

Effect of Nursing Guideline on Performance of Nurses regarding Prevention of Patients' Fall in Intensive Care Units

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Abstract: Falls are the most common adverse event among intensive care units patients, directly contributing to human pain and distress and increased health care costs. Complications associated with falls among ICUs patients can result in death, disability, psychological distress, and increased hospital length of stay. Yet, falls continue to be a serious safety threat, especially for acutely ill, hospitalized patients. Aim: the aim of this study is to evaluate the effect of nurses' guideline on performance of nurses regarding prevention of patients' fall in intensive care units. Study design: a quasi experimental study; Subject: all available nurses caring for patients were recruited from neurological intensive care units and medicine intensive care units at Ain Shams University Hospital. Tool: consisted of self administered questionnaire and nurses practice observational checklist applied in 3 phases (pre, immediate & post 3 months). The results: of this study showed that 60% of nurses had unsatisfactory level of knowledge and 56% of them had unsatisfactory level of practice pre implementation of nursing guidelines which improved significantly post implementing the nursing guideline. This study concluded that two third of nurses had inadequate knowledge and about more than half of them had unsatisfactory level of practice regarding prevention of fall in intensive care units pre implementation of the guideline. Moreover, nursing guideline had statistically significant positive effect on nurses' performance (knowledge & practice) regarding prevention of fall in intensive care units three months after implementing it. Recommendation the importance of conducting periodic in-service training advanced care programs for nurses in intensive care units for improving their performance and quality of care provided to such group of patients.

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I. Introduction:

Patient falls are the most common adverse event in intensive care unit, resulting in devastating physical, psychological and financial consequences, and are, without a doubt, one of the biggest risks of hospital care and result in severe complications. Therefore the emphasis on falls assessment and prevention is a key priority. (Richardson & Carter, 2015)

Fall-related injuries are the most common cause of accidental death in those over the age of 65, resulting in approximately 41 fall-related deaths per 100,000 people per year (Leanne, 2007). Injuries are reported to occur in approximately 6 to 44 percent of acute inpatient falls. Serious injuries from falls, such as head injuries or fractures, occur less frequently, 2 to 8 percent, but result in approximately 90,000 serious injuries across the United States each year. In general, injury and mortality rates rise dramatically for both males and females across the races after the age of 85, but males older than 65 are more likely to die from a fall than females. (Kristen et.al, 2010)

Inpatient falls can be classified into three categories: accidental falls (derived from extrinsic factors, such as environmental considerations), anticipated physiologic falls (derived from intrinsic physiologic factors, such as confusion), and unanticipated physiologic falls (derived from unexpected intrinsic events, such as a new onset syncopal event or a major intrinsic event such as stroke). Morse asserts that using this classification, approximately 78 percent of the falls related to anticipated physiologic events can be identified early, and safety measures can be applied to prevent the fall. (Kumar & Thomas, 2015)

Ensuring that each risk factor is adequately addressed is important when it comes to preventing falls; this includes environmental causes along with personal and medical. Just like in the home, a hospital or care facility has its share of hazards that can cause a risk of falls to our patients. The best way to prevent falls is by removing those environmental factors that pose a risk as inappropriate use of cot side or side rails, equipment clutter, wet floors, nurse call buttons out of patient reach or the use of faulty equipment (Austin, 2017)

Nurses has an important role in preventing falls as she is the first one who able to recognize patients' risk, treat patients who have fallen, and implement successful falls prevention programs and to put an effective falls prevention strategy in place. Nurse must use an assessment tool to establish which of patients are at risk

this should be used on admission, on transfer, following a change in status, and if a long-term inpatient at frequent and regular risk for fall. Common components of a falls risk assessment tool should include: medical diagnosis, pre-existing medical conditions, medication, history of falls, gait and transfer ability, ambulatory aids needed, and mental capacity. (Melissa, Miriam & Amália, 2014)

