

SYSTEMATIC REVIEW

Nursing Intervention on Discharge Planning for Elderly Patients with Hip Fracture: A Systematic Review

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ABSTRACT

Aim: This literature review aims to conduct an extensive systematic literature review of the nursing interventions on discharge planning among geriatric patients with hip fractures. **Design:** The review applied multiple research designs, and the literature search was based on PRISMA's publication standard. **Data Sources:** The articles were selected from three primary online databases: Scopus, Science Direct and Web of Science and one supporting database, Google Scholar. **Review Method:** After searching the eligible articles, 15 articles were selected for thematic analysis. **Results:** The systematic review came out with five central themes 1) assessments of the patient's and family member's needs; 2) diagnosis of an individual discharge planning; 3) prescription of the appropriate nursing interventions; 4) implementation of the nursing interventions and 5) follow-up after the patients have been discharged from hospital. **Conclusion:** The review's findings explained the nursing intervention implemented and its effectiveness on elderly patients with hip fractures. Apart from that, this review also highlighted the methodology approach and health outcomes measured, which will help the scholars better understand the study area. **Impact:** The review contributes needed information for future nursing research and practice of the elderly with hip fractures.

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INTRODUCTION

One of the most significant demographic developments of the twenty-first century is population ageing. A person aged 65-year or more is often referred to as 'elderly' (1). Globally, life span has increased as a result of a decline in the number of people dying of infectious and parasitic illnesses, as well as a general trend toward better living circumstances. Another notable decrease in fertility rates has occurred as a result of more effective contraception and more educational possibilities for women (2). As of 2019, the world's population was 703 million persons aged 65 and above (source: United Nations) (3). The number of older persons is projected to double to 1.5 billion in 2050. Globally, older persons are expected to double, from 841 million in 2013 to more than 2 billion in 2050 (4).

Hip fractures are any type of fracture located in the upper part of the femur at the tip of the femur's head to 5cm

below the lesser trochanter (5). The most common type of fracture is an intertrochanteric fracture, which occurs more often in women with osteoporosis (6). It is usually a result of minor trauma, such as a fall from a standing height or lower (7,8). According to the World Health Organization, falls are the second largest cause of injury and death globally, affecting individuals over 65 (9). Depending on the fracture type, hip fractures are often treated with a dynamic hip screw, hemiarthroplasty, or total hip arthroplasty (10). By 2050, it is anticipated that up to 6 million hip fractures will occur annually, with Asia accounting for more than half of all hip fractures (11). Women and men can anticipate around 4 and 3 hip fractures per 100 resident spaces (12,13).

Hip fractures place a significant financial strain on healthcare systems (14,15), with a median stay of 15 days and over 1.1 million total inpatient bed days in the United States each year (16). Coexisting medical conditions and physical limitations associated with advanced age delay older people with hip fractures from full recovery (17-19). Common comorbidities were cardiovascular, pulmonary, cognitive and neurological (20-22). About 10% of patients with hip fracture surgery develop cognitive problems, which are more

frequent in the elderly (> 65 years) that can interrupt activities of daily living (23). Following a hip fracture, cardiac mortality is most often caused by heart failure or myocardial ischemia, the two most prevalent causes of cardiac death (24). The incidence rate of pneumonia during admission in the hospital setting was 3.5% following hip fracture surgery among the elderly (25). Between 20% and 30% of fatalities are believed to be caused by fractures (26,27).

Discharge planning is a multidisciplinary strategy to ensure continuity of care after a patient’s hospitalisation; it includes seven components: identification, assessment, goal setting, planning, implementation, coordination, and evaluation (28). Discharge planning necessitates interaction between many healthcare organisations, patients, and family members (29). The discharge planning process is used to prepare the patient to leave the hospital, and it should start upon admission several days before the patients are discharged (30). Nurses have an essential role in discharge planning by fostering patient self-care capacity by investing in preparation, coaching, and advice (31,32). The quality of nursing care and patient education are closely intertwined; improving patient education will increase nursing care quality (33,34).

There was an SLR that was published in 2014, which only managed to review seven articles related to the study area. The current trend shows a lack of studies on nursing intervention on DP for individuals over 65 with hip fractures (35). As a result of the limited research, there is a lack of knowledge to understand and accumulate the existing literature systematically. Interestingly, researchers are interested in enhancing the long-term health outcomes of older individuals with hip fractures. They approach the subject from various angles, including mortality, mobility, and life quality (36-39). Even though various research has been conducted on this subject in the past, a complete review of the current literature on nursing interventions for DP in older patients with hip fractures is still insufficient. This research aimed to fill a knowledge gap in the area by comparing previous studies and rigorously gaining a complete picture of the nursing intervention performed on DP in older patients with hip fractures.

