Factors Influencing Readiness for Hospital Discharge in Knee Replacement Patients
ปัจจัยที่มีอิทธิพลต่อความพร้อมก่อนจำหน่ายจากโรงพยาบาลในผู้ป่วยที่ได้รับการผ่าตัดเปลี่ยนข้อเข่าเทียม

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บทคัดย่อ

เนื่องจากอายุโดยเฉลี่ยของบุคคลทั่วโลกสูงขึ้น รวมถึงในประเทศไทยด้วย ทำให้เกิดปัญหาที่เกี่ยวข้องกับการเสื่อมสภาพโดยเฉพาะปัญหาข้อเข่าเสื่อมในผู้สูงอายุ ซึ่งเป็นสิ่งที่ไม่สามารถหลีกเลี่ยงได้ ในขณะที่การรักษาด้วยวิธีการผ่าตัดเปลี่ยนข้อเข่าเทียมนั้นสามารถช่วยแก้ไขให้ผู้ป่วยเกิดคุณภาพชีวิตที่ดีได้ แต่อาจจะทำให้เกิดภาวะแทรกซ้อนขึ้นภายหลังจากการผ่าตัดด้วยเช่นกัน การวิจัยเชิงสหสัมพันธ์ครั้งนี้มีวัตถุประสงค์เพื่ออธิบายปัจจัยที่มีอิทธิพลต่อความพร้อมในการจำหน่ายจากโรงพยาบาลของผู้ที่ได้รับการผ่าตัดเปลี่ยนข้อเข่าเทียม กลุ่มตัวอย่างเป็นผู้ป่วยที่ได้รับการผ่าตัดเปลี่ยนข้อเข่าเทียมในโรงพยาบาลระดับตติยภูมิแห่งหนึ่งจำนวน 108 คน เครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลประกอบด้วย (1) การรับรู้การสนับสนุนทางด้านสังคม (2) การประสานการดูแลอย่างต่อเนื่องก่อนจำหน่ายจากโรงพยาบาล และ (3) การสอนก่อนจำหน่ายจากโรงพยาบาล เครื่องมือที่ใช้ในการวิจัยทั้งหมดได้ผ่านการตรวจสอบความตรงของเนื้อหา และความเชื่อมั่น วิเคราะห์ข้อมูลด้วยสถิติพรรณนา และสหสัมพันธ์แบบถดถอย

ผลการวิจัย: ผลการวิจัยพบว่ากลุ่มตัวอย่างมีระดับความพร้อมก่อนจำหน่ายจากโรงพยาบาลอยู่ในระดับปานกลาง ($\bar{X}$ = 8.09, SD=1.14) การรับรู้การสนับสนุนทางด้านสังคม และคุณภาพการสอนก่อนจำหน่ายจากโรงพยาบาลมีความสัมพันธ์เชิงบวกกับระดับความพร้อมก่อนจำหน่ายจากโรงพยาบาลอย่างมีนัยสำคัญทางสถิติ ($r = .644$, $p < .01$) and ($r = .459$, $p < .01$)

การรับรู้การสนับสนุนทางด้านสังคม และการสอนก่อนจำหน่ายจากโรงพยาบาลมีความสัมพันธ์เชิงบวกกับระดับความพร้อมก่อนจำหน่ายจากโรงพยาบาล ข้อค้นพบจากการวิจัยครั้งนี้สามารถนำไปพัฒนากิจกรรมทางการพยาบาลสำหรับผลลัพธ์สำคัญที่เกิดขึ้น สามารถพัฒนาเป็นกิจกรรมการพยาบาลเพื่อปรับปรุงคุณภาพการเตรียมจำหน่ายผู้ป่วยที่ได้รับการเปลี่ยนข้อเข่าเทียม สำหรับการวิจัยครั้งต่อไปควรมีการศึกษาทดลองเกี่ยวกับกิจกรรมการ

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พยาบาลที่ส่งเสริมการสนับสนุนทางสังคมกับการสอนผู้ป่วย และผู้ดูแล

คำสำคัญ: ผู้ป่วยที่ได้รับการผ่าตัดเปลี่ยนข้อเข่าเทียม ความพร้อมก่อนจำหน่ายจากโรงพยาบาล