Universal fall precautions are the cornerstone of any hospital fall prevention program, because they apply to all patients at all times. Implementing universal fall precautions requires training all hospital staff who interact with patients, regardless of whether they are clinicians. It revolves around keeping the patient's environment safe and comfortable. Although the choice of which precautions to emphasize may vary by hospital, but it usually emphasize on maintain call light within reach, place the hospital bed in low position when a patient is resting in bed; raise bed to a comfortable height when the patient is transferring out of bed, keep hospital bed brakes locked, keep wheelchair wheel locks in "locked" position when stationary, keep nonslip, comfortable, well-fitting footwear on the patient, use night lights or supplemental lighting, keep floor surfaces clean and dry, clean up all spills promptly, keep patient care areas uncluttered, and follow safe patient handling practices (Institute for Clinical Systems Improvement,2010)

II. Aim

The aim of this study is to evaluate the effect of nurses' guideline on performance of nurses regarding prevention of patients' fall in intensive care units through assessing:

- Nurses' level of knowledge regarding prevention of patients' fall in intensive care.
- Nurses' level of practice regarding prevention of patients' fall in intensive care.
- Developing nursing guideline and evaluate its effect on nurses' performance.

III. Research hypotheses

In order to achieve the aim of this study, it was hypothesized that, the implementation of the fall prevention nurses guideline will lead to significant positive improvement in knowledge, and practice of nurses regarding patients' fall prevention in intensive care units consequently lead to improving nurses' performance.

IV. Material & Methods

Study design: a quasi experimental study

Subject: A purposive subject of seventy six (76) registered nurses in intensive care units was recruited from the neurological intensive care units and medicine intensive care units at Ain Shams University Hospital.

Tools: applied (pre, immediate & post 3 months later guideline implementation): first tool were developed by the researcher to collect the data for this study, it was derived from reviewing literatures (Meade, Bursell, & Ketelsen, 2006), (Koh, 2009), (Cox, Thomas, Pajarillo, 2015), (Richardson & Carter, 2015). And the second tool were standard tool adopted from (Morse, 2002), (Inouye, Dyck, & Alessi, 2003), (Kannus, Khan, & Lord, 2006) , (Beasley B, Patatianian, 2009), (Gholam, Baig, & Connolly, 2014) & (AHRQ, 2015).

Tool 1: Self administered questionnaire for assessing nurses' knowledge regarding prevention of patients' fall in ICU, it consists of two parts

- 1st part concerned with demographic characteristics of nurses such as: age, gender, qualification,.....etc.
- 2nd part concerned with nurses' knowledge it used through (pre, immediate & post 3months later guidelines implementation). This tool was developed and modified by the researchers consists of (60 question) about: types of fall, Environmental hazards , causes of fall in ICUs, fall precautions &patients' safety , complications of fall, and nurses' role.

The Scoring system of this questionnaire: - (1) mark was given for correct answer and (zero) for incorrect answer, total score for this knowledge test was (60 degrees).The points were summed and converted into a percentage scoring, the total scoring system was classified as, unsatisfactory level (<80%), satisfactory level (>80%). Overall test-retest reliability coefficients were Cronbach's alpha values of 0.91

Tool 2: Nurses' practice observational checklist regarding fall prevention in ICUs: it was done during routine work for assessing nurses' practice (pre, immediate & post 3months later guidelines implementation) and included procedure related to:

- Universal fall precautions (14 items)
- Environmental hazards (28 items) divided as (Paths 7 items, Furniture 10 items, easy access 2 items, floor 3 items, lighting 3 items, and equipment 3 items).
- Identify fall risk factors (5 items)
- Mental & physical assessment (10 items)
- Medication fall risk factors (3 items)

Scoring system for performance checklist: (1) mark was given for done and (zero) for not done. Total score of performance test was (60) .The points were summed and converted into a percentage scoring, the total scoring system was classified as, unsatisfactory level (<80%), satisfactory level (>80%). Overall test-retest reliability coefficients were Cronbach's alpha values of 0.93

Nursing guidelines regarding prevention of patients' fall in intensive care units: A booklet in Arabic language, based on recent medical and nursing knowledge developed by the researchers and derived from (Royal College of Physicians, 2015), (John et.al, 2013), (Shorr , Chandler, & Mion, 2012), (Keefe, 2011), & (Institute for Clinical Systems Improvement, 2010) it gives insight about types of falls, causes and factors leading to fall, complications, precautions & safety measures to prevent falls in ICU, environmental hazards, nursing role in preventing falls.

