (P10, F, 52, HTN, Housewife)

Similarly, when asked about the sources of health information participants expected after a heart attack, most preferred written guidance about diet and exercise in the form of a booklet. This highlights a need for a structured educational program to benefit patients after experiencing a heart attack. The response further highlights a suggestion to keep a check on participants whether the information provided by healthcare professionals is being followed. It indicates including some monitoring strategies to ensure adherence to the health instructions.

"Yes, it is important that patients should be provided information about their diet and exercise or walk, etc., and keep a check on them because patients and their families do not know much and cannot keep check due to their other roles and responsibilities. (P11, M, 47, DM, HTN, Smoker, Shopkeeper)

The suggestion of guiding written text in the form of books or videos was also endorsed by another participant. The suggestion of including videos for physical activity and exercise would help patients learn and perform more efficiently. However, exercise should be trained by healthcare professionals first during the hospital visits in front of the family members so that they can do it at home as well, as the participant shared.

"There should be some book or video or picture to show how I should exercise because If I have a source of what should I do and how should I do I can do it easily by following it…I know I can exercise now, and I have enough strength. If they properly train me in the hospital in front of my son, I will do it at home very easily." (P6, M, 70, DM, HTN, Smoker, Labour)

Due to the tendency to forget things, one more participant suggested including written guidance as part of home-based cardiac rehabilitation. "*Written guidance would be good because patients forget when they leave the hospital if there is so much information…if it is minimal then they can remember…but still it should be written." (P7, M, 37, HTN, Smoker, Banker)*

Another participant shared a thoughtful suggestion to include in home-based guidance. The response indicates a participant's struggle in finding health information himself because of a lack of such guidance as part of routine care provided to heart attack patients. The participant suggested giving patients a complete package of post-heart attack care in the form of a book or manual because if patients have other comorbidities such as diabetes, they have to follow other doctors being heart patients. However, receiving much information at once can help patients follow timely. Also, it was suggested that through some mechanism, patients shall remain connected to healthcare professionals even after discharge from the hospital:

"I experienced it when I was searching for information about heart care after a heart attack and witnessed so many useful things which our doctors do not tell us as part of their normal service…if you asked which diet should I take, they may say go to the diet doctor it should be a package of care for patients after attack…in the shape of manual or videos, etc. but patients should be connected to hospital staff after the heart attack." (P9, M, 50, DM, HTN, Smoker, Businessman)

With a little disappointed about the unavailability of digital health provision at his time. The participant shared that he would have followed if offered such a mode of health guidance. However, when asked about the source of health information, he responded that written guidance would be helpful for patients and that digital devices can make patients' lives easy if utilized efficiently. The response, "*However, I would have taken it because I know mobile or telephonic checkups could have made my life easy",* further highlights the challenges the participant faced during his treatment regarding physical visits and guidance:

"I would not have wanted to go into trouble again…I could have followed if they had told me to prevent a second heart attack, and I was ready to change my bad habits at any cost at that time…I think written guidance is good for patients. However, I would have taken it because I know mobile or telephonic checkups could have made my life easy…" (P13, M, 46, Labour, Smokeless Tobacco)

In addition, another participant preferred having written guidance in the form of a booklet, and he added that there is everything possible in the current era of modern technology, *"These days of modern technology, nothing is impossible…If you asked me, I would say the written guidance in a book would have been okay for me…" (P14, M, 40, DM, Smoker, Banker)*

Furthermore, the majority of the participants were in favor of receiving written health guidance to follow at home along with telephonic guidance as many of them verbalized, *"Written material would be sufficient for me", "guidance through mobile could have been easy to follow", "The source can be a regular call or something in a paper to follow",* the response also highlighted the readiness to what participants have suggested, *"Written material would be sufficient for me to remember the things because I may forget. I do walk in parks early in the morning…" (P15, F, 51, Employed)*

The responses from other participants are as follows:

"Yes, I could have followed if my children understood the information, they receive on mobile…. guidance through mobile could have been easy to follow rather than traveling so long-distance…" (P16, F, 43, HTN, Employed)

"The source can be a regular call or something in a paper to follow which patient or family can read…" (P2, M, 66, Smoker, Police Officer)

On the contrary, participants' responses indicated an important suggestion for patients who cannot read and understand the written material. They suggested including a family member in the home-based cardiac rehabilitation program so that such a population can also benefit from it, when asked about the preferred source of health information, the participant shared, *"It could be anything which patients can follow, and an illiterate like me can also follow…. If a person is illiterate, then it should be something which family members can understand and help the patient follow with that." (P1, M, 55, Labour)*

Similarly, the response reflects an inability to use an Android device at the same time, suggesting including a son or daughter in telephonic guidance along with written material, *"If I could have someone like my son or daughter with me who could operate a mobile device, telephone guidance would have helped me." (P19, F, 51, DM, Housewife)*

In addition, the data from the participant's interviews revealed a different insight about the need for primary prevention, where he indicated worry about lay people who do not know about heart disease and its causes. The response further grabs attention to why healthcare professionals educate patients to take care after they develop heart disease. It signals a need for comprehensive education to the general population through social and electric media, as the participant shared:

"But there should be some campaign to educate us lay people because people trust doctors and follow their guidelines, so why are we being taught when we develop a disease why it cannot be prevented in nature before a heart attack, I did not remember seeing such info on television not even in advertisements." (P14, M, 40, DM, Smoker, Banker)

Theme 5: Patients' Preference for Mode of Follow-up During Recovery

The analysis of the interviews revealed that different insights exist among participants regarding the preference for follow-up modes for prospective heart patients during the recovery phase. Most participants preferred telephonic follow-up for their routine visits; some of them preferred visiting physically, while few preferred both physical and telephonic modes of follow-up during recovery. However, none of them were offered telephonic follow-up during their recovery phase.

Due to the lack of telehealth services in Pakistan, the participant shared that he was not offered telephonic follow-ups in the initial treatment of a heart attack, and he used to come physically. However, when he was asked about his preference between physical and telephonic follow-ups (if offered to him at that time), he preferred telephonic follow-ups, *"Give me options; then I can tell you…mm….ok obviously the one with telephone…I was not offered such; I was just told to take medicine and come after 15 days for a checkup…no options were given at that time…" (P2, M, 66, Smoker, Police Officer)*

On the other hand, participants shared that they were satisfied with the hospital visits during their treatment time however if telephonic follow-up and guidance could be done that would also be good for patients. The response further indicates that patients soon after a heart attack need information regarding what should they eat and how much physical activity is safe for them. The statement, "*Unfortunately, there is very little given by the hospital upon asking"* indicates a lack of health education provided to them after a heart attack, which needs to be incorporated into home-based cardiac rehabilitation, as the participant shared:

"Hospital visits are more satisfactory than any other method…but the telephone is also good for guidance about exercise and food, but tell me, who will do calls? If patients do it, then it is not good. If hospitals do it, then it is good…patients after heart attacks want information from their doctors about whether they should eat and what not…, whether they should walk or not, and how much they should walk, but unfortunately, there is very little given by the hospital upon asking…" (P7, M, 37, HTN, Smoker, Banker)

Another participant expressed an understanding of digitalized healthcare and preferred telephonic follow-up as more beneficial for patients and can be proved feasible for those living in remote areas, *"Yes, healthcare is also digitalized…if hospital consultations are done on call, it will be more feasible for patients from far away…" (P9, M, 50, DM, HTN, Smoker, Businessman)*

Likewise, participants preferred both modes for follow-ups; however, they considered telephonic follow-ups for routine checkups, while a few physical visits are also necessary for patients and doctors. Furthermore, the response indicates that more frequent physical visits are considered difficult for patients because of family responsibilities as housewives. When the physical visit is planned, someone from the family accompanies the patient to the hospital, so the family routine gets disturbed, as the participant shared.