Abstract

As people's life expectancy gets longer worldwide, health issues related to the knees of the aging body are inevitably prevalent. While knee replacement can improve the overall quality of life, the treatment may at times cause complications leading to hospitalization. An in-depth understanding of the factors influencing readiness for hospital discharge is crucial to develop the interventions to reduce potential downstream complications effectively. This correlational research study was used to describe factors influencing readiness for hospital discharge among patients with a knee replacement. The sample consisted of 108 patients with osteoarthritis who had a knee replacement at a tertiary hospital. The research instruments consisted of questionnaires on the following topics: (1) Perceived social support; (2) Continuity of Care; and (3) Teaching quality. All research instruments were tested for content validity and reliability. Descriptive statistics and Pearson's Product Moment Correlation Coefficients and stepwise multiple regression analysis were used for data analysis.

The results of study showed that: participants had a moderate level of readiness for hospital discharge ($\bar{X}$ = 8.09, SD = 1.14). Perceived social support and teaching quality were found to be significantly correlated with readiness for hospital discharge (r = .644, p <.01) and (r = .459, p <.01) respectively.

Perceived social support and teaching quality concerning discharge positively affect readiness for hospital discharge. These findings can be used to improve nursing interventions regarding discharge planning for patients undergoing knee replacement. Further studies aimed at testing nursing interventions for promoting social support and patient teaching should be done.

Keywords: Knees arthroplasty, Readiness for hospital discharge

Background and Significance

As the number and proportion of older and obese people increase, worldwide prevalence of knee osteoarthritis continues to increase as well (Cross et al., 2014). Total knee arthroplasty (TKA) is a common and effective medical intervention for patients suffering from end-stage osteoarthritis (Rönn, Reischl, Gautier, & Jacobi, 2011). In 2018, the cost of TKA was at a record high of USD 9.06 billion, and this cost is expected to increase to USD 12.72 billion by 2026 (Businesswire Wire, Global knee replacement market 2020-2026). In response, many healthcare systems have implemented policies and procedures to improve the cost-effectiveness of TKA (Thanyasawad, Sappayanon,

Thongklom, Kogchana, Moolsin, & Boonthuk, 2018; Wattanasu, 2018). These policies and procedures are evidence-based and tend to underestimate inter-personal variations in the recovery rate from TKA. Furthermore, post-TKA care is not uniformly excellent. Therefore, the universal concept of "readiness for discharge", as per evidence-based policies and procedures, may not apply to every patient. Healthcare professionals have a duty to tailor care to individual patient needs.

For patients, the transition from inpatient services to the assumption of responsibilities for self-care is a process influenced by multiple factors. Perceptions of self-efficacy, social and family support, and the notion of health literacy are important variables that affect patients' readiness and willingness to be discharged (Hasap, Hasap, & Nasae, 2014; Meleis, Sawyer, Im, & Messias, 2000). The nursing role and responsibilities in delivering effective and practical teaching on the concept of self-care remain the foundation for successful patient transition and quality of life post-hospital discharge (Anusasananun, Sucamvang, Udomkhamsuk, Sangwattanarat, Timnakron, & Ayutthaya, 2015; Kunthakhu, Watthanakitkrileart, Pongthavornkamol, & Dumavibhat, 2009). Research on patients with acute myocardial infarction revealed that nursing professionals who receive adequate and constructive academic training have better mental readiness for discharge. Furthermore, their patients comprehensively report having a more satisfactory quality of life in relation to their initial treatment, and they tend to integrate self-care more effectively within their routine daily activities (Anusasananun et al., 2015).

Despite these reported benefits, evidence suggests that TKA patients rarely receive good teaching by nursing professionals even though, their psychological readiness is the tenet of successful clinical interventions, as in nursing didactics (Loft, McWilliam, & Ward-Griffin, 2003). Therefore, we conducted a cross-sectional study with the primary objective of assessing the mental preparation of TKA patients and determining the factors that influence their readiness.

