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Nurses' Knowledge and Practices About Fall Prevention Among Elderly Women: Impact of Socio-Demographic Characteristics

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Abstract

Background: Elderly is a natural process, which starts with intrauterine life, continues until death and is caused by irreversible degeneration of cells and systems. For older adults, falls can be especially serious, are at higher risk of falling. Also are more likely to fracture (break) a bone when fall, especially if have osteoporosis.

Aim of Study: impact of socio-demographic characteristics on nurses' knowledge and practices regarding fall prevention among elderly women.

Research design: An exploratory design Setting: Outpatient Clinics at Beni-Suef University Hospital. Sample: A cross sectional sampling composed from 100 nurses. Tool: Self-administered Questionnaire consists of 3 parts. (I): Personal characteristics of nurses, (II): Knowledge assessment sheet, (III): Nurses' practices checklist, Results: The mean age of the study sample was 35.24±1.02 years, 62.0% have good level of total knowledge about fall prevention among the elderly during hospitalization, and 61.0% are competent in fall prevention total practices. A highly statistically significant relation between total knowledge of the studied nurses about fall prevention among the elderly during hospitalization and their age, educational qualification, years of experience and training were found (p<0.05).

Conclusion: A highly statistically significant relation between total practices of the studied nurses in fall prevention among the elderly women during hospitalization and their educational qualification, years of experience and training with. As well, a statistically significant relation is found with their Age and Gender was found. Moreover, a highly significant positive correlation between the studied nurses' Total practice and Total knowledge was found. Recommendation: Encourage nurses to integrate evidence-based practices into their daily routines by staying updated with the latest research and guidelines related to fall prevention in elderly patients.

Key words: fall; nurses' knowledge; practice; older adult

1.Introduction

Population aging is an increasingly worldwide phenomenon; The World Health Organization (WHO) predicts that by 2050, the global population of elderly people, defined as those aged 65 and above, would reach 1.5 billion. Older people now account for more than 60% of the global population, resulting in a rise in hospital visits and the usage of numerous medicines [1-4]. Elderly is a natural process, which starts with intrauterine life, continues until death and is caused by irreversible degeneration of cells and systems. Elderly is not a pathological process and it consists of physiological, psychological, sociological and chronological changes [5-10]. Elderly women are more susceptible to accidents and injuries than younger ones as

a result of physiological, biological, social, internal, and external factors. Nursing care of the aged is most important. It depends on the knowledge and skills of nurses and their abilities to meet the elderly needs or give assistance in severe situations and more attention should be paid to the nurses' role in promoting, maintaining and restoring elderly women's health through decreasing accidents and their complications. So, the assessment of how many nurses are knowledgeable about the important subject of accident prevention among elderly women and the identification of any points of knowledge deficiency is necessary to spark any effort to help them offer better service to this highly vulnerable age group [11-12]. The distinguishing characteristics of old age are both physical and mental. The marks of old age

are so unlike the marks of middle age, as an individual transitions into old age, that person can be thought of as different people "time-sharing" the same identity, do not occur at the same chronological age for everyone. Also, occur at different rates and order for different people. Marks of old age can easily vary between people of the same chronological age. A basic mark of old age that affects both body and mind is "slowness of behavior". The term describes a correlation between advancing age and slowness of reaction and physical and mental task performance. However, the elderly are a happier age group than younger counterparts [13]. The phenomenon of falls is recognized globally as a major public health problem. Falling down is globally the number-one health problem, and a common problem of evaluation by healthcare professionals. A fall is defined as a "sudden, not intentional, and unexpected movement from orthostatic position, from seat to position, or from clinical position" [14]. For older adults, falls can be especially serious, are at higher risk of falling. Also are more likely to fracture (break) a bone when fall, especially if have osteoporosis. A broken bone, especially when it is in a hip, may lead to disability and a loss of independence for older adults. Falls are a threat to the health of older adults and can reduce ability to remain independent. However, falls don't have to be inevitable as age [15].

Aim Of Study

The aim of the study is to assess impact of socio-demographic characteristics on nurses' knowledge and practices regarding fall prevention among elderly women.

Research Question

Is there of relationship between socio-demographic characteristics on nurses at Beni-Suef university hospital and their knowledge and practices regarding fall prevention among elderly women?

SUBJECTS AND METHODS

Research Design

An exploratory design was used to conduct this study.

