

# Fall Prevention Interventions: Tailored Approach versus Routine Interventions among Elderly Hospitalized Patients

Mona Mohamed Mayhob<sup>1,\*</sup>, Manal AbdelSalam Amin<sup>2</sup>

<sup>1</sup>Associate Professor Adult Health Nursing, Faculty of Nursing – British University in Egypt, Egypt

<sup>2</sup>Manal AbdelSalam Amin, Fellow Nurse, PhD Community Health Nursing, Egypt

\*Corresponding author: [mona.myhob@bue.edu.eg](mailto:mona.myhob@bue.edu.eg)

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**Abstract** Falls are the most common cause of preventable injury. Being hospitalized puts patients at further risk for falls due to illness and the newness of the hospital environment. Unfamiliar surroundings, medications and treatments are considered the main reasons of falls that happened in the hospital setting. Literatures stated that, several strategies could be implemented to prevent fall, one of these strategies is Tailored Intervention Patient Safety (TIPS), which is known as a novel, evidence based program that is becoming a standard for engaging patients and families in the process of fall prevention. **This study aimed** to compare between tailored approach and routine interventions for fall prevention among hospitalized elderly patients. **Method:** A quasi-experimental design was used to conduct this study in medical wards. A purposeful sampling technique was utilized in this study. The number of participants was 108, 54 in each the study group and the control group. **Data collection tools:** Two tools were used in the current study: First tool was divided into two parts: First part, patient's demographic data assessment; second part, Morse Risk Assessment Scale for fall; Second tool was used to assess implementing TIPS and routine interventions for fall prevention. **Results:** Revealed that those participants who were provided routine interventions to prevent fall have liability to fall 1.3 times in comparison to those participants who were provided tailored approach. **Conclusion:** This study concluded that, using tailored approach as patient-centered approach to reduce falls showed promising results. **Recommendation:** This study recommended using TIPS tailored approach for fall prevention, as it is considered as one of the successful novel strategies that helped to reduce fall rate among elderly hospitalized patients.

**Keywords:** tailored, intervention, fall, elderly patient

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## 1. Introduction

A fall is defined as an "involuntary event causing an individual to lose her/his balance and precipitate to the ground or any other firm surface which stops her/him. Fall is commonly happened among elderly hospitalized patients. The prevalence of in-hospital falls varies depending on hospital's characteristics and types of inpatients.

Fall injuries varied between contusions, scratches and ecchymosis to fractures, hemorrhage, and post-fall syndrome among patients, increasing morbidity and compromising recovery, length of in-hospital stay as well as in-hospital costs, and in worst-case scenarios increases mortality rate among elderly patients [1,2,3,4,5].

Patient fall could result from several risk factors that increase the possibility of it. These risk factors can be categorized as extrinsic (external to the individual) and

intrinsic (within the individual). External factors could be related to a number of unsafe conditions in the environment surrounding the patient, such as floor surface, chairs and toilets, low side rails of beds, lighting, bathroom handrails, assistive devices, wheelchairs, and footwear. With regard to intrinsic factors, these include age-related physiologic factors, muscular system related factors, nervous system related factors and affection in patient's vision, so either extrinsic or intrinsic factors will place patients at the greatest risk for falls [4,6,7,8,9].

Patient safety is a main dimension of healthcare quality, considering minimizing, reporting, and analyzing incidents that often lead to avoidable adverse effects. Patient fall is found among elderly hospitalized patients a common challenge. Patient fall has become a new focus of attention in most of the hospitals, not only because of its consequences on the patients and their families, but also for the institutional outcomes, going from medical to economical and legal issues in addition to increasing of the cost. Therefore, in the International Patient Safety

Goals as specified in goal 6: "Reduce the risk of patient harm resulting from falls", hence it is a priority for each health institution to have a fall prevention interventions in order to maintain patient safety [4,10,11,12].

With regard to fall prevention interventions, researches stated that, there are significant efforts and innovative approaches for all preventions that are critically needed. Innovative preventive interventions of fall must be individualized and multidimensional, involving all health team members specially nurses, the environment, and the elderly patients. Evidence based researches proved that, there is good evidence that patient fall could be prevented through utilizing effective preventive interventions. Implementing fall prevention interventions that respond to the specific needs of each elderly patient is considered a major challenge that requires the active engagement of multiple disciplines and health team members who are involved in caring for elderly patients [13,14,15].