A study of factors predicting readiness for discharge from hospitals among 153 patients undergoing surgical treatment in a tertiary hospital revealed that teaching quality affected continuous self-care by discharged patients at home (Anusasananun et al., 2015). The results indicated that effective teaching methods should be tailored to individual patient needs ($r = .60$, $p < .01$). However, before discharge from the hospital, there was a lack of investigation into the factors that influenced discharge among the group of patients who underwent knee replacement surgery. Nevertheless, basic information regarding patient self-care, environmental factors in continuing care at home, and ways to teach techniques that can help create various contexts for inpatients are useful, and each individual adapted well, quickly, and at the optimum effectiveness (Loft, McWilliam, & Ward-Griffin, 2003). After knee replacement surgery, patient psychosocial adjustment can be slower than their physical progress. Therefore, encouraging patients to learn and understand, is important, and psychosocial issues play the

most crucial role in pre-discharge care in this group of patients.

This study will explore the factors of readiness for discharge in patients who underwent knee replacement surgery. Examining such factors offers essential information to guide nursing care options and activities for patients treated by artificial knee replacement surgery, enabling nurses to provide optimum care tailored to patient the needs.

Objectives

1. To study the level of readiness for discharge from the hospital in patients who underwent knee replacement surgery.

2. To study the relationship between readiness for discharge from the hospital with perceived social support, continuity of care, and teaching quality among patients who underwent knee replacement surgery.

3. To describe the predictive power of perceived social support and teaching quality over readiness for discharge from the hospital among patients who underwent knee replacement surgery.

Research Question

1. What is the level of readiness for discharge from the hospital among patients who underwent knee replacement surgery?

2. Are there relationships between readiness for discharge from the hospital, perceived social support, continuity of care, and teaching quality among patients who underwent knee replacement surgery?

3. What is the predictive power of perceived social support, continuity of care, and teaching quality over readiness for discharge from the hospital among patients who underwent knee replacement surgery?

Conceptual Framework

This research used transitional theory, which seeks to empower people to overcome the circumstances of illness in their lives. The process must be carried out to achieve good results from operations during that process, such as in terms of interpersonal interactions and the environment. The change method has a meaning associated with illness, including the process of discharging from the hospital to go home, which is one component of the transitional framework (Weiss, & Piacentine, 2006). The transitional theory consists of four related factors: (1) nature of transition, (2) transition condition, (3) nursing therapeutics, and (4) pattern of response. The four related components, according to the theory of the transition, are perceived as social support. Teaching quality before discharge from the hospital and continuity of care from various support teams and care during the discharge from the hospital are all factors that directly affect patient responses to illness, and their readiness to be discharged from hospitals.

Methodology

This descriptive predictive correlational research study explores patient discharge readiness from the hospital in relation to perceived social support, continuity of care, and teaching quality before discharge from hospital among

patients who underwent knee replacement surgery at a tertiary hospital orthopedic ward in Thailand.

Population and Sample

Purposive sampling was used to recruit the research participants. Inclusion criteria included: (1) age forty years or above, (2) having first knee replacement surgery, (3) having a physician's plan to discharge, and (4) voluntarily wishing to take part in the research. The following formula determines the calculation of required sample size using the Thorndike formula: n = 10 k + 50, allowing for a drop-out rate of 20 percent. This resulted in a sampling total of 108 people.

Research Instruments

A self-reported questionnaire was used to collect data. The questionnaire was comprised of four parts:

1. A demographic data form. This part was used to collect personal data, including gender, age, weight, height, religion, marital status, educational level, career, income, and underlying diseases.

2. The 18-item teaching quality questionnaire. There were six items concerning teaching content and twelve concerning teaching skills. Items were assessed by an eleven- point Likert estimation scale, ranging from zero (nothing) to ten (maximum) points.

3. The 12-item multidimensional scale of perceived social support (MSPSS) questionnaire, covering awareness, social support, family, friends, and specialized people. It uses a seven-point Likert scale ranging from zero (inability to recognize social support) to seven (perceived high social support).

4. The 41-item continuity of care questionnaire, in two parts: 27 questions address the pre-discharge period and 14 cover post-discharge. The questionnaire uses a five-point Likert scale, ranging from 1 (strong disagreement) to 5 (strong agreement).

