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Post-angioplasty patients' early experiences after treatment at the National Cardiac Centre of Maldives at the Indira Gandhi Memorial Hospital

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ABSTRACT *Coronary angioplasty has been performed widely all over the world and is effective in reducing complications and shortening the length of hospital stay. Post-angioplasty patients undergo both positive and negative experiences in the early recovery period, which significantly affects their overall well-being. However, little is known about patients' post-angioplasty experiences in the Maldivian context. Therefore, this research study aimed to explore post-angioplasty patients' experiences related to changes in their lives within two to six weeks after angioplasty from the National Cardiac Centre NCC of Maldives. Using a qualitative phenomenological study design, a purposive sample of six patients who were within two to six weeks after coronary angioplasty participated in individual face-to-face semi-structured interviews. Data were analysed by using the Colaizzi (1978) process of data analysis. Six themes emerged from the analysis, which reflects the recovery experiences of patients after angioplasty. Themes included support from family and co-workers, seeking self-control and attempting to adjust to the current situation, adapting to lifestyle changes for a better quality of living, looking for specific information, fear of resuming physical activities, and feeling vulnerable/traumatized after angioplasty. The study's findings provided insight into the recovery period after angioplasty, unveiling unique knowledge related to patients' experience during the early post-angioplasty period and will subsequently help nurses and other healthcare professionals plan more patient-centered care to produce better patient outcomes.*

Keywords: Post-angioplasty experiences, Cardiac rehabilitation, Health education, Cardiac care

INTRODUCTION

Cardiovascular Diseases (CVDs) are the leading causes of death worldwide (World Health Organization [WHO], 2021). CVDs are a group of disorders of the heart and the blood vessels; Coronary Artery Disease (CAD) is the most common among these diseases (Dyakova et al., 2016). Additionally, CAD is the most common cause of death in both developed and developing countries (Sekhri et al., 2014). In 2019, there were 17.09 million deaths as a result of CVDs, accounting for 32% of all global deaths. Among these deaths, it was estimated that 85% were due to heart attacks (WHO, 2021, 2024). Reflecting this global trend, CADs remain a leading cause of death in the Maldives (Ministry of Health, 2016, 2020).

CAD occurs due to a blockage in coronary arteries, which supply blood to the heart muscle. Treatment advancements have focused on improving blood

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flow through reperfusion or revascularization (Corones et al., 2009). Coronary angioplasty is the most widely preferred interventional treatment for CAD (Astin et al., 2009; Corones et al., 2009; Sadeghzadeh, 2014; Khera et al., 2015). According to Astin et al. (2014), angioplasty is the first-line choice for revascularization after heart attacks, enabling discharge within 48 to 72 hours. Coronary angioplasty has several benefits compared to other treatment options (Sadeghzadeh, 2014). Evidence shows that successful angioplasty improves clinical outcomes, reduces post-procedure hospital stay, and ultimately lowers healthcare costs (Astin et al., 2009; Lee, 2011).

Coronary angioplasty has been performed widely all over the world and has been found to be effective in reducing complications, and to shortening the length of hospital stay (Kim et al., 2012). Many patients after angioplasty assume that they are totally cured and believe that they can return to normal activities immediately after being discharged from hospital (Astin et al., 2005, 2009; Skaggs et al., 2007). However, coronary angioplasty alone cannot halt the progress of CAD and will not totally cure the disease (Karatasakis et al., 2017). Evidence shows that 30% to 40% of patients have recurrent cardiac events or that sometimes they need to go for another angioplasty during the first two years of initial procedure due to reocclusion of the coronary artery (Hasankhani et al., 2014b). Hence, in order to achieve the maximum benefits of angioplasty and develop effective strategies, it is necessary to have a deeper understanding of the patients' post-coronary angioplasty experiences. Patients go through both negative and positive changes in the early recovery period after the procedure (Piepoli et al., 2016), and studies have shown that patients' post-angioplasty experiences affect the overall well-being and quality of their lives (Snowden et al., 2008).

Even though there are benefits of angioplasty that outweigh the benefits of other invasive treatments, these benefits pause definite challenges in continuation of treatments and care after discharge. For example, a qualitative study done in western Norway to explore the experiences of post-angioplasty patients after early discharge (with regard to continuity of care) shows that the majority of patients were dissatisfied with their discharge process (Valaker et al., 2017). This research shows that most of the participants were not able to remember nurses' explanations related to medication and other advice after discharge. Similarly, Kilonzo and O'Connell (2011) stated that less time admitted in hospital after angioplasty and stress due to their condition led to failure to perceive and assimilate essential information. Thus, continuing regular medication and lifestyle modification is important to prevent further cardiac events.

The literature indicates that the diagnosis of CADs, its symptoms, and the requirement for invasive treatment methods like angioplasty cause a variety of negative emotional reactions among heart patients, including denial, ambiguity, tension, annoyance, worry, and anxiety, as well as depression (Hasankhani et al., 2014a). However, limited research is done on patients' experiences following angioplasty to find out how these elements affect their quality of life. Hence, this research aims to explore post angioplasty patients' experiences related to changes in their life within two to six weeks after angioplasty done at the National Cardiac Centre (NCC) of Maldives.

Maldivian Context

Similar to the revolution around the management of CADs throughout the world, treatment of cardiac care has undergone rapid improvements in the Maldives. The National Cardiac Centre (NCC) marked a significant milestone in the Maldivian healthcare system, reducing the dependency on foreign medical services for cardiovascular treatments (PSM, n.d.). It was established in 2016 with provisions for interventional treatment. Prior to the establishment of the NCC, patients requiring advanced cardiac procedures had to travel abroad to receive appropriate treatment. Since the establishment of the NCC, a significant number of patients have benefited from its services. More than 1,000 patients have undergone angiograms; among these patients more than 500 patients have received angioplasty (IGMH Cardiac Catheterization Laboratory Register, 2016, 2017).