Interventions of preventing fall among elderly patients are numerous. Several actions are necessary in order to implement these interventions concerning hospital infrastructure, needs of each patient, preparation of patients for example by using identification bracelets that indicate that patients are at risk for fall and setup for their environment and a fall prevention sign should be placed in every patient's room [4]. Fall of hospitalized elderly patients remain a frequent and debilitating problem worldwide. Most hospitals have targeted clinician education, environmental modifications, assistive devices, hospital systems and medication reviews to prevent patients' falls. In addition to significant role that could be done by the patients and their families who to prevent fall [16].

As regards routine fall prevention interventions, several literatures stated that, interventions could be implemented for all the elderly hospitalized patients whatever the patient's risk factor for fall and because patient and staff education have a fundamental part of fall prevention, patients' education could be done by training them how to use different assistive devices, patients should be advised to use footwear that would minimize the risk of a fall. As well, staff education could be done by using video-based educational material; follow-up by a healthcare professional, especially nurses, who significantly influence the success of patient fall prevention strategies. Another action that could be done as routine intervention is asking patient to perform exercises which are done through progressive resistance and functional training that are considered as safe and effective methods of improving the strength and muscular activity and minimizing fall related behavioral and emotional limitations in elderly patients [10,17,18].

Further actions could be done to prevent patient fall is to diagnose and treat predisposing medical conditions, the ability of elderly patient to move and walk safely depends largely on the coordination of motor and sensory functions, such as the vision, vestibular balance, and musculoskeletal functions. Therefore, it is important, as a long-term plan of preventing fall among elderly hospitalized patients, to diagnose and treat medical conditions that might affect this kind of balance and increase the incidence of fall [10]. Furthermore, some other actions could be done for enhancing the surrounding environment for elderly

hospitalized patients to make it free from obstacles, careful consideration should be taken for several issues as keeping bed side rails elevated, handholds should be within easy access, and all these preventive interventions might have significant effect on reduction of fall as well as injuries [10,17].

Several researches suggest one significant fall preventive intervention that is called Tailoring Interventions for Patient Safety (TIPS). It is the first patient centered and clinical decision-supported fall prevention. The TIPS is used in order to prevent falls by outlining an individualized fall prevention plan of care for each patient on a poster at the patient's bedside, to serve as a reminder for the patient's fall risks and fall prevention interventions. Fall TIPS becomes a standard for engaging patients and families, which is done in three-steps as follows: Step one; fall risk screening that should be done at every patient admission and with each status change. Step two; after completing the fall risk screening, the nurse should collaborate with the patient and family to develop a personalized plan that addresses each identified risk factor. As there is a common mistake is prescribing preventive interventions for fall based on a patient's level of fall risk (low, medium, or high), rather than tailoring interventions based on patient-specific risk factors, for example, patients who are at risk for falls because of a gait disturbance require different interventions than patients who have a cognitive impairment. Step three; carrying out fall TIPS plan consistently to prevent patient fall which requires addressing patient-specific areas of risk to fall [19,20,21,22].

## 1.1. Significance of the Study

Fall is the most frequently reported incident among hospitalized elderly patients. Injuries resulting from fall are the main causes that have a significant impact on patients' pain and suffering, as well as loss of their independence, constituting an important source of morbidity and mortality. Fall imposes a significant social and economic burden for individuals, their families, health services and the economy [5,23]. Fall among elderly hospitalized patients can cause trauma and fractures, which can reduce activities of daily living (ADL) and quality of life (QOL), while prevention of fall decreases medical expenses as well decrease psychological, physical and financial burdens on the patients and their families [14,17,24]. Therefore, the researchers adopted several interventions to prevent patient fall such as; Tailored Interventions for Patient Safety (TIPS) which is a patient-centered approach that is aiming at reduction of falls and related injuries among elderly hospitalized patients [19]. Consequently, the researchers in the current study found that it is crucial to conduct this study to highlight on the effect of fall TIPS preventing approach among hospitalized elderly patients in comparison to routine interventions to prevent patient fall.

## 1.2. Aim of the Study

Aim of this study was to compare between effect of tailored approach and routine interventions for fall prevention among hospitalized elderly patients.

