

STRATEGY OF PROVIDING EDUCATION TO IMPROVE PATIENT OUTCOMES OF ORTHOPEDIC SURGERY PATIENTS: A LITERATURE REVIEW

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Abstract

The success of orthopedic surgery patients' education depends on many factors, including the accuracy in choosing methods and the educational media used. This selection is based on consideration of the appropriateness of the material provided for the patient's needs and the learning objectives to achieve. The study aimed to describe and provide comparison of the types and methods of education that can be done in orthopedic surgery patients to improve patient outcomes. The references employed in this literature review were eleven experimental research articles published from 2010 to 2018. The keywords appropriateness in the search were "orthopedic patient," "patient education," "patient knowledge," "education method," and "patient outcome" through the ProQuest, EBSCO, Sage, and Clinical Key. This review shows that the media and educational methods vary widely, including face-to-face education, web-based or Internet-based education, education with DVD videos, and structured education. Statistical analysis shows that all of these methods can improve the knowledge and skills of orthopedic surgery patients undergoing the perioperative phase. Using formal educational methods with media combined with web-based or internet education, DVD audio-video education, and direct education (face to face) is considered suitable for education established for orthopedic patients.

Keywords: patient education; educational method; knowledge development; patient's self-ability; orthopedic patients

1. Introduction

Orthopedics is a branch of the surgical science focusing on conditions which involve musculoskeletal systems. The majority of orthopedic cases require surgery by opening and showing part of the body to recover. Surgery is an invasive treatment through the incision to open and show part of the body to improve and is ended with dressing and stitching (1). World Health Organization (WHO) in 2015 estimates that more or less than 11% of diseases in the world is derived from illness or conditions that possibly overcome by surgery (2). WHO explains that there is a significant improvement of total patients with surgical operation years by years. The world total of surgical patients in all hospitals in 2012 is 140 million people. In Indonesia, the total of surgical operation is 1.2 million people in 2012 (3). However, data especially showing the total of surgery in Indonesia are not available. The increasing number of surgery encourages hospital as a provider of health care to provide the best preparation for patients before,

after, and during the surgery. Therefore, the surgery will achieve the optimal outcome, and the patients feel satisfied.

The main focuses of orthopedic surgeons are patients' knowledge and psychological readiness to the preoperative care and discharge planning with good plans to go home. Also, informing patients and their families about do and don't for the patients' conditions after surgery is also crucial. Patients' good knowledge and readiness to the phase of pre-operation will increase their readiness to endure surgery, build their behavior to support recoveries, maximize their roles and families, reduce complication after surgery, and increase their satisfaction to the services received (4). The efforts of increasing patients' knowledge and readiness need supports from all health team who are competent in caring patients so that the best caring can be achieved (5).

One of the interventions affecting patients' improvement and readiness is educating them. The patients' effective education gives a positive contribution to orthopedic services because the patients receive precise information and guidance from multidiscipline teams who help them to care themselves in of intraoperative phase and after operation (6). It is in line with patients' right to accept information related to the disease which starts from understanding their disease and treatment procedures until patients' preparation to go home (*discharge*). The information is provided in the form of health education as one of the indicators of health care quality in the hospital (7)

The level of success in orthopedic surgery depends on every phase experienced by the patients and on all health care teams (orthopedic surgeons, anesthetists, nurses, and physiotherapists). Besides, it also depends on the patients' supportive role during operation process (8). Patients' outcome that is possibly influenced by good patient's education intervention on orthopedic surgery patients is the duration of caring, satisfaction, extreme level, cost of caring, functional capability, knowledge, anxiety, and life quality (9–12). Patients' education can be given by health professional multidiscipline, such as doctor and nurses. Doctors must educate patients about the disease, medical treatment planning, intervention gave (informed consent), and home recovery. Meanwhile, nurses must improve or develop the level of patients' understanding of their health problem, especially to the psychological problem (13). Education to the patients is possibly conducted through some methods and media conforming patients' capability to absorb the information provided.

The procedures of giving education are provided as effectively and pleasantly as possible by conforming material with the patients' condition. Therefore, they will feel comfortable to accept and get information to achieve the goal of education. The educators need to arrange appropriate health education program to the clients (14). Nowadays, many applicable learning media and methods are available, including traditional media or multimedia technology which aims to improve patients' knowledge and understanding of their preoperative intervention. With the optimal education, orthopedic surgery patients' recovery can maximally be achieved. This review has an objective to identify the effective-educational method and to analyze the effectiveness of increasing patient outcomes by orthopedic surgery.

2. Objective

This study aims to describe and compare the type and methods of education which can be used for orthopedic surgery patients to improve patient outcomes.