Anecdotal evidence suggests that there is high demand for beds in the Cardiac Care Unit (CCU), which leads to post-angioplasty patients to be transferred out to other wards. Most patients are discharged home after two to three days of hospital stay. Due to this, healthcare providers (HCPs) cannot spend enough time with the patients and provide adequate information about post-angioplasty lifestyle changes. Hence, the limited information delivered within a short period of time leads to misunderstandings among patients (Kalyani et al., 2014). Currently, there is no formal rehabilitation program available for these patients, although such a program is highly required. Additionally, post-angioplasty patients undergo both positive and negative experiences in the early recovery period, which impacts patients' overall well-being, including lifestyle modification (Dullaghan et al., 2014). To promote the secondary prevention and adhere to treatment advice it's important to have continuous educational program including well-structured rehabilitation program. To achieve the long-term benefits of angioplasty and secondary prevention, it is necessary to educate patients in the context of patient experiences (Young & Barnason, 2014).

It is important to understand the patients' experiences and their perceptions related to their disease and required lifestyle changes (Kalyani et al., 2013). To accomplish this, HCPs need to understand patients' post-angioplasty experiences. While there are limited available studies on early post-operative experiences in general, the aim of this research is to explore post-angioplasty patients' experiences specifically during the early recovery period. Improving health professional's knowledge of patients' experiences regarding their lifestyle changes related to the disease will lead to improvements in the quality of patient care (Kalyani et al., 2014).

However, while little is known about Maldivian patients' post angioplasty experiences, the topic has not yet been explored in the Maldives. Understanding patients' experiences is important to achieve quality of care and to deliver patient-centred care.

METHODOLOGY

Study Design and Setting

This study utilized a qualitative phenomenological design to explore post-angioplasty patients' lived experiences within two to six weeks following treatment at the National Cardiac Centre (NCC) of Maldives, Indira Gandhi Memorial Hospital. This design was selected to provide an in-depth understanding of the

participant's personal and emotional responses during their early recovery period. Phenomenology is suited for examining individual perspectives and experiences, making it appropriate for this study's aim of understanding patients' lifestyle adaptations and psychological adjustments post-treatment.

The study was conducted at the NCC of Indira Gandhi Memorial Hospital (IGMH), the largest tertiary care hospital in the Maldives. NCC is a specialized facility dedicated to cardiac care and intervention. Established to address the growing need for cardiovascular treatment in the Maldives, the NCC offers various services, including diagnostics, coronary angioplasty, and post-procedural care.

Participants and Sampling Strategy

A purposive sampling method was employed to select participants in this study. The inclusion criteria were Maldivian patients willing to participate who had undergone their first angioplasty at the NCC and were two to six weeks post-procedure. Purposive sampling is a technique in which the researcher chooses the participants deliberately to explore specific information that is required for the research study (Moule & Goodman, 2009). Polit & Beck (2018) state that the qualitative approach focuses on selecting information-rich samples rather than focusing on a larger sample.

After obtaining official permission from IGMH, the potential participants were identified with the assistance from the staff of NCC. Information about the study was provided to the identified participants individually during their hospital stay, prior to discharge, and the contact numbers were taken from the participants who were willing to participate in this study. Following this, the invitation letter and the information sheet were given to the participants during the time of discharge. All the participants were contacted two weeks after the procedure; however, one out of 9 potential participants was unreachable by phone.

A convenient time and place were arranged to conduct an interview for the eight patients who agreed to participate in the study. One participant did not come for the interview. Out of the seven participants who agreed to the interview, one was considered as a pilot study. Data saturation was observed from the data collected from the remaining 6 participants. Hence, no further patients were recruited for the study.

Data Collection Instrument

Based on the existing literature, a semi-structured interview guide was developed. The guide was pilot tested on a participant to ensure that it was relevant and comprehensible for the respondents. The guide was developed in the Divehi language to ensure contextualization. To maximize the rigor and trustworthiness, and to improve all aspects of data collection, the researcher pilot tested the interview protocol with one participant.

The pilot testing was done to improve the researcher's interviewing abilities and interpersonal skills. Moreover, it helped to detect issues in the room set up and audio recording of the responses, and thus served to prevent errors in the interviews in the actual study (Polit & Beck, 2018). Additionally, data obtained for the pilot study was used to familiarize with the data analysis process and to generate ideas for initial coding. No finding from the pilot study was included in the main study.

Data Collection

The primary researcher invited the selected participants and asked for a convenient time and place for the interview. All the participants preferred to have the interview in the NCC. A face-to-face, in-depth interview was conducted using semi-structured, open-ended questions related to the topic. This allowed patients to express their own experiences, perceptions, and beliefs in detail. The purpose of an in-depth interview is to explore individual experiences or perceptions to collect information-rich data (LoBiondo-Wood & Haber, 2010). Moreover, semi-structured interviews help the researcher control and direct the respondents towards the research topic area (Polit & Beck, 2018).

Additionally, the researcher used probing questions to encourage and ensure participants could express details of their experiences after angioplasty. Written semi-structured, open-ended questions were used to study the broad topic area so that the interview was guided throughout. The researcher's role was to enable participants to talk openly until saturation was reached (Polit & Beck, 2018). The interviews were conducted in 'Dhivehi' language and audio recorded after getting permission from the patients. Privacy was provided for all the participants during the interview process by keeping the door to the interview room locked. Overall, all participants were treated with the utmost respect throughout the research process. Before starting the interviews, all participants were reassured and reminded that they could discontinue participation in the study at any time during the process. They were assured that confidentiality would be maintained throughout the process and that the participant's identity would be protected.

