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Early Mobilization Intervention Through Family Support for Post Laparotomy Wounds

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ABSTRACT

Post laparotomy complications increase every year, ending in surgical wound infections. Efforts to prevent the healing process from taking a long time with early mobilization. So there is a need for a family support system.To determine the effect of early intervention through family support on the post-laparotomy wound healing process in the Intensive Care Unit (ICU). This research used a quasi-experiment with a pre-test and post-test without control, a time series approach. The sample of 13 respondents used Non-Probability Sampling, namely Purposive Sampling. The research was conducted from February to March at Hospital In the research phase, families were provided with early mobilization education with family support through educational books and applied to patients. Data analysis used the Wilcoxon test. The highest average family support was emotional support and appreciation with a mean of 13.23. Wound healing process after 5 days of observation, average increase in wound healing process pre 10.00 and post 10.15 There is an influence of early mobilization intervention through family support on the post laparotomy wound healing process in the Intensive Care Unit (ICU) of Hospital X with a p-value of 0.001 (< 0.05).

Keywords: mobilization, family support, post laparotomy, wound

INTRODUCTION

Post laparatomy surgical complications increase every year. This complication is experienced by 7 million people with 7.7% mortality after 30 days post surgery in Sub-Saharan Africa (SSA). Post laparotomy complications were 52.3% with 14.5% deaths in General Hospitals in Uganda (Onen et al., 2022). The causes of complications occur due to internal and external factors. Internal factors such as age, immunosuppression, comorbidities and pain can influence the healing process, while external factors such as exposure to radiation, the effects of chemotherapy drugs, infections, steroid drugs, anticoagulants and immobilization (Putra et al., 2015). Post-operative laparotomy complications are due to the long wound healing process and ending in surgical wound infection (ILO) (Sugara et al., 2023).

Infection processes that result in prolonged wound healing processes such as dehiscence, hypoxia or immune dysfunction which will later inhibit granulation and epithelialization of new tissue (Putra et al., 2015). Early mobilization must be carried out in stages to speed up wound healing or post-operative wound recovery. It can also improve lung function, reduce the

risk of blood clot formation and allow clients to gain full physiological function (Ningsih & Rahmadhani, 2022). Early mobilization can help patients reduce post-operative complications such as abdominal distension, recover more quickly from abdominal wounds, have less pain and return to certain activities more quickly (Yuliana et al., 2021).

Mobilization is carried out by body movement through standard post-operative care perioperative Enhanced Recovery After Surgery (ERAS) (Marieta & Dikson, 2023). A multicenter study shows that early mobilization of ICU patients with laparotomy is beneficial because it can reduce the duration of stay and increase the functional ability of post-operative laparotomy patients (Balvardi et al., 2021). After surgery, the patient should be helped to mobilize as soon as possible. The Family Care Center (FCC) has a significant contribution to the care of patients in the ICU. This model highlights an interdisciplinary approach centered around the patient and family members (McAndrew et al., 2019). The Family Care Center (FCC) approach is an interdisciplinary model that involves the patient and family members in decision-making processes, focusing on patient and family involvement and encouraging active participation in the care process (Ludmir & Netzer, 2019).

Researchers also paid attention to problems related to the availability of research subjects, namely post-laprotomy patients in the ICU, the funds spent were quite minimal in a fairly efficient and flexible time. Then research conducted by Miranda Rocha et al. (2017) showed that early mobility in the ICU had been proven safe and feasible. However, the research did not involve family support. Family involvement in treatment significantly enhances family satisfaction, achieves treatment objectives, and enhances mental health.

Researchers are interested in conducting this research and it is important to carry it out as an effort to speed up the healing process of surgical wounds, prevent infection and reduce the length of treatment days. The results of interviews with room nurses showed that on average early mobilization interventions had not been implemented optimally. This is due to the patient's low willingness to mobilize independently. Apart from that, there are many nurse job desks in the room that prioritize critical nursing care for patients in the ICU, mobilization is often missed. However, patient family visiting hours are a resource that can be maximized. Where the family should help and motivate the client to move independently during these hours. The results of observations made by researchers during family visiting hours were only talking, feeding and only a few helped with mobilization. The aim of the research is to determine early mobilization interventions through family support for post-laparotomy wounds.

