



Educational Intervention on Self Efficacy among Postoperative Fracture: A Literature Review

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Info articles

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Abstract. Fracture is a disruption of the normal discontinuity of bone and causes the surrounding tissue to be disrupted. Management of fractures is generally divided into recognition, reduction, retention, and rehabilitation. Exercises in the postoperative fracture patient rehabilitation program require patience and take a long time to achieve maximum cure. Nurses' therapeutic action in helping patients do rehabilitation exercises is by increasing the patient's self-efficacy to be independent in carrying out activities. Efforts to increase self-efficacy can be made through nursing interventions. This literature review aimed to explore the appropriate interventions on improving self-efficacy among postoperative fracture patients. Methods: This study was obtained from 4 databases, namely EBSCO, Key clinical, Willey, and Proquest, using inclusion and exclusion criteria. Results obtained. Decreased self-efficacy can occur in cases that require long action both for the healing process and chronic disease and when taking actions to maintain health, including post-surgery fractures. In conclusion, educational media will make it easier to provide interventions in increasing self-efficacy by paying attention to the factors that affect self-efficacy, namely master experience, vicarious experience, verbal persuasion, and emotional Arousal. The recommendation is that patients need support for adjusting the use of tools in providing education, providing logistics from samples in the application of education through technology media and to parents.

Keyword: educating, nursing intervention, self-efficacy, literature review

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INTRODUCTION

A fracture is a disruption of the normal discontinuity of bone and also causes damage to surrounding tissue. There are nearly 150 types of fracture types depending on the method used to classify, and the simplest ones are closed fractures and open fractures. Closed fracture (unadorned) occurs when the remaining skin is intact (there is no connection between the bone fragment and the outside). An open (compound) fracture is if the skin that covers it is not intact, where most of the fractures of this type are very susceptible to contamination and infection(1). Fracture is a disorder of the continuity of bone tissue, most commonly due to direct external trauma, but also occurs due to some bone deformities (for example, pathological fractures of osteoporosis, Paget's disease, or osteogenesis imperfecta)(2). Fractures also occur due to degenerative diseases, for example, osteoporosis, pathological conditions, and caused by various types of accidents (traumatic fracture). The traumatic fractures may come from domestic accidents or household accidents, work accidents, sports accidents, traffic accidents, which can cause disability and Dead(3).

In the United States, in 2014 stated that trauma is the leading cause of death for residents aged under 65 years after heart disease, cancer, and chronic diseases, namely 136,063 people with a traumatic injury number of 79,000 people. The impact caused by traumatic injuries exceeded the number of deaths, namely 30,838,741 people. It is estimated that the total costs resulting from this traumatic injury in 2013, including lost wages and medical expenses, were \$ 671 billion (4). In another journal, it was stated that in the United States, of the traumatic injuries suffered, 46% had orthopedic injuries. In comparison, between 13 and 25% needed special treatment because the impact of these injuries eliminated productivity, high medical costs, and property damage each year(5).

Treatment of fractures is generally divided into recognition, reduction, retention, and rehabilitation (6). The reduction performed depends on the fracture's location to the involved joint surface to prevent arthritis, the patient's functional demands regarding the level of function required by the patient, and the patient's age where children have better potential. This method is primarily frowned upon because it involves long stays in the hospital and requires skills that require practice. The surgical technique performed as an open reduction action, namely ORIF (open reduction internal fixation), is a genuine reduction by fixing it internally. The fracture is subjected to direct manipulation of the fracture fragment. Stability is then maintained by the application of plates and screws(7)

Postoperative problems in patients with fractures are acute pain. The patient does not want to move. Bone damage and muscle spasm in the patient prevented the patient from doing activities. The patient's psychological problems associated with the injury came suddenly, which was not expected by the patient. Patients admitted to the hospital are unprepared for the hospital's procedure and are often in critical condition. Traumatic patients generally have high anxiety, fear of pain, fear of financial independence, fear of death, and disability. Traumatic patients generally have a sense of dread coupled with prolonged care, pain, disability, and rehabilitation that cause changes in regular activities to trigger a stress response.

Exercises in the post ORIF patient rehabilitation program require patience and take a long time to achieve maximum recovery. Psychological factors play a significant role in the rehabilitation process after surgery because it involves cognitive function. One thing that is important in cognition is self-efficacy, which is self-confidence in carrying out specific tasks. Self-efficacy is a self-perception of how well one can function in certain situations, related to self-confidence to do something expected. So self-efficacy influences someone to do something or act.