### 1.3. Research Hypothesis

This study hypothesizes that; the hospitalized elderly patients who will receive tailored approach will show reduce falls in comparison to those patients who will receive routine approach.

## 2. Methodology

### 2.1. Study Design

A quasi-experimental study design was utilized to conduct this study.

### 2.2. Setting of the Study

This study was conducted in different medical wards in one of the governmental hospitals. The study started from the beginning of March 2021 to end of October 2021.

### 2.3. Sample of the Study

A purposeful sampling technique was used in this study. The total number of participants was 108, 54 per each study group and control group.

### 2.4. Inclusion/Exclusion Criteria

Elderly adult patients their age 65 years and above, have been recently hospitalized for at least 24 hours, they can read and write, with different educational levels, both gender, with minimum hospital stay of seven days in the hospital, and the patients should be alert, and oriented to time, place and persons. With regard to exclusion criteria; patients who had dementia or delirium or any cognitive dysfunction were excluded from the study.

### 2.5. Data Collection Tools

Data were collected by using two tools; **First Tool**; it consisted of two parts: **Part one**; it was used to assess **Patient's Demographic Data** such as; gender, age, educational levels, and medical diagnosis that lead to hospital admission. **Part two; Fall Risk Assessment Scale Tool**, it was adopted from *Morse* [25], that was used to assess risk for fall among elderly patients. This tool contains 6 items that asked about history of fall, secondary diagnosis, using ambulatory aid, IV/heparin lock, gait transferring, and mental status.

**Scoring system** of risk assessment tool for fall was done as follows: 1) History of Falling – if there is a previous fall history recorded during the present hospital stay or if there is a history of falling prior to admission, the respondent will get score “25”, if not will get score “0”. 2) Secondary diagnosis – if the respondent has more than one medical diagnosis will get score “15”, if not will get score “0”. - 3) Ambulatory Aids – if the respondent ambulates without using an aid (even if assisted by a nurse) or is on bed rest or up in wheelchair will get score “0”, if the respondent is using crutches, a cane or walker for ambulation, will get score “15”, if the respondent ambulates holding on the furniture for support and balance

will get score “30”. 4) Intravenous Therapy/Injection Lock – if the respondent has an intravenous infusion or an injection lock will get score “20”, if not will get score “0”. 5) Gait/Transferring – if the respondent's gait is normal and characterized by walking with the head erect, arms swinging freely at the side and striding unhesitant will get score “0”. If the gait is weak as evidenced by a stooped stance, requiring support from furniture (feather weight touch), steps are short and the patient may shuffle will get score “10”. If the respondent has an impairment gait as evidenced by having difficulty rising from the chair and/or cannot walk without assistance, will get score “20”. 6) Mental Status– if the respondent is oriented to own ability will get score “0”. Measure the patient's self-assessment of her/his mobility, if the patient's assessment is consistent with her/his safe and/or ordered mobility, will get score “0”. If the patient's assessment of her/his mobility is unrealistic will get score “15” since she/he is then considered “forgetful of her/his limitations.

Categories of risk for fall are classified as follow; if the total score is allocated between 0-24 this means that the patient has no risk to fall, if the total score is allocated between 25-50 this means that the patient will be at low risk to fall, and if the total score is 51 and above, this means that the patient will be at high risk to fall, therefore, it is a must to implement fall preventive interventions.

**Second Tool: Nurse's Implementation Checklist for Fall Prevention Assessment Tool**; this tool was adopted from [26], it was used to assess implementing of key interventions by the nurses for TIPS approach and routing interventions to prevent fall among patients in the study and control groups. It included the following items; reporting in case of patient falls, collection and analysis of fall rates, and monitoring fall rates every shift regularly, number of patients who are screened, number of patients who are assessed for fall risk within 24 hours of admission, addressing every deficit on fall risk assessment, implementation of policies and procedure for fall prevention, follow up medications for patient at high risk for fall, analyze the cause of the incident (fall), and availability of warning signs beside the patient's bed. All the above interventions were implemented through; fall TIPS approach for the study group and routine interventions for the control group to prevent fall.

**Scoring system** of this tool was done as follows; if the item is done the respondent will get score “2”, and if the respondent did not receive any intervention of those steps will get score “1”, and the results were summed up to know the percentage of implementing fall prevention interventions.