METHODS

The research method uses a Quasi Experimental design with a Pre-Post-Test Without Control approach, a time series approach for 5 days. The research method uses quantitative correlational methods with a cross-sectional approach. The sample used a Non-Probability Sampling technique with a total sample of 13 respondents who met the inclusion and exclusion criteria taken using a purposive sampling technique. Inclusion criteria were post laparotomy patients < 24 hours in the ICU with an age range of 19-59 years and willing to be respondents. Exclusion criteria are doctor's orders regarding restrictions on early mobilization.

The research used two questionnaires consisting of a family support questionnaire and wound healing observations. The family support questionnaire consists of three parts, namely the first is emotional support and appreciation, the second is instrumental support and the third is informational support which has been tested for content validity and reliability by Elliot 2017. The second questionnaire is an observation of the wound healing process which has been modified from the Wound Healing Questionnaire (WHQ) developed by Bluebelle University of Oxford to assess Surgical Site Infection (SSI). The research was carried out in 3 stages, the first stage was a pre test 24 hours after surgery, the second stage was intervention from day 1 to day 4 and the third stage was intervention on day 5 and post test.

The results of filling out the questionnaire by respondents were processed for frequency and percentage, and tested for normality of the data using Shapiro Wilk with a p-value of 0.001 ($p<0.05$) so that the data was not normally distributed. Test the hypothesis using Wilcoxon with a p-value of 0.001 ($p<0.05$), so it can be concluded that there is an influence between the independent and dependent variables. This research has been tested for ethical suitability and was declared passed by the Health Ethics Committee of Hospital X Number: PP.0802/F.XLI/813/2024.

RESULTS

In this study, the results were obtained from early mobilization intervention through family support for the post-laparotomy wound healing process in the Intensive Care Unit (ICU) of Hospital X for 13 respondents.

Respondent Characteristics

Table 1. Description of The Characteristics Post Laparotomy Respondents

Characteristics	Frekuensi (F)	Persentase (%)
Gender		
Woman	9	69.2
Man	4	30.8
Age (Year)		
31-40	1	7.7
41-50	3	23.1
51-60	9	69.2
Education		
Not School	1	7.7
SD	6	46.2
SMP	1	7.7
SMA	4	30.8
College	1	7.7
Work		
Farmer	5	38.5
Swasta	2	15.4
IRT	5	38.5
PNS	1	7.7
Diagnoses		
Obstruksi Jaundice	2	15.4
Ovarian Cyst	1	7.7
Obstruktive Ileus	1	7.7
Rectal Adenocarsinoma	1	7.7
Hysterectomi	1	7.7
Sectio Caesarea	1	7.7
Low anterior resection Lar	1	7.7
Gatrointestinal Stoma Tumor	1	7.7
Acites Sirosis Hepatis	1	7.7
Rectal Tumor	1	7.7
Intraabdominal Tumor	1	7.7
Pancreatic Cancer	1	7.7

Based on Table 1 it shows the characteristics of the majority of female respondents, namely 9 people (69.2%). The majority of respondents aged 51-60 years were 9 people (69.2%), the highest education level of respondents was elementary school graduates, 6 people (46.2%). The occupation of the respondents was mostly 5 people (38.5%) and the most common diagnoses was Jaundice Obstruction, 2 people (15.4%).

Characteristics of The Respondent's Family

Table 2. Description of the Characteristics Family Post Laparotomy Respondents

Characteristics of The Respondent's Family	Frekuensi (F)	Persentase (%)
Gender		
Woman	6	46.2
Man	7	53.8
Age (Year)		
31-40	7	53.8
41-50	1	7.7
51-60	4	30.8
61-70	1	7.7
Education		
Not School	1	7.7
SD	2	15.4
SMP	4	30.8
SMA	3	23.1
College	3	23.1
Work		
Farmer	5	38.5
Swasta	4	30.8
IRT	2	15.4
PNS	2	15.4
Care companion		
Spouse	7	53.8
Parent	1	7.7
Child	5	38.5

Based on Table 2 it shows the characteristics of the majority of respondents' families, namely 7 people (53.8%). The majority of respondents' families aged 31-40 years were 7 people (53.8%). The respondents' family education was junior high school, with 4 people (30.8%). The majority of respondents' family occupations were farmers, 5 people (38.5%). The majority of respondents' companions during the treatment process were life partners, 7 people (53.8%).