Study Settings

The study was conducted in outpatients at Beni-Suef university hospital.

Sample:

A cross sectional sample composed from 100 nurses (male and female) who were providing care for patients connected to direct patient care.

Tools of data collection:

Tool (1): Self-administered Questionnaire:

It was designed by the investigator after reviewing related literature to collect the required data. It was written in simple Arabic language, and it consists of the following parts.

Part I: Personal characteristics of nurses such as age, level of education, years of experience, and training.

Part II: Knowledge assessment sheet: it developed by the investigator after reviewing the related literature [16].

Scoring system:

The total scores of the 22 questions were 22 degree which equal 100%, each question was assigned a score according to nurses' knowledge responses were correct answer scored with 1 and incorrect answer scored with 0. The nurses' knowledge was checked with a model key answer and accordingly the nurses' knowledge was categorized into good, average and poor. These scores were summed and were converted into a percent score. It was classified into 3 categories:

- **Good** knowledge if total score 75% or more (≥12.75 score)
- **Fair** knowledge if total score from 50 to 75% (8.5-<12.75 score)
- **Poor** knowledge if total score <50% (<8.5 score).

Part III: Nurses' practices checklist: it adapted from [16-17].

Scoring system:

The total scores of 45 steps were 45 degree which equal 100%, each step scored done (1) and not done (0). These scores were summed and were converted into a percent score. It was classified into 2 categories:

- **Competent** if total score 80% or more
- **Incompetent** if total score from < 80%

Content Validity:

Validity: It was ascertained by a group of experts in Community Health Nursing (5) professor. Their opinions elicited regarding the format, layout, consistency, accuracy and relevancy of the tools.

Reliability:

Reliability analysis by measuring of internal consistency of the tool through Cronbach's Alpha test.

Items	Cronbach alpha
Knowledge assessment sheet	0.824 "good"
Nurses' practices checklist	0.819 "good"
Using more tools based on this score will start fall prevention measures	0.837 "good"

Ethical Considerations

The research approval was obtained from the ethical committee of the faculty of medicine Beni-Suef University. The investigator was clarified the objectives and aim of the study to nurses included in the study before starting. Oral consent was obtained from the nurses before included in the study; a clear and simple explanation was given according to their level of understanding.

Pilot Study

The pilot study was carried out on 10% those represent (10) of nurses in order to test the applicability of the constructed tools and the clarity of the questions. The pilot has also served to estimate the time needed for each subject to fill in the questionnaire. According to the results of the pilot, no corrections and omissions of items were performed, so the patients were included in the study sample.

Fieldwork

Data were collected through six months, from the beginning of March 2022 to the end of September 2022. The investigator firstly met with the nurses at the previously mentioned settings, explained the purpose of the study after

introducing herself. The investigator selected nurses, based on pre-mentioned inclusion and exclusion criteria. Then, individual interviewing was done after obtaining nurses consent to participate. The investigator was visiting the study setting 2days / week (Sunday and Wednesday) at (9AM -2PM). The questionnaire was filled by nurses who take 15-30 minutes. The aim and the process of the study was explained to the studied nurses and collected by using the previously mentioned tools.

Administrative Design

An official permission was obtained by submission of a formal letter issued from the Dean of faculty of nursing, Beni-Suef University to the director of hospital.

Statistical Analysis

Data collected from the studied sample was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages and Mean SD. Chi-square to assess the relations

between variables and their characteristics. A correlation coefficient "Pearson correlation" is a numerical measure of some type of correlation, meaning a statistical relationship between two variables.

Significance of the results:

Highly significant at p-value < 0.01.

Statistically significant was considered at p-value < 0.05

Non-significant at p-value ≥ 0.05

Results

Table (1) shows that the study is conducted on 100 nurses. Regarding their socio-demographic characteristics, almost half of them (48.0%) range in age from 30 to less than 45 years old with mean 35.24±1.02 years. In addition, more than three quarters of them (77.0%) are females. As well, less than half of them (43.0%) have Diploma in nursing. As regard their years of experience, almost half of them (49.0%) have from 5 to less than 10 years with mean 7.94±0.25 years. Additionally, more than half of them (57.0%) hadn't training.

Figure (1) presents the percentage distribution of the studied nurses' according to their total knowledge about fall prevention among the elderly during hospitalization. It shows that, nearly two thirds of the studied nurses (62.0%) have good level of total knowledge about fall prevention among the elderly during hospitalization. Also, more than one fifth of them (21.0%)

have average level, whilst less than one fifth of them (17.0%) have poor level.

