



Patient Experience after Mechanical Heart Valve Replacement Surgery at Central General Hospital Haji Adam Malik Medan

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<p>Track Record Article</p> <p>Accepted: 06 September 2024 Revised: 09 August 2024 Published: 30 September 2024</p> <p>How to cite : Pane, T. H., Tanjung, D., & Hasan, R. (2024). Patient Experience after Mechanical Heart Valve Replacement Surgery at Central General Hospital Haji Adam Malik Medan. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 6(2), 1026–1037.</p>	<p style="text-align: center;">Abstract</p> <p><i>Overall postoperative quality of life improves in patients undergoing mechanical mitral valve replacement. Heart valve replacement surgery is the definitive treatment for heart valve abnormalities. Patients undergoing heart surgery will experience mental and physical difficulties after leaving the hospital. Support is an important factor that a person needs when facing health problems. The aim of this study was to explore the experiences of patients undergoing mechanical heart valve replacement surgery to find better treatment plans. This type of research is qualitative research with a descriptive phenomenological approach. The participants in this study were 13 people who were patients who had undergone mechanical heart valve replacement surgery. This research was conducted in June-August 2023 at the Haji Adam Malik General Hospital. The data collection method uses in-depth interviews and research data is analyzed using the Colaizzi method. There are 5 themes identified, namely 1) Patients experience an improvement in their health condition after mechanical heart valve replacement surgery 2) Patients experience sleep disturbances 3) Patients experience anxiety regarding possible complications that occur after mechanical heart valve replacement surgery 4) Patients comply with the home care plan, and 5) Family support in efforts to maintain health after undergoing mechanical heart valve replacement surgery. The research results showed that the majority of participants reveal physical changes, namely complaints before surgery has reduced or disappeared completely but experiences sleep disturbances due to pain, anxiety. Participants also expressed their willingness to follow the treatment plan at home with support from the family. It is especially recommended that cardiovascular nurses involve the family to provide support in efforts to optimize the patient's health status after mechanical heart surgery.</i></p> <p>Keywords: <i>Heart valve disease, Mechanical heart valve replacement surgery, Patient experience</i></p>
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INTRODUCTION

Heart valve disease is a rapidly growing cause of global cardiovascular morbidity and mortality with a diverse and growing geographic distribution (Aluru et al., 2022). Congenital heart disease (CHD) is a dangerous disease, around 50% of deaths will occur in the first month of life. CHD is an abnormality in the structure of the heart or large blood vessels as well as heart function that occurs due to disruption or failure in the formation and development of the heart and large blood vessels in the early phase of fetal life. As a result, blood flow disturbances can occur, due to holes in the heart septum or leaks in imperfect heart valves (Lydia, 2023).

The World Health Organization (WHO) successively reported that among cardiovascular diseases, the incidence of CHD in Bangladesh (6%), India (15%), Burma (6%), and Sri Lanka (10%) (Lydia Lestari, 2023; Das, 2020). The incidence of CHD in Indonesia is estimated to reach 43,200 cases out of 4.8 million live births (9: 1000 live births) each year. In 1970 - 2017, the prevalence of CHD throughout the world reached 9.4 babies per 1000 live

births, including in Indonesia. Of this number, around 300,000 cases are categorized as severe CHD which sometimes requires staged surgery to survive (Marwali et al., 2021; Putra & Prakoso, 2022).

More and more people are living with congenital heart disease (CHD) as many children can now survive into adulthood with advances in medical and surgical treatments. CHD patients have complex health service needs at various stages of life ranging from infants, children, adolescents and adults. Primary care providers must collaborate with pediatric specialists to provide continuity of care for people with CHD and create a smooth transition of care (Dotson et al., 2024)

Heart surgery is an action to treat heart problems when medical therapy and supportive therapy are no longer effective (Lydia, 2023). Congenital heart valve disease has life-threatening consequences that require early valve replacement (Hofferberth et al., 2020). Cardiac surgery is a medical specialty concerned with the surgical treatment of pathologies related to the heart and thoracic aorta whose history dates back to the late 19th century (Senst et al., 2022).