Tool validity and reliability: tools were tested for face and content validity through seven experts in medical surgical nursing department, faculty of nursing Ain Shames University. They were requested to give their opinion regarding the tool's content, accuracy, relevancy and appropriateness to the research objective. Finally minimal modifications were done to meet the jury opinion. Reliability of the tools was tested using by using alpha Cronbach test.

Administrative design: the necessary official approvals were obtained from the administrators of the neurological intensive care unit & medicine intensive care unit at Ain shams university hospital for conducting the study. Letters of request were issued to them from the Faculty of Nursing at Ain Shams University explaining aim of the study and its expected outcomes.

Protection of Human Rights: for ethical reasons, a primary permits was granted from the hospital director to apply this study. Also at the initial interview, each legible nurse was informed about the aim of the study and its importance. The researcher emphasized that participation in the study is entirely voluntary, and anonymity and confidentiality were assured through coding the data. Oral approval consent was taken from each nurse who agreed to participate in the study; also they were assured that they have the right to withdraw from the study at any time. As well as the obtained information will be used only for the purpose of the study.

Pilot study: a pilot study were carried out on 10% of the total number of the study sample to test the applicability, clarity and efficacy of the tools and time needed to fulfill the tool, then the tool were modified according to the results of the pilot study. Those nurses included in the pilot study were excluded from the study.

Field work: The current study was carried out in three phases; including preparation, implementation and evaluation.

1. Preparatory phase:

- Tool I and nursing guidelines were developed by the researchers based on reviewing of the recent and related literature and tested for validity and reliability and essential modification were done while (tool II) were adopted by the researcher.
- Data collection for this study was carried out in the period from half November 2017 to end of April 2018. The methods of teaching used for the study were lecturing followed by focus group discussions for theoretical part in addition to audiovisual materials and practice with real materials as neck collar and walker for practical part.
- Tools were used three times: pre- program to assess nurses' needs, immediate to assess the nurses' understanding of knowledge and practice of the nursing guideline regarding prevention of fall in intensive care units and post 3 months to evaluate the effect of nursing guideline on nurses' performance.

2. Implementation phase: Once the approval was taken to carry out the study, the researcher started to collect data and implement the program in the following way:

- All nurses received the tools to estimate pre test assessment for knowledge and the nurses practice were observed by the researcher in the morning and afternoon shifts while the nurses providing routine care.
- Nurses are given Arabic booklet about fall prevention in ICUs. Training sessions were conducted by the researcher which are divided into four sessions; from one to one & half hour per day (four days per week) sessions were carried out for every five nurses together (10 nurses per day from each ICU ;total 20 nurse per week) for four weeks. The guideline was provided through small group discussion, demonstration and the developed booklet in addition to audiovisual materials.
- Knowledge assessment tool filled by each nurse within 15 minutes.

- Observational checklist was filled by researcher to assess nurses' guidelines towards prevention of patients' fall in ICUs within 45 minutes.
- The total time needed for monitoring the two tools for each nurses consumed about 60 minutes.

Guidelines sessions:

- The 1st session was directed toward theoretical knowledge content about definition of fall, types, causes & factors contributing to falls, and complications of falls. It was given in about 45 minutes.
- The 2nd session was directed toward theoretical knowledge content about universal precautions and safety measures to prevent falls in ICUs. It was given in about 30 minutes.
- The 3rd session was directed toward application of safety measures to prevent falls in ICUs as applying universal fall precautions, assessing environmental hazards (paths, Furniture, access, floor, lighting, and equipment), assessing fall risk factors , and applying precautions to prevent patients' falls for specific medications (analgesics, anticonvulsants, antihypertensives, antiarrhythmics, and diuretics) . It was given in about one hour.
- The 4th session was directed toward application of nurses' procedure to prevent falls including (patients' position, patients 'transferring, assessing patients' mental & physical condition). It was given in about 90 minutes.

3. Evaluation phase: Nurses were handled the guideline booklet, with some explanations from the researcher regarding its use. At the end of sessions the effect of developed guidelines was evaluated through immediately & post 3 months later by using the same data collection tools (self administered questionnaire & observational checklists).