"I think both are fine because sometimes you want the doctor to check you, which is impossible by telephone…I was told to come to the clinic every 15 days…and I used to come. However, sometimes, when there is nothing special to tell the doctors, this telephone checkup can be done because, being a housewife, I must manage many things, and my husband needs to take off from his job." (P3, F, 45, DM, Housewife)

In addition, a response from the participant shows a preference for both modes. However, he used to come for physical follow-ups every two months because of the anxiety-inducing environment of the hospital. Due to the uncomfortable environment, the participant reported visiting only if he faced any health issues, *"I think both are good, but I would prefer coming to*

the clinic once every two months because I feel uncomfortable in the hospital's environment…they asked me to take medicine and come to the clinic, but I only come when I face any issue. " (P4, M, 61, DM, HTN, Teacher)

Telephonic follow-ups after a few initial physical ones in the hospital can be helpful for patients resuming their normal lives, as shared by the participants, *"I would say both because sometimes you can go and sometimes it is difficult…but, if possible, then patients would prefer telephonic consults after a few in clinics." (P5, M, 59, HTN, Smoker, Shopkeeper)*

Participants shared that the choice of physical or telephonic follow-up should be given to patients because sometimes they may not come physically, so they can get telephonic guidance if needed. The response also indicates that telephonic follow-up and guidance can be feasible and cheaper for patients coming from peripheral areas, *"I think I should be given a choice to patients because many patients are living far away from the hospital and even coming from the rural area for a checkup, and many live near to the hospital or in the same city." (P6, M, 70, DM, HTN, Smoker, Labour)* and *"I think a telephonic checkup is good because who needs to come from far areas just as I come from Sahiwal, and if it can be checked on call, it will be easy for patients; otherwise, patients like me have to lose one day's wage and spend travel fare as well." (P8, M, 49, DM, Smoker, Carpenter)*

The response from participants indicates that there is an availability and accessibility of Android mobile to every house these days. These devices can help in obtaining health information, according to one participant who stated, "*Both methods are okay…there is a mobile in every house in this era, and mobile is equal to the computer, so people can benefit from it if they want…" (P18, M, 59, DM, HTN, Smoker, Driver)*

On the other hand, a few participants shared that they want to visit doctors physically for their checkups as they cannot use mobile phones they stated, *"I feel good about coming to the hospital, and I could visit easily", "I would have preferred in-person consultation", "Being seen by a doctor in the clinic would have been easy for me.", and "I prefer going to the doctor's clinic for checkups"*. The response highlights a preference for physical follow-ups for which they feel good. It also indicates a limitation of using mobile phones, which needs proper education. One family member can train participants who cannot use cell phones if they intend to. Many participants shared:

"I feel good about coming to the hospital, and I could visit easily…I would have followed whatever doctors suggested because I have experienced how much it hurts…" (P13, M, 46, Labour, Smokeless Tobacco)

"I would have preferred in-person consultation because I could have known that at least the doctor sees me when he does a checkup and prescribes meds." (P15, F, 51, Employed)

"Being seen by a doctor in the clinic would have been easy for me as I do not know how to use a mobile phone…"(P19, F, 51, DM, Housewife)

"I prefer going to the doctor's clinic for checkups…I do not use my phone frequently and only know how to attend the call…" (P20, M, 55, DM, HTN, Smoker, Farmer)

Discussion

The study's qualitative results provide light on the difficulties that patients face at follow-up appointments. The patients mentioned significant impediments to taking part, including the strain of balancing work and family obligations, logistical challenges, and financial constraints. These accounts set the results against the backdrop of some current research on the Pakistani healthcare system.