Efforts to increase self-efficacy to motivate patients to rehabilitate through active ROM (range of motion) exercises can be made through nursing intervention. Increasing self-efficacy through nursing intervention provides education about the activities to be carried out, giving motivation that strengthens self-confidence in carrying out activities, providing examples of activities carried out, and using strategies in providing learning(8). The implementation of mobilization education has also been carried out preoperatively. It should have been carried out in the post-operation, but patients still do not do it. This is in line with Laderman researchers' research, which states that patients with acute and clavicle fractures have an excellent functional status when the following treatment and must also be accompanied by early mobilization during recovery(9).

From the explanation above, it can be seen that nurses need to think about various ways of providing appropriate nursing interventions so that patients can fully understand and participate in postoperative care by increasing self-efficacy.

OBJECTIVE

The study aimed to determine the effect of educational interventions as a non-pharmacological intervention to improve the self-efficacy in performing ROM exercises after the surgery process.

METHOD

A Literature review was applied in this study using PRISMA guidelines. The process of selecting the articles was shown in figure 1.1. Several studies were collected by authors using quantitative RCT methods to determine the best non-pharmacological interventions to overcome self-distrust in patients undergoing post-ORIF fracture measures.

The author collects articles related to research objectives through several stages of the search process using the keywords "Nursing education, Nursing intervention, Self-efficacy, and Low, low self-efficacy post-fracture." The database and search engine for English published articles consisted of database sources: EBSCO, Clinical Key, ProQuest, PubMed, and Willey, published in 2016-2021. This literature review results are described in a table about the results and their effectiveness in reducing self-efficacy.

From the literature search results through this database, 579 articles were identified. Then the screening process was carried out by eliminating the same articles, namely as many as 40 articles so that the remaining articles were 539 articles. The following procedure is to see the eligibility of the collected articles. The researcher only takes full-text articles and those that match the keywords. Articles that were excluded because they were not full text consisted of 174 abstracts and languages other than English, 174 articles that did not match the title. Self-efficacy should be the dependent variable, as many as 234 articles and articles with a sample of 123 pediatric patients... This literature review results are described in a table about the products and their effectiveness in increasing self-efficacy.

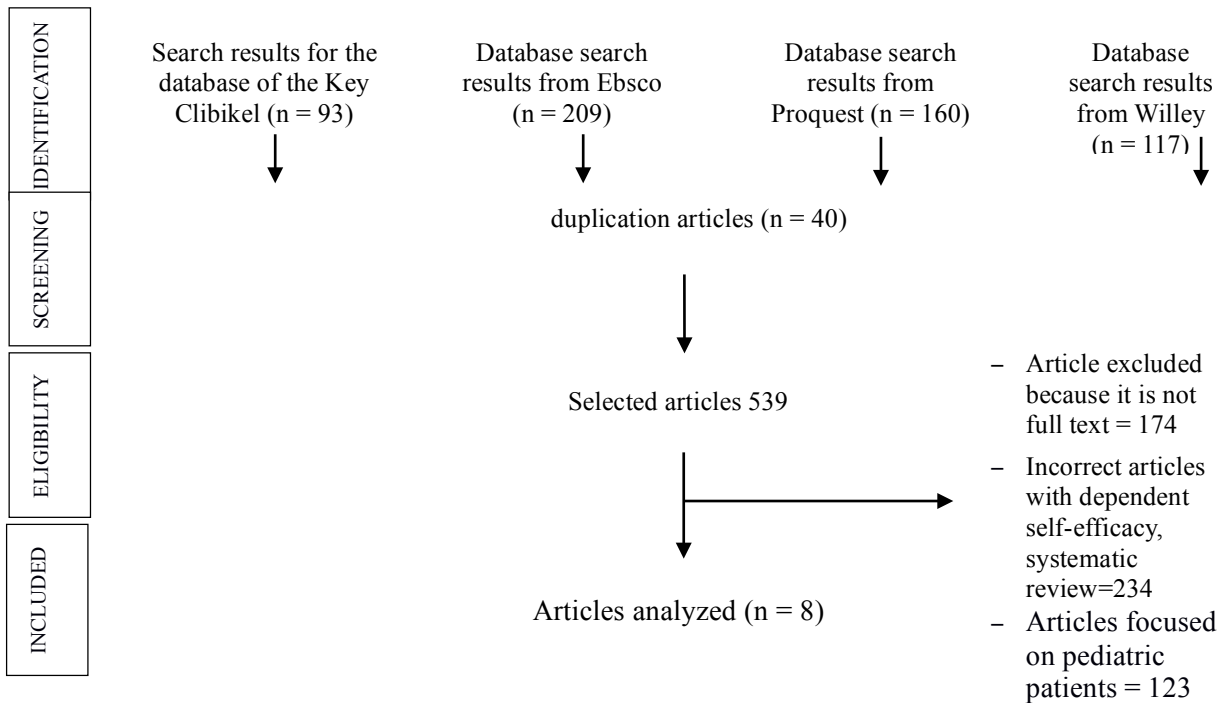


Figure 1 Flow of article selection.