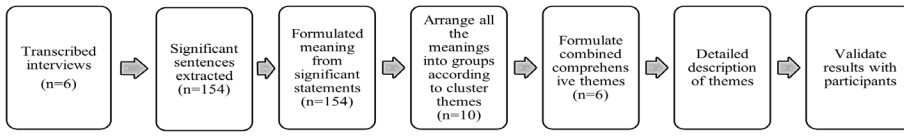
The interview process for each participant lasted approximately between 30 to 40 minutes. After conducting each interview, the audio tape-recoding was mailed to a professional translator to transcribe into English. Each transcript was cross-checked with the audio tape to check for the accuracy and completeness. To enhance credibility and transparency, participants also reviewed and verified their interview transcripts. There was no change in the transcript after cross-checking.

Data Analysis

In phenomenological research studies, data analysis explores the specific meaning of a phenomenon being studied (Polit & Beck, 2018). Analysis is carried out with a combination of data collecting processes, including in-depth interview, observations, and field notes, to ensure a comprehensive understanding of participants' experience. Colaizzi's seven-step process of analysing phenomenological data was used to analyse data in this research to explore participants' experiences after angioplasty. The Colaizzi process for phenomenological data analysis is a step-by-step approach to cumulative rigor and increasing information sources to enhance in-depth explanations of the phenomena (Polit & Beck, 2018).

All transcribed interviews of the participants' post-angioplasty experiences related to the changes in their lives within two to six weeks after treatment from the NCC were analysed using Colaizzi's seven-step data analysis process. Meaningful statements from each transcription were extracted and arranged according to common themes. Figure 1 below shows an overview of the data analysis process undertaken for this research.

Figure 1 Overview of steps involved in the data analysis process



Trustworthiness of the Study

The trustworthiness of a qualitative research study depends on four main criteria, which are credibility, transferability, dependability, and confirmability (Polit & Beck, 2018). The researcher tried to use these four methodological steps to maintain the trustworthiness of this study.

The main tool in the interviewing process is an interviewer with semi-structured questions (Polit & Beck, 2010). To achieve and maintain the trustworthiness of this study, as mentioned above, a pilot study was conducted using the same questions, and the researcher attempted to do bracketing throughout the data collection process by writing a reflective journal (Grove et al., 2013). Bracketing refers to the process of finding the researcher's own beliefs and opinions on the topic area and trying to prevent them from influencing the study by applying different methods(for example, writing reflective journals). Accordingly, the researcher has done bracketing to prevent personal bias by maintaining a reflective journal throughout the data collection process.

Transcripts were given to the participants to make sure what they said was transcribed accurately and to rule out misinterpretation. To increase credibility, the researcher discussed and compared transcripts of interviews and coding with the research supervisor. All transcripts were cross-checked with the audio several times to ensure the accuracy of the transcript. In this study, five participants out of six were able to read English fluently, and the researcher gave their transcripts to those five participants to cross-check whether what they said was transcribed correctly or not. Transferability is the degree to which the findings of the current research correspond to other similar settings (LoBiondo-Wood & Haber, 2010). The findings of this research may be transferable to patients with early post-angioplasty who are treated at another newly opened cardiac centre similar to the Maldivian context.

Ethical considerations

The research was approved by the National Health Reach Committee, Ministry of Health (MOH), Maldives, and the Ethics Committee of Maldives National University (MNU), and permission to conduct the study was obtained from IGMH. Confidentiality and privacy were maintained throughout the research process. To ensure confidentiality was maintained during all the stages of the study, no personal identification in any form was printed nor any recording obtained. All interviews were transcribed and were given a special code that only the researcher could identify. Transcripts were stored in a folder with a password in the personal laptop. The data will be stored in the laptop until this research findings are disseminated after which it will be deleted permanently.

Participants' emotional stress was monitored very carefully, and they were assured that this study does not aim to judge their knowledge or behaviour. Reassurance was given to the participants to establish a trustworthy relationship

throughout the research process for a better outcome. A written informed consent was obtained before starting interviews. All participants were explained about the nature of the study and clarified any doubts. The consent was collected on the day of the interview, and it was ensured that participants had time to read the invitation and make their own decisions. The researcher assured participants that they could withdraw from the study at any stage without any explanation. The interviews were conducted privately without interruptions or invasion of privacy.

Results

A total of six participants interview data were analyzed. The mean age (SD) of the participants was 54.83 (7.01). A total of 154 significant quotes were extracted from the transcribed interviews and 154 statements of meaning of experiences after coronary angioplasty were developed. Ten cluster themes were formed, which were further consolidated into six comprehensive themes. The results of the study were explained and arranged thematically according to the common experiences of the patients. Six key themes emerged from the data analysis, which were divided into positive and negative experiences of the participants. Positive experiences included experiencing strong support from family and co-workers, seeking self-control and attempting to adjust to the situation by using different methods, and adapting to lifestyle changes for better quality of life. Negative experiences after angioplasty included fear of resuming physical activities, lack of specific information about their condition, and feeling vulnerable and traumatized.

Emerged Themes

The support from family and co-workers

The theme the support from family and co-workers is defined as positive experience and support received from family members and co-workers by the participants during the early recovery period after angioplasty. According to the six participants in this study, family and co-workers provided a strong supportive environment for all participants during the recovery period.

There was evidence that all participants received family and co-workers' support and that they gained courage to face significant circumstances during the first two to six weeks after coronary angioplasty.