### 2.6. Validity and Reliability

They are the main components to assess the quality of data collection tools. Validity was done to assess to which degree the tools will measure what is proposed to be measured. Meanwhile, the reliability was done to identify the accuracy of the obtained data in research study, it was assessed by using Cronbach's alpha test, and its values were as follows; Morse Scale = 0.98 and Implementing Checklist = 0.90. With regard to this study, validity of the tools was tested by 3 Professors from Medical Surgical Nursing, as they ensured that the tools are assessing all

components of the study that respond to the study hypothesis and achieve its aim. Moreover, the assessors ensured that the translated version is accurately reflecting its meaning.

## 2.7. Ethical Considerations

Approval of the Research Committee in the University was obtained to conduct this study. As well approval from the hospital was obtained after explaining its aim, implementation plan, and the policy of maintaining the participants' rights and confidently throughout the study. Based on the hospital administration request the hospital name is kept. The researchers informed the participants that, they had the right to withdraw from the study at any time without giving any reason and without any harmful effect on them. In addition, the researchers informed them that, the data collection tools were anonymously designed. After all these clarifications, the researchers obtained a written consent form from each participant that proves that she/he was willing to participate in the study. The researchers declared that there is no harmful effect on the study group participants.

## 2.8. Procedure of Data Collection

The current study was carried out over 8 months through two phases as follows: In the first phase; the pilot study was done on 10% of the participants in the study group to know how the process of data collection will be done and to ensure that the implementation of the study tools was accurately working. The results of pilot study revealed that, the data collection tools needed some wording modifications and reordering of their contents to be understood. The tools were modified accordingly and patients who participated in the pilot study were excluded from the main study sample.

The researchers started the implementation process of the study as follows; in the first phase they selected the study sample from the departments that have patients who met the inclusion and exclusion criteria and the total participants were 108, divided equally into two groups (54 each) as follows; even numbers were allocated in the study group and odd numbers were allocated in the control group. Then, in the second phase, the researchers did baseline assessment for the participants in both groups to identify demographic data of them, and to detect their risk factors that may lead to fall.

The researchers explained to the patients who agreed to participate in this study, as well as their supported family members, and the assigned nurses the aim of the study, data collection tools specially to the study group who will receive fall TIPS approach through using fall TIPS poster to let them know how the poster will be used, and how each image in the poster will refer to specific risk factor that might lead to fall. According to determination of the risk factors for each patient, the interventions will be provided by the researchers. In addition to this, the researchers distributed an Arabic version from TIPS illustrated poster to the patients and their supportive family members. With regard to the control group, the researchers informed the assigned nurses on this group to

make sure from providing routine interventions for the patients who have risk for fall whatever the nature of risk factors and this happened according to the hospital policy.

After completing explanation the researchers showed the readiness to the possibility of repeating it again upon the patients or supportive family members request to reinforce any action as necessary. Then, the researchers agreed that, one of them will attend in the morning shifts and the other will attend in the afternoon shifts during the process of data collection in order to be available for filling in data collection tools for the newly admitted patients, while the assigned nurses will observe the patients during night shifts, and the researchers informed the nurses and patients' family members by this arrangement. Meanwhile, for the control group, the researchers checked with the assigned nurses if they are fully aware by the routine interventions for fall prevention to make sure that they will implement routine interventions completely for those patients.

Accordingly, the researchers documented all obtained findings during their attendance and the one that obtained from in charge nurses during night shifts, as well as if there is any fall case, it would be recorded. After that, the researchers prepared discharge plan and handed out a laminated copy from the poster to every patient's family member in order to keep her/him reminded by the fall TIPS interventions that should be done at home according to the patient fall risk factors.

## 2.9. Statistical Analysis

Data were recorded into a database and analyzed with the statistical program Statistical Package for Social Science (SPSS), version 20.0. A quasi-experimental research design was performed by assessing the variables related to the total sample and the selected groups (study & control). The effect of fall TIPS approach and routine interventions were assessed, concerning the studied variables. The categorical variables were presented in frequencies, percentages, and standard deviations (SD) as well as bar charts and to assess fall rates between the study and control groups in relation to implementing TIPS approach and routine interventions to prevent patient's falls.