Overview of Family Support

Table 3. Description of Family Support Post Laparotomy Respondents

Type of Family Support	Mark	F	%	Mean	SD	Min	Max
Emotional And Appreciative	Good Bad	13 0	100	13.23	1.922	12	16
Instrumental Support	Good Bad	13 0	100	13.15	1.819	12	16
Information Support	Good Bad	13 0	100	12.62	1.805	11	16

Based on Table 3 it can be seen that family support for the post laparotomy wound healing process has three types of support, emotional support and knowledge, good family support, 13 people, instrumental support, good family support, 13 people, and information support, good family support, 13 people.

Overview of the Wound Healing Process

Table 4. Description of Observations Post Laparotomy Respondents Wound Healing

Injury Cure	Mark	F	%	Mean	SD	Min	Max
Pre	Good	13	100	10.00	.000	10	10
	Bad	0					
Day 1	Good	13	100	10.00	.000	10	10
	Bad	0					
Day 2	Good	12	92.3	10.08	.277	10	11
	Bad	1	7.7				
Day 3	Good	12	92.3	10.15	.555	10	12
	Bad	1	7.7				
Day 4	Good	12	92.3	10.15	.555	10	12
	Bad	1	7.7				
Day 5 (post)	Good	12	92.3	10.15	.555	10	12
	Bad	1	7.7				

Based on Table 4 it can be seen that the total sample of 13 people at pre-intervention had good wound conditions. On the first day of intervention, a total sample of 13 had good wounds. On intervention days 2 to 5, of the total sample of 13, 12 people had good wound conditions (92.3%) and one person (7.7%) had bad wound conditions.

Table 5. Hypothesis Test Using Wilcoxon

	Wilcoxon
	Posttest - Pretest
Z	-3.199[b]
Asymp. Sig. (2-tailed)	.001

Based on Table 5 it can be seen after testing the hypothesis using Wilcoxon that the p-value is 0.001 < (p-.05) with the results of the decision Ha being accepted and H0 being rejected, which means that there is an influence of early mobilization intervention through family support on the post laparotomy wound healing process in Intensive Care Unit (ICU) Hospital.

DISCUSSION

Characteristics of Post Laparotomy Respondents

Based the result shows that the majority of respondents were female, 9 people. The majority of respondents aged 51-60 years were 9 people, the highest education level of respondents was

elementary school graduates, 6 people. The occupation of the respondents was mostly 5 people and the most common disease was Jaundice Obstruction, 2 people.

There are two factors that can influence a person's knowledge, namely internal factors and external factors. Internal factors such as education, employment, age, and information media. External factors such as environment and cultural status (Lestari, 2023). Age greatly influences a person's ability to catch. Old age causes a decrease in the circulation of white blood cell migration in the remaining wounds and delayed phagocytosis. Apart from that, this is influenced by a decrease in elasticity in the skin and differences in collagen replacement affecting wound healing (Kusuma et al., 2023)

Work or work environment can enable a person to gain experience and knowledge both directly and indirectly (Marieta & Dikson, 2023). The level of education influences the wound healing process. The higher a person's education, the easier it is to receive information so that the more knowledge they have, on the other hand, low education will hinder the development of a person's attitude towards newly introduced values. Education also influences a person in motivating themselves regarding the complaints they experience after giving birth via surgery, at the level of education a person will also get more information (Fradika et al., 2023)

Based on the results of researchers' observations and observations, respondents who are highly educated will find it easier to receive information and have greater curiosity by always asking nurses about the illness they are experiencing and the process of healing their wounds.

Family Characteristics of Post Laparotomy Respondents

Based on Table 2, it shows that the majority of the respondent's families are 7 people. The majority of respondents' families aged 31-40 years were 7 people. The majority of respondents' family education was junior high school, 4 people. The majority of respondents' family occupations were farmers, 5 people. The majority of respondents' companions during the wound care process were spouses, 8 people.