3. Method

An article review is categorized as a literature review investigating previous studies on specific topics or questions of a particular science. In this review, the researcher analyzed relevant topics published from 2008 to 2018. The independent variable of this research was the use of an educational method, while the dependent variable is knowledge and self-capability. The population of this research was all research journals discussing the use of an educational process for orthopedic surgery. The research sample was researched journals discussing the use of an educational method for orthopedic surgery with the general criteria. The inclusion criteria of the sample were: 1) the journals were experiment research; 2) the treatment was patient education method intervention; 3) dependent variable was upgrading patient's knowledge and self-capability; 4) the journal's respondents were orthopedic surgical patients, and 5) the result of the research were published in 2010-2018.

The research question was arranged by PICO framework; P for orthopedic surgery patients, I for patient's education method, and O for knowledge improvement and self-capability. The searching strategies for research article in English relevant to this topic were conducted by using several keywords, such as an orthopedic patient, patient education, patient knowledge, education method, and patient outcome on several primary databases, such as ProQuest, EBSCO, Sage, and Clinical Key published in 2010-2018. The full-text articles were selected and analyzed to gain appropriate journals for the inclusion criteria.

4. Results

4.1 Study Description

The journals were analyzed by employing critical appraisal method, a systematic process to test a research's validity, achievement, and relevance before taking a decision (15). This research criticized several aspects, such as publication year, approach designs, research goals, intervention, control intervention, and conclusion. The result of initial searchings was 189 journals consisted of 67 *ProQuest* journals, 23 EBSCO journals, 10 Sage journals, and 89 Clinical Key journals. Then, 11 relevant journals were selected.

4.2 Education Strategy

The review result of eleven articles reveal that there are four applicable-educational methods in educating phase for the orthopedic surgery patients during preoperative care, they are face to face-traditional education, web-based education, the use of educational DVD audio videos, and structured patient education. Detailed elements are described as follows:

4.2.1 Face to Face-Traditional Education

Face-to-face education is the method most often used in providing health education to orthopedic patients, also called the lecture method. Education is delivered directly from orthopedic doctors or nurses, and patients provide feedback/feedback regarding the understanding of the education provided. One study stated that face-to-face education could provide maximum knowledge because of the opportunity for patients to ask deeper questions or discuss related treatment and orthopedic care that they will receive (10).

4.2.2 Web-Based Education

Web-based education (*web-based tutorial*) is one of learning and educational methods for patients by employing multimedia technology. Six studies state that web-

based education can improve the quality of knowledge of orthopedic patients in care (11,16–20). Meanwhile, one review reported that there was no difference in the increase in awareness of patients given web-based education or face to face (8).

4.2.3 Educational DVD Audio Videos

Appropriate educational subjects are copied on DVDs and distributed to the patients when they have a preoperative visit. Thus, they can learn it at home. Education program through DVD videos is usually instructional and can be used as a powerful media to give a description, movement, visualization to influence patients to do specific interventions (21). Two experimental studies showed that there was no significant difference in patient outcome compared to face to face education (12,22).

4.2.4 Structured Patient Education

Structured education is an educational program planned and assessed comprehensively. It has flexible content materials agrees with an individual's clinical and psychological needs and is adjusted with patients' education and cultural background. Two experimental studies illustrate the effect of education given structurally on the increase in knowledge of orthopedic surgery patients (9,23).

4.3 The Effect of Education Strategy on Patient Outcome

Providing education with appropriate strategy in orthopedic surgery patients aims to improve health outcomes of patients. In pre-surgery, the usage of internet-based education (web) which is a combination of audio, video and text has been proven that can increase knowledge about planned surgery and its complication and patient satisfaction with informed consent process, so active participation of patients in their treatment plan is achieved (11,16,21,24). In postoperative, the appropriate educational strategy can improve the self-efficacy of the patient for himself (25). Patient outcome is in the form of patient understanding in pain management, right functional statue in daily activity, patient self-efficacy, and reduce re-admission to health service can be achieved by using appropriate educational strategy, through structured education (9,23), usage of audio video DVD (12,22), or face to face (10).

5. Discussion

Online learning features teaching basic anatomy and pathology give basic knowledge to the patients as their preparations to accept more detailed information or question the doctors or nurses (11). Information possibly accessed by the patients through the web is only general information. Therefore, if the required information or discussion is detailed, face to face education in the form of counseling is needed (16). The availability of information which is possibly recalled any time results in the increasing of patients' knowledge about their caring. Consequently, they become more active to show their involvement during recovery phases (11). However, access to take web-based education frequently becomes a prominent problem for patients. The problems include network connectivity, expensive cost, and requirement to provide a computer or cell phone, and patients' inability to operate multimedia technology.

In general, it is predicted that web-based learning can save cost and is more comfortable (17,19,26). Patients who use Internet-based education such as web or social media are mostly young people and having a resident with long distance to health service (120-180 miles) (20). However, research concludes that the required cost to get internet access to join internet or web-based education is not different with traveling expense for face to face-education (10). The palpable difference is on time because web-

based education requires more time for patients in the learning process. On the other hand, face to face-education tends to take nurses' times.

Furthermore, both educational methods facilitate sufficient knowledge for the patients. Thus, it is possible to apply one by one or the combined methods (10). Web-based education with controlled information is one way to increase patient knowledge and reduce the time spent by health workers to re-educate patients when patients make repeat visits (20).