Participants often stated that they felt blissful and able to manage the current challenging situation because of the continuous care and support provided by the family. As one participant stated:

> *And if the medication time is missed also, they'll call and find out, they'll tell me that it's time for medicine and to return home. So, I get a lot of assistance from them. And my wife too… (Participant 2, L: 98-100)*

The same participant also stated that their family relationship and love was better after the surgery:

> *Family relationships are better now than before. Due to this, they also pay more attention now. They check if I've been out for too long, even. Where I've been… (Participant 2, L: 96-98)*

In a way, compared to before, I feel more love towards my children now. Because of their greater respect for me, I'd say it's much better. (Participant 2, L: 105-106)

Similarly, another participant also expressed the view that family relationships and connections to his family was much closer after the incident:

They were very supportive…I'm not someone who talks a lot. I speak only when I need to; I only say what I need to say, even in a family group. I saw a very close connection from the family. (Participant 3, L: 122-124)

Another participant stated that it was helpful and that he was able face challenges during the recovery phase because of strong family and others' support receiving after angioplasty.

They've all come to visit, all of them. They've been really good. Even my wife and kids, and also siblings. Even neighbours and other people too. Everyone's been really helpful. They're quite sad that something like this has happened. I'm ok, by God's grace. (Participant 4, L: 105-1209)

One participant also stated that their family support was available almost all of time which helped them recover.

I get a lot of support from them, I'm happy with that. They talk with me and help me with what I need. (Participant 5, L: 81-82)

Another participant said that he received financial support from the family after angioplasty.

They did yea. They helped a bit with finances even. And also, when I was admitted, they sent me food and other help too. (Participant 6, L: 130-131)

Many participants felt that they were receiving tremendous support from the workplace and friends. Participants also stated that everyone from the workplace was able to understand the condition that they were going through.

One participant shared his experiences related to the support and care he had been getting from the workplace after angioplasty:

Even the people on the dhoni I go fishing in are good to me. For example, now I'm going fishing at night, and I have to eat my medicines at a particular time. As soon as I have had the medicine, they'll tell me to lie down and sleep…there are no difficulties. (Participant 1, L: 114-118)

The same participant stated that everyone from the workplace was able to understand the condition he was going through and that they were cautious about it.

They have been telling me to be careful. Earlier I used to go pretty deep under the sea too, but they've been telling me not to do that, and not to dive, until the time that the

doctor says it'd be ok to do that. After that, it'd be ok to go into my work fully, if there are no problems. And that I should get into work in such a way that there are no difficulties for me. (Participant 1, L: 108-113)

Another participant explained that the way they had been working was changed after angioplasty.

The way I used to work and the way I work now are quite different. Earlier, there used to be no limit or time for work, but now I work with care for my body… for example, in terms of time, earlier… I would work for 12 hours or even 24 hours, sometimes. But now I work about 8 or 4 hours at a stretch. (Participant 2, L: 79-83)

Similarly, it appeared that the participants were planning to work less, as this participant expressed:

Well, I keep thinking that it's not time yet. That I should wait for a couple of months or three months, and then get into work. (Participant 3, L: 316-317)

Seeking self-control and attempting to adjust in current situation

The theme seeking self-control and attempting to adjust in current situation is defined as seeking to live with the condition and seeking to adjust to their current situation as it was their own responsibility, which were achieved through different coping strategies. All the participants believed that it is their duty to adjust to the situation and find meaning in their new life after angioplasty. The most significant approach participants applied was to cope and adjust to the current situation with the help of religious beliefs and practices, and that these helped them to be stronger during this rough period of life. One participant shared their spiritual belief in the current situation:

What we can do is to remember our Creator, right, and to ask for his assistance in curing the illness…What I mean is that, since I'm a sick person, I'd ask for more the help from Allah. When I think that I feel happier. I feel more settled. (Participant 3, L: 195-198)

Some participants believed that the situation happened because of God's will that it should happen. According to one participant:

The fact that something happens to someone is up to Allah, of course, so there's nothing to say about that. (Participant 1, L: 247-248)

However, some participants believed that they needed to manage their self through seeking coping skills by themselves through positive thinking and diverting their mind. They believed that to practice self-control skills was one of the most challenging experiences during recovery after angioplasty. One participant stated:

Sometimes I just make a joke of it. For example, my brother would come and say don't think too much. So, I'd say are you nuts, even though you say not to think, thoughts would come to my mind. And that they'd go when they go and that they'd come also,

and that that'd be the end of it. That coming and telling me not to think would only make me think. That I'd prefer him not to say anything like that. Something like that. It's about positive thinking. (Participant 3, L: 280-286

The same participants believed that taking care of themselves was their own responsibility:

It's about the mind setup. You have to set your mind up right; you need to set it. If you think you're ok, you'll be ok, but if you think you're sick, then you'll be sick. (Participant 3, L: 238-240)

A participant also stated that he had the experience of coping with the current situation and his health condition by himself. Similarly, another participant expressed his feelings in this regard, saying that even though he was not in same condition as before, he believed and hoped that he can do his job:

What happens is… whatever happens… that I'm now in a different condition than before. That's the only thing. I've decided to work, so I will. I will work after two months. I will do cement work, and do masonry work too. That's what happens. So even if this has happened, there's no problem like that at all. (Participant 4, L: 298-301)

Another participant said he was coping with the situation by talking and spending time with others:

I talk to people more now, more than before. I spend more time among people too, and I felt better, by the blessing of God. (Participant 1, L: 95-96)

All the six participants stated that they had experienced some challenges in seeking self-control and in adapting to the situation; however, they felt well enough to deal with the issues by themselves.

