

# Deepening Analysis on Preventing Fall Risk with Knowledge and Practices of Nurses and Nursing

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## ABSTRACT

The purpose of this study is to give recommendations for knowledge and practices and ethics of nurses and nursing in hospitals - case in Nam Dinh Province, Vietnam in order to prevent fall for patients. We use cross-sectional descriptive method and qualitative analysis to give our suggestions. Research results show us that the proportion of nurses who self-assessed practice for general fall prevention for patients was 48.8%. Achievement level according to each content, including fall risk assessment, fall prevention practice and fall management practice respectively 41.8%; 60.6% and 48.8%. There is a relationship between nursing knowledge about falls prevention and falling prevention practice for patients (OR = 3.97; 95% CI: 2.1-7.6). The research results show that nurses with many years of experience have better knowledge of falls prevention for patients. There is a relationship between knowledge and practice of falling prevention in the patient. The research findings also indicate the need to strengthen nursing knowledge about fall prevention in patients.

**Keywords:** Knowledge, ethics, practice, falls prevention, patient, nursing.

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## INTRODUCTION

Falls are the most frequently reported incident in patients. The fall rate increases from 1.7 to 25 times in 1,000 days when the patient is hospitalized, with the rate of psychiatric or geriatric patients higher. Falls increase the length of hospital stay and access to health care. Traumatic falls account for 30% to 51%, including bruises to serious injuries or fractures (Ganz, 2013).

In this situation, the nursing team has a particularly important role in minimizing medical incidents for the following reasons: (1) The services provided by nurses and midwives are rated by WHO as one of the pillars of the health service delivery system; (2) Most of the orders of the treating doctor are through the nurse to perform on the patient; (3) Nursing professional work always takes place before and after treatment and ensures safe treatment (Chu, 2017).

### Current status of knowledge and practice on fall prevention for patients at Nam Dinh Hospital

Nursing knowledge about falls prevention for patients is moderate. The proportion of nurses with knowledge reached 56.5%, in which the nursing sector with the best knowledge was the risk factors for falls (55.3%), followed by risk prevention (54.1%). The most critical areas of nursing knowledge are falls management (31.7%) and risk assessment (6.5%).

Nursing practices for falls prevention in patients are moderate. The rate of nurses achieving general practice is 51.2%, of which risk assessment practice has the highest rate with 58.2%, falls management is 51.2%; Nursing field for practice of fall prevention only reached 39.4%.

In this study we apply Albert Bandura's Theory of Social Cognition [14]. Albert Bandura's social cognition theory explains how people think and what factors determine their behavior. It is a form of theories based on confidence in self-capacity determined by a three-way relationship between cognitive factors, environmental

influences, and behavior.

The correlation between behavior and environment in the three-factor system is the two-way interaction. In everyday life, when people change their behaviors, they create changes in the characteristics of the environment. Meanwhile the environment is always volatile and changing, it will impact behavior change whether you like it or not. Therefore, people are both the creator and the product of their surroundings.

Two factors about the demographic of the knowledge-related object are the age group and the working age. The higher the age, the better and those with 10-20 years of age have higher knowledge than the rest of the groups.

Two factors that belong to nursing professional characteristics are updating knowledge and training needs related to knowledge. Those who need training have lower knowledge than those who don't; Those who have attended training have lower knowledge than non-participants.

## RESEARCH QUESTION

**Question 1:** What are findings relating to practice and knowledge about falls prevention.

**Question 2:** What are recommendations for knowledge and practice of falling prevention for patients of nurses at Nam Dinh General Hospital

## LITERATURE REVIEW

According to Kellogg Group (1987) put forth the concept that A fall is an incident where a person unintentionally (accidentally) lies on the ground or a lower level and is the result of a strong force, losing consciousness. as sudden as in a stroke, epilepsy.

Buchner et al. (1993) mentioned that Falls are unintentionally lying down hallways, floors and other low locations that do not include furniture, walls and other household items (Buchner et al, 1993).

