Relationship between nursing care and patient outcome: A literature review focus on joint arthroplasty

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Abstract

Arthroplasty is common surgical intervention on arthritis patients to relieve pain by replacing the severely damage joint with a prosthetic implant. Proper nursing care is very important for the patients to achieve positive outcomes and to have a quality life. Therefore, patient recovery from the intervention procedure is very much related to quality of nursing care. Good nursing care very much relate to factors such as patient education, pain management, and nurse to patient ratio.

Keywords: *Nursing care, arthroplasty, patient education, pain management, nurse to patient ratio.*

Introduction

The purpose of this review is to explore the relationship between nursing care and patients outcome of total joint replacement patients. Total joint replacement is a surgical procedure, whereby patients have to undergo process of replacing joint such as knee, hip or shoulder joint by a prosthetic implant. This procedure is referred to as joint arthroplasty. The goal of joint arthroplasty is to relieve arthritis pain and deformity and restore joint mobility. Arthritis has been

noted as a major cause of morbidity, mortality, and disability among the elderly (Folden & Tappen 2007). Joint arthroplasty is currently the most successful and reliable orthopaedic operation with most of patients reporting improved outcome (Akyol et al., 2009).

The literature review is organized according to the variables that necessitate in nursing care process toward patient recovery. The review put together according to variables that usually investigate by researchers in nursing care of arthroplasty patients. The variables include preadmission program (patient education), pain management, nurse to patient ratio and patient outcome. Preadmission program will be focus on patient education factor toward patient recovery. Pain management is focus on nursing activities in order to reduce patient pain. The discussions on nurse to patient ratio will include some studies related to recovery from other surgical procedures. Patient outcome or recovery process will be discussed through three time phase; preoperative, inpatient during rehabilitation, and after discharge.

Nursing Care and Patient Outcome

The relationship between nursing care and patient outcome is study by number of researchers. The faster patient recovery is benefit to hospital and patients, it would decrease hospital length of stay, complication, and medical costs (Auyong et al., 2015). Meanwhile, nurses are the only professional service providers whose 24-hour presence in hospital, they are often portrayed as the major contributer to patient recovery (Fielden, Scott & Horne 2003). Thus, nurses are directly related to patient outcome such as patient fully recovers from illness. Patient outcome closely associate with quality of nursing care. However, the quality of nursing care is difficult to measure and evaluate without proper and reliable measurement tools. Numbers of researcher have studies the effectiveness of registered nurse commitment in relation to patient outcome. Accordingly, the positive outcomes correlate to the increasing patient health care knowledge and thus, would ensure satisfactory patient recovery (Fielden et al., 2003), and reduced complication (Folden & Tappen 2007). It happen due to numerous interventions implemented by registered nurses.

Preadmission Programs: Patient educating

Patient education is essential component of nursing care because it has a positive impact on patients' postoperative pain, knowledge, anxiety, and length of hospital stay (Montin et al., 2010). In the case of joint arthroplasty, preadmission programs are the process of preparing patient for surgery. The programs consist of preoperative nursing assessments and patients education. Patient education involves preoperative education and postoperative education. There are several studies supporting the positive effects of preadmission programs on patient recovery. According to Messer (1998) preadmission programs boost patient expectations and enhance positive patient experience and lead to patient satisfaction. Niemi-Murola et al. (2007) conducted research on patients undergoing major orthopedic or vascular surgery and found that preoperative teaching increased orthopaedic patients' satisfaction with postoperative pain. Patient satisfaction is an indicator of quality of care (Baumann et al., 2011). Hence, the preadmission program ensuring quality of patients cares.

Preparing and educating patients for total joint arthroplasty requires a coordinated approach by a multidisciplinary team of health care professionals. Multidisciplinary team normally includes nurses, doctors, physiotherapists, and occupational therapists (Fielden et al., 2003). However, nursing staff play a significant role in this team because they are the one who are very close to patients (Akyol et al., 2009). As nurses involve in nursing care from the beginning, therefore, they are the centre for delivery of patient teaching (Montin et al., 2010). Patient education should begin at the time the decision is made to have the surgical procedure performed. It is important that the patient understand the preoperative requirements, the surgical procedure, postoperative care, and the necessary home or activity modifications. As such, it is necessary that the educational session be repeated and suitable timing must be taken into consideration, because the patients may not understand preoperative teaching due to pain, anxiety and fear which is a normal reaction for patients entering hospital (Messer 1998). The patients also should be given opportunity to participate and allow asking questions pertaining to their surgical plan (Fielden et al., 2003). Thus, increase the patient confidence and ready to anticipate any outcomes from the surgery.