The research topic for this study was formulated using PICO or “population or patient problem”, the “intervention”, the “comparison”, and the “outcome”. The authors had come out with three main aspects of the systematic literature review (SLR), namely elderly with hip fracture (population), discharge planning (nursing intervention) and health outcome (outcome). Then helped the authors come up with a research question- what are the health outcomes of the nursing interventions on elderly patients with hip fractures? We conducted a systematic evaluation of randomised controlled trials and quasi-experimental studies that

examined the therapeutic advantages of these therapies compared to control and intervention groups and found that they were all helpful. A secondary objective was to determine whether or not such treatment would benefit the patient’s health.

METHODOLOGY

As shown in Figure 1, the Prevention and Recovery Information System for Monitoring and Analysis (PRISMA) served as the guidance for this review. The author started the SLR process by proposing research questions for the SLR to examine based on the findings of this review. The authors outline their search methodologies in the next section, which are grouped into three fundamental sub-processes: identification, screening, inclusion/exclusion, and eligibility. The final included studies are next subjected to a quality assessment using the technique to guarantee the study’s integrity. The authors discuss data extraction, analysis, and validation in their conclusion.

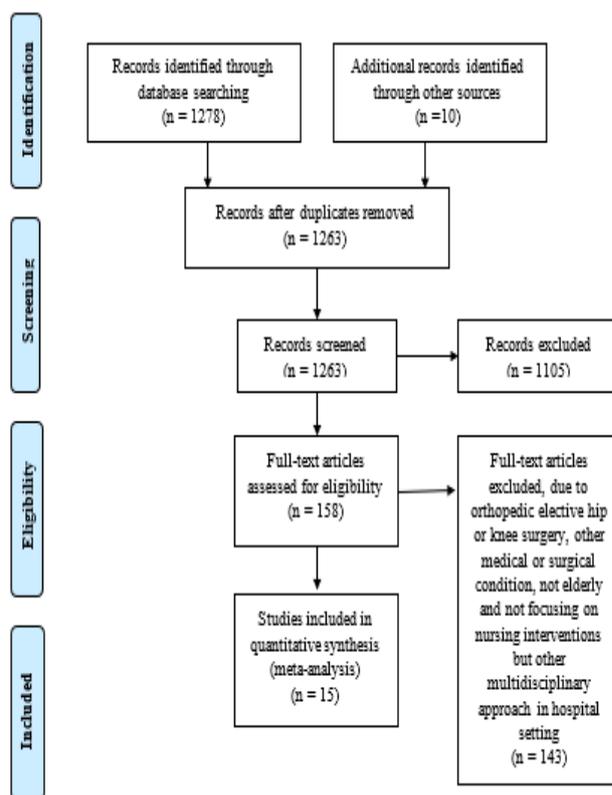


Figure 1: Prisma 2009 Flow Diagram

Identification

Identification is an approach for identifying synonyms, comparable phrases used in other papers, and variations on the review’s keywords, which include discharge planning (DP), elderly, and hip fracture. It focuses on expanding the alternatives to the specified databases to identify a more comparable dataset containing the essential articles for the SLR. The keywords were chosen in accordance with the study question (40). Other previous research supports the search strategy,

which used phrases from the Scopus online database and extra keywords supplied by specialists. The authors researched many alternatives to the principal keywords and created a comprehensive search string to provide a systematic search of relevant research findings. This was achieved using the field code function, the Boolean Operator, phrase searching, wild cut, and truncation (40). We used three major internet databases: Scopus, Web of Science, and Science Direct, as well as Google Scholar as a supplement database.

These three online databases were chosen because of their ability to become the principal SLR databases since they have advanced searching, comprehensive, controlled quality, and a multidisciplinary dataset (41,42). When researchers gathered information using automated methods, Google Scholar indexed any document of academic merit. As a result, broader coverage of the literature was attained than would have been possible with other online databases with journal-based inclusion criteria, such as Web of Science (WoS) and Scopus (43). This review used a combination of keywords whenever appropriate; “DP” or “discharge management” or “care pathway”, “hip fracture” or “femur fracture” or “proximal femur fracture”, “elderly” or “geriatric” or “older people” and “discharge”. Table I present the keywords used in the literature search. The phrase search and Boolean Operator (OR, AND) capabilities were employed to support the keywords. After screening these three primary databases and supporting Google Scholars, a total number of 1288 articles were discovered.

Screening

The first reviewer determined the acceptability of all titles and abstracts. After a second reviewer examined the uncertainty, inconsistencies were resolved by discussion among the reviewers. Two reviewers (the first and second reviewers) independently screened the whole text of possibly relevant publications; a discussion with a third reviewer addressed any disagreements. A first reviewer extracted data, and a second reviewer independently examined it using a standardised, piloted data extraction form.

It was agreed that all 1288 of the articles chosen for inclusion in this assessment would be analysed using the criteria for automated compilation based on the sorting function available in online databases. The

research question with the inclusion and exclusion criteria decided by the author guided the screening process. This review only selected English as the publication language to ensure all the data analysis could be extracted effectively. Furthermore, to guarantee the consistency of the analysis, the articles with empirical evidence reported in the journal were included. Randomised controlled trials (RCTs) or quasi-experimental trials (QRCT) with intervention and control groups were determined as study selection criteria. This method resulted in the removal of 1105 publications that did not meet the review’s inclusion criteria and the omission of 25 duplicated papers. The 158 articles were used to determine eligibility.

