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THE EFFECT OF NURSE LED EDUCATIONAL PROGRAMME TOWARDS KNOWLEDGE, ATTITUDE AND PRACTICE OF FALL ASSESSMENT AMONG REGISTERED NURSES IN A PRIVATE ELDERLY CARE CENTRE IN KUALA LUMPUR.

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ABSTRACT
Background: *Fall remain the most common clinical incident that cause morbidity and mortality as well as leaving victim with significant psychological impact. Fall Prevention and Precaution Measure has been implemented across all acute and home nursing centre however various literature have revealed that rate of fall is still high. Fall Prevention Bundle has been in place to prevent fall.*
Objective: *The study aimed to inspect the effect of Fall Prevention Programme on Knowledge, Attitude and Practice in Fall Prevention is deemed important in age care.*
Methods: *A quantitative design, quasi-experimental with pre and post comparative data, before and after the education programme will be utilized. The study will be conducted at KPJ Senior Living Care. A purposive sampling is used among Registered Nurse. Data of pre and post score be collected and analysed. A pre and post comparison of knowledge, attitude and practice of rating MFS and competency of implementation of Fall Care Plan will be investigated.*
Results: *Analysis shown significant increase of knowledge post Fall Prevention Programme with p value of 0.001, but insignificant value of p 0.257 and 0.157 for both attitude and practice among nurses. Despite being only significant in knowledge statistically, the study has shown increase in percentage in attitude and practice among the nurses*

Conclusion: *The fall prevention training has shown to give positive impact on the knowledge, attitude, and practice among nurses. Continuous awareness and training are highly recommended as to ensure better understanding and ability to rate Morse Fall Scale and provide the best prevention fall.*

Keywords: *fall among older adult, Morse Fall Scale, attitude towards fall, nursing home.*

1.0 INTRODUCTION

Fall still remain as one of the most common untoward incident in acute hospital setting (Tucker, Bieber, Attlesey-Pries, Olson, & Dierkhising, 2012) as well as in among the older adult (Lee & Kim, 2017). It is also an adverse incident that have accounted in mortality and morbidity (Tucker et al., 2012). Fall also has been identified the most frequent adverse event reported in hospitalized older adult with highest incidence in geriatric and rehabilitation ward (Slade, Carey, Hill, & Morris, 2017). It is learnt that falls cause longer length of stay as well as resulting poorer outcomes due to physical injuries (Slade et al., 2017).

According to World Health Organization (2018) fall is the second world leading cause of death due to unintentional injury or accident among older adult. It is estimated fall among older adult accounted for 646 000 deaths worldwide annually and 80% of them came from the low-and middle-income countries. It is also learned that people aged 65 years and above suffer the highest rate of fatality (World Health Organization, 2018).

Fall causes various negative impacts on the person and the country as a whole that include physical and psychological as well as financial burden. Fall obviously causes physical injuries and contribute to emotional and psychological manifestation such as anxiety , loss of confidence and feeling of fear of falling that will eventually lead to isolation, avoidance of activity and socialization (Jensen et al., 2002).The psychological impact could also affect the older adult with poor self-esteem and lack of autonomy as of them become dependent to caregiver and eventually resulting in depression symptoms (Aydin et al., 2020).

Nurses play a crucial role in fall prevention and are responsible for assessment, prevention, and intervention strategies. Fall prevention begins with assessment. Nurses must assess the patient's risk for falls. This includes evaluating factors such as age, medical history, medications, and mobility. Ojo & Thiamwong, (2022) stated that registered nurses perform multiple role in fall prevention namely assessment risks of fall followed by coming up with dedicated nursing care plan that tailored the various need of each patient. Nurses also assess the balancing ability, managing exercise programme, and monitoring physical progress. In addition nurses also communicated on the risk of fall and discuss the fall care plan to nursing assistant to achieve the goal to prevent fall as well as perform proper documentation (Ojo & Thiamwong, 2022).

This study aims to address this gap by evaluating the effectiveness of educational programme towards knowledge, attitude and practice of fall assessment among registered nurses. By addressing this issue, the research aims to seek idea and recommendation to increased compliancy and reduce fall incident.

2.0 PROBLEM STATEMENT

KPJ Senior Living Care has implemented various measure to prevent fall among nurses however the fall incidents still considered as on-going problem where in 2020 and 2021 there were 5 cases of fall recorded. The incident had resulted our resident to be in either sustained physical or physiological injuries.