Valve repair surgery is a recommended and safe treatment procedure with a low mortality rate (Dewi & Syarif, 2022). Long-term durability and avoiding recurrence of infection are the goals of this procedure. However, there are no detailed guidelines regarding the choice of prosthesis and surgical strategy, which should be guided by a comprehensive evaluation of the extent of infection and its microbiological characteristics, the patient's clinical profile and the risk of infection recurrence (Nappi et al., 2020).

Prosthetic heart valves are the only treatment for most patients with severe valvular heart disease. Mechanical valves, made from metal components, are the most durable type of replacement valve. However, these drugs are susceptible to thrombosis and require anticoagulation and permanent monitoring, leading to a higher risk of bleeding and impacting the patient's quality of life (Lancellotti et al., 2023). In patients after mechanical heart valve replacement, anticoagulation is necessary to prevent thrombotic and thromboembolic events (Baldwin and Tolis, 2019).

Overall postoperative quality of life improves in patients undergoing mechanical mitral valve replacement. However, a systematic review conducted by Liao at Ming et al., (2021) shows that sleep quality in heart surgery patients is related to physical factors, psychological factors, individual factors and environmental factors. The sound effect of prosthesis valves affects the patient's quality of life (Huang et al., 2020). One of them is due to heart sounds which

are created from blood flowing through the heart chambers when the heart valves open and close during the cardiac cycle (Dornbush & Turnquest, 2024).

Based on data from the medical records of the Haji Adam Malik General Hospital, it is explained that the total number of heart surgery patients from January 2022 to July 2022 was 92 people. Patients undergoing heart surgery will experience mental and physical difficulties after leaving the hospital. They often need support and follow-up (Leila et al., 2022). Support is an important factor that a person needs when facing health problems. Family support is support provided by the family consisting of verbal and non-verbal information or advice (Wahyuningsih, 2021).

METHODS

This type of research is qualitative with a descriptive phenomenological approach which aims to explore the experiences of patients after mechanical heart valve replacement surgery. Participants in this study were 13 people who had undergone heart valve replacement surgery with mechanical valves. With the technique of taking participants using purposive sampling technique. Inclusion criteria were 1) patients who had undergone mechanical heart valve replacement surgery 2) aged 19 years and over; 3) International Normalized Ratio (INR) range of 2 to 3 for aortic and tricuspid valves, INR 2.5 to 3.5 for mitral valve and double valve, 6) who have undergone heart valve replacement surgery for more than six weeks undergoing mechanical heart valve replacement.

This research was conducted at the Integrated Heart Center Polyclinic, Haji Adam Malik Hospital, Medan, from June 2023 to August 2023. This research has been approved by the health research ethics committee Universitas Sumatera Utara at number 593/KEPK/USU/2023. Data collection was carried out by recorded interviews by using a voice recorder after obtaining approval and can carried out several times according to the agreement. The data was analyzed using the Colaizzi method which began with the transcription stage, keyword analysis, categorical analysis, thematic analysis and then reviewed again so that the themes formulated had been answer the research objectives.

RESULTS

Table 1. Characteristics of participants (n=13)