The patient narratives revealed the significant expense associated with outpatient appointments. According to one informant, *"Now if one person alone is earning, how can he come for follow-ups?"* This is supported by more recent research, which consistently identifies financial challenges as the primary barrier to obtaining healthcare services in Pakistan. For instance, a study reported that "*many patients are in the clue that they refuse to attend follow-up appointments because of travel costs as well as wages income.*"[5]

The patient accounts also address the time limits and logistical challenges involved in getting healthcare. As a participant pointed out, "*Even if they develop any symptoms after the treatment, they cannot come to the same doctor or hospital due to the travel expenses and time required.*" This aligns with findings in the literature where it was observed that patients from rural areas face significant challenges in accessing specialized healthcare facilities located in urban centers. The travel time and associated costs often lead to delayed or missed follow-up appointments, which can adversely affect patient outcomes.[6] In contrast, the literature suggests few patients still prefer in-person visits for medical follow-up in developed countries.[19]

The stress of being the sole breadwinner and the competing demands of family responsibilities are recurrent themes in the patients' narratives. One participant expressed, "*My children are my biggest stress, which I do not think will be reduced until I see them succeeding in my life.*" This mirrors the findings that highlighted the psychological burden on patients, particularly those with chronic illnesses, who struggle to balance their health needs with family obligations.[7] The stress associated with managing multiple roles can lead to non-adherence to follow-up care and prescribed treatments.

A significant portion of the patients' feedback centered around the potential benefits of telephonic health services. Many participants expressed a strong preference for telephonic follow-ups, citing convenience, cost savings, and reduced stress. One participant mentioned, "*Patients should be treated with respect and empathy. They come from long distances and take loans to bear the expenses to reach the hospital for follow-ups.*" Another stated, "*It will be a blessing for patients, truly speaking, because I have experienced it so closely…patients after heart attack get anxious even about their food.*"

These preferences are supported by recent literature advocating for telehealth solutions in resource-constrained settings. It is found in the literature that telephonic consultations significantly improved patient satisfaction and adherence to treatment plans, particularly among patients with limited access to healthcare facilities.[8] Similarly, telehealth interventions can alleviate the logistical and financial barriers faced by patients, leading to better health outcomes and enhanced patient engagement."[9]

While the consensus among the patients in this study favors telephonic health services, contrasting findings exist in the literature regarding the implementation challenges of such interventions. For instance, recent literature identified the issues related to technological literacy, access to reliable communication devices, and internet connectivity as potential barriers to the effective adoption of telehealth services in rural Pakistan.[10] Contrastingly, some participants mentioned the potential benefits

of digital communication, such as receiving information via mobile phones. This preference is supported by studies indicating the increasing acceptance and effectiveness of mobile health interventions in low- and middle-income countries, including Pakistan.[18]

Interestingly, recent literature corroborates these findings, highlighting similar patient preferences for both in-person and telephonic consultations. A study found that patients appreciated the convenience and accessibility of telephonic consultations, particularly those residing in rural areas or far from healthcare facilities. This is consistent with the participants' comments on the ease of telephonic checkups and the challenges of traveling long distances for hospital visits.[21]

Despite these similarities, patients reported a higher level of trust and satisfaction associated with in-person consultations compared to telephonic ones. Patients felt more confident about the accuracy of diagnoses and the comprehensiveness of care when physically present with their healthcare providers. This contrasts with the current findings where some participants were open to telephonic consultations, suggesting a potential shift in patient attitudes over time or differences based on specific contexts or patient demographics.

The acceptance of telemedicine as a means of receiving guidance is reflected in the qualitative findings. Recent studies, show a growing acceptance of telehealth services in Pakistan, particularly during the COVID-19 pandemic, where patients expressed comfort in receiving medical advice over the phone, mirroring the sentiments in the current study.[11]

Furthermore, the belief that patients will follow doctors' advice if given proper guidance is echoed in several studies. For instance, a study found that patients were more likely to adhere to prescribed treatment plans and lifestyle modifications when they received clear, consistent instructions from their healthcare providers.[12] While the study indicates that patients are highly reliant on doctors for guidance, some recent literature suggests a shift towards greater patient autonomy. For instance, it is revealed that with increased access to health information via the Internet, patients in urban areas of Pakistan are becoming more proactive in making health decisions independently, contrasting with the findings that emphasize complete reliance on doctors.[13]