Adapted to lifestyle changes for better quality of life

The theme adapted to lifestyle changes for better quality of living revolves around participants' acceptance of certain behavioural changes that had to be adopted after angioplasty to maintain their quality of life. All participants felt that they had accepted the situation and made certain changes in their lives for their betterment after coronary angioplasty. Most participants elaborated on the experience of changing their dietary patterns. Most participants reported being happy with the change of their diet pattern. As one participant said about his acceptance of life-style changes after angioplasty:

Earlier I used not to eat a lot of spicy food, chili and stuff. But now, I eat how I've been asked to eat, atta flour roshi and atta flour bread. Those are what I eat now. And lentil curry. (Participant 1, L: 142-144)

Another participant further explained:

For example, earlier I'd eat anything and everything. Now I know that's not good, for example I don't eat any oily food anymore, since I've been advised against that. Anything else is ok, I've been told, but I'm not eating the way I used to. I don't eat very spicy or hot foods anymore. No oily foods at all, and nothing with fats either. I've been maintaining that. I feel that there is no getting away from that. Earlier, I used to eat just about anything I saw. But not anymore. (Participant 2, L: 70-76)

Two other participants stated that they were trying to adjust diet patterns after angioplasty:

In terms of food, I'm eating more green foods, and I'm trying that. (Participant 2, L: 72)

I'm someone who doesn't eat at home. I usually eat outside. So having to eat at a house every time, and having to eat red rice, and Atta…I know, in any case, that I have to eat those things. So I go to my mom, she stays with a cousin now, I go to her every day. Only at noon and night. At breakfast, I only take brown bread, which I have bought and kept at home. (Participant 3, L: 68-73)

Furthermore, another participant stated as follows:

Now, I eat regularly at the scheduled times… I feel it's a good change. I mean that it is something that has to be done. That eating at regular set times is necessary, and to eat healthy food. (Participant 3, L: 83-86)

Another participant explained that he was still following the doctor's advice and accepting the change in following the advice.

I've been told to change to atta flour and Basmati - young sort of rice. And vegetables, there's always one type of vegetable, at mealtimes, and there's some fruit between breakfast and lunch. Even if I'm home, the children will prepare it and bring it to me. Apple or orange or something like that. They'd slice it onto a plate and bring it to me. That's how I'm living…And I follow the rules and go on with that system. (Participant 4, L: 133-138)

Overall, the majority of participants reported that they had experienced changes in sleep patterns and quitting smoking as accepted and adapted behaviours that changed after angioplasty. A participants of this study said that:

I have a different kind of style. I adjust my mind and that's it. I used to smoke a lot before, you could say almost two packs per day, depending on how many coffees. At one coffee I might even have a whole pack, with friends. But after angioplasty was done, my mind-set has changed. I used to try to stop even earlier, but I couldn't stay away from it. My mind was different then, since there was no compulsion to stay away from it. But now I know there's something, so it was possible to stop. I don't even think about it anymore. (Participant 3, L: 101-108)

Another participant stated:

I'm some who used to smoke, I sometimes wish to have a cigarette. But then I think that

this isn't such a small thing, and that I have smoked for about… since I was 15 or 16 years, I'd been smoking cigarettes, bidi, cigars… and without stopping, till now, and I'm about 54 or 55. So I thought it'd be best if I stopped… I feel like having a smoke, but since I'm taking medicines even now, right. So, when I think about smoking, I wonder if I'll start smoking again when I go back. But if I am determined, I should be able to ignore the craving. (Participant 6, L: 153-159)

Similarly, another participant stopped chewing tobacco after angioplasty:

It's because I felt that it might get worse if I kept chewing nuts with tobacco. So I realized it and decided to stop. (Participant 1, L: 157-158)

Yet another participant explained about experiencing changing sleep patterns after angioplasty:

Now I don't stay up to watch football matches even. I know that it's not so healthy. It's much more important for me now to sleep. So rather than watching a match late at night, whoever is playing, I go to sleep around 11 o'clock… I feel that staying up late at night is not useful…. I can check the scores the next day, that it's the same thing. (Participant 3, L: 90-96)

Looking for specific information

The theme looking for specific information can be defined as participants' views about seeking specific information they required after angioplasty. The specific knowledge participants desired included necessary dietary changes, exercise plans, and when to start sexual activity after angioplasty. The following excerpt from an interview describes what kind of information that they were seeking:

When being discharged, it might be good, for example, if the patient is married, to tell them when it might be ok to have a physical relationship. How many days after… there wasn't any information like that. It was only about diet, and how to shape that. I think it might be good to give information about diet too. Like I was given some information about diet, but I think the other information might also be wanted. And, for example, how to sleep, when to sleep, or to eat, and how to exercise. For example, whether to run or to walk slowly, after 14 days, that sort of information would be very useful. (Participant 3, L: 240-250)

The same participant as well as another shared more about searching for information from the internet and other means:

I do a lot of Googling, looking for facts… Through Google, for example, what'd happen if I did this or that? (Participant 3, L: 168-170)

Well, what I think is that I'd need information about how reliable that piece is, and whether there would be any more problems related to it, and if that happens, what should I do? I asked about that a bit, and I was told that there would be no problem. (Participant 5, L: 140-142)

Additionally, one participant said that they were searching for specific information related to changes after angioplasty from others who already gone through same procedure:

I'd meet people who'd had this surgery done before, right. I ask them how they are, when I meet them. They'd say there's no problem… that they even work and so on. But a friend I met, said not to be as busy as before. It's pretty much normal, that they were doing the same things as before. So, I'm not dissatisfied. (Participant 2, L: 211-215)

Another participant expressed concern and the need information about whether he was cured totally, whether there was a need to take medication permanently or what would happen if he missed medication.