Participant code	Initials	Gender	Age (year)	Ethnic group	Marital	level of education	Work	INR value	Time of after surgery
P1	Ny E	Female	55	Batak	Married	Bachelor	PNS	1,9 8	5 Year
P2	Ny N	Female	47	Batak	Married	Diploma	PNS	2,1 4	10 week
P3	Nn M	Female	23	Batak	Married	High school	mahasiswa	3,6 5	8 Week
P4	Ny E	Female	39	Batak	Married	Bachelor	PNS	2,1 8	11 Week
P5	Ny H	Female	55	Batak	Married	High school	IRT	2,7 6	11 Week
P6	Nn L	Female	24	Batak	Married	Elementary school	tidak bekerja	1,1 9	14 week
P7	Ny I	Female	46	Batak	Married	Bachelor	PNS	2,2 9	1 Year
P8	Ny L	Female	51	Batak	Married	Diploma	IRT	2,8 1	1 Year
P9	Ny S	Female	50	Jawa	Married	Elementary school	IRT	2,4 4	10 week
P10	Ny S	Female	44	Batak	Married	High school	IRT	1,9 5	8 Year
P11	Tn M	Female	30	Batak	Married	High school	Wiraswasta	1,2 4	2 Year
P12	Ny Y	Female	71	Batak	Married	High school	IRT	1,8 4	5 Year
P13	Ny L	Female	45	Jawa	Married	Bachelor	PNS	1,0 4	3 Year

Based on the data obtained, it shows that the majority of participants' gender is female, with 12 participants. The youngest participant was 23 years old, while the oldest was 71 years old. The majority of participants are Batak with 11 participants. The majority of marital status was married, as many as 10 participants. The majority of participants' education levels were graduates of General High School (SMU), with 5 participants. The majority of participants' jobs were as Civil Servants (PNS) with 5 participants and as Housewives (IRT) with 5 participants. The length of time after undergoing mechanical heart valve replacement surgery, the most recent in this study was 8 weeks while the longest was 8 years.

Tabel 2. Collaizi Analysis Results

No.	Theme	Sub theme
1	Experienced improvement in health condition after mechanical heart valve replacement surgery	There are no more complaints before surgery
2	Experiencing sleep disturbances after mechanical valve replacement surgery	Having difficulty sleeping
3	Experiencing anxiety regarding complications that may occur after mechanical heart valve replacement surgery	Anxious about complications from surgery
4	Adhere to the home care plan	Take warfarin medication regularly and for life Avoid eating green leafy vegetables Perform regular blood tests to determine the INR value
5	Family support in efforts to maintain health after undergoing mechanical heart valve replacement surgery.	Support needed after mechanical heart valve replacement surgery

The results of the analysis obtained 5 themes, namely 1) Experiencing an improvement in health condition after mechanical heart valve replacement surgery 2) experiencing sleep disturbances 3) experiencing anxiety related to complications that might occur after mechanical heart valve replacement surgery 4) Complying with the care plan at home, and 5) Family support in efforts to maintain health after undergoing mechanical heart valve replacement surgery.

Theme 1: Experiencing improved health conditions after mechanical heart valve replacement surgery

This theme was obtained from the sub-theme that emerged, namely that complaints before surgery were no longer felt.

Sub theme: Complaints before surgery are no longer felt

This expression was the one most frequently expressed by participants. The following are expressions from the participants:

"The change was before the operation, previously he often had tachycardia, after the operation the tachycardia had disappeared" (P1)

"Usually the pain is in the back and sometimes in the chest, that hasn't been there since the operation" (P2)

"Before the operation, my heart used to pound frequently, now the pounding has decreased" (P3)

"The most important thing is sus, shortness of breath, tiredness is no longer like before the operation" (P4)

"Before the operation, the road was a waste of time, but now it's no longer a waste of time" (P6)

"Before yesterday's operation I got tired easily, after the operation things like that rarely happened" (P8)

Theme 2: Experiencing sleep disturbances after mechanical heart valve replacement surgery

This theme was obtained from the sub-theme that emerged, namely experiencing difficulty sleeping.

Sub theme: Having difficulty sleeping

The following are expressions from the participants:

"I want a comfortable night's sleep, sometimes I think I'm anxious when I don't sleep, it's all of them" (P2)

"When I finished the operation, it was a bit difficult to sleep because of the adjustment from the surgical scar, maybe that's the biggest thing, so it made it difficult to sleep" (P4)

"It's really hard to sleep now, so I just do whatever I want my eyes to sleep on, I put them to sleep" (P7)

"Before the operation there were no complaints, after the operation it was six months before I could sleep, at first my whole body just hurt" (P12)

Theme 3: Experiencing anxiety regarding complications that may occur after mechanical heart valve replacement surgery.