## 3. Results

Table 1 shows that 44.4% and 50% of the study and the control groups their age ranged between 65 and < 70 years, with a mean age of  $67.5 \pm 3.64$  and  $67.8 \pm 4.62$  respectively. Regarding educational levels of the participants in the study and control groups, the same table presents that, 50% and 44.4% of them respectively can only read and write. With regard to diagnosis of the participants in the study and the control groups 40.7% and 31.5% of them respectively were admitted with cardiac diseases.

Regarding risk factors of fall Figure 1 shows that, 48.1%, 48.1%, 38.9%, and 42.6% of the participants in the study group their risk factors that might lead to fall were using ambulatory aid, imbalance body gait/transferring, forget physical limitation, and have history of fall

respectively. The least of risk factors that might lead to fall was connected with IV line representing 25.9%.

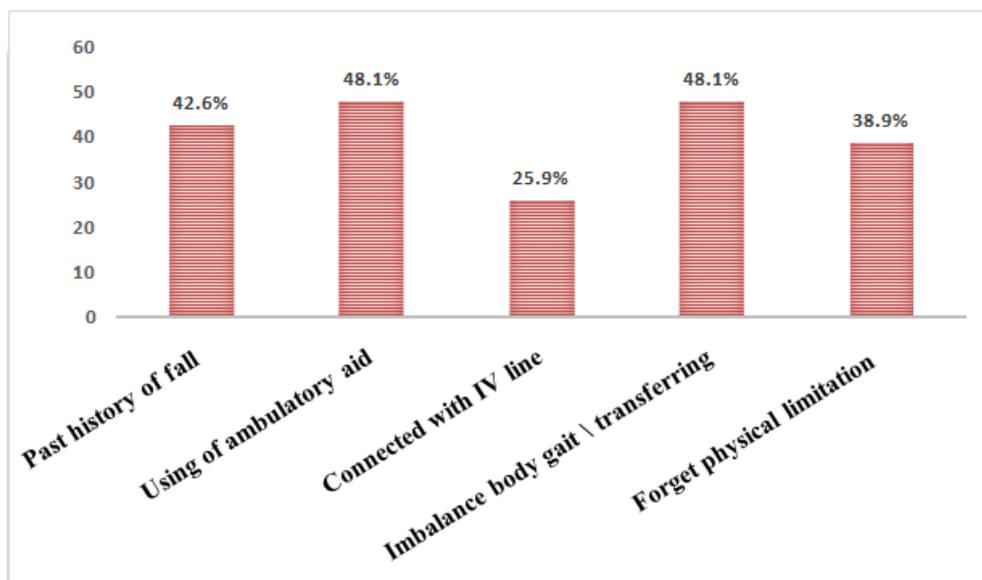
Table 2 reports that 94% and 90.7% of the key actions for fall prevention that were provided by TIPS approach, and routine interventions respectively were done by the nurses for both groups during unavailability of the researchers especially during night shifts.

The bar chart in Figure 2 illustrates that 31.4% and 40.7% of the study and the control groups respectively showed incidence of fall while implementing TIPS approach and routine interventions during patients' hospitalization.

Table 3 reveals that, 68.5% of the participants in the study group did not fall during implementing TIPS approach that is done based on their risk factors. Meanwhile, 59% of the participants in the control group did not fall after implementing routine interventions to prevent patients fall without considering patient's risk factors. In addition, the same table stated that, those participants who were provided by the routine interventions to prevent fall have liability to fall 1.3 times in comparison to those participants who were provided by the TIPS approach to prevent fall.

**Table 1. Frequency & Percentage Distribution of Demographic Characteristics of the Study and the Control Groups (n = 108)**