Statistical analysis:

All data were collected, coded, tabulated and subjected to statistical analysis. Statistical analysis is performed by statistical package SPSS, also Microsoft office Excel is used for data handling and graphical presentation. Quantitative variable are described by the mean, standard deviation (SD), while qualitative categorical variables are described by percentage and proportions. Descriptive statistics are used to analyze the response to individual items and the respondents' characteristics. Chi-square and P-value test used to test correlation.

V. Results

Data in table (1) shows the distribution of the studied group according to demographic characteristics. As regard to age, the table shows that the highest percentage of nurses (84.2%) were in the age group (20<35) years old, and (60%) of them were females. Regarding years of experience and training courses, it was found that (50%) of nurses have experiences more than 5 to 10 years and (65.8%) didn't receive training courses.

Comparison between total level of nurses' knowledge regarding patients' fall prevention in intensive care units pre, immediate and post 3 months later guidelines implementation was clear in table (2). This table shows that there was significant improvement in general knowledge from unsatisfactory to satisfactory level post guidelines as regard to pre - post 3 months; from (79%) to (82.9%) respectively ($X^2 = 14.302$ at $P < 0.001$).

Comparison between total satisfactory level of nurses' knowledge regarding patients' fall prevention in intensive care units pre, immediate and post 3 months later guidelines implementation was clear in table (3), there is statistically significant difference between total satisfactory level of nurses' knowledge in all items of knowledge as it improved post implementing guidelines.

Comparison between total level of nurses' practice regarding applying patients' fall prevention in intensive care units pre, immediate and post 3 months guidelines implementation was clear in table (4). This table shows that there was significant improvement in general practice from unsatisfactory to satisfactory level post guidelines as regard to pre - post 3 months; from (56%) to (86.8%) respectively ($X^2 = 20.269$ at $P < 0.001$).

Comparison between total satisfactory level of nurses' practice regarding applying patients' fall prevention in intensive care units pre, immediate and post 3 months guidelines implementation was clear in table (5), there is statistically significant difference between total satisfactory level of nurses' practice in all items of practice as it improved post implementing guidelines.

Results in table (6) revealed that, there is a highly statistically significant correlation between total level of nurses' performance (knowledge and practice) post implementing guidelines and their age as young age nurses were better than older. ($r = 0.76$ at $P = 0.001$ & $r = 0.98$ at $P = 0.001$ respectively)

Table no.1: Frequency and Percentage Distribution of Demographic Characteristics of the Nurses under Study (no=76).

Items	(N=76)	%
Age group (years):		
• 20- < 35	64	84.2
• 35- <45	12	15.8
Gender:		
• Male	16	21
• Female	60	79
Years of experience:		
• < 5	21	27.6
• 5- <10	38	50
• 10- <15	17	24.5
Received training courses:		
• Yes	26	34.2
• No	50	65.8

Table no.2: Comparison between Total Nurses' Level of Knowledge regarding patients' fall prevention guidelines in intensive care units Pre, Immediate and Post 3 Months of the guidelines implementation (no=76).

Items	Pre		Immediate		Post 3 months		X ² - test		
							Pre - Immediate	Pre - post 3 months	Immediate - post 3 months
	No	%	No	%	No	%			
Satisfactory	16	21	69	90.8	63	82.9	19.861 0.001**	14.302 0.001**	1.810 0.179
Unsatisfactory	60	79	7	9.2	13	17.1			

Table no.3: Comparison between Total Satisfactory Level of Nurses' Knowledge regarding patients' fall prevention guidelines in intensive care units Pre, Immediate and Post 3 Months of the guidelines implementation (no=76).

Items	Satisfactory level						Test of significant	
	Pre		Immediate		Post 3 months		F test	P-value
	No	%	No	%	No	%		
• Definition & types of fall	15	19.7	67	88.2	65	85.5	60.5	0.001**
• Environmental hazards	9	11.8	72	94.7	70	92.1	8.811	0.001**
• Causes of fall in ICUs	14	18.4	70	92.1	69	90.8	59.5	0.001**
• Complications of fall	16	21	63	82.9	60	78.9	63.3	0.001**
• Fall precautions and safety measures	8	10.5	67	88.2	59	77.6	4.612	0.001**
• Nurses' role	13	17.1	60	78.9	41	91.1	52.2	0.001**

Table no.4: Comparison between Total Level of Nurses' Practice regarding applying patients' fall prevention guidelines in intensive care units Pre, Immediate and Post 3 Months of the guidelines implementation (no=76).