RESULTS

Based on the objectives to be achieved, the literature selection is carried out through PRISMA, described in Figure 1. All articles obtained are experimental designs that apply the nursing intervention to increase self-efficacy.

The literature results show four types of interventions used to improve self-efficacy, namely multifactorial, education, home care, health belief models. Most of the interventions use the education that has been modified or added to other interventions, where direct education is combined with indirect education. Educational media is generally divided into direct, face-to-face, or indirect education using the media(10)

Educational media face to face

Face-to-face educational media is education by presenting teachers and those receiving learning in a room. There will be meaningful and real interaction between the educator and the one receiving the instruction in face-to-face teaching. Face-to-face education has a psychological, emotional effect on absorbing education and finding solutions to problems in providing education.

Like the research conducted by Dautel et al., namely examining the influence of face-to-face educational intervention in transitional care after inpatient rehabilitation of physical activity and functional performance in Hip and Pelvic Fractures' cognitive impairment group. The technique of providing education was multifactorial. It was face-to-face counseling for a maximum of 60 minutes, followed by delivering training instructors consisting of 2 modules, namely module 1, training based on physiotherapists and sports scientists who are experienced in elderly rehabilitation. Meanwhile, module 2 is counseling. And exercises performed by nurses, social workers, and gerontologists(11).

This study was also conducted by Hang et al., where this study aimed to look at direct face-to-face educational intervention to increase the self-efficacy of elderly patients who experienced total HIP replacement surgery. The nursing intervention uses the Empowerment education program by providing counseling support to improve self-confidence in self-care, provide advice on problem-solving skills, and make decisions to do exercises. There are three essential programs: observation, 20 minutes of physical activity, and patients' responses to total HIP replacement surgery. In the conditions before and two days after the HIP replacement surgery, patients are given the education to increase cell efficacy in making decisions to do exercises and then given physical exercise education that the patient will do for 20 minutes per day. At the 2nd, 6th and 10th weeks, researchers will see the education response that has been given by looking at daily exercise activities, pain, and wound situations through the diary that has been delivered (12).

Research with face-to-face education is also in line with Cal et al. intervention with attention to the Health Belief Model in providing education when making home visits. The research objectives will be explained on the first visit, followed by conducting initial tests and giving health education guidelines. There is material on the importance of arm exercises. These exercises are done every day, recording every day and measuring the carried out arms every week. The second visit was carried out after three months, and the third visit after six months of the first visit. According to the first visit to a cancer patient, activities were carried out to measure the arms and nursing interventions according to the first visit to a cancer patient(13).

Research by providing face-to-face education by paying attention to sources that can increase mothers' cell-efficacy during breastfeeding was also carried out by researchers Piro et al. Researchers collected mothers who had low self-efficacy during breastfeeding. The intervention is given education using existing materials by developing educational programs through literature reviews based on motivating patients for two weeks(14).

Indirect educational media

Indirect education is independent learning from online documents, online exercises, online assignments, online knowledge sharing via electronic media. Research that used education indirectly in increasing self-efficacy was carried out by Wang et al., where they conducted educational interventions utilizing the telephone to improve self-efficacy in patients with a stoma. The intervention group's invention using the phone contained the application with modules: appointment, diagnosis via photos, and consultation by the telephone. Researchers will teach patients and families how to use this application before returning home, making it easier for patients and families to receive this education. Furthermore, after the first month, the third and the six nurses will evaluate the patient by telephone based on the patient's photos. The patient will receive education to solve the problem according to the nurse's direction from the telephone direction; patients no longer need to go to the polyclinic(15).

This study is in line with the research conducted by Paragas et al., which aims to determine the effect of positive and negative message framed information videos on knowledge of diabetes management and self-efficacy in patients with type 2 diabetes. The video's intervention was accompanied by giving examples of patients who violated and did not violate the rules established in maintaining health. Using animation, positive examples were given to the intervention group, and negative examples were given to the control group. This intervention was designed and validated by an

endocrinologist, diabetes nurse educator(16).