Content validity and reliability

The teaching quality and continuity of care questionnaire, developed by Weiss, Piacentine, Lokken, Ancona, Archer, & Gresser (2007) and the multidimensional scale of perceived social support (MSPSS), developed by Zimet, Dahlem, Zimet, & Farley (1988) were translated into Thai, then the translated versions were independently back translated into English, to compare the fidelity of the translations. Content validity was checked by Kunthakhu, Watthanakitkrileart, Pongthavornkamol, & Dumavibhat (2009) and Wongpakaran & Wongpakaran (2012) and they were found to equal to .91, .87, and .92, respectively. The researchers did not check the validity of the duplicate content. To find the instrument reliability's confidence, patients undergoing a hip replacement surgery similar to a sample were tested, and the internal consistency was determined using the Cronbach alpha coefficient with values of .93, .80, and .90, respectively.

Ethical Considerations

The Ethics Committees of the Faculty of Nursing and Faculty of Medicine approved this research (study code 2562-EXP044). The researchers collected data by themselves according to the specified criteria. After identifying participants who met the inclusion criteria, the

researcher invited them to join the study. They were informed of the voluntary nature of participation and their right to withdraw from the study at any time. Those wishing to participate signed an informed consent form.

Data Collection

The data collection were four steps as follow:

1. The researcher presented the research project to the Ethics committee of the Faculty of Nursing and the Faculty of Medicine, Chiang Mai University.

2. According to the research ethics, the researcher wrote a letter to the relevant wards asking for data collection in the research and according to the research ethics.

3. The researchers collected the research data by themself in the patients treated by knee replacement, while the doctor has a treatment plan for the patient to be discharged from the hospital.

4. the research participants completed the questionnaire to assess their readiness before discharge from the hospital.

Data Analysis

The data were analyzed using descriptive statistics, frequency distribution, percentage, mean, standard deviation, Pearson's Product Moment Correlation Coefficients, and stepwise multiple regression analysis.

Findings

Participants were an average age of 65.30 years (SD = 1.08). The largest percentages of participants had the following characteristics: female (73.3%), primary-level education (43.3%), married (76.7%), and Buddhist (90%). Those who were of retirement age and did not work comprised 26.7% had an average income of THB 5,000, and 93.3% said they had enough income to meet their needs. Fifty-three-point three percent of participants earned income from small occupations. Forty-six-point seven percent of participants resided with their grandchildren. In terms of health, 76.7% of the patients had chronic illnesses with congenital disease, 46.7% received government-sponsored healthcare treatment, 93.3% of the pain medication received were painkillers, and 86.7% received physical therapy after discharge.

The sample had a moderate level of readiness for discharge ($\bar{X}$ = 8.09, SD= 1.14), and they rated the quality of teaching before leaving the hospital as good ($\bar{X}$ = 8.26, SD = 1.17). The score for multidimensional scale of perceived social support was at a medium level ($\bar{X}$ = 6.05, SD= .91), and as was patient continuity of care before discharge ($\bar{X}$ = 4.31, SD = .54).

The relationship of readiness for hospital discharge to factors

There was a high correlation between the factors of teaching quality and readiness for discharge from hospital ($r = .644$, $p < .01$). Furthermore, when analyzed according to the teaching quality components before discharge, it was found that content was positively correlated with hospital discharge ($r = .539$, $p < .01$). The teaching quality had a moderately positive relationship with readiness for discharge from the hospital. ($r = .420$, $p < .01$) The multidimensional scale of perceived social

support positively correlated with the readiness for discharge from the hospital at a moderate level (r = .459, p < .01). The perception of social support positively correlated with the readiness for discharge from the hospital at a low level (r = .037, p < .01). The perception of family support was positively correlated with discharge readiness from the hospital at a low level (r = .316, p < .01). The readiness for discharging from the hospital was at a high level (r = .709, p < .01). Table 1 shows the correlation coefficients of the variables studied.

Table 1: Correlation coefficients of studied variables

Variable	1	2	3	4	5	6	7	8
1. Teaching Quality	1.000							
2. Teaching content	.234*	1.000						
3. Teaching skills	.425**	.205*	1.000					
4. Social support awareness	.501**	.562**	.669**	1.000				
5. Perception of family support	.131	.237*	.007	.086	1.000			
6. Continuous care before discharge	.159	.459**	.196*	.317**	.091	1.000		
7. Continuous care after discharge	-.153	-.095	-.137	-.086	-.005	.203*	1.000	
8. Readiness for discharge	.644 **	.539**	.420**	.037**	.316**	.709**	-.523	1.000

* p < .05, ** p < .01

There was no relationship with continuous care coordination after and readiness for discharge before discharging from hospital (r = -.523, p> .01). After that, the predictors were added, consisting of quality of teaching, teaching content, and continuity of care before discharge. Step 2 analysis found that quality of teaching, teaching content, and continuity of care before discharge were able to predict hospitals by 34.4%, and 40.8%, respectively. Table 2 shows the results of multiple correlation analysis, with squares of multiple correlations of variables affecting hospital discharge by stepwise multiple regression analysis.