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Canadian Institute of Health Information (2002) stated Falls are unintentional changes in position that result in the body lying down on the floor or hallway.

Zecevic et al. (2006) pointed A fall is any event where a person accidentally or intentionally lies down on the floor or a lower position such as a chair, toilet or bed.].

The World Health Organization (2018) introduces the concept that A fall is an event that leads to an unintentional person lying on the ground or the floor or another low position. This is the most general concept compared to the above concepts.

Patricia C. Dykes and colleagues (2018) also conducted research to develop a tool to assess nursing knowledge about falls. To build this tool, the authors searched all previous studies that used a nursing knowledge assessment tool about falls. The authors found 402 relevant articles, but through censorship rounds, many articles were rejected for reasons such as: not describing specifically the tools to assess knowledge about falls, Test nurses' competencies rather than their knowledge of falls. In the end, only eight studies were retained. From these 8 studies, the authors have analyzed the strengths and weaknesses and proposed a new set of tools. This tool is reliably checked with a tetrachoric coefficient of 0.73 and validated by the CVI test. The test results show that this is a pretty good scale to assess nursing knowledge about falls.

Elizabeth GM Chong et al. (2019) also conducted an assessment of nursing knowledge and attitudes at Kuala Lumpur Hospital. The results show that according to knowledge, the GPA is 8/10 and 19% reach the maximum. 35% have very good knowledge, 55% have good knowledge, 9% have poor knowledge. Those who have worked longer for the organization and nurses from the nursing department have many respondents who score in full. The inferior nurses' attitudes were reflected by a lower mean knowledge score (6.2 points) compared to those with a good attitude. However, one of the limitations in this study is that the measuring tool has a simple content, so it cannot cover issues related to falls such as risk factors, risk assessment, prevention and management. A survey in Greece showed that 44.9% of nurses had poor knowledge of falls, 32.8% of nurses had moderate knowledge and only 22.3% were at good levels. The researchers also showed that nurses with a higher level of expertise had better knowledge of falls. People who participate in many falls training classes / seminars have better knowledge than those who have never attended or less involved. The authors also conclude that nurses with good knowledge of falls also practice better fall prevention (Hussein and Mohamed, 2018).

In Vietnam, currently there are not many publications on the current state of nursing knowledge and practice

about falls prevention. Most of the studies focused on describing the patient safety knowledge and practice of nursing in hospitals, including mentioning about falls. Research by Nguyen Xuan Thiem at Ha Dong General Hospital in 2016 showed that the practice rate of falling prevention for nursing patients reached 82.8%. Research by author Nguyen Thi Thuy when using the Fall Knowledge Test assessment tool on nurses at Ha Nam General Hospital, has concluded: Out of a total of 47 nurses participating in the study, the percentage of opinion scores formula accounted for 38.3%, not reached 61.7%; the rate of practice points reached 17.1%, not reached 82.9%; 80.9% regularly update knowledge on prevention of the risk of falls and 85.1% of subjects need training on fall prevention. Nursing in the external system faculties has a higher rate of knowledge score (66.7%) than that of nursing in internal departments of 8.7% ( $p < 0.05$ ). The proportion of female nurses with a fall risk assessment for patients (74.3%) was 33.3% higher than that of male nurses ( $p < 0.05$ ). From the above results, the author proposed to have a training program to improve knowledge and practice of falls prevention for nurses at Ha Nam General Hospital (Nguyen Thi Thuy, 2019).

### METHOD AND DATA

Our research was conducted at the General Hospital of Nam Dinh province. The study subjects are nurses, which are the medical staff who play a key role in patient care, counseling and guidance in health education, implementation of professional techniques and procedures, and ensure the principle of care for patients in hospitals to meet the increasing demand for quality healthcare today.