One participant mentioned the internet as a valuable resource for health information. In contrast, the majority of the study's participants did not highlight this, suggesting a preference for direct doctor-patient interactions. However, studies have reported an increasing trend of patients utilizing online resources to supplement the information provided by healthcare professionals, indicating a divergence in how different patient groups may approach health information.[14]

Additionally, the hesitation and fear of exercising independently, as noted in the findings, can be linked to cultural factors. A study highlighted that in conservative communities, there is a significant reluctance to engage in physical activities without direct supervision due to cultural and gender norms.[15] This contrasts with findings from more liberal regions within Pakistan, where patients might feel more comfortable engaging in self-directed exercise routines.[16]

A recurring theme in the findings is the preference for multiple modes of communication and information delivery to accommodate different patient needs and circumstances. For instance, many participants expressed the need for written guidance, which they could refer to later if they forgot the verbal instructions given by healthcare providers. The preference for written materials aligns with findings from recent literature that highlight the effectiveness of written educational materials in improving patient comprehension and adherence to medical advice.[17]

The participants' feedback on telephonic guidance indicates a preference for simple phone calls over video calls due to the widespread ownership of basic mobile phones. This finding is corroborated by a recent study that emphasizes the feasibility and acceptability of telephonic health interventions in resource-limited settings. The preference for voice calls over video calls highlights the need to tailor telehealth services to the technological capabilities and preferences of the target population.[20]

The findings also highlight the critical role of family members in patient care, especially for those who are illiterate or have limited digital skills. Participants suggested that educational materials should be designed to be understandable by both patients and their family members, ensuring that the family can assist in implementing the recommended health practices. This is consistent with studies that emphasize the positive impact of family involvement on patient adherence to treatment plans and overall health outcomes.[17]

Conclusion

The findings underscore the need for a patient-centered approach to healthcare delivery in Pakistan. Providing options for both in-person and telephonic consultations can enhance patient satisfaction and adherence to medical advice. Healthcare facilities should consider implementing telehealth services, particularly for follow-up consultations, to cater to patients from distant or rural areas.

Moreover, the feedback indicates a need for better communication and information dissemination by healthcare providers. Patients expressed a desire for more guidance on lifestyle modifications and medication management post-consultation. Hospitals should enhance their patient education efforts, possibly through follow-up calls or digital platforms, to ensure continuous support and information for patients. Financial constraints, logistical challenges, and the stress of balancing family responsibilities are major barriers to healthcare access. The patients' preference for telephonic follow-ups aligns with recent literature advocating for telehealth solutions in resource-constrained settings. However, the implementation of such services must address potential barriers related to technological literacy and access to communication devices to ensure equitable and effective healthcare delivery.

Recommendations

Based on the findings and the literature review, the following recommendations are proposed:

- Implement financial support programs to assist patients with travel and accommodation costs associated with follow-up appointments.

- Develop robust telehealth infrastructure, including training for healthcare providers and patients, to ensure effective and equitable access to telephonic health services.
- Establish community-based health centers in rural areas to reduce the travel burden on patients and improve access to follow-up care.
- Advocate for policy changes that prioritize the integration of telehealth services into the national healthcare system, with a focus on addressing the unique challenges faced by patients in Pakistan.
- Implement a combination of written, telephonic, and digital communication methods to cater to diverse patient needs and preferences.
- Develop comprehensive educational resources that are easy to understand and accessible to both patients and their family members.
- Adopt an integrated approach to patient care, ensuring that all aspects of the patient's health, including diet, exercise, and lifestyle, are addressed in a coordinated manner.