Figure (2) portrays the percentage distribution of the studied nurses' according to their total practices for fall prevention among elderly women patients. It shows that less than two thirds of the studied nurses (61.0%) are Competent in fall prevention total practices among elderly women patients, but almost two fifth of them (39.0%) are Incompetent.

Table (2) illustrates that there is a highly statistically significant relation between total knowledge of the studied nurses about fall prevention among the elderly during hospitalization and their age, Educational qualification, Years of experience and Training with (p=0.003, p=0.005, p=0.002, p=0.008) respectively. No statistically significant relation exists with their Gender (p>0.05).

Table (3) reveals that there is a highly statistically significant relation between total practices of the studied nurses in fall prevention among the elderly women during hospitalization and their Educational qualification, Years of experience and Training with (p=0.000, p=0.002, p=0.000) respectively. As well, a statistically significant relation is found with their Age and Gender with (p=0.015, p=0.012) respectively.

Table (4) declares that there is a highly significant positive correlation between the studied nurses' Total practice and Total knowledge (p=0.001).

Personal information	N	%
Age		
21< 30	36	36.0
30 < 45	48	48.0
≥45	16	16.0
Mean ± SD 35.24± 1.02		
Gender		
Male	23	23.0
Female	77	77.0
Educational qualification		
Bachelor's degree in nursing	24	24.0
Nursing institute	33	33.0
Diploma in nursing	43	43.0
Years of experience		
3 < 5	35	35.0
5 < 10	49	49.0
≥ 10	16	16.0
Mean ± SD 7.94± 0.25		
Training about fall prevention and management		
Yes	43	43.0
No	57	57.0

Table (1): Number and percentage distribution of the studied nurses' according to their socio-demographic characteristics (n=100). 2022

Total Nurses' Knowledge about Fall Prevention among the Studied Elderly during Hospitalization