Table 2: Multiple regression analysis

Variable	R	R^2	b	seb	β	t	sig
Teaching quality	.523	.274	1.371	.02	.523	23.723	.001
Teaching content	.587	.344	1.239	.068	-.592	18.320	.001
Continuous care after discharge	.639	.408	1.317	.069	-.417	19.185	.001

constant (a) = .709** p < .01, constant (b) = .644** p < .01

Discussion

Before discharge from the hospital, the level of readiness was moderate for patients. It was found that the group had a moderate level of readiness before discharge from the hospital (80%), indicating that the patients were physically and mentally ready to face the changes that occurred to themselves when returning home. Barsoum, Murray, Klika, Green, Miniaci, & Wells (2010) predicted patient discharge disposition after total joint arthroplasty in the US, and found that patient physical and mental preparation facilitated an effective transition from hospital care, with reduced risk of lack of patient readiness. Causey-Upton et al., & team (2019) provided additional information from the experiences of people who had undergone hip replacement surgery. Among six hospitalized patients, it was found that the experience of patients taught about self-care activities indicated they were more capable of self-treating properly. Patient education increases confidence in self-care behavior and skills, with reduced, feelings of anxiety or insecurity associated with the transition after discharge.

Relationship, prediction, perception, social support continuity of care, and quality of teaching before discharge to hospital.

Exploring the relationship between the quality of teaching and readiness for hospital discharge indicated that the quality of teaching and teaching content had a high level of involvement with hospital readiness (r = .644, p <.01). Moreover, ward teaching was of high quality (r = .539, p <.01) associated with high level of readiness to discharge from the hospital (Weiss et al., 2007). Teaching content and didactic method before discharge were correlated with feelings of preparedness for discharge (Anusasananun et al.,2015). Also, a study of the factors that influenced the willingness to discharge in 100 acute myocardial infarction patients found (Kunthakhu, Watthanakitkrileart, Pongthavornkamol, & Dumavibhat, 2009) that receiving illness data that does not correspond to the need for self-care practices after the discharge can affect repeated hospitalizations.

Continuity of care before discharge from the hospital has a high correlation with hospital readiness (r = .709, p <.01). Nevertheless, the continuity of care after discharge does not correlate with the readiness for discharge showing that patients are aware that after discharge from the hospital they will receive decreased care

or help from healthcare/hospital personnel. Patients who feel confident about the continuity of health services provided by hospital staff in community settings and the home after discharge are more likely to have readiness for discharge. Weiss & Piacentine (2006) found that service users are aware of the coordination experience before release or discharge from the hospital, and if this is not managed well, hospital readiness can be reduced.

Perceived multidimensional social support had a low correlation with hospital readiness ($r = .316$, $p < .01$). This indicates that patients' relationships with their families or caregivers without expertise in caring for patients who have had knee replacement surgery are not supportive factors in readiness, due to patients perceiving a lack of effective support, particularly when such caregivers have less direct engagement with the patient, such as friends and extended family members. As a result, patients have lower perceptions of receiving multidimensional social support. This is consistent with the study of family support sources to predict patients' social support (Poncharoen, Samartkit, & Keeratiyutawong, 2017). Furthermore, it is a predictor of factors related to transitional processes and readiness for hospital discharge, whose effectiveness depends on the recognition of functional social support (Holm, 2014).

Conclusion and Recommendations

This study can be used as a guideline for preparing patients before discharge from the hospital and planning for ongoing care at home. However, in applying such guidelines, staff members in the health team must assess patient physical and mental readiness because the patient could have different perceptions that affect these aspects of readiness, including the cost of prior knowledge that differs from providing practical help to patients after discharge. It is suggested that useful guidelines should be created and developed for effective and supportive discharge planning for patients receiving knee replacement surgery. Other factors related to readiness should be studied, including perceptions of physical performance, caregiver roles, and patient experiences of surgery.

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