

# Existing State of Implementing Fall Preventing Strategies in Shahid Gangalal National Heart Centre, Nepal

Krishna Kumari Paudel, Subedi<sup>1</sup>, Vidya Joshi Koirala<sup>2</sup>, Lalita Maharjan<sup>3</sup>,  
Gayanand Mandal<sup>4</sup>

<sup>1</sup>Nursing Director, <sup>2</sup>Nursing Supervisor, <sup>3</sup>Lalita Maharjan,  
Shahid Gangalal National Heart Centre

<sup>4</sup>Additional Professor, Department of Medical Surgical Nursing, BPKIHS

Corresponding Author: Krishna Kumari Paudel, Subedi

## ABSTRACT

**Background:** Fall is defined as a sudden, unexpected descent from standing, sitting, or horizontal position in which the person is found lying on the floor. Sometimes, fall in a sick patient can be disastrous. Nurses have to hold a lot of weights on their shoulder regarding prevention of patient fall and promotion of patient safety. As falls are a nurse sensitive measure, nurses play a pivotal role in the prevention of falls.

**Objectives:** The objective of this study was to determine the status quo of hospital in fall prevention from nursing perspective.

**Methodology:** A descriptive-Cross-sectional design was adopted for the study and consecutively 151 nurses were enrolled by using purposive sampling technique. Data was collected with self-administered structured questionnaire. Similarly, data was presented by using descriptive statistics in form of frequencies and percentages for demographic data. T test and ANOVA test were used to find out association.

**Results:** Majority of respondents belonged in the group of 20-29 years of age (mean age= 25.6 years). Majority of respondent (58.3%) mentioned that there was no any incident regarding patient fall. Regarding implementation of fall preventive strategies, 86.1% respondents had implemented adequately. This study shows that education of respondent had role to implement patient fall prevention strategies. However, it was not affected by years of experiences. Cronbach alpha of pretest was .778 in pretest and in large study it was .881.

**Conclusion:** Majority of the Nurses (86%) had implemented patient fall prevention strategies adequately. Patient status related factors were highly considered and environment related strategies were seen as weakly implemented.

**Key words:** Fall, Fall preventive strategies, Nurses

## INTRODUCTION

Fall is a sudden, unexpected descent from standing, sitting, or horizontal position. [1] Similarly, fall may be defined as an unplanned descent to the floor with or without injury. In other words, patient fall means an event resulting when a patient

accidentally falls onto the floor while in bed or while walking. Including all types of falls, whether they result from physiological reasons or environmental reasons, it may be either witnessed or unwitnessed accidents. It includes incidents in which the person is found lying on the floor. Number of patient

falls events is determined out of 1000 hospitalized patients at any given time and total number of fall could reach up to one million per year and as per different reports estimated fatal falls per year are 11,000 (Currie, 2008 as mentioned in Ganz, Huang, Saliba, & Shier, 2013). [2] In a report, The Joint Commission highlights that despite of extensive prevention efforts; patient falls remain an obstinate and terrifying problem in healthcare institutions. This report also illustrates that patient falls with severe injury are among the top 10 sentinel events. [3] It indicates that fall related injuries are more common in hospitals.

There are three types of fall; first one is anticipated physiological fall which is account 78% of falls. It occurs in patients, who score a high risk of falling on the Morse Fall Scale. Second one is accidental fall (14% of falls) which is caused by environmental factors such as slippery floor due to water or urine on the floor or because of a failure of equipment. Last one is unanticipated physiological fall which accounts for 8% of falls. It occurs when the physical cause is not reflected as a risk factor for falling. They cannot be predicted before the first fall occurrence. [4] Statistically Wide range of variation is there in the report of falls incidence, ranging from 2.2 to 25.0 falls per 1,000 patient days. [5,6] Morse JM., 2009 also states that among different types of fall, hospital fall related injuries widely range from 6% to 44%. [7]