KPJ Senior Living Care implements a protocol of assessing risk of fall using Morse Fall Scale, followed by of Fall Care Plan that is implemented as part of nursing responsibility for all residents. The fall care plan would include but not limited to ensuring all belonging are placed within reach, call bell are near, bed is at lowest level, side rail is raised, falling star sign and fall risk identification band are placed and applied on patient bed and wrist respectively. Reassessment of fall would also be included in the bundle, together with monitoring more frequently for the one on any sedative or medication causing drowsiness. Alongside with that, we also implement two hourly structured rounds to all resident in order to reduce the rate of falling. This initiative was started since 2016 where nurses all nurses were given training on the importance of the structured rounds. It is a regular round at hourly or two hourly intervals aimed to ensure to meet patient's need, ensuring comfort and reducing fall (Hicks, 2015).

Concerned with the percentage of falling not achieving 10% reduction, researcher believe that the nurses were not taught in depth on Morse Fall Scale and the importance of prevention of fall including and the consequences of fall among older adult. Fall Morse was introduced formally during orientation Programme and practically taught by the Unit Manager or senior registered nurse. The accuracy and ability to perform of Fall Morse Scale and if the appropriate measures taken were never evaluated. The ability to do score of Morse Fall Scale accurately and implementing the appropriate measures are one of the most important steps to prevent fall. In this study, researcher would like to explore if the nurses are able to perform Morse Fall Scale accurately and implement the appropriate fall prevention measures to prevent fall among the elderly. Researcher would also like to find out nurses' attitude towards fall incident and see if the is any association the reduction of fall.

3.0 LITERATURE REVIEW

Prevalence of fall

Older adult aged of 65years old and above have recorded to have fallen at least one a year and have a record of multiple fall in a year (Lee & Kim, 2017). In Malaysia, the situation is about the same where for those who are 60 years and above , it is estimated that the fall rate is about t 15% to 34% and it is consistent with world fall statistic that reported one third/fourth older adults experience a fall per year (Shaharudin et al., 2018). The prevalence of fall among older adult is high and the with the increasing age of the older adult the incidence will be higher (van der Vet et al., 2021). Prevalence of fall worldwide varies among countries. For example, India has older adult fall prevalence of 14%-57%, as for Japan, the fall prevalence is 20% each year. For Malaysia, the prevalence was highest in 2008 where it was reported at 47% and in 2015 it was reported at 19.1% Prevalence of fall among older adult is higher in nursing home to community-based older adult.

Contributing Factor of falls

Fall among older adult is multifactorial including factor that been established such as biological factor, environmental factor, socio-economic factor and interactive factor.

Biological Factor

World Health Organization (2018) stated that Biological Factor that causes fall associates with biological changes due to ageing such as declining physical, cognitive and affective capabilities. This also include to co-morbidity associated with illness, frailty and weakness. This factor is also called Intrinsic factor or factor that occur due physiological changes as one is aging or anyone undergo illnesses.

Patients categorized under this risk factor, the role of nurses are crucial where they are expected to plan fall care plan that would include to assist the patient to carry out their activity of daily living as much as needed. Fall Prevention for biological factor would also include part of care bundle such as placing all required belonging near to their reach, ensuring glasses is on during walking and ensuring assistive device is sturdy and near and within reach. Referral to physiotherapy would be beneficial too as to assess their mobility and strength**.**

Behavioural factor

Behavioural factor is also one of the factor that contributed to incident of fall Behaviour factor related category that is associated with human actions, emotions or daily choices. These include the action such as behaviour affected by poly pharmacy, consumption of alcohol and sedentary behaviour (WHO 2018). Chan et al, (2018) also suggested behavioural changes due to poly pharmacy has contributed to falls among elderly. This statement is supported by research done by Ghosh, O'Connell, Afrifa-Yamoah Kitchen & Coventry (2022) that mentioned depression, and alcohol or consumption of illegal drugs have found to be major risk factor for fall. These behaviour also significantly contributed to the severity of injury related to fall (Ghosh et al., 2022).

Environmental factor

Environment Factor also has been identified as one of the reasons that lead to fall among older adult as many researchers has stated the importance to ensure hazard-free environment to prevent the incident. Environmental Factor or also called Extrinsic Factor. These are external factor that is the surrounding the patient including but not limited to object like flooring and its surfaces, bedrails, walking devices, staffing, and footwear. Another extrinsic factor for fall is also the used of medication that could cause altered mental status such as opioids neuroleptic agents, benzodiazepines, and tricyclic antidepressants. Consuming this medication has a significant impact that could alter patient mental capacity and could cause them to fall.

Socioeconomic Factor

Socioeconomic risk factors that influence fall are usually the factors cause by social condition and economic status and the capacity of the community to manage it such as low income and education level, inadequate housing, lack of accessibility to healthcare, lack of social interaction etc (WHO, 2018). The higher status of socio-economic of any group of older adult have shown to have positive relationship with better health and better nutritional

status and placing them in lower risk of fall (Kim, Choi, & Xiong, 2020) , consequently the lower socio-economic status older adult would in contrast putting them in higher risk of fall. These might possibly due to less opportunity to access proper healthcare, lack of health awareness and lack of nutrition.