Eligibility

Eligibility is also referred to as the manual screening procedure. The scholars might exclude the articles unsuitable to the review criteria and answer the research question (45). One hundred forty-three articles were excluded from this analysis due to their purpose on orthopaedic elective hip or knee surgery and other medical or surgical conditions irrelevant to the research. Additionally, their strategy focused on multidisciplinary approaches to patient care in the hospital rather than nursing intervention.

Appraisal of quality

The methodological quality of each study was assessed in order to calculate a risk of bias score for each publication. Rather than serving as a quality filter, these numerical ratings were used merely to aid in understanding the data when they were synthesised. The Cochrane risk of bias tool was used to assess the quality of randomised controlled trials (46). The external validity of community-based research was compromised by using non-representative samples and high rates of loss to follow-up. As a result, two areas were prioritised out of a possible seven: the production of random sequences and the analysis of missing outcome data. The cumulative risk of bias score for each research study was determined based on the areas that were prioritised. The Newcastle-Ottawa Scale (NOS) for cohort studies was used to assess the quality of non-randomised controlled trials (RCTs) and cohort studies. The NOS uses a total of three criteria in assigning points: selection, comparability, and outcome (maximum score is nine). Part 4 of the ‘Selection’ section was deleted since the reviewers deemed it irrelevant (the result

Table I: Systematic searching strategies

Databases	Search string
Scopus	TITLE-ABS-KEY (“discharge plan*” OR “after care*” OR “discharge management*” OR “discharge process*” OR “care pathway*”) AND (“elder*” OR “old*” OR “geriatric*”) AND (“hip fracture*” OR “femur fracture*” OR “proximal hip fracture*”)
Web of Science	TS= (“discharge plan*” OR “after care*” OR “Discharge management*” OR “Discharge process*” OR “care pathway*”) AND (“elderly*” OR “older people*” OR “geriatric*”) AND (“hip fracture*” OR “femur fracture*” OR “proximal hip fracture*”)
Science Direct	(“discharge plan” OR “Discharge management” OR “Discharge Process” OR “after care” OR “care pathway”) AND (“elderly” OR “older people” OR “geriatric”) AND (“hip fracture” OR “femur fracture” OR “proximal hip fracture”)

of interest existent at baseline). As a result, the risk of bias was defined as either “high” (0 to 3 points) or “moderate” (4 or 5 points) or as “low” (0 to 3 points) (6 to 8). All the reviewers did the process individually, and disagreements were discussed and finalised.

Data abstraction and analysis

Two authors conducted data extraction processes independently to reduce the chances of bias and error in the combination process of the review (47). We collected data on the study’s design, demographics, intervention specifics, setting, outcome measures, intervention design/delivery, and implementation concerns. The authors read all the 15 selected articles thoroughly, especially on the abstract, results and discussions. As a result, the authors conducted a thematic analysis of the themes and subthemes, focusing on the effort required to recognise and comprehend the dataset’s patterns to detect clustering, number arrangement, and differences in the abstracted data, as well as the relationship between the themes (48).

Five main themes were found, and the authors re-evaluated the five themes. They identified an additional 21 sub-themes and conducted additional reviews of the accuracy and accountability of these themes and sub-themes to ensure that the themes were accurate and the review was of high quality, as outlined above. Following the fundamental strategy, the authors excluded one sub-themes, post-discharge rehabilitation, since it was already addressed by referral to more comprehensive health care offered in the hospital context. After that, the authors began to name the main themes, followed by sub-themes. Finally, two orthopaedic surgeons examined the main and sub-themes to guarantee the validity. They agreed that the main and sub-themes were suitable for the review.

RESULTS

After the quality appraisal, 15 studies were selected for review. Table II presents the summary of these studies. The review identified five main themes and twenty-one sub-themes concerning nursing intervention on DP in older individuals with a hip fracture. The five main themes were: “assessment based on the patient’s and family member’s needs” (three sub-themes), “diagnosis of an individual DP”(five sub-themes), “prescription of the appropriate nursing intervention”(three sub-themes), “implementation of the nursing interventions” (six sub-themes) and “follow up after the patients have been discharged” (two sub-themes). The result provided a comprehensive analysis for the review.

A total of nine studies in Taiwan were identified (49-57). Two studies focused on nursing intervention in elderly patients with hip fractures in the USA (58,59), one study focused on nursing intervention in elderly with hip fractures in Canada (61), and one study was

found in Sweden (62). One similar study was found in the UK (62), and one study was conducted in Egypt (63). Among all the studies, the main study design used by the scholars was a randomised clinical trial (RCT), with eleven overall studies. Apart from that, three studies were conducted using the quasi-experimental and one utilising the cohort study design. In terms of publication year, two papers were published in 2016. One research was published in 2015, 2013, 2011, 2010, 2009, and 2008, followed by three investigations in 2005 and 2007.