In our study, the majority of subjects were female (78.2%), nearly 4 times higher than male subjects (21.8%) (table 3.1). The sex ratio is almost equivalent to the study of Nguyen Thi Thuy (2019) on the situation of knowledge and practice on falling prevention for patients of nurses at Ha Nam General Hospital in which the proportion of women accounting for 74.5%, male accounting for 25.5% (Nguyen Thi Thuy, 2009).

Criteria and evaluation criteria:

Knowledge: Using the scoring method to evaluate the knowledge of the object, the correct answer is 1 point, 0 point for each correct answer. Total number of correct answers (answer keys) is 24 corresponding to a total score of 24. Then, calculate the total score and divide the knowledge level into 4 levels and 2 categories of unsatisfactory and passable. Knowledge of risk factors, knowledge of assessment of falls risk, knowledge of falls management, general knowledge of falls prevention of nurses is classified into the following groups:

Table 1. Criteria for classifying knowledge of research objects (applied to general knowledge and knowledge of each component group)

Score range	Level	Classification
< 30% total score	No knowledge	Fail
30% - < 55% total score	Poor knowledge	
55% - < 80% total score	Average knowledge	Pass
80%-100% total score	Good knowledge	

Practice: The toolkit uses a 5-level Likert scale to evaluate the practice of falling prevention practice for patients of the study subject according to the levels 1 = Never performed; 2 = Rarely implemented; 3 = Execute from time to time; 4 = Regularly performed; 5 = Always done. Then calculate the total score, the higher the total score,

the higher the subject practice is then divided into the following levels: Pass:  $\geq 4$  points; fail:  $\leq 3$  points. Then, calculate the total score and classify the practice as failing and pass. Practices to assess the risk of falls, practice of falls management, practice of fall prevention, general

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practice on fall prevention of nurses are classified into the following groups:

Table 2. Criteria for classifying practice of research object (applicable to general practice and practice of each component group)

Point range	Classification
≤ 60% total score	Fail
> 60% total score	Pass

### Methods of information collection

Using self-filling method to collect information of study subjects. The investigators in each department are 2 groups: Chief nurses and lecturers of Nam Dinh University of Nursing directly teach and manage clinical interns at the department. Enumerators were trained on the content of the study and agreed on how to collect data. Organized data collection during an evaluation in 22 clinical departments. Research subjects in the faculties were met by the investigators at the department's briefing office, clearly explaining the research content and distributing questionnaires to each self-filled nurse. The investigator monitors to make sure the nurse does not communicate during the form, then retrieves the questionnaire, checks the appropriateness of the

responses, and recommends corrections as needed. Monitoring the data collection process to ensure the toolkit is complete, accurate and objective for the study. Nurses were unable to participate in a focused response because of the task, the investigator sent the questionnaire to the subject to fill in an appropriate time.

### Variables in the study

The independent variable includes age group, sex, professional level, type of training, seniority of service, training in fall prevention. Dependent variables include classification of knowledge (4 levels), knowledge level (pass and fail), classification of practice (pass and fail).

## MAIN RESULT

### Overview

Table 3. Working period of nurses participating in the study (n = 170)

Working period (years)	Male		Female		Total	
	Number	Ratio %	Number	Ratio %	Number	Ratio %
< 10	16	18,2	72	<b>81,8</b>	88	<b>51,8</b>
10 - 20	19	26,0	54	74,0	73	43,0
> 20	2	22,2	7	77,8	9	5,2
<b>Total</b>	37	21,8	133	78,2	170	100

Table 3 shows that the majority of nurses are female (81.8%) and have been working for less than 10 years, accounting for the highest proportion (51.8%).

Table 4. Qualification of nurses participating in the study (n = 170)

Level	Total	
	Number	Ratio %
College (intermediate)	62	<b>36,5</b>
College	51	30
University	57	33,5
<b>Total</b>	170	100

Table 4 shows that nurses with intermediate education account for the highest proportion (36.5%), followed by bachelor's degree (33.5%) and college degree (30%).