Well, what I wonder is whether this is really a permanent thing, or whether I'll get cured. That I'd prefer to get totally cured. Now, there are some conditions where you have to keep taking medicines for ever, right? So, I wonder if this is like that. I've been given medicines to take, and I wonder if it'll be the end of it when the medicines run out. (Participant 6, L: 135-140)

From the analysis it was found that five participants out of six were seeking knowledge or information related to specific changes after angioplasty. Most of the time, they were searching for certain precise knowledge such as when to start exercise and what kind of exercise that they could start immediately after angioplasty.

Fear of resuming physical activities

Most participants expressed concern about limitations in their physical activities and fear of restarting physical activity after angioplasty. Five out of six participants voiced the view that they were worried and had a fear of resuming physical activities. Participants stated that it was one of the most challenging experiences they had faced during the early recovery period after angioplasty. Most participants were very cautious about starting any kind of physical activity. Two to six weeks after angioplasty, participants stated that they had experienced anxiety and fright in resuming even low-intensity physical activities. Thus, it made them fear resuming physical activities such as walking and jogging. One participant stated that he was afraid to resume physical activities even with the doctor's permission:

At first, I was scared, I'd see people running. But for myself even I thought I shouldn't run, so I used to walk… even now I don't run. I just walk, round and round… I'd feel that if there was too much pressure on the body something might happen. (Participant 2, L: 161-164)

Similarly, two participants stated that:

What I feel is that since there's something inside me now… that something might happen to that, while I'm moving around. And what might happen if that occurred. Nothing else really, there's no difficulty with life in general. The only thing I think about is that… since there's this thing inside of me, I feel a little hesitancy in doing some sorts

of things, and what might happen. (Participant 5, L: 6-12)

I only had the surgery a few days ago, right? So I think, that it'd not be a good thing if I were to start running. I've been told to exercise…I walk. I only walk… (Participant 6, L: 165-166)

One participant said that he was afraid to resume physical activities because of the stent and was thinking the stent might move from the site:

Like I said earlier that the pipe that has been installed would be delicate, there'd be no guarantee. I lift pretty heavy objects sometimes, and I might lift something very heavy. The moment I do that, the pipe might get dislodged, so then I'd have to come back here again. (Participant 1, L: 202-205)

Participants expressed the view that they were very worried to start some kind of physical activity during the period two to six weeks after angioplasty. A participant specified that if they started to be physically active their condition might be aggravated:

Sometimes, I wonder if the little pipe might cause any more problems, because it is there. (Participant 6, L: 174-175)

Participants raised concern about being sexually active after angioplasty. One participant was worried about increasing his heart rate if he were sexually active:

Heartbeat will be higher when doing something, right? For example, when in physical relations, right? So, that's the first thing that came to my mind. I always know that the heartbeat will be faster. But my wife is concerned… (Participant 3, L: 57-63)

Furthermore, he stated:

I want to know even about physical relationships. Everyone would be able to have some relationship, whether married or not, and so I want to know how to carry that on. (Participant 3, L: 136-138)

Feeling vulnerable/traumatized after angioplasty

The emergent theme feeling vulnerable/traumatized during recovery after angioplasty includes participants' explanations about the fear of recurrent chest pain, fear of the stent becoming blocked, about being sick for their entire life, worrying about their condition, and feeling sad. Some participants were concerned and expressed fear about the stent getting blocked during early recovery. One participant expressed his fear that any sort of high intensity activities such as lifting heavy objects might worsen his condition:

That the pipe that has been installed would be delicate, there'd be no guarantee. I lift pretty heavy objects sometimes, and I might lift something very heavy. The moment I do that, the pipe might get dislodged. (Participant 1, L: 202-205)

Similarly, another participant expressed fear of the stent moving:

Because there's something inside of me right, so I feel a little different. I mean, wondering what'd happen if it got dislodged and moved, then what'd happen. Things like that. (Participant 5, L: 29-31)

Another participant stated that he was feeling like he was sick and that it was disturbing him all the time; he stated:

Now that the pipe has been installed, I don't feel the same contentment as before, since I feel I'm sick. I always have that feeling, that I am a sick person now. So, I don't feel as happy as before. Since you'd feel as if you're on tenterhooks all the time, right? (Participant 2, L: 55-58)

Similarly, another participant said he was having difficulty sleeping and that he had been more worried during the early recovery period after angioplasty.

I've been told I'd have to take medicine for life, so I think of myself as a sick person, even for life. (Participant 1, L: 37-78)

An unexpected result was that all six participants were having trouble in sleeping and were worried during early recovery period after angioplasty:
During the first week or so I was sad and couldn't sleep at all either. (Participant 1, L: 60).

The doctor said that there would be worries after having something like this done, and that there would be thoughts. And that it's happening because of worrying. And that giving up worrying too much would help. (Participant 1, L: 90-93)

Hence, these findings suggest that some participants experienced feelings of vulnerability and were undergoing various levels of mental trauma during the period under study.

The findings of this study show the unique experiences participants were going through during the recovery period after first-time angioplasty. All participants said they had experienced unique feelings and challenges during early recovery after angioplasty. All participants had gone through both positive and negative experiences. During early recovery, all participants experienced support from family and co-workers, sought self-control and were coping to adjust to their situation by using different methods to change their lifestyle for better quality living. The majority of participants experienced fear of resuming physical activities, lack of specific information, and feeling vulnerable and traumatized within the two-to-six-week period after angioplasty.

DISCUSSION

The findings of this study revealed that patients undergo various dynamic experiences after coronary angioplasty, which were found to be both positive

and negative. The formulated themes represent the post-angioplasty patients' experiences in this study. Each theme findings are discussed in the light of existing literature.