Combining face-to-face education with indirect education

Education combines direct and indirect education, namely by combining the educational media with the provision of intervention in one case. Research by combining direct and indirect education as in the study conducted by Turan et al. The intervention was carried out by providing face-to-face education and continued telephone following up on the patient's condition. Patients are given educational interventions accompanied by booklets while in the inpatient room. Instruction is provided for 30-45 minutes. During this session, the patient is invited to ask questions and is supported by answers that help identify critical points. This research was conducted by a research and assistant who was already proficient in conducting interviews. After that, a discussion session by telephone was held in the first, third, and eighth weeks. In this telephone discussion, what language constitutes an obstacle and contributes to disease, and the researcher directs actions that can be taken to improve the patient's healing process(17).

The previous study examines the effect of education through the use of the telephone on increased self-efficacy in patients with rheumatoid arthritis. At the start of the study, the researchers provided face-to-face education about medication diet and exercise skills, which lasted for about 20-40 minutes. Furthermore, planned educational interventions will be given by telephone four times for 12 weeks. Specialist rheumatology nurses carried out this telephone educational intervention at weeks 2, 4, 8, and 12 weeks after the patient was discharged from the hospital(18).

Table 1 Overview of the articles analyzed

No.	First researcher/year of research	Type of Case	Type of education/intervention	Number of Samples, Research Variables, and Methods	Research result
1	Dautel (11)	hip and pelvic fracture	Multifactorial intervention (supervised exercises, physical activity promotion, and long-term care counseling)	Number of samples: 240 Research variable: Independence: A multifactorial intervention Dependence: Physical activity and functional performance, fear of falling, fall-related self-efficacy, falls, depressive symptoms, quality of life, and activities of daily living Research method: RCT	The multifactorial intervention has a beneficial impact on increased physical activity related to self-efficacy, quality of life, activities of daily life. Compared to the control conditions.
2	Turan (17)	Myocardial infarction	Follow-up education and telephone interventions, namely by starting with the distribution of the following booklet via	Number of samples: 66 Research variable : Independence: The effect of education and telephone follow-up intervention based Dependence: Self-efficacy, quality of life, and coping adaptation process	At 12 weeks after discharge, patients in the intervention group experienced significant self-efficacy improvements, quality of life,

			telephone	Research Method: Randomized Controlled Trial	and coping adaptation processes compared to the control group.
3	(16)	Type 2 diabetes	Educational Videos For 30 minutes with the provision of diabetes foot prevention education along with videos about examples of patients who violate to maintain foot health	Number of samples: 165 Research variable : Independence: Effects of the message □ framed informational videos Dependence: diabetes management knowledge and self- efficacy Methods: a quasi- experimental pretest and posttest design with two experimental	After the intervention, the experimental group's knowledge and self-efficacy were significantly higher than that of the comparison group. The difference is insignificant found in the knowledge score between the two experimental groups, but a significant difference was noted in the increase in mean self- efficacy
4	Zhao (18)	Rheumatoid Arthritis	Follow-up health education by telephone is by providing health education by telephone four times after	Number of samples: 92 Research variable : Independence: Effectiveness of health education by telephone follow-up Dependence: Self- efficacy among discharged	A total of 92 discharged patients with rheumatoid arthritis were obtained A score of the group
			Return	patients with rheumatoid arthritis Research methods : Randomized Controlled Trial	the intervention was higher than the groups at week 12 and week 24. Conclusion: Follow-up health education by telephone increases the self-efficacy of patients with rheumatoid arthritis is discharged.
5	Wang (15)	Stoma	Home care	Number of samples: 203	The

			mobile app Intervene with the mobile app	Research variable : Independence: A home care mobile app Dependence: The psychosocial adjustment level, self-efficacy scale, and other related outcomes of stoma patients Research Method: Randomized Controlled Trial	intervention group's stoma patients' psychosocial adjustment rates and self-efficacy scores were significantly higher than those of the control group, effectively at 1st, 3th, and 6th months of follow-up, respectively. Incidence of stoma complications the intervention
					the group tended to decrease at 1, 3, and 6 months after treatment Conclusion: The results showed that continued care at home through the mobile application can effectively increase the level of psychosocial adjustment, self-efficacy scale and other related outcomes of stoma patients.
6	Huang (12)	Total hip replacement surgery	Empowerment education program	Number of samples: 198 Research variable : Independence: The effects of the empowerment education program Dependence: primary (self-efficiency and self-care competence) and	After the intervention, the educational empowerment group of participants showed significantly higher self-care competencies and self-efficacy and a lower propensity for depression than