Family characteristics vary greatly starting from 30-60 years old, the majority of families are 31-40 years old (adult age) with companions, spouses, sons or daughters, grandchildren, parents and other relatives, education level from no school until college. Based on the results of observations and observations by researchers, the relationship between educational level and the patient's family's understanding of consent to medical treatment is significant in information about the patient's illness. The doctor's explanation to the patient's family about the diagnosis of the disease. Theoretically, education is directly proportional to knowledge, the higher a person's education, the better their knowledge.

Family Support in Implementing Early Post Laparotomy Mobilization

Based the result, it can be seen that family support for the post laparotomy wound healing process has three types of support, emotional support and knowledge, good family support, 13 people, instrumental support, good family support, 13 people, and information support, good family support, 13 people.

Family support can be categorized into three types: emotional, instrumental, and informational. Emotional support involves empathy and positive attention, while instrumental support is practical and can be divided into family health and household economic functions. Informational support provides advice and guidance, such as advising patients to follow treatment processes to prevent complications and support decision-making within the family (Pelani et al., 2023).

Based on the results of observations and observations of researchers, there are three types of support needed in the wound healing process after laparotomy surgery. The first is emotional support and appreciation, for example by accompanying respondents in the preparation and implementation of early mobilization. Words of encouragement, perseverance, thumbs up, holding hands, and other praise motivated respondents to recover by reminding them that the pain they were feeling was not physically normal.

The second, family members provide instrumental support by volunteering their time and actively participating in early intervention during visiting hours. They provide pillows, assistance with movement, a table for eating, and therapy diets to ensure the respondent's comfort and movement meet their needs. The third is information support, doctors and nurses provide information about wound conditions and disease development, considering the patient's psychological state. They remind patients to follow medical rules, such as early mobilization, diet, and medication. They remove equipment like NGT tubes, drain tubes, stoma bags, infusion, saturation, and ECG electrodes, which are interconnected and cannot be separated.

Post Laparotomy Wound Healing Process

Based the result, it can be seen that on the first day of intervention the total sample of 13 had good wounds. On intervention days 2 to 5, of the total sample of 13, 12 people had good wound conditions and 1 person had bad wound conditions.

A wound is a disruption of tissue continuity caused by damage or loss of tissue due to injury or surgery. Injuries can occur due to unintentional or intentional causes. Intentional damage, for example during surgery or vein function. The wound healing process is divided into three stages, starting from inflammation, proliferation, and renovation. The inflammatory stage of

the skin undergoes a coagulation process which provides a temporary fibrin blood clot to the injury site. Vasoconstriction is performed on the wound area for 5 to 10 minutes. In addition, fibrin plugs form a temporary matrix that acts as a scaffold structure for further healing processes, such as migration of leukocytes, keratinocytes, fibroblasts, and endothelial cells, and acts as a source of growth factors (Putra et al., 2015)

The proliferation stage involves the formation of granulation tissue and repair of vascular tissue. This phase begins approximately 3 to 10 days after injury. Sufficient blood supply is required during proliferation therefore, angiogenic response is also initiated at the same time. On the other hand, epithelialization also begins after injury stimulated by inflammatory cytokines and various growth factors. Remodeling is the final stage of wound healing, starting on day 21 and lasting up to one year. At this stage, there is a precise balance between synthesis and degradation of new tissue that must be strictly maintained. During the remodeling phase, granulation tissue formation ends and wound maturation begins. The tensile strength of the scratch increases gradually (Ningsih & Rahmadhani, 2022)

The infection process causes a prolonged wound healing process, including dehiscence, hypoxia, and immunodeficiency, which then causes granulation and new tissue granulation to be inhibited. As long as there is infection, the wound will not heal (Onen et al., 2022). Wound infections often occur 36 to 46 hours after surgery. Infection is caused by bacteria. The bacteria that often cause infections are staphylococcus aurens and gram-positive bacteria. Staphylococci can even cause pus (Asyifa et al., 2023)

Based the result can be seen that on the 2nd day during the wound healing process, 1 respondent had a poor wound healing process due to the patient's history of having a habit of drinking alcohol and high leukocytes. Leukocytes are white blood cells whose role is to protect the body from disease-causing infections. In the first to fifth day of the treatment process, there are signs of increasing infection. To reduce signs of infection, nutritional management with parenteral nutrition fluids is needed.