17.00%

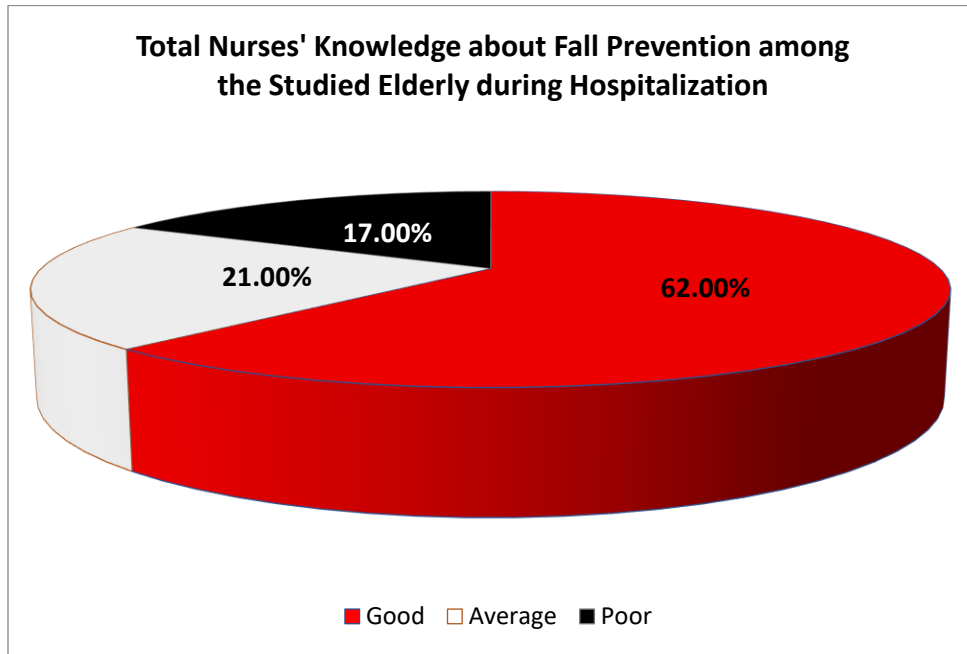21.00%

62.00%

■ Good □ Average ■ Poor

Figure (1): Percentage distribution of the studied nurses' according to their total knowledge about fall prevention among the elderly during hospitalization (n=100).
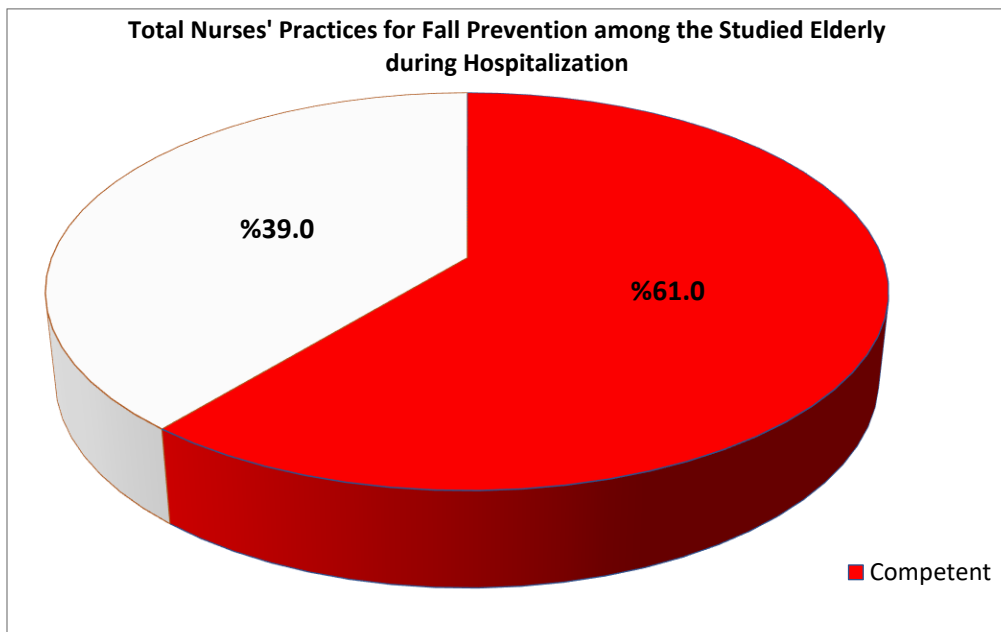
Total Nurses' Practices for Fall Prevention among the Studied Elderly during Hospitalization

%39.0

%61.0

■ Competent

Figure (2): Percentage distribution of the studied nurses' according to their total practices for fall prevention among elderly women patients (n=100).

Items		Total knowledge						X^2	P-Value
		Good N=62		Average N=21		Poor N=17			
		N	%	N	%	N	%		
Age	21< 30	8	12.9	15	71.4	13	76.5		
	30 < 45	40	64.5	5	23.8	3	17.6	11.71	.003**
	≥45	14	22.6	1	4.8	1	5.9		
Gender	Male	6	9.7	8	38.1	9	52.9	1.122	.085

	Female	56	90.3	13	61.9	8	47.1		
Educational qualification	Bachelor's degree in nursing	22	35.4	2	9.5	0	0	9.975	.005**
	Nursing institute	28	45.2	3	14.3	2	11.8		
	Diploma in nursing	12	19.4	16	76.2	15	88.2		
Years of experience	3 < 5	9	14.5	14	66.7	12	70.6	15.48	.002**
	5 < 10	37	59.7	7	33.3	5	29.4		
	≥ 10	16	25.8	0	0	0	0		
Training	Yes	39	62.9	3	14.3	1	5.9	12.29	.008**
	No	23	37.1	18	85.7	16	94.1		

*Significant at p ‹0.05.   **Highly significant at p ‹0.01.   Not significant at p>0.05

Table (2): Relationship between socio-demographic characteristics of studied nurses' and their total knowledge about fall prevention among the elderly during hospitalization (n=100).

Items		Total practice				X^2	P-Value
		Competent N=61		**Incompetent N=39**			
		N	**%**	**N**	**%**		
Age	21< 30	12	19.7	24	61.5	6.356	.015*
	30 < 45	38	62.3	10	25.6		
	≥45	11	18.0	5	12.9		
Gender	Male	19	31.1	4	10.3	4.107	.012*
	Female	42	68.9	35	89.7		
Educational qualification	Bachelor's degree in nursing	23	37.7	1	2.5	15.09	.000**
	Nursing institute	29	47.5	4	10.3		
	Diploma in nursing	9	14.8	34	87.2		
Years of experience	3 < 5	6	9.8	29	74.4	13.61	.002**
	5 < 10	42	68.9	7	17.9		
	≥ 10	13	21.3	3	7.7		
Training	Yes	40	65.6	3	7.7	16.22	.000**
	No	21	34.4	36	92.3		

*Significant at p ‹0.05.   **Highly significant at p ‹0.01.   Not significant at p>0.05

Table (3): Relationship between socio-demographic characteristics of studied nurses' and their total practices in fall prevention among elderly women patients (n=100).