The themes and sub-themes

Assessment of the patient’s and family members’ needs. It is critical to assess the patient’s and family members’ requirements to comprehend the requirement of elderly patients with hip fractures. Early assessment is essential to provide adequate information for proper DP. All the studies conducted focused on the sociodemographic status of elderly patients. Seven studies included the caregiver competence in the assessment (49,52,53,55,60,61,63). Meanwhile, six studies also focused on the long-term care of elderly patients in their assessment (49,52,53,55,57,60).

Diagnosis of an individual patient

Thirteen studies of the nursing intervention of the elderly with hip fracture also included the diagnosis of an individual elderly with hip fracture to take charge of complex dynamic events and new knowledge. They managed complex relations and information; therefore, accepting the complexity of practice could facilitate the development of nurses’ skills to guarantee good DP quality. Self-care deficits related to old age and hip fracture were among the main focuses of the diagnosis in ten studies (49,51,53-55,56,57,60,61,63). On the other hand, two studies had included impaired walking ability due to a fractured hip as one of the components of their diagnosis (61,62). Only one research (61) focused on acute pain associated with broken hips, and two studies considered the patient quality of life in their diagnosis (56,58). Mental health status is critical in predicting patients’ health outcomes and literacy capacity. Nine studies diagnosed their elderly patients prior to planning for DP, (49,51,54,55,58,59,60-62).

Prescription of the appropriate nursing interventions

After a thorough understanding of the complicated requirements of older patients with hip fractures, nurses were expected to prescribe the appropriate nursing intervention to enhance their health outcomes. An individual DP was documented in all the studies. An appropriate referral to other multidisciplinary approaches in the hospital setting was established in eleven studies (49,50,51-55,56,57,60,61). Placement after discharge will help the patient in faster recovery after the transition from hospital to home, and among the possibilities were nursing care, home, or rehabilitation centre. However, only two studies focused on placement after discharge

Table II: Summary of Discharge Planning Studies

Authors /Year	Design	Sample	Outcomes	Results	Conclusion
(Beaupre et al., 2005) (Canada)	Cohort	1341	Function and institutionalization status length of stay (LOS)	Barthel Index score was significantly lower 3 months post fracture in control patients Total LOS did not change between cohorts.	Standardized rehabilitation and discharge planning did not affect postoperative function or institutionalization in elderly patients with hip fracture
(Shyu et al., 2005) (Taiwan)	RCT	159	service utilization: Length of stay, emergency room visits, hospital readmission rate, institutionalization. Clinical outcomes: self-care abilities, health-related quality-of-life (HRQOL) outcomes, and depressive symptoms	Experimental group improved significantly control group in the following outcomes: ratio of hip flexion 1 month after discharge (P5.02), recovery of previous walking ability at 1 month (P5.04) and 3 months (P5.001) after discharge, and activities of daily living at 1 month (P5.01) and 2 months (P5.001) after discharge. 3 months after discharge Three months after discharge, the experimental group showed significant improvement in peak force of the fractured limb's quadriceps, bodily pain, vitality, mental health, physical function, role physical and fewer depressive symptoms.	Intervention program benefited older people with hip fractures in Taiwan by improving their clinical outcomes, self-care abilities, and HRQoL and by decreasing depressive symptoms within 3 months after discharge.
(Huang & Liang, 2005) (Taiwan)	RCT	126	Length of hospitalized stay (LOS) Rate of readmission Repeat falls Activities of daily livings (ADLs)	The discharge planning intervention decreased length of stay, rate of readmission and rate of survival and improved activities of daily living for intervention group compared with those of control group. Mean total SF-36 scores of patients in the experimental group were higher than for the control group and both groups had improved quality of life.	The discharge planning benefited older people with hip fractures. Relevance to clinical practice. A discharge planning intervention by a nurse can improve physical outcomes and quality of life in hip fracture patients.
(Krichbaum, 2007) (USA)	RCT	33	Self-rated health, level of depression Functional status based on the ability to perform activities of daily living (ADLs) and instrumental activity daily living (IADL), and living situation	Sociodemographic and comorbidities -no significant difference. No significant difference in ADL No significant difference in depression level	The treatment group had better function at 12 months on several activities and instrumental activities of daily living, and no differences in health, depression, or living situation
(Allegrente et al., 2007) (USA)	RCT	176	Physical functioning, role-physical, and social functioning domains of the SF-36	Intervention group had significant change in role-physical domain in 3 and 6 months. Physical functioning and social function were not statically significant. 34% of the participant completed the 6-month assessment (G1:27 and G2:32)	Despite demonstrating a statistically significant reduction in role limitations due to physical health, our trial was undermined by several methodological difficulties
(Olsson et al., 2007) (Sweden)	Quasi	112	Activities of daily livings (ADLs) Length of stay (LOS) Pain management Post-operative complication Readmission in 30 days 1-Year mortality	The active of daily living at the discharge shows that intervention group were statistically significant No differences in walking distance In the control groups 35 patients show inadequate pain management whereas 12 in intervention groups Both groups not reported readmission After one year both groups have 16% of patients died in both groups	When admitting older patients with a hip fracture, it is important to acquire good knowledge about each patient and their prerequisites and to offer them accelerated rehabilitation in accordance with their individual ability
(Shyu et al., 2008) (Taiwan)	RCT	162	Primary outcome: Ability to perform Activity Daily Livings (ADLs). Clinical outcomes: Recovery of walking ability Occurrence of falls Mortality Service utilization: Emergency room visits Hospital readmission Institutionalization Depression symptoms	The experimental group had significantly better ADL and enhance recovery of walking ability The occurrence of falls did not change significantly over the year following discharge The intervention did not significantly affect emergency room visits, hospital readmissions, mortality, and institutionalization Participants in the experimental group had significantly fewer depressive symptoms than those in the control group.	An interdisciplinary intervention for hip fracture with a discharge support component benefited elderly persons with hip fracture by improving both self-care ability and walking ability, and by decreasing depressive symptoms during the 1st year after hospital discharge.
(Lin et al., 2009) (Taiwan)	RCT	50	Differences in hospital length of stay (LOS), and functional status Differences in patient self-care knowledge and Quality of Life (QoL) Differences in the degree of satisfaction regarding discharge planning.	Mean age of 50 hip fracture patients was 78.75 (SD 6.99) years No significant difference in LOS The self-care knowledge significantly higher in experiment group Significant improvements were observed in functional status of both groups at three months post discharge, with no significant differences observed between groups At three months post discharge, QOL experimental group patients were better than control group patients	A comprehensive discharge-planning service can improve hip fracture patients' self-care knowledge and QOL