As educating patients and their family has always been an important part of nursing responsibility. In the hospital setting, patient education is a continuous process that begins from

the patient admitted into hospital until the patient is discharged. However, for certain reasons important information given by nurses during preoperative education sometime could not understand by patients. For example, in pain management, insufficient information on pain management might lead the patients fails to cope with pain and to feel more severe pain after surgery. Severe pain as a result of total joint replacement surgery is noticeably reduced patient activities. Therefore, patient hesitates to perform any exercise in order to promote flexibility, strength, and balance, thus delay recovery and prolongs patient stay in hospital. In order to reduce patient length of stay nurses should incorporate pain management in preoperative teaching and introduce interventions program. However, according to Akyol et al. (2009) the patients still experience from moderate pain on discharge. As such, discharge training which includes pain management and side effect of medication should be explained by nurses. The plan of care can also be incorporated into postoperative education, which may include energy management technique, nutritional intake, and rest period to reduce fatigue (Folden & Tappen 2007).

There are many advantages to conducting a preadmission program on total joint replacement patients. Patients could plan their early discharge and thus, increased patient satisfaction. In addition, patients are more prepared emotionally and knowledgeable about their hospital stay and recovery (Fielden et al., 2003).

Pain Management

Another factor that affect patient positive outcome after total joint replacement surgery is pain. Patients who can manage their pain and actively participate in rehabilitation program usually recover faster. Folden and Tappen (2007) indicated that exercise prevent postoperative complications and increase chance of patient recovery faster, which mean less duration of hospitalization, and increases patient satisfaction. According to Akyol et al. (2009) adequate postoperative pain control for total joint replacement patient is a necessary factor for patient to be successful in the rehabilitation process. As such, affective postoperative pain control is very importance in the course of patient recovery and must understand by nurses.

Nurses should be helpful and familiar with pain control of total joint replacement patients. As pain interferes with patient recovery activities, therefore, nurses should assess patient pain severity and provide pain management. Patients should be taught pain management strategy that

is, how to effectively control their pain and how to tell their pain to duty nurses depend on pain severity scale. In addition, patients must receive adequate pain control postoperatively and nurses must be able to deliver right medication and right dosages to the patients. Patients whose pain level is tolerable are more willing to participate in physical therapy and will recover faster (Akyol et al., 2009).

Patient to nurse ratio (Nurse to patient ratio)

Nurses are the largest source of health care service workers who provide direct patient care in hospitals. They are part of the cause that contributes to large amount of fixed costs to hospital. Thus, registered nurses become primary target for any work redesign in hospitals especially in reducing operation costs. Reduce nursing staffing is associate with problem that affects the quality of care deliver to patients (Aiken et al., 2014). Research study among hospital nurses reveal that registered nurses voice out their concern about quality care for patients. Lower nursing staff to patient ratio is associated with higher mortality and greater incidence of medical error. The situation also causes lower job satisfaction and more burnout among nurses. Accordingly, the research reveal that 62 percent of nurses have considered to left the profession (Peter, 2003).

Halm et al. (2005) conducted an investigation on 2709 general, orthopaedic, and vascular surgery patients, and 140 staff nurses and examined the relationship between nurse to patient ratio and patient mortality, failure to rescue, emotional exhaustion and job satisfaction of nurses in a large Midwestern hospital, United State of America. Their findings indicated that nurse to patient ratio not significant predictor of mortality or failure to rescue and did not cause emotional exhaustion or job dissatisfaction among nurses. However, the findings are very much contrast to the findings of Alken et al. (2014), which found that patient mortality and failure to rescue in surgical patients very much related to nurse to patient ratio. For example, they found that any increase in a nurse workload from 6 to 8 patients bring about increase in mortality of 14 percent and 31 percent respectively. The differences in the findings between these two researches may be related to the dissimilarity between the hospital settings. The Midwestern hospital has higher nurse to patient ratio as mention in Halm et al. (2005) study, thus, the study convey out better patient outcomes as compare to previous study.