Implications for Health Services in Pakistan

The findings underline the critical role of HCPs in patient adherence to lifestyle changes and the potential of telemedicine to bridge gaps in healthcare delivery. However, there is a need to address the varying degrees of autonomy and access to information among patients. Health services should consider personalized approaches that respect cultural sensitivities while encouraging greater patient involvement in health decisions.

Training programs for healthcare providers should emphasize the importance of clear communication and continuous support to alleviate patient fears and ensure adherence to recommended practices. Additionally, integrating digital health literacy programs could empower patients to utilize online resources effectively, complementing the guidance from healthcare professionals.

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References:

1. Deaths from Cardiovascular Disease Surged 60% Globally over the Last 30 Years: Report." World Heart Federation. Last modified August 9, 2023. https://world-heart-federation.org/news/deaths-from-cardiovascular-disease-surged-60-globally-over-the-last-30-years-report/?petition=close.
2. Kaminsky, Leonard A., Charles German, Mary Imboden, Cemal Ozemek, James E. Peterman, and Peter H. Brubaker. "The importance of healthy lifestyle behaviors in the prevention of cardiovascular disease." *Progress in Cardiovascular Diseases* 70 (2022), 8-15. https://doi:10.1016/j.pcad.2021.12.001.
3. Hammad Jafri, S., and Wen-Chih Wu. "Reply letter to the editor 'cardiovascular outcomes of patients referred to home-based cardiac rehabilitation'." *Heart & Lung* 60 (2023), 148. https://doi:10.1016/j.hrtlng.2023.03.013.
4. Tromp, Jasper, Devraj Jindal, Julie Redfern, Ami Bhatt, Tania Séverin, Amitava Banerjee, Junbo Ge, et al. "World Heart Federation Roadmap for Digital Health in Cardiology." *Global Heart* 17, no. 1 (2022). https://doi:10.5334/gh.1141.
5. Schwalbe, Daria, Morten Sodemann, Maria Iachina, Bente M. Nørgård, Nina H. Chodkiewicz, and Jette Ammentorp. "Causes of Patient Nonattendance at Medical Appointments: Protocol for a Mixed Methods Study." *JMIR Research Protocols* 12 (2023), e46227. https://doi:10.2196/46227.
6. Syed, Samina T., Ben S. Gerber, and Lisa K. Sharp. "Traveling Towards Disease: Transportation Barriers to Health Care Access." *Journal of Community Health* 38, no. 5 (2013), 976-993. https://doi:10.1007/s10900-013-9681-1.
7. Baptista, Simone C., Carmen M. Juliani, José E. Corrente, Armando D. Trettene, Silvana A. Lima, and Wilza C. Spiri. "Patient profile and reasons for the absence from scheduled medical appointments." *Acta Scientiarum. Health Sciences* 46, no. 1 (2023), e63374. https://doi:10.4025/actascihealthsci.v46i1.63374.
8. Anawade, Pankajkumar A., Deepak Sharma, and Shailesh Gahane. "A Comprehensive Review on Exploring the Impact of Telemedicine on Healthcare Accessibility." *Cureus*, 2024. https://doi:10.7759/cureus.55996.
9. Haleem, Abid, Mohd Javaid, Ravi P. Singh, and Rajiv Suman. "Telemedicine for healthcare: Capabilities, features, barriers, and applications." *Sensors International* 2 (2021), 100117. https://doi:10.1016/j.sintl.2021.100117.
10. Lestari, Haifa M., Adriana V. Miranda, and Ahmad Fuady. "Barriers to telemedicine adoption among rural communities in developing countries: A systematic review and proposed framework." *Clinical Epidemiology and Global Health* 28 (2024), 101684. https://doi:10.1016/j.cegh.2024.101684.
11. Mahdi, Syed S., Franceso Amenta, Raheel Allana, Gopi Battineni 3rd, Tamsal Khalid, Daniyal Agha, and Mariam Khawaja. "The promise of Telemedicine in Pakistan: A Systematic Review (Preprint)." 2021. https://doi:10.2196/preprints.27961.
12. Panahi, Samin, Naveen Rathi, Jazmine Hurley, Justine Sundrud, Mary Lucero, and Akiko Kamimura. "Patient Adherence to Health Care Provider Recommendations and Medication among Free Clinic Patients." *Journal of Patient Experience* 9 (2022), 237437352210775. https://doi:10.1177/23743735221077523.