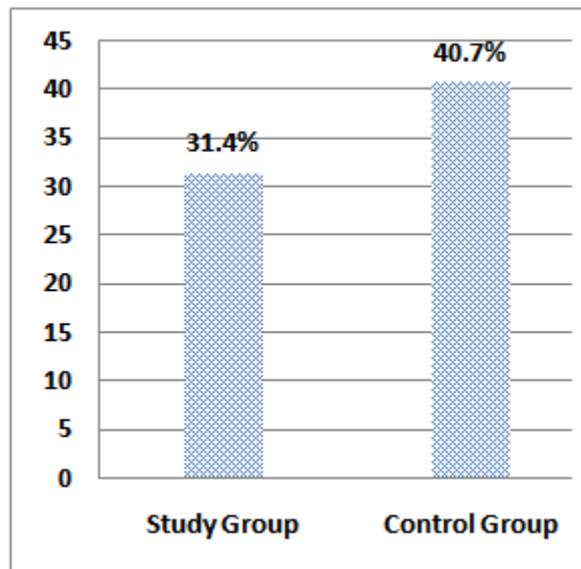
Items	Study group (n=54)		Control group (n=54)	
	No.	%	No.	%
<b>Gender</b>				
Male	25	46.3	27	50.0
Female	29	53.7	27	50.0
<b>Age (in years)</b>				
60 - < 65	19	35.2	16	29.7
65 - < 70	24	44.4	27	50.0
70 - ≤ 75	10	18.5	9	16.6
76 +	1	1.9	2	3.7
<b>Mean and standard deviation of age (in years)</b>	$\bar{x} \pm SD$ 67.5 ± 3.64		$\bar{x} \pm SD$ 67.8 ± 4.62	
<b>Educational levels</b>				
Illiterate	11	20.4	13	24.1
Can read and write	27	50.0	24	44.4
Intermediate	13	24.1	15	27.8
Higher	3	5.6	2	3.7
<b>Diagnosis</b>				
Cardiac diseases.	22	40.7	17	31.5
CNS diseases.	12	22.2	12	22.2
Endocrine diseases.	10	18.5	13	24.1
Hepatic diseases.	3	5.5	3	5.6
Renal diseases.	4	7.4	4	7.4
GIT diseases.	3	5.5	2	3.7
Dermatological diseases	0	0	3	5.6



**Figure 1. Fall Risk Factors among All Participants in the Study Group**

**Table 2. Key Actions Provided to Prevent Patient Fall in the Study and Control Groups (n=108)**

No.	Items	TIPS interventions n=54		Routine interventions n=54	
		No.	%	No.	%
<b>Key Actions for fall prevention</b>					
1	All patients screened on admission	49	90.7	46	85.2
2	All inpatient screened	49	90.7	52	96.3
3	All patients are assessed for fall risk within 24 hours of admission	53	98.1	50	92.6
4	Development and implementation of care plan addressing every deficit on fall risk assessment.	50	92.6	46	85.2
5	Warning signs are available.	53	98.1	53	98.1
6	Analyze the cause of the incident (fall)	50	92.6	47	87
7	Policies and procedure for fall prevention is done completely.	50	92.6	47	87
8	Implement policy for follow up according to patient's risk factors	54	100	51	94.4
9	Training of the nurses according to the needs.	53	98.1	54	100
<b>Total</b>		<b>51</b>	<b>94</b>	<b>49</b>	<b>90.7</b>



**Figure 2.** Incidence of Fall among the Participants in the Study Group Who Adopted TIPS Approach and the Control Group Who Adopted Routine Interventions

**Table 3. Relative Risk of Fall after Applying TIPS Approach & Routine Interventions among the Participants in the Study and Control Groups (n= 54 each group)**

Items	Fall out of		Did not fall		Total
	No.	%	No.	%	
Participants followed TIPS Interventions (Study group)	17*	31	37	68.5	54
Participants followed Routine Interventions (Control group)	22**	40	32	59	54
Total	39		69		108
***Relative Risk (RR) for fall in the study group = 17/22 = 0.7					
***Relative Risk (RR) for fall in the control group = 22/17 = 1.3					

\*Incidence of fall among those who followed TIPS Approach = 17

No of fall × 100/total who followed TIPS Approach.

\*\*Incidence of fall among those who did not follow TIPS Approach = 22

No of fall × 100/total who did not follow the program.

\*\*\*RR less than 1 which indicates that the program was effective.

### 4. Discussion

Patients’ falls remain a frequent and debilitating health problem worldwide. Most of the hospitals targeted fall prevention strategies to prevent patient fall. One of a novel, evidence-based program that became a standard strategy for engaging patients and their families in fall prevention is Tailored Intervention Patient Safety (TIPS) approach.

In the current study, around fifty percent of the studied sample in the study and control groups was female. With regard to the age in both the study and control groups the participants’ mean age were 67.5 ± 3.64 and 67.8 ± 4.62. Meanwhile, the current study findings reported that fifty percent in the study group can read and write, and more than two fifths of the control group has the same educational level. Concerning the patient’s diagnosis on admission, this study results stated that, slightly more than two fifths of the study group and less than one third of the control group were admitted to the hospital with cardiac diseases.