Outcome: Patient recovery

Patient outcome normally measure through physical and psychosocial factors. Numbers of studies have been conducted to determine the effect on mortality and morbidity of patients. Mortality and morbidity are the variables used to measure patient outcome. The recovery process normally divide into three phase, they are preoperative, inpatient during rehabilitation and after discharge (Folden & Tappen 2007). The preoperative phase of patient recovery very much relate to patient education. Messer (1998) in the article mentioned that patients with better knowledge of their conditions and allow to participate in preoperative educations are found to be in better way of thinking and expect to get quality care, thus recover faster. Therefore, higher patient to nurse ratio is one of a factor that contribute to patient care problems especially insufficient patient education and medical error. Thus, the higher patient to nurse ratio brings negative impact on patient recovery (Peter, 2003).

Patient outcomes are very much in association of nurse emotional exhaustion and job dissatisfaction. However, Halm et al. (2005) found that emotional exhaustion and job dissatisfaction did not much correlate with patient outcomes from the sample of nurses in their study. The finding very much contrast to Aiken et al. (2014) study, which found that an increase of one patient per nurse related to increase in emotional exhaustion and job dissatisfaction of the nurse by 23 percent and 15 percent, respectively. As such, nurse to patient ratio and nurse job satisfaction determine the impact on patient outcomes.

Recovery has been viewed as one of the patient outcome after surgery. However, the effect of preoperative education on outcome of patient after joint arthroplasty procedure is not exclusively and directly related, and difficult to measure (Messer 1998). In addition, it is very hard to define outcome as sole attribute by nursing care. Accordingly, patients have greater control of their condition and able to choose their health care service providers. Thus, they demanded high quality care. Health care quality is one of the determinants of outcome of the care process.

Folden and Tappen (2007) evaluate the most common variables associate with patient recovery after hip repair surgery. Among the variables that contribute to patient recover to their previous functional ability are "age, balance, gender, fatigue, fall efficacy, pain, pre-existing medical disease (comorbidity), complications following surgery, cognitive ability, depression, and functional status prior to surgical intervention". However, selecting suitable variables by which

recovery may be judged is not an easy task. Folden and Tappen (2007) summarised the multiple research articles on patients function and recovery after hip repair surgery and found that inconsistent in the findings. They then concluded that, the differences may be due to different measures and different combination of variables used. On the other hand, Folden and Tappen (2007) conducted a study on 73 patients following hip repair surgery from two hospitals inpatient rehabilitation program and three months after discharge. They found that patients with good "balance, prior function ability and cognitive status" were the best factors to regain their prior functional ability or functional recovery three months after discharge from rehabilitation program. In this study, the patients in this category able to perform basic activity of daily living such as bathing and dressing three months after surgery. That is more quickly than social activities, home activities and outside activities.

Conclusion and recommendation for future research

Arthroplasty is common surgical intervention on arthritis patients to relieve pain by replacing the severely damage joint with a prosthetic implant. Proper nursing care is very important for the patients to achieve positive outcomes and to have a quality life. Therefore, patient recovery from the intervention procedure is very much related to quality of nursing care. Numbers of research have been conducted to seek the relation between nursing care and patient recovery. There are many variables that usually study by researchers in establishing nursing care relationship with patient recovery. However, three variables are selected in this literature review which is considered to be contributing factors to patient recovery. The variables are patient education, pain management, and nurse to patient ratio or patient to nurse ratio.

Messer (1998) and Akyol et al. (2009) in their research demonstrated that nursing care and patient education had an influence on the patient outcomes. Messer (1998) stated that patient education is to make sure patient readiness while increasing quality health care and overall patient satisfaction. Akyol et al. (2009) in their article conclude that pain management should ensure patients able to perform activities that influence postoperative recovery such as walking, exercise and sleep. Thus, they suggested that in order to achieve effective pain management, nurses and patients should cooperate to develop an individualized patient action plan. Patient to nurse ratio is a factor that contribute to patient outcomes. Peter (2003) in the research confirmed that higher

patient to nurse ratio have given negative patient outcomes. Halm et al. (2005) in their research found that no significant relationship between patient to nurse ratio. However, the finding contradicted to Aiken et al. (2014) study. As such, more research needs to be performed in this area to determine true relationship between patient outcomes and nurse to patient ratio.

This literature review identified variables that determine the relationship of nursing care and patient recovery. However, other variables such as nurse education level and experiences, nurse working environment, and costs of treatment and hospitalization should be included in future studies. Moreover, most of the researches were conducted in developed countries. As such, future research studies are needed to determine whether the similar findings would be obtained if the similar studies are conducted in Malaysia. Factors such as culture, environment and technology may be contributed to difference results. Thus, the new findings will benefit to academics as well as to practitioners.

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