Items	Pre		Immediate		Post 3 months		X ² - test		
							Pre - Immediate	Pre - post 3 months	Immediate - post 3 months
	No	%	No	%	No	%			
Satisfactory	20	26.3	70	92.1	66	86.8	27.839 0.001**	20.269 0.001**	1.670 0.196
Unsatisfactory	56	73.7	6	7.9	10	13.2			

Table no.5: Comparison between Total Satisfactory Level of Nurses' Practice regarding applying patients' fall prevention guidelines in intensive care units Pre, Immediate and Post 3 Months of the guidelines implementation (no=76).

Items	Satisfactory level						Test of significant	
	Pre		Immediate		Post 3 months		F Test	P-value
	No	%	No	%	No	%		
• Universal fall precautions	16	21	64	84.2	62	81.2	9.321	0.021*
• Environmental hazards	20	26.3	72	94.7	70	92.1	10.532	0.009*
• Identify fall risk factors	13	27.1	69	90.8	66	86.8	7.322	0.024*
• Mental & physical assessment	8	10.5	64	84.2	59	77.6	7.326	0.026*
• Medication fall risk factors	10	13.2	60	79	56	73.7	6.136	0.047*

Table no.6: Correlation between Total Level of Nurses' Performance (Knowledge & Practice) Post Implementing nursing guidelines and their Age.

Items	Age group				Total (N=76)		Test of significant	
	20- < 35 N=64		35 <45 N=12		No	%	r	P-value
	No	%	No	%				
Total Knowledge								
Satisfactory	47	61.8	11	14.5	58	76.3	0.76	0.001**
Unsatisfactory	17	22.4	1	1.3	18	23.7		
Total Practices								
Satisfactory	56	73.7	8	10.5	64	84.2	0.98	0.001**
Unsatisfactory	8	10.5	4	5.3	12	15.8		

VI. Discussion

Concerning the demographic characteristics of study sample; the results revealed that the highest percentage of nurses were in the age group (25<35) years old and this finding is incongruent with a study done by (Pearson, 2010) entitled "an algorithm to assist critical care registered nurses to correctly identify life threatening arrhythmias and its emergency management" who found that, about two third of the studied sample were aged between (25-35) years and most of them were female.

Regarding training courses, it was found that, more than two third of nurses didn't had training courses. This finding is in the same line with a study done by (Huis, 2013) entitled " Impact of a team and leaders-directed strategy to improve nurses' adherence to hand hygiene "who stated that, patients in intensive care units require complex assessment, high intensity, therapies interventions and continuous nursing vigilance, so the nurse must be supplied with the best and newest technology, skills and experiences through the continuous training courses.

Regarding nurses' performance (knowledge and practice) ; the current study revealed that the level of knowledge and practice regarding patients' fall prevention in intensive care units pre- implementations of nursing guideline are inadequate; while post three months there are improvement with statistically significant difference between pre, immediate and post the guidelines implementation and the improvement of the nurses' knowledge and practice retained significantly post 3 months period, this emphasize the need for periodic in services training and learning program. This is supported by a study done by (Tiedemann et.al, 2014) entitled " Does a fall prevention educational program improve knowledge and change exercise prescribing behavior in health and exercise professionals? A study protocol for a randomized controlled" who stated that, education program improves knowledge about falls and delivery of effective fall prevention exercises training has a positive effect in improving nurses professionals to implement evidence-based exercise strategies regarding fall prevention in their daily practice.

From the researcher point of view the rational for knowledge and practice improvement among the study subjects throughout the different assessment periods might be related to the provision of guidelines with CD for the nurses. Also, the curiosity of the studied subjects to know how to prevent patients' falls in a correct way.

Regarding nurses' knowledge regarding fall prevention in intensive care units the present study revealed that, post guidelines implementation; there were statistically significant improvements in their knowledge. This could be due to the clarity, simplicity of the guidelines content and it based on the nurses'

needs, and its relevance to the field of their work. This is on the same line with the study done by (Merom , Pye , Macniven,2015) entitled" Prevalence and correlates of participation in fall prevention exercise/physical activity by older adults "who stated that the significant improvement in nurses' knowledge after using learning programs strengthen their skills and update their knowledge and improve quality of care provided to the hospital clients.