continue.....

Table II: Summary of Discharge Planning Studies (continued)

Authors /Year	Design	Sample	Outcomes	Results	Conclusion
(Shyu et al., 2010) (Taiwan)	RCT	162	Clinical outcomes: self-care ability Ratio of hip flexion peak force of the fractured limb's quadriceps Occurrence of fall Health-related quality of life (HRQoL) Service utilization Hospital readmission Emergency department visits Institutionalization. Depressive symptoms	Subjects in the intervention group had significantly better ratios of hip flexion, better performance on ADLs, better recovery of walking ability, fewer falls, fewer depression, better SF-36, however not significantly affect hospital readmission or mortality rates.	The interdisciplinary intervention with geriatric hip-fracture program and discharge-support components appeared to benefit elderly persons with hip fracture in Taiwan
(Murphy et al., 2011) (UK)	Quasi	83	Demographic questionnaire Mini mental examination state (MMSE) Elderly mobility scale (EMS) Numeric pain scale (NRS)	Mean age was 78.9 years All patients scored 24 or above on the MMSE EMS scores were significantly better for the intervention group at completion of intervention and post-follow-up	Hip fracture patients should be provided with an educational booklet containing basic information on mobility to promote optimal recovery
(Shyu et al., 2013a) (Taiwan)	RCT	299	Activity Daily Livings (ADLs) Depression level Nutrition status Occurrence of fall visit to Hospital/Emergency Department	Participants in the comprehensive care group had better self-care ability (odds ratio, OR = 3.19, p < .01) and less risk of depression (OR = 0.48, p < .01) than those who received usual care The comprehensive care group had less risk of depression (OR = 0.51, p < .05) and of malnutrition (OR = 0.48, p < .05) than the interdisciplinary care group during the first year following discharge Nutritional status, ER visit and occurrence of falls has no significant difference between groups.	Older persons with hip fracture benefitted more from comprehensive care including interdisciplinary care and nutrition consultation, depression management, and fall prevention than simply interdisciplinary care.
(Shyu et al., 2013b) (Taiwan)	RCT	299	Quality of life (QoL)	Participants in the comprehensive care group improved more in physical function, role physical, general health and mental health than those in the usual care group. The subacute care group had greater improvement in physical function, role physical, vitality, and social function than the usual care group The intervention effects for both comprehensive and subacute care increased over time, specifically from 6 months after hip fracture onward, and reached a maximum at 12 months following discharge	Both comprehensive care and subacute care programs may improve health outcomes of elders with hip fracture
(Shyu et al., 2015) (Taiwan)	RCT	299	Self-care ability Emergency department visit Hospital readmission	The comprehensive care group had better performance trajectories for both measures of activities of daily living and fewer emergency department visits than the usual care group, but no difference in hospital readmissions. The interdisciplinary care and usual care groups did not differ in trajectories of self-care ability and service utilization. The three groups did not differ in mortality during the 2-year follow-up.	Comprehensive care, with enhanced rehabilitation, management of malnutrition and depressive symptoms, and fall prevention, improved self-care ability and decreased emergency department visits for elders up to 2 years after hip-fracture surgery, above and beyond the effects of usual care and interdisciplinary care
(Tseng et al., 2016) (Taiwan)	RCT	281	Mental and physical Health Related Quality of Life (HRQoL)	Subjects in the comprehensive care and interdisciplinary care groups were more likely to experience a good physical components summary (PCS) trajectory (b = 0.99, odds ratio [OR] = 2.69, confidence interval [CI] = 7.24–1.00, p = 0.049, and b = 1.32, OR = 3.75, CI = 10.53–1.33, p = 0.012, respectively) than those who received usual care. However, neither care model improved mental components summary (MCS)	Understanding distinct trajectories in physical and mental HRQoL and exploring intervention effects of different care models on specific trajectories may facilitate improvements in managing subjects following hip fracture.
(Khayyal et al., 2016) (Egypt)	Quasi	60	Functional abilities	No statistically significant difference was found between both groups in relation to sociodemographic characteristics, cognitive, visual, hearing or ambulation capacity.	Applying the discharge plan on geriatric patients with hip fracture was effective in enhancing recovery rate for performing ADLs. Positive but insignificant recovery rate was found in some IADLs.