Interaction factor

This a factor which could be explained as the interaction of the person or resident in a long term setting with the environment. The example given by Odom, 2011 is a dementia resident would have high of fall during the changed of physical arrangement or during sun downing. This is also according to Odom, 2011 is one of the factor that heighten the risk of fall in long-term care setting

Assessment of Fall

Assessment of fall is one the standard nursing protocol performed by nurses as part of overall assessment for patient under their care. As mentioned by Slade et al, 2017, from fall assessment a set of knowledge on fall risk could gathered. Slade et al, 2017, also stated fall assessment is an imperative tools as it acts as a tool of obtaining knowledge of risk factors and include the ability to identify falls risks, managing environment that would dictate staff practices and behaviour (Slade et al., 2017) . With the comprehensive ability to perform fall assessment, nurses would have a sound understanding and better idea on the individual fall risks and tailor it to plan fall precaution and prevention measure. The information obtained on regular interval who equipped nurses on a better knowledge on nature of fall that will lead to an effective strategies to prevent fall and to ensure safety in hospital (Slade et al., 2017).

Fall Prevention

Fall Bundle Care is also known as Fall Bundle in research conducted by Grillo, (2019). Grillo, (2019), includes some preventive measures are the use of patient identifiers namely fall risk wristbands, colour-identified, non-slip socks, bed/chair alarms. The bundle care of fall is a set of Preventive Measure for fall that may include measures such as placing patient near to nurses' counter, raising side rail at all time, coloured identified sign and placing all belonging within reach.

According to National Institute of Health and Clinical Excellence, United Kingdom, Fall Care Bundle consisting of three parts (Minister & Cam, 2012). The first part is initial assessment on patient or resident on admission to identify fear of falling and history of fall. Urine should be checked, ensuring call bell to be within reach, ensuring appropriate footwear as well as walking aid and considering withholding the sedation. This protocol is followed by the second part which consist of additional action that consist of assessment of cognitive function and further assessment to identify if they are at greater risk of falling. In this stage consideration of risks and benefits of using side rails will be taken into consideration and other action will be put in place example checking eye sight, toileting assistance is provided. Medication such as any cardiac related that could result in lowering blood pressure shall be reviewed in order to prevent fall.

The last part of the bundle care is to guideline of managing anecdotal fall or other type of fall that resulted in head injury or those requiring neurological observation. In this study Fall Precaution and Preventive Measures are included in Nursing Care Plan in KPJ

Clinical Information System that has been provided to all nurses to plan for care required to prevent fall. Nurses are being trained to perform the Prevention and Precaution Measure based on Score from Morse Fall Scale.

4.0 METODOLOGY:

Study Design

The study design deemed appropriate for this type of study would be a quasi-experimental design as it is a type of study that range of non-randomized intervention without a control group and comparison of pre and post- test is required after the intervention is introduced

Study Setting and Participant

Researcher will recruit all nursing staff that consist of 25 Registered Nurses caring for resident with high risk of fall as they would be involved to do the fall assessment and intervention. The participants must be a qualified registered nurses working in one age care facility. Participants were recruited through purposely sampling.

Sample size

The centre is handled by 25 Registered Nurses with the help of Care Assistant, thus the researcher have decided to use Purposive Sampling that is recruiting all Registered Nurse as the participants.

Study instrument

The research instrument used are self-assessment questionnaire (SAQ). The questionnaire used for pre and post intervention were adopted from two authors and permission have been obtained from them electronically. The self-administered questionnaire (SAQ) used in this study is prepared in English and consists of three sections: socio-demographic data, knowledge on Morse Fall Scale, Nurses Attitude towards fall, and competency to rate Morse Fall Scale and Planning Intervention accurately.

Socio-demographic

In Part 1, the questionnaires consist socio-demographic information of the participants. There are six item on this part namely age, gender, highest education level, year of experience, have you attended any fall education before and have you experienced older adult fall incident. All the information are compulsory to be answer as they are important and related to the study. For column age and year of experience a range of answer were provide. For gender, a specific answer to male and female is given. For years of experience is the years of experience in nursing. For the question have you attended any fall education before and have you experienced older adult fall incident are yes or no answer.

Questionnaire on nurses' Knowledge on Morse Fall Scale

This Questionnaire adopted from research by Lim & Siew (2016) entitled "The level of knowledge and competency in the use of the Morse Fall Scale as an assessment tool in the prevention of patient falls".