Regarding nurses' practice the results of the present study showed that, more than half of nurses had unsatisfactory practice regarding fall prevention in intensive care units before implementing of guidelines. This could be due to lack of standardized nursing care records, procedure books, and training courses. This finding is agreement with the study done by (Stone, Lawlor, & Savva,2012) entitled" Prospective study of falls and risk factors for falls in adults with advanced cancer" who mentioned that implementation of standards and availability of procedure books and equipments improve nurses' practice and ensure continued quality of care.

As regard to applying patients' fall prevention guidelines in intensive care unit the results of current study revealed that, there is statistically significant difference pre, immediate and post 3 months in all items of applying measures of fall prevention as the nurses' practice improved post implementing guidelines. This is supported with the guideline done by (Patricia, 2015) entitled " Focus on Falls Prevention "who mentioned that, implementation of standards guidelines improve nurses' performance as regard to assess fall risk , identifying safety indicators, applying fall precautions, determining environmental hazards and other risk factors which contributing to increase fall ratio among patients.

Also, the result of the present study revealed that there was a highly statistically significant correlation between overall nurses' performance (knowledge and practice) and demographic characteristics. This may be related to harmony between most of study sample regarding to age, qualification, training courses and years of experience as they were at the same level and were more contact with patients as they are bed side nurses dealing with patients more than dealing with administrative work this obviously made them interested to have guidelines which have a positive effect in improving their level of knowledge and practice. This is supported with the study done by (Rezaei, 2010) entitled "Cardiac Wards' Nursing Staff Performance in Caring of Temporary and Permanent Pacemakers "who found that, there is a statistically correlation between nursing staff performance' level and their age.

VII. Conclusion & recommendations

Conclusion: based on the results of the current study; it can be concluded that, more than three quarter of nurses had inadequate knowledge and about three quarter of them had unsatisfactory level of practice regarding prevention of fall in intensive care units pre implementation of the guidelines. Meanwhile, nursing guidelines had statistically significant positive effect on nurses' performance (knowledge & practice) regarding prevention of fall in intensive care units three months after implementing it.

Recommendations: based on the findings of the present study; it can be recommended the importance of conducting periodic in-service training advanced care programs for nurses in intensive care units for improving their performance and quality of care provided.

References

- [1]. AHRQ, (2015): Publication on the Falls Management Program for nursing homes. Available at: www.ahrq.gov/professionals/systems/long-term-care/fallsp/fallspmanual.htm.
- [2]. Austin, D. (2017): Predicting and Preventing Falls in the Hospital, Science of Caring, University of Science California San Francisco.
- [3]. Beasley B, Patatianian E. (2009): Development and implementation of a pharmacy fall prevention program. *Hosp Pharm*; 44(12):1095-1102. ©2009, Thomas Land Publishers, www.hosp-pharmacy.com
- [4]. Cox J, Thomas Hawkins C, Pajarillo E, (2015): Factors associated with falls in hospitalized adult patients. *Appl Nurs Res.*;28(2):78–82.
- [5]. Gholam H. H, Baig MM, Connolly MJ, (2014): A multifactorial falls risk prediction model for hospitalized older adults. *Conf Proc IEEE Eng Med Biol Soc.*;2014:3484–3487.
- [6]. Huis, A., Schoonhoven, L., Grol, R., Donders, R., Hulscher, M., & Achterberg, T. (2013). Impact of a team and leaders-directed strategy to improve nurses' adherence to hand hygiene.
- [7]. Inouye SK, Dyck CH, Alessi CA. (2003): Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med*; 113(12):941-8.
- [8]. Institute for Clinical Systems Improvement, (2010): Health care protocol: prevention of falls (acute care). 3d ed. Bloomington. Available at: https://www.icsi.org/_asset/dcn15z/Falls-Interactive0412.pdf
- [9]. John D., Avra C., Rosemary A., Chris A., Fred H., & Robyn M., (2013): The Fall Prevention Guideline. Kaiser Foundation Health Plan of Washington. Available at : [https:// wa.kaiserpermanente.org/ static/pdf/ public/ guidelines/falls.pdf](https://wa.kaiserpermanente.org/static/pdf/public/guidelines/falls.pdf)
- [10]. Leanne C., (2007): Patient Safety and Quality: An Evidence-Based Handbook for Nurses: Fall and Injury Prevention. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK2653/>
- [11]. Kannus P, Khan KM, Lord SR. (2006): Preventing falls among elderly people in the hospital environment. *Med J Aust.*;184(8):372–373.
- [12]. Keefe, S. (2011): Reducing Falls in Paediatrics - Ongoing assessment and family education are essential to ensuring safety in the inpatient setting.. 7(6), 7.
- [13]. Koh S.(2009): Prevention of Falls in Hospital. *Singapore Med J* 2009;50(4):425. Available at www.moh.gov.sg/content/dam/moh_web/HPP/Nurses/cpg_nursing/2005/prevention_of_falls_in_hosp_ltc_institutions.pdf