13. Thapa, Deependra K., Denis C. Visentin, Rachel Kornhaber, Sancia West, and Michelle Cleary. "The influence of online health information on health decisions: A systematic review." *Patient Education and Counseling* 104, no. 4 (2021), 770-784. https://doi:10.1016/j.pec.2020.11.016.
14. Yu, Jiajie, and Shuang Meng. "Impacts of the Internet on Health Inequality and Healthcare Access: A Cross-Country Study." *Frontiers in Public Health* 10 (2022). https://doi:10.3389/fpubh.2022.935608.
15. Teo, Junsheng L., Zhen Zheng, and Stephen R. Bird. "Identifying the factors affecting 'patient engagement' in exercise rehabilitation." *BMC Sports Science, Medicine and Rehabilitation* 14, no. 1 (2022). https://doi:10.1186/s13102-022-00407-3.
16. Arsh, Aatik, Saima Afaq, Claire Carswell, Karen Coales, and Najma Siddiqi. "Barriers & facilitators to physical activity in people with depression and type 2 diabetes mellitus in Pakistan: A qualitative study to explore perspectives of patient participants, carers and healthcare staff." *Mental Health and Physical Activity* 25 (2023), 100542. https://doi:10.1016/j.mhpa.2023.100542.
17. Bhattad, Pradnya B., and Luigi Pacifico. "Empowering Patients: Promoting Patient Education and Health Literacy." *Cureus*, 2022. https://doi:10.7759/cureus.27336.
18. McCool, Judith, Rosie Dobson, Robyn Whittaker, and Chris Paton. "Mobile Health (mHealth) in Low- and Middle-Income Countries." *Annual Review of Public Health* 43, no. 1 (2022), 525-539. https://doi:10.1146/annurev-publhealth-052620-093850.
19. Moulaei, Khadijeh, Abbas Sheikhtaheri, Farhad Fatehi, Mostafa Shanbehzadeh, and Kambiz Bahaadinbeigy. "Patients' perspectives and preferences toward telemedicine versus in-person visits: a mixed-methods study on 1226 patients." *BMC Medical Informatics and Decision Making* 23, no. 1 (2023). https://doi:10.1186/s12911-023-02348-4.
20. Carrillo de Albornoz, Sara, Kah-Ling Sia, and Anthony Harris. "The effectiveness of teleconsultations in primary care: systematic review." *Family Practice* 39, no. 1 (2021), 168-182. https://doi:10.1093/fampra/cmab077.
21. Tringale, Michael, Genia Stephen, Anne-Marie Boylan, and Carl Heneghan. "Integrating patient values and preferences in healthcare: a systematic review of qualitative evidence." *BMJ Open* 12, no. 11 (2022), e067268. https://doi:10.1136/bmjopen-2022-067268.

Table 1: Semi-structured Interview Guide

1. What challenges do you face in care coordination between you and healthcare providers after you were discharged from the hospital?
2. What guidance do you receive during hospital and after discharge?
3. How feasible it is to visit your doctor for a check-up after discharge?
4. After discharge from the hospital, what consultation mode is preferable to you regarding receiving health-related information, sharing health problems, and guidance to take care of yourself? Hospital visits, telephonic follow-ups, or any other?
5. After discharge from the hospital, if you are offered long-term telephonic teaching about diet, in your experience, how can you adopt it easily at home?
6. How it would be feasible for you to increase your physical activity at home?
7. If you are provided with a booklet in Urdu as a guide to care at home, can it benefit patients?
8. If Healthcare professionals offer you to attend a telephonic call about guidance on the management of heart disease, would it be feasible for you to attend easily?