The theme was obtained from the sub-theme that emerged, namely anxiety about experiencing complications after mechanical heart valve replacement surgery.

Sub theme: Anxious about complications after mechanical heart valve replacement surgery.

The following are expressions from the participants:

"The INR can't be too low, it can't be too high, so I'm a bit worried there, how will I control this later" (P4)

"If you're worried, it's definitely there, so listen often to the valve, when it doesn't make a sound, is it still sounding like that" (P6)

"Yes, I'm worried, because the doctor said that he was also afraid that there would be clots in the brain, there would be bleeding, so it was scary. Why is it so scary, Mom?" (P9)

Theme 4: Adhering to the home care plan.

This theme was obtained from three sub-themes that emerged, namely:

Sub theme 1: taking warfarin medication regularly and for life

The following are expressions from the participants:

"Yes, you have to take care of your health so you can stay healthy even if you take medication all your life" (P1)

"There are no problems with taking blood thinners" (P3) "If it's about taking medicine all the time, that's fine, the important thing is to be healthy" (P4)

Sub theme 2: Avoid eating green leafy vegetables

The following are expressions from the participants:

"Then after the operation, eh, what did I do, I couldn't eat vegetables because I was taking a blood thinner called simarc" (P1)

"Foods that doctors prohibit, especially green vegetables, especially foods that contain vitamin K" (P3)

"Everything that is green is basically not allowed" (P9)

Sub theme 3: carry out regular blood tests to determine the INR value

The following are expressions from the participants:

"So for the past 5 years I have known when to check the INR, especially if there has been a complaint, even if it hasn't been a month, if there is a complaint I will check the INR" (P1)

"If we take blood thinners, the blood will become unstable, he said, so we check periodically to see if the blood is thin or thick" (P3)

"He said the INR must be checked periodically so that the dosage can be adjusted, the warfarin adjusted" (P9)

Theme 5: Family support in efforts to maintain health after undergoing mechanical heart valve replacement surgery.

This theme was obtained from the sub-themes that emerged as described below:

Sub theme: Support needed after mechanical heart valve replacement surgery

The following are expressions from the participants:

"Yes, family support must also take care of your health, support from the family so that you stay healthy even if you take medication for life like that" (P1)

"Of course family support is yes, it helps, so there is something that adds to our enthusiasm" (P4)

"The enthusiasm comes from yourself, your family, your husband, that's for sure" (P10)

DISCUSSION

Based on the research results, 5 themes were obtained, namely: 1) experiencing an improvement in health conditions after mechanical heart valve replacement surgery 2) experiencing sleep disorders 3) experiencing anxiety related to complications that might occur after mechanical heart valve replacement surgery 4) complying with the home care plan, and 5) support family in an effort to maintain health after undergoing mechanical heart valve replacement surgery. The following is a description of the discussion of each of these themes:

Theme 1: Experiencing improved health conditions after mechanical heart valve replacement surgery

The research results showed that the majority of participants stated that the physical changes they experienced in the form of complaints before surgery had reduced or disappeared completely. Before the operation, participants often experienced palpitations, tired easily when doing activities, back or chest pain, but after undergoing mechanical heart valve replacement surgery, these complaints reduced or disappeared completely.

The statements made by the participants are in line with research conducted by (Zhang, 2021) that participants with heart valve disease often experience physical and psychological symptoms that occur simultaneously. Sufferers usually experience various physical symptoms, such as decreased energy levels, fatigue, muscle aches or chest pain, anxiety, psychological distress, and feeling irritable. The main goal of heart valve replacement surgery is so that participants can return to normal activities and interactions so that the participant's quality of life and psychological status can be maintained (Joshi et al., 2021).