Factors that influence the wound care process other than early mobilization are: (a) History of alcohol consumption. Consuming alcohol can slow down the wound healing process. People who frequently drink alcohol can experience a reduction in white blood cells and suppress the immune system, making it more difficult for the body to fight infections (NELA Project Team, 2020), (b) Nutrition management. Nutritional status is one of the factors that directly influences a person's health status. Lack of nutrition can interfere with the wound healing process, increase susceptibility to infection, increase the incidence of complications, and prolong wound healing treatment (Arif et al., 2021), (3) Lack of nutrition can hinder wound healing, and wound healing

requires lots of nutrients, including vitamins. Vitamin A is needed for epithelial and bone formation, cell differentiation and immune function, and is found in carrots, spinach, liver, fish, chicken, eggs, milk and other processed products. Vitamin C is needed for collagen formation, good immune function, and as a tissue antioxidant (Sa'adah et al., 2023).

A central venous catheter (CVC) is a device inserted into a large central vein for various procedures such as total parenteral nutrition, dialysis, plasmapheresis, drug administration, and hemodynamic monitoring. It can be used for dialysis or plasmapheresis, or as channels for inserting additional devices for more complex procedures. The terminal lumen can be in the inferior vena cava, superior vena cava, or right atrium (Sa'adah et al., 2023). Based on the results of researchers' observations, one of the actions taken by the hospital and nurses in the Intensive Care Unit (ICU) to treat patients who show signs of infection is by increasing parenteral nutrition through the installation of a Central Venous Catheter (CVC), mobilization is becoming increasingly aggressive, improving personal hygiene for officers, responders and families and improving septic techniques in wound care.

The Effect of Early Mobilization Intervention Before and After Through Family Support on the Post Laparotomy Wound Healing Process

The result shows that there was an effect of early mobilization intervention on 12 respondents before and after through family support on the post laparotomy wound healing process in the Intensive Care Unit (ICU) of Hospital X. Early mobilization is a non-pharmacological activity that has a positive effect on the wound healing phase. Early mobilization is crucial for wound healing after laparotomy, as it increases blood flow, prevents muscle and joint stiffness, reduces pain, improves blood circulation, and speeds up the healing process by preventing muscle and joint stiffness (Putra et al., 2015). Postoperative patient mobilization is crucial for promoting intestinal recovery and speeding up healing, reducing hospital stays, costs, and psychological stress, making it highly recommended after laparotomy (Sugara et al., 2023).

Systematic mobilization protocols help patients improve mobility throughout their stay, ensuring safety in care. Early mobilization is crucial for wound healing after laparotomy, as it increases blood flow, which is essential for proper supply of necessary substances. Wound healing is a complete stage, often involving epithelial regeneration and connective tissue scarring (Putra et al., 2015).

Based on observations and research by researchers, mobilization is one of the factors that accelerates the wound healing process because when mobilizing respondents feel that their stiff muscles become relaxed, their breath which feels tight becomes looser, passing wind/flatus

becomes better, tingling/paresthesia in the soles of the feet and less hands. Mobilization will be easier if there is support from the family. Family support cannot be separated from the compliance carried out by the respondent, therefore the application of family support in the process of healing post laparotomy wounds to the compliance undertaken has a good impact on the respondent to continue to be more motivated to get well soon and become more enthusiastic in undergoing treatment because of the support. and attention given.

CONCLUSION

Of the three supports, the highest average was emotional support and appreciation, 13.23. The average increase in the wound healing process pre 10.00 and post 10.15. Wilcoxon hypothesis test with P-value 0.001 < (P<0.05) there is an influence of early mobilization intervention through family support on the post-laparotomy wound healing process.

LIMITATION

This research was conducted to determine the effect of early mobilization intervention through family support on the post-laparotomy wound healing process. It is recommended that further research be carried out by looking at the relationship between nutrition, health history (history of alcohol/alcoholic consumption), family history of illness/health on the post-laparotomy wound healing process.

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