There are various risk factors of patient fall. Morse fall assessment tool highlights History of fall, secondary diagnosis, ambulatory aid, IV heparin lock, gait and mental status are considered as main risk factors associated with patient falls. [8] Similarly, different literature stated risk factors of patient fall in detail they are environmental factors which include tidiness of environment, slippery environment access of toilet bathroom, proper lighting, provision of side rail etc. another factor is patient disease and treatment related factors including use of sedation mental status, gait, patient with

history of previous fall etc similarly lack of adequate nursing personnel which ultimately reduce comprehensive patient care and fall may be increased [1,4]

Disability, fracture, head injuries are the potential consequences in the wake of fall injuries. Sometimes, fall in a sick patient can be disastrous and the consequences can sustain over a very long period. Regarding consequences perspective of fall, there are five categories of fall injury. The first one is none, which means patient fall but patient had no signs or symptoms of injuries resulting from the fall. The second one is minor injury, which means the injury has resulted like bruise or abrasion and may require application of a dressing, ice, cleaning of a wound, limb elevation, topical medication, etc. The third one is moderate injury this means the injury has resulted like muscle or joint strain which may require in suturing, application of steri-strips or skin glue, splinting. The fourth one is major injury for example fracture neurological or internal injuries which may need surgery, casting, traction, required consultation for neurological or internal injury. The last one is death, which means the patient died as a result of injuries sustained from the fall. [8] Even a minor fall injury a 'can cause functional impairment, pain and distress. [9]

Similarly, Because of fall patients have to stay in the hospital longer than non-fall patients, or they have to go to a rehab or orthopedic hospital, for further management and have to bear additional bills. Regarding burden of extra medical bills CDC, 2016 highlights that the direct medical costs, of treating fall injuries in total was \$31 billion in 2015 in USA. [10] Each patient fall with serious injury could cost more than \$13,316 and the hospital stay could be more than 6.3 days than the patient who do not fall. [11] Falls are one of the most important problems related to patient safety among the elderly where 21.0% of the elderly experienced falls in the past year. Among those elderly 72.4% were cured in hospitals

but 47.4% were suffering for long time because of the falls. [12]

Virtually, hospitals should be a safe place where a patient can remain safely, cured and get better, not a place for injuries or accidents to occur and for hospital stays to be unnecessarily lengthened. According to Patient Safety Goals every health care organization must have some strategies to reduce the risk of patient harm resulting from fall. As falls are a nurse sensitive measure, nurses play a pivotal role in the prevention of falls. [10] It is supposed that nurses are responsible for recognizing patients who are at risk for falls and for utilizing a plan of care to minimize that risk. Patient fall rates are realized as the indicator that could be most improved by means of nurse-led interventions or strategies. [9]

According to Fortinsky, R. et al. as mentioned in Chils et al., 2012 to prevent fall from occurring the hospital's fall prevention strategies should be developed and implemented according to individual patients' needs. However, there is often a lack of such protocol and practices within countries (Baker, D. et al., 2004 as mentioned in Chils et al. 2012). This study also focuses that the fall prevention to be made a priority for all staff not just for the nursing staff. [11] Whatsoever, no one can deny that nurses have to hold a lot of weights on their shoulder regarding prevention of patient fall and promotion of patient safety. [8] In order to introduce additional fall prevention strategies, existing status of implementing fall prevention strategies of the hospital must be understood. Generally, dealing with falls is increasing the burden of healthcare costs for societies.

This study is important because patient's falls are considered one of the most important nursing service quality indicators [9] Therefore, it can be claimed that now it is time to study existing trends of implementing fall prevention strategy for preventing patients' falls without any delay. Yet, these types of studies have not been conducted in our context of Nepal. No

documentary is available till the date. Nevertheless, this study attempted to determine existing state of implementing fall prevention strategies in Shahid Gangalal National Heart Centre (SGNHC). It would be proved itself as a milestone in this field, about the prevention of fall in hospitals.

**Objective:** The objective of this study was to determine the status quo of hospital in fall prevention. It specifically assessed nursing interventions related to implementing fall prevention strategies as perceived by nurses of Shahid Gangalal National Heart Centre.