- [14]. Kristen J. M., Duck L., Xuemei S., Kenneth E. P., and Steven N. B., (2010): Falls among Adults The Association of Cardio-respiratory Fitness and Physical Activity with Walking-Related Falls. *Am J.*; 39(1): 15–24. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2897244/>
- [15]. Meade CM, Bursell AL, Ketelsen L. (2006): Effects of nursing rounds: on patients' call light use, satisfaction, and safety. *Am J Nurs*;106(9):58-70
- [16]. Melissa F. L., Miriam A. A., & Amália F. L., (2014): Nursing Care Mapping for Patients at Risk of fall in the Nursing Interventions Classification. *Rev Esc Enferm USP*; 48(4):632-40
- [17]. Morse, J.M. (2002): Enhancing the safety of hospitalization by reducing patient falls. *American Journal of infection Control*. 30(6), 376-380.
- [18]. Merom D, Pye V, Macniven R ,(2015): Prevalence and correlates of participation in fall prevention exercise/physical activity by older adults. *Med*;55:613–17.
- [19]. Kumar NP,& Thomas (2015):The usefulness of carotid sinus massage in different patient groups. *Age Ageing*. Nov;32(6):666-9.
- [20]. Patricia Q., (2015): Focus on Falls Prevention. *American Nurse Today* Volume 10, Number 7. Available at: https://www.americannursetoday.com/wp-content/uploads/2015/07/ant7-Falls-630_FULL.pdf
- [21]. Pearson B.T., (2010): An Algorithm to Assist Critical Care Registered Nurses to Correctly Identify Life Threading Arrhythmias and its Emergency Management. A research project submitted in partial fulfillment of the requirements for the degree of master science in the graduate school of Alcon state university, P142.
- [22]. Rezaei, H.; Ranjbar, H.; and Abbas, A. (2010): Cardiac Wards' Nursing Staff Performance in Caring of Temporary and Permanent Pacemakers. *Iranian Journal of Critical Care Nursing* 3, (3); 119-124. Availabe at: [www.inhc.ir/browse.php? a_id=69&slc...](http://www.inhc.ir/browse.php?a_id=69&slc...)
- [23]. Richardson A. & Carter R. (2015): Falls in critical care: a local review to identify incidence and risk. *British Association of Critical Care Nurses*. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/26581651>
- [24]. Royal College of Physicians, (2015): Falls prevention in hospital: a guide for patients, their families and care giver. Available at: www.rcplondon.co.uk/fffap
- [25]. Shorr RI, Chandler AM, Mion LC, (2012): Effects of an intervention to increase bed alarm use to prevent falls in hospitalized patients. *Ann Intern Med*;157(10):692-9.
- [26]. Stone C.A , Lawlor P.G , Savva G.M , (2012): Prospective study of falls and risk factors for falls in adults with advanced cancer. *J Clin Oncol*;30:2128–33
- [27]. Tiedemann A., Sturnieks D. L , Hill A.M., Lovitt L., Clemson L., Lord S.R., Harvey L.,and Sherrington C.,(2014): Does a fall prevention educational program improve knowledge and change exercise prescribing behavior in health and exercise professionals? A study protocol for a randomized controlled trial. *BMJ*; 4(11): e007032.Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4244414/>

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