					the group.
				secondary outcomes (Activities of Daily Life, mobility, depressive mood and quality of life) for older adults with total hip replacement surgery Research Method: Randomized Controlled Trial	Control. Participants in both groups significantly increased their daily life activities, mobility and quality of life during the intervention.
7	Cal (13)	Lymphedem a prevention in women with breast cancer	Health Belief Model (HBM) -based nursing intervention at-home visits with socialization guidance, daily exercises, analyzing responses every week.	Number of samples: 72 Research variable : Independence: Health Belief Model-based nursing interventions offered at home visits Dependence: Lymphedema prevention in women with breast cancer (upper	HBM-based nursing interventions are regularly offered at home visits found to create positive changes in behavior
				extremity functions, reduce side-effects, relieve arm and breast symptoms, enhance the quality of life, increase self-efficacy) Research methods : Randomized Controlled Trial	prevention and improvement of lymphedema over limb function, reduce side effects, relieve symptoms in the arms and breasts, improve quality of life, increase self-efficacy, decreases the frequency lymphedema and costs.
8	Piro (14)	Nursing mothers	Antenatal breastfeeding education	RCT, Dependent variable: breastfeeding education with self-care Dependent variables: maternal knowledge, prenatal and postnatal self-efficacy Number of samples 130	Results: The self-efficacy of breastfeeding during pregnancy and after two months of delivery in the experimental group was significantly higher. The experimental group had a higher level of knowledge and

					attitudes than subjects in the control group. Also, mothers who were exclusively breastfeeding had higher postnatal self-efficacy rates in the experimental group and controls than mothers who gave formula milk (52.00 vs. 39.45 in the control group). and 57.69 vs. 36.00 on experimental subjects; P <0.001).
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DISCUSSION

Self-efficacy is the confidence that a person has when experiencing a problem or deciding to do something long. From the above cases, chronic cases and the process of healing too long lead to less self-efficacy, namely in cases of post-fracture HIP and pelvic, lymphedema cancer, myocardial infarction, diabetes mellitus, stoma, rheumatoid arthritis, post replacement HIP fracture surgery, as well as mothers during breastfeeding. This is following the sources that cause self-efficacy to be formed. Interaction with the family environment, such as parents, siblings, peers, and other adults, will include a person's self-efficacy. The formation of self-efficacy depends on adjusting oneself to the problem.

Nursing interventions can be carried out from both the main and supporting interventions to increase self-confidence or self-efficacy. From the literature obtained above, education combined with media users can increase patient self-efficacy from hospitalization to home. The interventions used are multifactorial media, animated videos, a health belief model approach, and standard education using the latest literature. The interventions used are adjusted to the sources that influence self-efficacy, namely mastery experience, vicarious experience, verbal and psychological persuasion.

Master experience is a self-efficacy from one's daily experience, where the more experienced a person will have a high self-efficacy. Research conducted by other researchers states that multifactorial education has a beneficial impact on increasing self-efficacy related to activities, quality of life, and daily life activities. This education provides counseling to see and explore experiences that patients have in dealing with current situations. It is followed by providing training modules for HIP and pelvic fracture patients (11).

Vicarious experience is self-efficacy that will grow from observing other people without having to wait for the impact first. By following the impact that other people have, the patient will always try to achieve his beliefs. This is in line with the research

conducted using animated video interventions, which showed pictures that positively impacted the intervention group in diabetes patients in maintaining the health of their feet(16).

Verbal persuasion is a self-efficacy that can be achieved by social persuasion. Giving good suggestions can increase a person's self-efficacy. The education provided by adding to the latest literature will convince patients to improve their self-efficacy in breastfeeding mothers. (14)

Emotional Arousal is a self-efficacy formed because of the patient's emotions so that the patient's self-efficacy decreases because turbulent emotional situations can bring down the patient. During the healing process, the patient's feelings are monitored through distance education using the telephone three times in patients with myocardial infarction. (17). The same study was conducted on patients with Rheumatoid Arthritis by monitoring their emotions four times(18).

Providing education by combining self-efficacy sources can also be done in increasing self-efficacy. Other researchers have done this, such as examining the self-efficacy of HIP and Pelvic fractures patients using multifactorial education. (11). The use of education with the Health Belief Model approach in patients with cancer(13). In stoma patients, after being discharged from the hospital, educational interventions will be given through a mobile application, where there are learning modules according to self = efficacy sources. (15).

CONCLUSION

Based on the discussion results, it is explained that a decrease in self-efficacy can occur in cases that require long action both for the healing process and for chronic diseases and when taking steps to maintain health. Patients who experience postoperative fractures take a long time in the healing process to cause a decrease in self-efficacy. Nursing intervention towards self-efficacy is in education by paying attention to the factors that influence self-efficacy, namely master's experience, vicar experience, verbal persuasion, and emotional Arousal. The use of educational media will make it easier to intervene, but there are weaknesses in intervening. The strengths effectively guide care shifting from inpatient to home, easy access, and cheaper rehabilitation process costs. Parents.

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