**Significance of the study:** Since this study assessed existing state of implementing fall prevention strategies within hospital, it helps hospital and nursing department to know strength and weakness of the related area and might be benefited by improving those areas by developing policies and procedure pertaining to fall prevention rigorously. It ultimately promotes patient safety.

## **MATERIALS AND METHODS**

**Research Design:** A quantitative, cross sectional descriptive study design was adopted for the study.

### **Research Site, Population, and Sampling and sample size of the Study**

The location of this research study was the all units of Shahid Gangalal National Heart Center, Kathmandu Nepal. It is a tertiary level 200 bedded Heart Hospital where 220 nurses are currently working in different units. Researcher's major concern was to assess the extent of existing state of implementing fall Preventing Strategies among Nurses in Shahid Gangalal National Heart Centre. For this study, purposive sampling technique was adopted. All staff nurses who were willing to participate in the study were included in the study.

### **Tools and Instrumentation**

Researchers did extensive literature review and consultation with peers and experts in order to develop valid research tool. Finally, 20 itemed three points Likert

scale questionnaire was developed as a main instrument of data collection by researchers themselves. The questionnaires consisted of two parts that assessed demographic information and existing state of implementing strategies of preventing patient fall.

### **Validity and Reliability**

In order to maintain face validity and content validity, extensive literature review, consultation with nurse experts, health professionals and peers was done extensively. Additionally, for analyzing questionnaire's face and content validity, three expert nurses who had completed master in nursing were asked for their opinion. They were asked to complete the questionnaire as if they were actual respondents. For reliability, pretesting of the instrument was done among 10% of total subject. In order to examine internal consistency of the items, Cronbach alpha was calculated. Cronbach alpha of pretest was .778 and in large study it was .881

### **Data Collection Procedure**

In order to collect data, Researchers visited each nurse individually, introduced themselves as researchers, and then mentioned the purpose of their study. Then the questionnaires were distributed to the nurses. Participants who desired to participate in this study gave written consent before starting to fill the questionnaire. Researchers granted abundant time to complete the questions. The questionnaires from the individual nurses were taken back after they filled them.

### **Statistical Analysis**

Data was entered and analyzed on SPSS 16 version. Descriptive statistics i.e. frequencies, percentages, mean, and rank were used so that researchers could explore the result of data on demographic variables. Mean and rank of the each items and factor were calculated. Extent of existing state of implementing patient fall preventing strategies by nurses was shown in three levels poor, average and adequate state. Inferential statistics t test and ANOVA

were used to examine existing state and selected demographic variables of the respondents. Ultimately, findings of the study were linked with the purpose and research questions. Likewise, each finding was also linked with reviewed literature and findings of other similar kinds of study conducted internationally.

### **Ethical Consideration**

We consciously followed the ethical consideration for this study. First, approval was obtained from institutional research committee of Shahid Gangalal National heart Centre. Similarly, the nurses working in the different units of these hospitals were approached and written consent was obtained for their voluntary participation in the research study. The respondents were assured of anonymity; confidentiality and privacy of information given by them. Respondents were allowed to retract their participation from the study at any time. Researchers followed coding system to maintain subject's anonymity or privacy.

## **RESULTS**

The findings of current study shows that majority (77.5%) of the participants belong to 20-29 years of age, followed by 17.2% were of 30-39 years of age (Mean age 25.5 years). As per education level, majority (70.2%) of participants had Bachelor above and remaining had PCL only. According to years of experience, majority (48.3%) of participants had 1-5 years' of experience and followed by 31.8% who had 6-10 years of experience. As per working unit, majority (25.1%) of participants were from general ward and only 25.1% from Critical ward (ASICU/ PSICU/CCU/MICU), followed by 12.6 % participants who were from Cath lab. (Table 1)

Majority of participants (58.3%) reported that they did not encounter patient fall during past 12 month. Only 41.0% reported that barely 1-2 events occurred during past 12 month. This implies patients fall in health care didn't show up much in SGNHC. (Table2)