Theme 2: Experiencing sleep disturbances after mechanical heart valve replacement surgery

The results of the research revealed that several participants expressed changes in their sleep in the form of difficulty falling asleep. This is in line with research conducted by Hu XM et al., (2022) which described that patients after heart valve replacement surgery experienced sleep disturbances in the early postoperative period up to 6 months after surgery. Likewise with research by Hu XM et al., (2021) that post-heart valve replacement surgery patients experience changes in sleep which are influenced by several factors, namely physical factors (e.g. impaired heart function and pain), psychological factors (e.g. anxiety and depression), individual factors (e.g. age and gender), and environmental factors (e.g. noise and light).

Theme 3: Experiencing anxiety regarding complications that may occur after mechanical heart valve replacement surgery.

Based on the results of this study, it is known that respondents experienced anxiety

regarding complications that might occur after mechanical heart valve replacement surgery. Anxious refers to feelings of worry and unease. The most common anxiety disorders are panic disorder, phobic disorder, obsessive compulsive disorder and post-traumatic stress disorder (Jobson & Rajendran, 2020).

Pre-operative education and information from health staff influence post-cardiac surgery anxiety. Biographical, psychosocial and health service factors play a role in managing stress in post-operative heart patients. Family and partner support is associated with reduced patient suffering after surgery. Patients with partners appear to report at least some reduction in stress. Close social support (e.g. family, caregiver and partner) reduces suffering and increases the patient's ability to cope with the recovery period after surgery (William et al., 2023)

Theme 4: Adhering to the home care plan

Based on the research results, three sub-themes were obtained, namely taking warfarin medication regularly and throughout life, avoiding eating green leafy vegetables, and carrying out regular blood tests to determine the INR value. Most of the participants adhered to treatment, including the participant who took the longest to complete valve replacement surgery, namely the participant who underwent heart valve replacement surgery eight years ago. This is not in accordance with the research conducted Li et al., (2021) which states that many studies show that patients who have undergone heart valve replacement surgery tend to be non-compliant with treatment. Non-compliance with treatment can cause many complications due to the effects of anticoagulants. This can affect the patient's quality of life. For this reason, all patients after heart valve replacement surgery are given health education in the form of encouraging patients to take anticoagulant medication on time and at the appropriate dose, checking the INR value again to determine whether the anticoagulant dose is appropriate for the patient (Li et al., 2021).

Theme 5: Family support in efforts to maintain health after undergoing mechanical heart valve replacement surgery.

The research results showed that the support needed by participants came from their own families in the form of support in the form of encouragement, support so that participants maintained their health after undergoing mechanical heart valve replacement surgery, support to accompany them during the recovery period, and support to help participants meet their daily needs. and to help with daily household tasks. Support is a multidimensional concept, referring to the social and psychological support a person receives or feels from their family, friends, and community. Support is considered help received from others, which contributes to the individual's perception that they are cared for, valued, loved and safe so that they can rely on that support (McLean et al., 2022).

Families can provide informational support to help patients obtain the guidance needed to support self-care and the recovery process. Apart from information support, families can also provide support in the form of emotional support, tangible support, social interaction support, and affection support to improve self-care and recovery (Adam et al.,2022; Kosasih & Rahmawati, 2022).

CONCLUSIONS

There were five themes identified in this research, namely 1) Experiencing an improvement in health condition after mechanical heart valve replacement surgery 2) experiencing sleep disturbances 3) experiencing anxiety related to complications that might occur after mechanical heart valve replacement surgery 4) Complying with the home care plan, and 5) Family support in efforts to maintain health after undergoing mechanical heart valve replacement surgery.

This research provides an understanding of the patient's experience after undergoing mechanical heart valve replacement surgery from various aspects which allows nurses to be able to provide appropriate nursing care. It is also hoped that this research can contribute to providing nursing care to patients who have undergone mechanical heart valve replacement surgery, especially when the patient is about to be discharged from the hospital. It is hoped that the results of this research can become basic data for further research and that future researchers can develop by expanding the variations in the characteristics of participants and different regions or communities.

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