Table 5. Number of nursing patients requiring care in 1 day (n = 170)

No of patients	Total	
	Number	Ratio %
≤ 10 people	100	58,8
> 10 people	70	41,2
<b>Total</b>	170	100

Table 5 shows that the average number of nursing care / day of under 10 patients per day for nurses is (58.8%), over 10 patients / day (41.2%).

Table 6. Have attended falls training classes (n = 170)

Status	Total	
	Number	Ratio %
Participated	111	65,3
Not participate	59	34,7
<b>Total</b>	170	100

The results of Table 6 show that 34.7% still have not attended training courses on falling prevention.

## FINDING

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Table 7. Nursing knowledge of patient risk factors for falls (n = 170)

Content	Correct answer	
	Number	Ratio %
The danger of falling in hospital is inevitable.	106	62,4
People at risk of falling are at a higher risk of falling during their hospital stay.	82	48,2
A common reason falling patients is because their fall prevention plans are not being followed.	90	59,2
A 75-year-old patient was hospitalized with severe abdominal pain with weak gait, plus a history of falls and osteoporosis. This person's risk of falling is due to age.	119	70,0
Falls history is a strong predictor of future fall risk.	126	74,1
Fall patients have a high risk of falling again and in similar circumstances.	136	80,0

The results showed that only 10% of nurses simultaneously correctly listed 6 knowledge contents related to the risk factors for falls, most nurses only correctly listed 2-5 knowledge contents. Still 11.2% of nurses only correctly listed 2 contents.

Table 8. Nurses' knowledge of assessing the risk of falls (n = 170)

Content	Correct answer	
	Number	Ratio %
Nurses are better able to assess a person's risk of falling than on the fall risk screening scales.	70	41.2
The fall risk screening scale predicts a patient is likely to fall because of physiological problems.	112	65.9
Hospitals should develop their own appropriate fall risk assessment forms.	15	8.8
All patients using assistive devices have gait disorders and should be assessed for risk	41	24.1
The purpose of falls risk screening is to identify patients who need a fall prevention plan.	141	82.9

The results showed that most nurses simultaneously listed 2 out of 5 contents of knowledge about risk factor assessment and, in particular, 17.6% of nurses had only correctly listed 1 content.

Table 9. Nursing knowledge about falls prevention (n = 170)

Content	Correct answer	
	Number	Ratio %
The risk of falling due to physiological problems can be prevented by providing a safe environment.	6	3,5
Alarm systems should be installed in hospital beds and chairs for all patients at risk of falling.	12	7,1
The bed and chair alarm should be activated for all patients with gait disorders.	112	65,9
Each person should have a fall prevention plan that is appropriate for themselves.	145	85,3
Regular communication with patients about injury and fall risk might reduce fall risk	112	65,9
Patients at low risk of falls do not need a fall prevention plan.	138	81,2
Patients with mobility impairments should use physiological services or use an appropriate walking device	153	90

Among the 6 contents of knowledge about fall prevention, the majority of nurses correctly assessed 4 issues at the same time, still nurses only correctly listed 1-2 out of 6 at the same time.

Table 10. Nurses knowledge of falls management (n = 170)

Contents	Correct answer	
	Number	Ratio %
When a fall prevention plan is in place and in place, it can be prevented in approximately 75% of patients at risk.	149	87,6
The ward nurse is the most important person to prevent falls.	66	38,8
Participation of a patient in fall prevention means that the nurse completes a fall risk assessment.	21	12,4
The 3-step fall prevention process includes: 1) screening for falls risk, 2) developing an appropriate fall prevention plan, 3) completing a fall	26	15,3

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prevention documentation.		
Patients with many medical problems often require multiple medications and require individualized interventions that target both symptoms and side effects.	135	79,4
The environmental assessment is not that important in the hospital because all are standardized.	123	72,4

The percentage of nurses who correctly assessed all 6 issues related to falls management was only 0.6%. Most nurses can only answer 3 factors at the same time, accounting for 41.8%. There are still nurses that can only list 1 content.