(57,60).

Implementation of the nursing interventions

For this theme, this review concluded that seven nursing interventions had been implemented for elderly patients with hip fractures. Revisiting the patients during admission to the hospital was practised in three studies (56,60,63). A health education booklet was given to the patients in two studies as a nursing intervention to educate the patients on various care needed for hip fracture patients. It positively improved the patients' health outcomes (58,62). In addition, a motivational videotape was included to enhance the patient's self-confidence to recover from hip fracture (58). This study also focused on physical therapy to improve the patient's readiness to ambulate after discharge from the hospital.

Meanwhile, conducting a home visit before the patients were discharged from the hospital was shown in three studies (49,53,55). The nurse assessed the home environment and suggested any possible modifications that needed to be considered to make it more convenient for the patients. Patient and family member education on fall prevention was crucial in preventing recurrent falls

and hip fractures in the elderly. This point was made in three investigations (49,50,52).

Follow-up after the patient has been discharged from the hospital

Regardless of the nurse interventions used in the different trials, follow-up was critical to ensuring continuity of care and facilitating the patient's optimal recovery after the patient was released from the hospital. There were three nursing interventions identified under this theme. Following discharge, a home visit is made to establish rapport with patients and family members, monitor their progress and arrange for any further intervention that may be necessary. This was performed in five studies (51,52,56,59,63).

The second sub-themes are related to the phone call to assess the needs and requirements for any interventions and to remind the patients of the multidiscipline follow-up in the hospital, which was implemented in eight studies (51-53,55,56,58,60,63). In addition, meeting the patients during hospital follow-up has been included in one of the studies to ensure the patients were getting all the assistance and were accompanied during the follow-

Table III: Nursing Intervention for Elderly Patients with Hip Fracture

Authors	Assessment			Diagnosis				Prescription					Implementation					Follow-up			
	SS	CC	LTC	SCD	IWA	AP	QoL	MS	IDP	RM	PAD	RDA	HEB	MVT	GS	PT	HMB	FP	HVA	PC	MDF
(Beaupre et al., 2005) (Canada)	√	√	√	√				√	√	√	√	√									√
(Shyu et al., 2005) (Taiwan)	√	√	√	√				√	√	√							√				√
(Huang & Liang, 2005) (Taiwan)	√			√			√		√	√		√							√		√
(Krichbaum, 2007) (USA)	√							√	√											√	
(Allegrante et al., 2007) (USA)	√						√	√	√				√	√	√	√					√
(Olsson et al., 2007) (Sweden)	√	√		√	√	√		√	√	√											
(Shyu et al., 2008) (Taiwan)	√			√				√	√	√											
(Lin et al., 2009) (QOL) (Taiwan)	√		√	√					√	√	√										
(Shyu et al., 2010) (Taiwan)	√	√	√	√					√	√							√				√
(Murphy et al., 2011)1 (T 1) (UK)	√				√			√					√								
(Shyu et al., 2013a) (Taiwan)	√			√				√	√	√									√		√
(Shyu et al., 2013b) (Taiwan)	√	√	√						√	√								√	√		√
(Shyu et al., 2015) (Taiwan)	√								√	√								√			
(Tseng et al., 2016) (Taiwan)	√	√	√	√				√	√	√							√	√			
(Khayyal, 2016) (Egypt)	√	√		√								√							√	√	√

PSS - Sociodemographic status, CC - caregiver's competence, LTC - long-term care, SCD - Self-care deficit, IWA - Impaired walking ability, AP - Acute pain, QoL Quality of life, MS - mental state, IDP - An individual discharge planning, RM - Referral to other multidisciplinary health care, PAD - placement after discharge, RDA - revisit the patient during admission, HEB - health education booklet, MVT -motivational video tape, GS - group support, PT - physical therapy, HMB - home visit before patients is discharge, FP - fall prevention, HVA - home visit after discharge, PC - phone call, MDF - meeting the patients during follow-up

up by other multidisciplinary team services (63). Table III summarises the nursing interventions for the elderly patients with hip fractures reported by the studies.