Normality test was performed in order to determine suitability of the test to see association of selected demographic variables and state of implementing patient fall. Parametric test requires that data should be distributed normally if not nonparametric test to be performed. Shapiro-Wilk test was

used for normality test. Above test shows that data were distributed normally, because here p value was more than 0.05(0.053). (If p value is more than 0.05 data were considered to be distributed normally). Thus, parametric test t test and ANOVA test were chosen to see the association. (Table 3)

**Table 1: Distribution of Study Population by Demographic Variables (n=151)**

Variables	Definition	Frequency	Percent
Age ( in years)	20-29	117	77.5
	30-39	26	17.2
	40 and above	8	5.3
Education	PCL	45	29.8
	Bachelor and above	106	70.2
Experiences in years	Below 1 Year	13	8.6
	1-5 years	73	48.3
	6-10 Years	48	31.8
	11 years and above	17	11.3
Working Unit	ER/OBS	16	10.6
	GSWs	19	12.7
	GMWs	25	16.6
	ICUs	38	25.1
	CATH/OBS	19	12.6
	OT	9	6
	OPD	9	6
	Cabins	14	9.4
	MISSING	2	1.3
	Total	151	100.0
Training on fall prevention	Received	0	0
	Not received	151	100

(Note: ER= Emergency Room, Obs= Observation, GSWs= General Surgical Wards, GMWs General Medical Wards, ICU s = Intensive Care Units, OPD= Outpatient Department OT= Operation Theatre, CATH/OBS = Cath& Cath Observation)

**Table: 2 Patient fall incident reported within past twelve month in the organization (n=151)**

Incidents	Frequency	Percentage
None	88	58.3
1-2 events	62	41.0
6-10 events	1	0.7
Total	151	100.0

**Table 3: Test of normality (n=151)**

Total mean	Shapiro –Wilk		
	Statistics	df	Sig
	.983	151	0.053

The findings of current study shows the extent of existing state of implementing patient fall strategies in Shahid Gangalal National Heart Centre which depicts that majority of participants (86.1%) had implemented patients fall preventing strategies in adequate extent and only 13.9% nurses implemented it in average extent. There is no poor implementing state within the organization. As per this study there is satisfactory level of implementing patient fall prevention strategies in SGNHC. (Table 4)

Among the three main factors, patient status related factors were highly

considered (mean= 2.39, & rank=1) and environment related strategies were seen as weakly implemented (mean= 2.34, & rank=3) (Table 5)

As stated above, t test was performed in order to explore whether level of education of participants play roles in implementing fall preventing strategies in hospital. The t test output shows that statistically, level of education of participants had significant role in implementing fall preventing strategies ( $t = -2.631$ ,  $p = .009$ ). (Table 6)

As mentioned in above table, the statistical test; ANOVA test was used to examine whether or not years of nurse's experience had role in implementing fall preventing strategies in hospital. The result shows that no statistically differences existed across different group of years of experience and implementation of fall prevention strategies in hospital ( $F = 0.993$  &  $p = .398$ ). It means that implementation of



fall presentation strategies was not affected by years of experience of nurses. (Table 7)

**Table 4 Extent of implementing fall prevention strategies in hospital (n=151)**

Mean Score of the Items	Extent of implementing fall prevention strategies	Frequency	Percentage
Up to 2	Average implementation of patient fall strategies	21	13.9
More than 2 to 3	Adequate implementation of patient fall strategies	130	86.1

**Table 5 Factor wise mean, SD, and rank (n=151)**

Factors	Mean	Standard deviation	Rank
Status of patient (8 items)	2.39	.37	1
Nurse patient ratio related factor (8 items)	2.36	.45	2
Environmental related factor (4 items)	2.34	.36	3

**Table 6: Level of education and implementing fall preventing strategies (n=151)**

Education	n	Mean	sd	T value	P	df
PCL	45	2.26	.31	-2.631	.009	1
Bachelor and above	106	2.41	.30			

n = Numbers, DF = degree of freedom, p = level of significant

**Table 7: Years of Experience and Implementation of fall Preventing Strategies (n=151)**

Years of experience of participants	n	Mean	SD	F	P	Df
Below 1 year	13	2.34	.28	.993	.398	3
1 -5 years	73	2.33	.31			
6- 10 years	48	2.40	.30			
11 years and more	17	2.45	.37			