The current study results reported that, approximately half of the participants in the study group their risk factors for fall were as follows; using ambulatory aid, and had imbalance body gait/ transferring, while forget physical limitation represented almost two fifths. This may be attributed to the above mentioned risk factors which are the most common risk factors for falls among the study

sample because all of them are older adults and usually their medical conditions have these characteristics especially if they are hospitalized. This finding is supported by those of [27,28] who stated that, use of assistive devices, muscle weakness, gait and balance impairments, all these are identified as the common risk factors for falls among elder people. Furthermore, some patients’ health conditions as those with cardiac diseases, who are receiving cardiac medications, which are considered as a leading cause for fall because they might cause or worsen orthostatic hypotension, which might contribute to patient’s fall.

The present study results revealed that, less than one third of the participants in the study group who were provided by TIPS approach for fall prevention showed incidence of fall during their hospitalization which is considered low rate of fall. This might be due to that the participants in the study group were taught about significant consequences that could result from fall and because TIPS is a new approach and when the patients in the study group were informed by this approach, they became enthusiastic and followed the instructions of this approach appropriately. In addition to all these because TIPS approach is designed to focus on specific risk factors of falls, therefore this might be an effective way to limit incidence of falls. This finding is supported by [19,20] who reported that, TIPS approach provides a unique

opportunity to reduce falls among the patients at risk for fall.

In addition, TIPS is a novel's patient-centered approach and clinical decision-supported that has significant effect that leads to fewer falls and related injuries among elderly hospitalized patients. As well, this finding is supported by [29] who stated that; incidence of fall among elder patients could be controlled through using individually tailored measures.

The current study results stated that, slightly more than two fifth of the participants, in the control group who were provided by routine interventions for fall prevention, showed incidence of falls during their hospitalization which is relatively considered high incidence of fall rate. This might be due to that the participants in the control group were not informed by any instructions related to fall prevention, and the nurses just provided the routine interventions for them. This finding is in the same line with that of [29] who clarified that, the routine interventions for fall prevention that might be implemented for patients having risk to fall had no significant effect regarding fall prevention.

The present study findings indicated that, those participants who are provided by the TIPS approach has liability to falls less one time, while those who are provided by the routine interventions have liability to fall 1.3 times. This might be attributed that he TIPS approach is focusing on the specific risk factors for falls and not providing general interventions for fall prevention. In addition, because it is a novel approach and when the patients were informed about it, they became more committed into this new approach hoping for better health outcomes, as well as the patients became more oriented by the precautions that should be taken for fall prevention according to her/his fall risk factors.

This previous study finding is supported by [20,30] who reported that TIPS approach is tailored and developed based on the patient's needs or risk factors and its implementation showed noticeable effect that led to overall reduction falls rate and fall related injuries. Moreover, tailored education is usually received positively by older adults and resulted in increased engagement in falls' prevention strategies as falls' prevention programs that included a patient education component resulted in reducing rate of falls. As well, this finding is supported by [31] who reported that innovative individualized falls' prevention strategies have an effect on decreasing fall rates over time.

## 5. Conclusion

Based on the results of the current study, fall rates continue to be a struggle among hospitalized elderly patients. This study concluded that, fall prevention through using TIPS approach, revealed noticeable effect in reducing falls. In addition, the results of this study indicated that, the liability to fall among those patients who were provided by TIPS approach was less than those who were provided by routine interventions. Thus, it can be concluded that the falls' TIPS approach is useful and effective in the reduction of fall among elderly hospitalized patients.

## 6. Recommendations

In the light of the findings of the current study, it is recommended to use TIPS approach for fall prevention, as it is considered as one of the successful novel strategy that helps to reduce fall rate among elderly hospitalized patients.

## 7. Limitations

This study presented some limitations as follows; there was a difficulty of evaluating whether the patient, family members, or the nurses in the time of unavailability of the researchers implement TIPS approach appropriately or not. In addition, implementation of TIPS was done only in medical wards which may limit generalization of the results. This study needs to be repeated on a wider scale to include all departments with a larger sample of patients.

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