Support from family and co-workers

This research finding suggests that all the participants were expecting to get support during the recovery after angioplasty. It appears that family and co-workers were most supportive during this phase of their life. All the participants in this study experienced strong care from the family and even colleagues in the working environment, during their early recovery period after angioplasty. According to the participants, support and care from spouses and family members was the most significant coping mechanism throughout the whole angioplasty process, and that it was the key to adjusting to their new situation.

These findings are consistent with previous research findings on families' and institutions' role in upholding the adjustment and coping skills of patients (Janey et al., 2010). Dehdari et al. (2008) found that social support was the most important factor among post-coronary angioplasty patients that helped to reduce their insecurity and develop self-confidence to deal with the circumstances. A similar finding was reported by Janey et al. (2010), who stated that patients who had undergone angioplasty felt that having social support from family members and friends was the most significant assistance they received to cope with their situation after a cardiac event.

The participants of this study stated that all the siblings and close family members were very close and supportive during the early recovery period after coronary angioplasty. Participants also indicated that they felt that their family was always thinking of them and checking their health status every day and they found that it was very supportive and was helpful to adjust to a difficult situation. A similar study found that support from the close family members was most common during early recovery after an acute cardiac event and it also found that the main motivation for patients to engage in behaviour changes was this positive support (Bhattacharyya et al., 2016).

All the participants of the current research said that they had received co-workers' support in the working environment and that it was helpful to build the courage to face significantly difficult circumstances during recovery after coronary angioplasty. Similarly, a study was done to assess factors related to job satisfaction after returning to work after an invasive cardiac procedure, and the results showed that working environment and co-workers support was one of the significant factors related to job satisfaction(Bhattacharyya et al., 2016).

Participants expressed the view that the experience of family and co-workers support was blissful, and it was their main strength in challenging the devastating situation. A related study done in London including newly diagnosed heart attack participants and different ethnic groups to study psychological influences after acute cardiac events showed that, almost all the participants received tremendous support from family and from co-workers (Bhattacharyya et al., 2016). They included South Asians and white British participants, who were newly diagnosed cardiac patients, including participants who had undergone coronary angioplasty. This is evidence that patients after acute cardiac events and after coronary angioplasty had positive experiences during their recovery period, and there seems to be consensus about this factor.

Seeking self-control and attempting to adjust in current situation

All participants described seeking self-control and attempting to adjust in current situation with the help of different strategies, and it was found that seeking self-control was the most prominent experience during the early recovery period. Most of the participants' believed that it was their own responsibility to adjust to the situation and to realise the importance of their new life after angioplasty. Most of the participants felt they had to uphold and develop religious beliefs and increased their religious practices to cope with and adjust to the current situation. However, some participants applied different strategies to deal with problems, such as dealing with own problems on their own, without sharing their concerns even with family members.

These findings are consistent with earlier research findings on coping and adapting to the situation after acute cardiac events including after coronary angioplasty (Aazami et al., 2016; Higgins et al., 2000; Najafi Ghezeljeh & Emami, 2014; Young & Barnason, 2014). Najafi Ghezeljeh and Emami (2014) found in their study that various coping strategies were applied by patients to control and adapt their life to live with coronary heart disease. They stated that many patients turned to religion and spirituality to cope with the situation. In addition, they maintained that increasing religious practices strengthened participants' coping mechanisms. Similarly, participants of this study expressed that faith in God as one of the most significant factor that helped them in accepting their situation.

This was further supported by Astin et al.(2014) in their qualitative study. Astin et al. (2014) found that participants' spiritual belief positively upheld participants' lifestyle changes after an acute cardiac event. The unique finding of this study was that all participants expressed their faith in God in trying to adapt to their new lives.

Adapted to lifestyle changes for better quality of life

Overall, every participant voiced out about making certain lifestyle changes for better quality of life. Most of the participants expressed their acceptance of certain behavioural changes to maintain quality of life after angioplasty. Mostly participants changed their diet patterns, sleep patterns, and stopped smoking after angioplasty. All of them were happy with the changes they had made.

These findings are consistent with previous research studies on experiences of lifestyle modification after acute cardiac events (Astin, Closs, et al., 2014; Charlson et al., 2002; Higgins et al., 2000). Similar studies done by Astin et al. (2014) to explore participants' lifestyle changes after cardiac events found out that during recovery, patients adopted healthy dietary habits through lifestyle modification.

Participants in this study expressed experiences of changing their dietary patterns. Most of the participants reported that it was a challenging experience for them. Overall, most participants reported that they had stopped smoking, with this being one of the behaviours that they changed after angioplasty. Similarly, a previous study found that dietary changes were challenging for the participants after acute cardiac events (Astin, Horrocks, et al., 2014) and they reported that most of the participants quit smoking after acute cardiac event. Likewise, the majority of participants involved in this study stated that they had stopped smoking and chewing tobacco after angioplasty.

A surprising finding of this study was that most of the participants were not

involved in any structured exercise program after angioplasty and admitted that they were scared even to start low intensity exercises after coronary angioplasty. It is assumed that lack of structured cardiac rehabilitation program in Maldivian context would have contributed to this fear.

Looking for specific information

All participants' expressed lack of specific information on factors that they need to be aware of, after coronary angioplasty. Participants expressed need of specific information, such as more detail about exercise plans and when to start sexual activity after coronary angioplasty. Thus, they used different information searching services.

Similar to this, a previous study showed that participants involved in that study were having poor knowledge of medication and lifestyle modification after coronary revascularization (Young & Barnason, 2014). Moreover, they also stated that participants were struggling to seek appropriate information through family members and friends. This is further supported by the study conducted by Janey et al. (2010) in which they they stressed that information provided during discharge after acute cardiac events was not sufficient for the participants of their study.