Another patient education media possibly applied is DVD videos that can be played anytime. One of research indicates that the use of DVD media to educate patients does not bring a significant difference to their outcome (for example painful and anxiety), and this does not happen to face to face-method (12). It is probably caused by patients' lack of willingness to play the DVDs when they are at home or having no DVD player at home. Video media which is used must attractive and can motivate patient to study the content of information and knowledge in it. Research on hip osteoarthritis patients aims to compare the effectiveness of instructional pain management education or self-practice which is performed under supervision is concluded that there is no significant difference in reducing pain by using both methods and both methods have same effectiveness in reducing patient pain (22). However, in the end, education by employing DVD videos or face to face method to patients of preoperative orthopedic surgery aims to give benefit to their physical or psychological readiness. Meanwhile, post-operative education supports the patients to take a central role in continuous recovery and positive-long-term result (12).

The education of orthopedic surgery patients in the preoperative phase must continue to outcome phase to home or community. The standards of guidance approach for orthopedic patients are based on specific orientation (discharge) delivered to them by nurses along with orthopedists. One research suggests that discharge patient education should be structurally conducted in the form of integrated patient education to solve the patients' problems and need when they are at home (9). The provision of structured verbal education can be conducted one by one or educational group sessions for averagely 30 minutes and with written educational material that can be read by the patient (23).

This is different from informal education which is held without planning, does not use systematic material, does not need a specific time, and is usually conducted with another intervention (27). The contents of the education are all crucial topics and specific-educational points related to orthopedic surgery intervention performed and necessarily informed when the patients go home. The content of the education material provided focuses on the description of pre-operative preparation, hospitalized treatment, surgical procedures, experience from previous patients, expectation after surgery, rehabilitation program, family support, and general question and answer related with other surgical experiences (23).

A structured and comprehensive education method can reduce search and emergency medical treatment usage and minimize the cost of caring acute after the patient discharge from the hospital. The clear evaluation difference between structured education and standard education is on patients' satisfaction, pain management, and obedience to take post-discharge, readmissions, and the functional status after operation (9). Structured health education for patients is essential, especially orthopedic surgery. In this education, nurses must prepare to give comprehensive information to improve knowledge of relaxation to overcome pain, forceful coughing, position management, ambulation, activity, and supportive therapies in the form of

exercises to increase the strength and muscle mass for early mobilization after operation (28).

Based on the prior explanation, it shows that giving education to orthopedic surgery patients is possibly conducted by using any appropriate media and methods for patients' need, as well as patients' and health caretaker's capability. Nurses or doctors need to initially investigate patients' readiness to learn, physical readiness, experience, and knowledge before patient education (29). Health workers, especially nurses, must re-consider design of appropriate education which is suitable for each patient study in a certain period and the usage of some suitable media and also conduct an evaluation for provided education (30).

Hospital as a health service provider has a responsibility to effectively and efficiently organize education resources, and provide education coordinators who arrange all staffs in giving basic and coordinated education. Patient education methods must consider patients' and families' values as well as choices to possibly create interaction among patients, families, and staff. As a result, the learning process occurs. Patient education should pay attention and consistently regard patients' and families' values as well as choices.

Some educational media and methods for orthopedic surgery patients can be adjusted choices which aim to achieve patients' learning orientation. Face to face education gives a chance to the patients to argue and question the educators to ensure their understanding. However, sometimes patients do not receive provided information. As a result, they do not have prior knowledge to ask further information since they are confused and it is difficult to relearn the content of the material delivered. Meanwhile, education utilizing web or DVD videos enables patients to recall the material (16). Thus, it can improve the patients' understanding of a topic. It is suggested that the two methods are combined, a web-based education continued with face to face-method, because the combination can provide information needed by the patients during the preoperative phase.

Education material that focuses on improving patients' skills, i.e., orthopedic exercises after surgery, DVD video is more recommended because it offers visualization and movement that is more easily viewed and imitated than audio media. Structured education material is highly recommended to use in each patient education because it is more systematic, focused without any other activities, and efficient. As a result, it facilitates patients to accept the learning material.

6. Limitation

This literature review has a restriction which should be acknowledged. The review is limited by some available studies, even though at initial searching it is identified that there are 189 potential studies, only eleven studies are individually evaluated. Also, this study used several value results which is impossible to conduct a meta-analysis for the findings so cannot collect data to describe the effect size of each study.

7. Conclusion

Patients play an essential role to succeed in the preoperative education process. Thus, they are more aware of their perioperative process and want to be involved in recovering their health condition. Professional nurses or other healthcare teams must enable to give preoperative education to orthopedic surgical patients by utilizing the right education strategy without referring to specific educational media or methods.

Consequently, the educational orientation is achieved. It is proved that all methods and media such as face to face-education, web or Internet-based education, DVD audio-video education, and structured education, can increase patients' variable values of orthopedic surgery knowledge and skills during perioperative phase.

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