## DISCUSSION AND CONCLUSION

Findings of the current study reveal that majority of the nurses (86%) had implemented patient fall prevention strategies adequately which denotes they had adequate knowledge which is higher than similar kinds of recent international study conducted in Department of Health Administration of Egypt where nurses knowledge is median level in pretest [12] However, this findings show higher knowledge than the findings of Chan, ST. (2015). [8] in which Chan mention that there was evidence of that nurses did not apply adequate patient fall strategies on fall risk patients. Present study shows that implementing patient fall prevention strategies was affected by education level of nurses (p=0.053) which is corroborated with the statement highlighted by Wilbert, WU. 2013. [13] Wilbert clearly opined that as per growing evidence staff education and their compliance to the fall prevention program are crucial in reducing patient fall rate.

In present nurses (41%) reported that they had barely encountered patient fall this statistical findings is reverse than findings of a study conducted in Korea by Ministry of Health and Welfare (2011) reports that 21.0% of the elderly experienced falls in the past year. Among those elderly 72.4% were

cured in hospitals but 47.4% were suffering for long time because of the falls.<sup>[14]</sup> findings of present study reveal that very few incidents of patients fall were there as reported by nurses which is also seen reverse than the findings a study conducted by ANA [15] in which ANA mentioned that patient fall events are more common incidents in inpatient units. However, result indicates that this phenomenon should be monitored permanently and more rigorously in inpatient units in order to overhaul the weak areas. During the course literature review it is found that many health institutions had their patient fall prevention protocol and some of them had training on regular basis as well. [8,14,15] However, this institution did not have such documented fall prevention protocol and regular training program on fall prevention however, the result was intriguing that majority of nurses (86.1%) implemented patient fall prevention interventions adequately. This astonishing finding compel researcher to discuss with the participants informally about the way of acquiring knowledge to perform such awesome works. During the informal discussion the most of participants said that self-learning was their main way of obtaining knowledge.

In fact, fall prevention tasks are really multiplex, comprising various mechanisms that depend on management involvement and the cooperation of nursing and other staff from several disciplines.

Plans may require strong monitoring systems for making sure that staff adheres to implement fall prevention strategies [15] Practice of implementing fall prevention strategies to be made mandatory if a patient has possibility for a fall. It is not hyperbole that nurses are responsible for recognizing patients who are at risk for falls and for utilizing a plan of care to minimize that risk. Patient fall rates are realized as the indicator that could be most improved by means of nurse-led interventions or strategies. [9] Since, it requires multidimensional effort from various kinds of health personnel's therefore, the fall prevention mechanisms to be made a priority for all staff not just for the nursing staff. [11] These statements are corroborated with this study as opinions expressed by nurses in the process of collecting data. This study also compels the institution to develop patient fall prevention protocol and implement it within the organization.

Cronbach alpha ( $\alpha$ ) of pretest was .778. After pretest, as per suggestion of participants of pretest some words were deleted and some were added to make more clear and meaningful. Later on in this study, again researchers calculated the Cronbach's alpha in the same way, as per findings  $\alpha$  was .881. It proved that modification after pretest really worked.

## CONCLUSION

Findings of the study show that majority of the Nurses had implemented patient fall prevention strategies adequately (86%). Patient status related factors were highly considered. Environment related strategies were seen as weakly implemented. Additionally, findings also reveal that education level of the participants had significant role in implementing patient fall prevention strategies. However, implementing patient

fall prevention strategies was not affected by participant's year of experience. Since, there are some areas for improvement that are related to environments. Persistent effort to be made to overhaul those weak areas in order to prevent patient fall and promote patient safety within organization. Since education is seen vital factor of affecting in implementation of patient fall prevention strategies, it further directs that training related to implementation of patient fall prevention strategies should be conducted in regular basis.