Similarly, a different research study exploring the information needed for the patients with first time angioplasty stated that participants preferred to have written material including all information and that the information they had received during admission was not enough (Corones et al., 2009). Therefore, it is evident that all the participants in this study requires additional information or support services related to the changes that is essential to bring their life after angioplasty.

Fear of resuming physical activity

Participants were concerned about limitations on physical activity after angioplasty. Moreover, participants expressed fear of resuming physical activities after coronary angioplasty even with doctors' recommendation to be active. It was explained as one of most challenging experiences after angioplasty. Some participants expressed concern regarding resuming physical activity as it might displace the stent. The majority of participates suggested that they had trouble in resuming physical activity after angioplasty.

These findings are consistent with earlier research findings on experiences of resuming physical activity after heart disease (Corones et al., 2009; Bhattacharyya et al., 2016). Bhattacharyya et al. (2016) also stated that they had found that participants were being afraid of lifting heavy objectives and that they were even sacred to resume low-intensity physical activities after coronary angioplasty.

Other studies have found that patients of coronary angioplasty were anxious and worried to resume physical activity and they had commented on it saying that it was because of lack of proper guidance (Astin, 2017; Corones et al., 2009). It is assumed that this may be correct for the participants of this research too as there are no structured cardiac rehabilitation program in Male'. Additionally, Astin (2017) stated that most of the participants after coronary angioplasty experienced fear of resuming sexual activity. This concern was expressed by most of the participants of this study.

Feeling vulnerable/traumatized after angioplasty

Some participants stated that during the period after angioplasty they were feeling vulnerable and traumatized. Most of the participants expressed fear of recurrent

chest pain, fear of the stent becoming blocked, about being sick for their entire life, worrying about their condition, and feeling sad. These findings were similar to previous studies on experiences of living with heart diseases after treatment (Peterson et al., 2010; Hasankhani et al., 2014; Bhattacharyya et al., 2016). Peterson et al. (2010) stated that post-angioplasty participants in their study expressed feelings of fear of death, recurrent heart attack and feeling no control over their health condition. Moreover, Hasankhani et al. (2014) stated that many patients after angioplasty experiences lived with shock and doubts about their condition and expressed being traumatized because of their current situation. These studies give evidence that participants of acute heart diseases experienced being traumatized and vulnerable.

In summary, the participants of this study expressed common post-discharge challenges, including difficulty in sleeping, fear of resuming physical activity, indicating lack of preparedness for self-care after discharge. Hence, this study highlights the importance of understanding early post angioplasty patients' experiences to establish more responsive and effective patient care in the Maldivian context.

STRENGTHS AND LIMITATIONS

Identifying the limitations of the study will help readers to understand the scope of the study and will assist to assess the implication of the research findings. A basic limitation of all qualitative research study is the inability to generalize. Accordingly, this research study may not be generalizable to all angioplasty patients. However, the findings may be transferable to patients with early post-angioplasty who are treated at another newly opened cardiac centre similar to the Maldivian context, certainly to other patients who get treatment from the same facility in the future.

Moreover, this study was focused on selecting information-rich participants for data collection. Most importantly, the lack of female participants in this study group limits the finding to a particular gender.

In qualitative phenomenological research study, the researcher's perception might influence the study findings (Polit & Beck, 2010). Hence, the researcher being a nurse working in CCU at the study site, may be considered as a risk for potential bias. The researcher deliberately avoided involving any participant who was directly under her care. Moreover, while taking contact numbers and giving invitations, the researcher avoided using any identity related to the IGMH. Participants were given an invitation letter and information sheet with the details of the study. It was believed this would have led to minimal influence on the results; however, the possibility exists that this is one of the limitations.

RECOMMENDATIONS

This study explored patient experiences during the early recovery period post-angioplasty, revealing key insights that can help nurses and healthcare providers deliver more patient-centered care, ultimately improving outcomes for both patients and cardiac teams. The findings support enhancing health education and implementing patient-centered care to expand evidence-based practices and encourage further research in this field. To improve secondary prevention, healthcare workers should identify patients needing more information on lifestyle changes and establish cardiac rehabilitation programs to support long-term recovery. Hospitals should adopt guidelines to keep staff updated on best practices, elevating standards in cardiac nursing and patient education.

This study emphasized the need for more patient-centered care in early recovery period following angioplasty. Based on the findings, it is recommended to implement a structured cardiac rehabilitation program, integrate professional psychological care and an education component into routine practice. Moreover it is recommended to implement multidisciplinary cardiac rehabilitation which should incorporate discharge education, psychosocial care, and communication which is person centered. These strategies would address patients' fears, improve their understanding of recovery expectations, and support emotional well-being. Incorporating discharge protocols with culturally appropriate materials and follow-up contact should be part of routine care. Additionally, further research is needed to explore gender-specific recovery experiences and evaluate long-term outcomes. Furthermore, research with a larger sample is needed to examine long-term lifestyle modifications and factors contributing to successful post-angioplasty recovery.

CONCLUSION

This study explored post-angioplasty patients' experiences related to changes in their life within two to six weeks after angioplasty at the NCC of Maldives. Post-angioplasty patients had both positive and negative experiences in the early recovery period, which influences patients' overall wellbeing. The findings of this study provided an insight into the experiences patients have during the recovery period after angioplasty, which unveiled unique knowledge related to patients' experiences in the Maldivian context. Thus, the findings of this study will help nurses and others health care workers to plan more patient-centred care, and that this study will help to expand and improve evidence-based practice, and to provoke further research in this field

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DECLARATION

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I confirm that I am the original author of this work, and the content is entirely my own. All external sources used have been properly cited according to the journal's required citation style. This work has not been previously published or submitted to any other journal.

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