		Total practice
Total knowledge	R	.625
	P	.001**

(**) Statistically significant at p<0.01.   r Pearson correlation

Table (4): Correlation between the studied variable (n=100).

Discussion

Aging is a gradual, continuous process of natural change that begins in early adulthood. During early middle age, many bodily functions begin to gradually decline. Common conditions in older age include hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression and dementia. As people age, they are more likely to experience several conditions at the same time [18-24]. Elderly is a natural process, which starts with intrauterine life, continues until death and is caused by irreversible degeneration of cells and systems. Elderly is not a pathological process and it consists of physiological, psychological, sociological and chronological changes [25-29]. The present study aimed to assess impact of socio-demographic characteristics on nurses' knowledge and practices regarding fall prevention among elderly women at Beni-Suef University Hospital. A distinction can be made between "proximal ageing" (age-based effects that come about because of factors in the recent past) and "distal ageing" (age-based differences that can be traced to a cause in a person's early life, such as childhood poliomyelitis). Skin changes with age. But it's important to remember that earned any wrinkles over a lifetime of smiling, laughing, and frowning. Plus, a great deal of research is devoted to studying the science of aging skin [30]. The present study illustrated that there is a highly statistically significant relation between total knowledge of the studied nurses about fall prevention among the elderly during hospitalization and their age, educational qualification, years of experience and training. No statistically significant relation exists with their gender. This finding might be due to most of the studied nurses were females. This finding agreed with study by **Bhardwaj & Chugh, (2021)** who conducted study about " Effectiveness of fall prevention program on nurses' knowledge and fall prevention practices" and showed that no association between knowledge about fall and their gender [31]. Conversely, this finding disagreed with study by **Cho, & Jang, (2020)** who conducted study about " nurses' knowledge, attitude, and fall prevention practices at south Korean

hospitals" and reported that there no statistically significant relation exists between total knowledge among studied nurses and with their age, educational qualification, years of experience and training [32]. As regards to Relationship between socio-demographic characteristics of studied nurses' and their total practices in fall prevention among elderly women patients, the result of current study revealed that there is a highly statistically significant relation between total practices of the studied nurses about fall prevention among the elderly women during hospitalization and their educational qualification, years of experience and training. These results may be due to Nurses with higher education levels often receive more in-depth training in clinical skills, assessment techniques, and evidence-based practices. This equips them with a broader range of skills to handle complex medical situations effectively. As well, a statistically significant relation is found with their age and gender. this finding in same line with study by **Kim, & Seo, (2017)** who conducted study about " Geriatric hospital nurses' knowledge, attitude toward falls, and fall prevention activities" and reported that there is a statistically significant relation between total practices of the studied nurses about fall prevention among the elderly and their age, gender , educational qualification, years of experience and training [33]. The present study declared that there is a highly significant positive correlation between the studied nurses' Total practice and Total knowledge. From investigator point view, these results may be attributed to the with increased level of knowledge that leads to a more comprehensive understanding for the nurses about fall, its risks and the importance of maintaining patients safety which impacted their behavior patterns and positively affected their practice. This outcome matched with study by **Han et al., (2020)** who illustrated that there was a strong positive association between total knowledge toward falls and Total practice [34]. Also, this finding supported with study by **King et al. (2018)** entitled "Impact of fall prevention on nurses and care of fall risk patients" and showed that same result [35].

Conclusion:

A highly statistically significant relation between total practices of the studied nurses in fall prevention among the elderly women during hospitalization and their educational qualification, years of experience and training with. As well, a statistically significant relation is found with their Age and Gender was found. Moreover, a highly significant positive correlation between the studied nurses' Total practice and Total knowledge was found.

Recommendation

1. Encourage nurses to integrate evidence-based practices into their daily routines by staying updated with the latest research and guidelines related to fall prevention in elderly patients.
2. Organize skill enhancement workshops and hands-on training sessions that provide practical experience in assessing fall risk, implementing preventive measures, and responding to fall incidents effectively.

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