DISCUSSION

Discharge preparation is a multifaceted care strategy that tries to prepare patients and their families to practice medical care and treatment at home while preserving their functional ability and well-being after hospitalisation (64). The Department of Health recognised patient flow as a critical priority and nurse-led discharge (NLD) to achieve this aim (65,66). NLD is the delegation of responsibility for a patient's discharge according to an agreed-upon plan based on specified criteria to a third party (67). The consultant's agreement with the plan in charge was emphasised, as was the nurse's acceptance of the assigned role and possession of the necessary knowledge and skills to carry out the plan. As a coordinator, nurses may support hospital staff with the discharge process, decrease readmissions, and educate patients about the safety of continued care. Additionally, nurses contribute significantly to ensuring continuity of treatment across settings by acting as a liaison between various healthcare professionals (68). After a thematic analysis of all of the articles, five major themes and twenty-one sub-themes emerged. This section elaborated on the initial ideas.

Evaluating the patient's and family members' needs is a critical nursing intervention for older adults with hip fractures. An evaluation is crucial to provide a baseline for the DP's early growth. The reviewed studies focused on sociodemographic status, caregiver competence, and long-term care requirements. Among the elderly, the health disadvantages such as the higher prevalence of health issues and functional limitations the elderly characterised with lower socioeconomic status will affect their health outcome (69). Age, gender, comorbidities, and pre-fracture ambulatory ability were strongly related to the postoperative ambulatory ability (70). An assessment of the caregiver's competence was also conducted in order to understand their needs and requirements, as they would play one of the significant roles in the recovery process.

The involvement of caregivers is a crucial component of the patient's understanding and recall of all the information delivered by the health care (71). Besides that, caregiver scores on readiness for hospital discharge had shown to positively impact the 30-day readmission rate among patients admitted to a medical centre in Taipei, Taiwan (72). The low level of independence and limited abilities observed among the elderly patients admitted to the nursing hospital in Poland suggested that most elderly patients required nursing services at home rather than institutional nursing (69). Considering the patient's long-term needs will make their health outcome and recovery process more optimum and

promising.

Nursing diagnosis of an individual patient was also implemented as part of the nursing intervention using various instruments such as the Barthel index, Mini-Mental Scale Examination, Pain Score Scale and the 36-item Short-form Health Survey. Post-hip fracture ambulatory abilities may be classified into three categories: non-ambulatory, ambulatory with an assistive device, and ambulatory without an assistive device (73). While a walker can support around one-quarter of a patient's total weight, it may also improve balance by increasing the support base. (74). One month following hip surgery, individuals who had had a hip fracture saw a deterioration in their Health-Related Quality of Life (HRQoL). The HRQoL was far away from the pre-fracture level (75).

Pain is one of the symptoms of a hip fracture. Patients required continuous pain management from preadmission to the ward until the final rehabilitation. The interventions can be divided according to the timing of the intervention, for example, pre-and postoperative (76). It is also believed that providing comfort and relaxation with a proper application of skin traction will decrease pain in hip fracture patients (77). Mortality and health outcomes of the elderly patients with hip fractures were significantly related to neuropsychiatric comorbidities and delirium and among the most common were delirium and depression. Therefore, an early diagnosis of these disorders is expected to increase the chances of survival by proving appropriate interventions needed (78).

Prescription of the patient's nursing intervention is further explained into an individual DP, referral to other multidisciplinary health care and placement after discharge. This is important to ensure every patient's needs are met and fulfilled. Receiving a personalised discharge summary helps the patients understand and accept the illness (79), where a good understanding is believed to encourage the patients to have good health literacy. Meeting the individual diverse health needs can be made by designing changes in the healthcare services (35). Considering the complex health needs of the elderly, referral to the appropriate multidisciplinary health care is necessary.

The multidisciplinary team collaborates and defines appropriate individual interventions, including arrangements for transport, follow-up, equipment medication, and home care if indicated. All of these should be coordinated by a discharge coordinator (78). If home discharge is not possible for certain patients with some difficulties, transferring to another nursing home or rehabilitation centre might be an option. It is vital to assess and compare patient requirements to institutional services to choose the most appropriate environment for continuous therapy (78).

Nursing interventions include revisiting the patients during hospital admission, providing a health education booklet, motivational videotape, group support, physical therapy, home visit before patients are discharged from the hospital, and fall prevention. The overall process of the implementation should include caregivers as it appears that the discharge process that encourages the involvement of family and caregivers improves the patient's perception of the discharge process and delivery of the health education on DP (80). The implementation process might have some difficulties because older patients have lower motivation; patients who believe that their effort to recover and actively participate in the recovery process will lead to faster recovery than those not involved in the recovery process (81). Compared to the control group, the intervention group saw a substantial improvement in the physical domain of Quality of Life (QoL) three and six months after receiving the motivating video and joining a support group (58).