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## REFERENCES

1. Kim, MH. Jeon, HW. & Chon, MY. Study on the Knowledge and Attitudes of fall and Awareness of Fall Risk Factors among Nursing Students. Indian Journal of Science and Technology 18 (1), 74-80. [online] 2015 [cited 2016, July] Available from: <http://www.indjst.org/index.php/indjst/article/view/57593>
2. Ganz, D.A., Huang C, Saliba D, & Shier, V. Preventing Falls in hospital: A toolkit for improving quality of care: Agency for Healthcare Research and Quality [online] 2013 available from <http://www.ahrq.gov/sites/default/files/publications/files/fallpxtoolkits.pdf>
3. Commins, J. Joint Commission Issues Sentinel Event Alert on Patient Falls [internet] 2015 [cited in 2016, July 12] Available from: <http://www.healthleadersmedia.com/quality/joint-commission-issues-sentinel-event-alert-patient-falls>

4. Morse J.M. Morse Fall Scale University Park PA. The Pennsylvania State University School of Nursing [internet] 1985a. [cited in July 16, 2016] Available from <https://www.ahrq.gov/professionals/systems/hospital/fallpxtoolkit/fallpxtool3h.html>
5. Center for Disease Control and Prevention. Preventing falls among older adults. [online] 2007 [cited in July 16, 2016] Available from: [www.cdc.gov/ncipc/duip/preventadultfalls.htm](http://www.cdc.gov/ncipc/duip/preventadultfalls.htm)
6. Davison, J., & Marrinan, S. Falls. *Reviews in Clinical Gerontology*, 17(2), 93-107. 2007.
7. Morse JM. Preventing patient falls: Establishing a fall intervention program (2nd Ed.) 2009. New York: Springer Publishing Company;
8. Chan, ST. Fall Reduction With Nursing Interventions [online] 2015[Cited in April 2, 2017] Available from <http://repository.usfca.edu/capstone/203/>
9. American Nurses Association Nursing-sensitive indicators [online] 2009 [Cited in April 2, 2017]. Available from [http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/PatientSafetyQuality/Research-Measurement/The-National-Database/Nursing-Sensitive-Indicators\\_1.aspx](http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/PatientSafetyQuality/Research-Measurement/The-National-Database/Nursing-Sensitive-Indicators_1.aspx)
10. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. 2016. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. [Cited in April 2, 2017]. from <https://www.cdc.gov/homeandcommunityhealth/safety/falls/fallcost.html>
11. Chils, S., Goodwin, V. Garside, R. Jones-Hughes, T. Boddy, K. and Stein, K. Factors influencing the implementation of fall-prevention programmes: a systematic review and synthesis of qualitative studies. *Implementation Science* 7:91 [online] 2012 available from <http://www.implementationscience.com/content/7/1/91>)
12. Nagwa Younes Abou El Enein, Azza Saad Abd El Ghany, Ashraf Ahmad Zaghoul Knowledge and performance among nurses before and after a training program on patient falls.[online]. 2012. 2(4) DOI:10.4236/ojn.2012.24053[cited in 2016 July 17] Available from [http://file.scirp.org/pdf/OJN20120400004\\_13043015.pdf](http://file.scirp.org/pdf/OJN20120400004_13043015.pdf)
13. Wilbert, W. U. The effectiveness of a fall prevention/management program in reducing patient falls: A retrospective study [online]. 2013 *The Journal of Chi Eta Phi Sorority*, 57(1), 24-27. [cited in 2016, July 18] Available from: <http://connection.ebscohost.com/c/articles/98591466/effectiveness-fall-prevention-management-program-reducing-patient-falls-retrospective-study>
14. Ministry of Health and Welfare. Survey of the elderly [online]. 2011[cited in 2016, July 17] Available from: <http://stat.mw.go.kr/front/statData/publicationView.jsp?>
15. American Nurses Association. Hospital-Based Fall Program Measurement and Improvement in High Reliability Organizations. *ANA Periodicals/OJIN*. Vol 18 [online]. 2013[cited 2016 Jun 15]. Available from: <http://www.nursingworld.org/Quality-Improvement-on-Patient-Outcomes.html>

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