### DISCUSSION

A fall in a hospital is a preventable injury. With the role of the nursing industry is to help manage healthcare in society, develop a fall risk prevention program, clinical practice nursing will help avoid many risks of falling patients, thus saving save life and money. The results of this study have partially demonstrated nursing knowledge of falls prevention and can provide evidence for appropriate intervention programs in the future.

In Vietnam, in Article 4 of Circular No. 07/2011 / TT-BYT guiding nursing work in hospital care: "Ensuring safety and preventing professional and technical errors in care disease " and Article 7 of Circular No. 19/2013 / TT-BYT guiding the implementation of quality management of medical examination and treatment services at hospitals" Implement measures to ensure safety for patients and health workers "Which includes activities" preventing the patient from falling " the role of the nurse in the prevention of falls is specified. In order to prevent the patient from falling, nurses need knowledge about falling risk: The risk of falls; Assess the risk of falling; Falls Prevention and Falls Management.

Another factor related to the research subject's knowledge is working experience. However, the trend of increasing knowledge over working time is not as clear as in life. We observed that knowledge is highest in the group with 10-20 years of work experience. This is not a new finding of this study. This result has also been found in many previous studies in different fields. In theory, the more time you work, the more opportunities you have to participate in continuing training programs related to your work expertise. Another reason is the theory of "self-growth" when people have a background knowledge of a problem, this knowledge can be extended through the working process (Soedeberg, 2009). In addition, age and age are two variables with a positive linear relationship. Therefore, the seniority related to professional knowledge is completely understandable. However, as mentioned above, human knowledge at the end of adulthood tends to decrease, in addition, knowledge depends on educational attainment. This shows that people with high working age, high age and low level have lower knowledge ability than other groups. Many previous studies have shown that age is one of the factors related to human knowledge. The results of our study are no exception. Accordingly, knowledge about falls prevention tends to increase with age. Specifically, in the age group  $\leq 30$ , the knowledge rate reaches only 39.2%, but this number has increased to 62.9% in the 30-45-year-old group and the highest in the group  $> 45$  with the rate of 71, 4%. Although it is commonly assumed that experience accumulation with age leads to a greater quantity or quality of knowledge, empirical evidence from large-scale studies with representative samples of study participants. shows that there seems to be an increase in knowledge from 18 years old to around 40 or 50 years old, the dominant trend in the last years of adulthood is one of stability or decline.

Nurses' correct knowledge of falls risk assessment, our study indicated that the majority of nurses (91.2%) responded that hospitals should not develop risk assessment samples. its own suit falls. 75.9% of nurses answered that all patients using assistive devices have no gait disorder and do not need risk assessment. Thus, the number of patients at risk of falling may have been omitted from a fall risk assessment and will not be prevented from falling in the general patient care plan.

### CONCLUSION

Through surveying nurses' correct knowledge about the risk of falls (table 3.6), our research showed that 37.6% of nurses believed that there was no risk of falls for patients in the hospital. 51.8% of nurses said that patients at risk of falls are not likely to fall during their hospital stay. This may have been the cause of the poor supervision of falls prevention. The survey results, the number of correct knowledges about the risk of falling that subjects can at the same time answer in 3/6 correct answers is 33.5%, all 6 correct questions only have 10% . From the research results on knowledge and practice of falling prevention for patients of nurses at Nam Dinh General Hospital in 2020, we would like to give the following recommendations:

1. The Nursing Division in conjunction with the Quality Control Division oversees nursing staff's fall prevention implementation and studies and evaluates falls prevention practices in the hospital after training courses are held.
2. Qualitative studies are needed to better describe the nature of factors related to nursing knowledge and practice. If carrying out quantitative studies, it is necessary to build regression models to control confounding factors and interactive factors that can affect knowledge and practice of the subject.
3. Research the appropriate forms of observations so that you can accurately assess nursing practices' ability to prevent falls.

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