Providing a written booklet of health education for the elderly with hip fractures is an effective strategy to ensure complete information is given to the patients and their family members. , Subsequently, they will be able to help themselves in the recovery process (82). Improved physical abilities were statistically significant in the intervention group that received an educational booklet and physical therapy compared to the control group (58,62). Physical therapy aims to improve and reduce pain, restore movement and range of motion (ROM), and prevent muscle wasting. Exercise and physical training are believed to enhance hip fracture recovery among the elderly in terms of functional recovery and independence (83). The capacity to transition from bed to chair or stand from a chair is stressed during physical therapy, as is the ability to move about securely and independently (84).

Revisiting the patients during hospitalisation will help the discharge coordinator to improve the rapport with patients and family members while at the same time allowing for ongoing assessments and implementations of the nursing intervention. After three months, the intervention group's activities of daily living (ADLs) improved considerably (60); in addition to better ADLs, the intervention group also had a shorter length of stay, a reduced risk of readmission, and a higher rate of survival than the control group (56). However, both groups had no significant differences in sociodemographic status, visual, cognitive, and ambulation abilities (63).

Before discharge, home visits were also commonly performed as an intervention for DP for older patients with hip fractures. Three critical elements related to pre-discharge home visits were identified. The first element was recognising clinical factors that reflected occupational performance, environmental and patient

needs. Next, contextual was described as setting reality as strongly mediating practice. Thirdly, perception of value, prior discharge home visit quality, and the need to improve the ongoing interventions (85).

As patients aged, they experienced joint stiffness, decreased muscle tone, and impaired neurologic feedback. These impairments might become the risk factors for falls among the elderly. The most vital indicators suggested for incidence of previous falls were weakness, gait and balance impairments. Nursing interventions that will be helpful are patient and family education about falls and the risk of falls. Early and frequent mobilisation, wearing nonslip footwear and removing barriers to transferring or ambulating the patients (86). Emphasising fall prevention is essential one out of three patients was readmitted within 12 months post-discharge from the hospital, and a 7% readmission rate within 30 days post-discharge, with the majority of the reason for readmission being repeated falls (87). Several studies reported that after including fall prevention as one of the nursing interventions, participants in the comprehensive care group showed significant improvement in physical function (49,50,52).

After all the procedures and interventions were completed and patients were permitted to be discharged from the hospitals, transition care needed to be maintained. This was done via post-discharge follow-up services, including a home visit. They will be reminded of their hospital appointment via phone or text messages. After discharge from the hospital, receiving a home visit from a care manager was significantly positive, reducing 30-day readmission rates by approximately half among the patients with multiple chronic conditions in North Carolina, USA (88). According to research done at a Swiss academic primary care clinic, text-message reminders are equally as efficient as phone calls in reducing missed appointments while being less expensive. Both therapies are generally regarded as good by patients (89). Using mobile phone technology to promote patient follow-up in a psychiatric clinic in India increased the number of patients who got follow-up (90).

Recommendation

The study suggested a few recommendations to be considered by future studies in this area. First, more studies are needed to explore the methodology to measure the effectiveness of the DP rather than what has already been studied. Second, the review revealed that future studies should emphasise patients' readiness to be discharged. Third, more studies should develop or utilise guidelines focusing on the elderly to improve functional abilities and recovery. This is because elderly patients have complex health needs, and their abilities are limited due to muscle weaknesses and other limitations. Besides that, future scholars should also consider determining the suitable approach to empower nurses in conducting

a DP for elderly patients with hip fractures.

CONCLUSION

Hip fractures in the elderly may have significant medical and psychological consequences, and in the worst-case scenario, they can result in death. Healthcare institutions should recognise and expand their services to support older adults with hip fractures in improving their physical and mental health. Nurses play a critical role in identifying and coordinating appropriate interventions to speed recovery and decrease complications after surgery for elderly patients with complex health needs and requirements. The nurse could be a discharge coordinator to coordinate multidisciplinary health care providers performing all the interventions. It is essential to ensure that elderly patients with hip fractures do not miss any interventions or appointments.

The DP model can be considered the primary strategy nurses use to improve the health outcome of elderly patients after a hip fracture. This approach could manage the complexities of their health needs. In the studies discussed above, older adults with hip fractures need a multidisciplinary team to deliver a complete treatment package to obtain optimal health outcomes. Nurses must understand and address the obstacles and concerns involved with providing all components of DP, including evaluations, diagnosis, prescription, implementation, and follow-up, to enhance the quality of care for older patients. Other healthcare workers must understand the elderly needs to facilitate nursing practice. Nurses should be able to identify the complex needs of the elderly and collaborate with all the multidisciplinary teams to provide the necessary services required for the patient.

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