Permission from the author has been obtained electronically on 12 April 2022.
The questionnaire consists of 10 items which will assess the knowledge of the respondent in all 6 sections of Morse Fall Scale. There are six questions on each section of MFS and the remaining 4 four (4) are general questions regarding the Morse Fall Scale. The item are history of fall three (3) months before hospitalization, how many areas are covered in Morse fall scale, secondary diagnosis, gait, mental status, ambulatory aids, purpose of risk assessment using Morse Fall Scale , what do you do when there is changes in risk offal and documentation and planning of measures to prevent fall.
The reliability of the test was analysed using the pilot study data in the original study with Cronbach's alpha values of 0.78.

Questionnaires on Nurses' Attitude on Older adult Fall
Questionnaire on Knowledge on fall and Attitude towards fall are adopted from Research by Yeong Hwa Han, Hye Young Kim and, Hye Sun Hong entitled "The Effect of Knowledge and Attitude on Fall Prevention Activities among Nursing Staff in Long-Term Care Hospitals". Replication of study and questionnaire allowed by the authors. In this questionnaire, there are 12 questions on a Likert scale that consist 5 points of Strongly Disagree, disagree, neither agree or disagree, agree and strongly agree. All the question are to assess how nurses' thought and attitude towards incident of fall. The question are I think that it is inevitable for a hospitalized patient to fall, I think that falling in the hospital is an important responsibility of nurse and care providers, I think that the prevention of falls is a high care and treatment, I think that the prevention of falls is a high care and treatment, I think it is necessary to actively care and treat patients to prevent falls, I believe that the risk of falls associated with a patient should be assessed (identified) when hospitalized, I think that the current fall prevention education is sufficient when hospitalized, I think that falls are due to the patient's condition, I think that nursing staff should respond immediately if they ask for help when they are about to move, I don't think that there is severe physical damage if the patient falls, I think that the hospital environment is safe against falls and If my patient falls, I will feel The reliability of the test was analysed using the pilot study in the original study data with Cronbach's alpha values of 0.78

Questionnaire on Practice of Morse Fall Scale
The practical ability of nurses will be assessed by investigation by researcher on the implementation of the nurses on these criteria will be based on given same scenario of case pre and post (adopted based on questionnaire by Lim & Siew (2016) entitled "The level of knowledge and competency in the use of the Morse Fall Scale as an assessment tool in the prevention of patient falls" (2016). The ability to rate Morse Fall Scale is evaluated on history of fall in 3 months, secondary diagnosis, ambulatory aids, attachment to equipment, gait, mental status and total score. The accuracy of intervention is assessed by checking if nurses were able to carry out the correct intervention namely Total Morse Fall Scale risk score, Fall risk category, History of falls, Secondary diagnosis: Consider factors which may increase risk for falls: illness/medication timing and side effects such as dizziness, frequent urination, unsteadiness , Ambulatory aids: Request order for PT consult, Attachment of Equipment, Gait, Mental Status, Total Score , Correct Fall Risk, IV or Heparin lock present: Implement toileting/rounding schedule, IV or Heparin lock present: Instruct patient to call for help with toileting, Gait: Assist with out of bed, Gait: Consider

PT consult, Mental status: Place patient in far from nurses counter and Mental status: Frequent rounding Sum. The reliability of the test was analysed using the pilot study data in the original study with Cronbach's alpha values of 0.78.

Data Collection
The data was collected from July 2022 to September 2022, after ethical approval obtained. Data collection were done electronically using Google Form in English. The Google form included a cover letter, informing participants of the confidentiality and acts as consent if the participants proceed to answer the questionnaires

Data Analysis
IBM SPSS version 24.0 were used to analyze the data, Descriptive statistics such as mean, standard deviation, frequency, and percentage were utilized to assess the demographic profile of the participants.

5.0 RESULTS AND DISCUSSION

Respondent Demographic Profile

The demographic data for the age group, the highest respondents with the age range from 31 – 35 years old with 14 participants (56%), followed by 8 (32%) from 26 – 30 years old and only 3 (12%) is more than 36 years old. For the gender, there are 22 (88%) of the respondents are female and only 3 (712%) male respondents.
For the highest education level, all respondents are diploma holder which are 25 (100%) participants, while there are 8 (32%) of the respondents have undergo post basic program and 17 (68%) of respondents are did not undergo post basic program.
For the working experience, most of the respondent have been worked less than 3 years with 11 (44%) of respondents. There are 4 (16%) of respondents have been worked for 4 – 6 years and there are 5 (20%) of respondents have been worked for 7 – 10 years and more than 10 years respectively.
For fall education data, there are 16 (64%) of the respondents have attended the fall education program, followed by 9 (36%) not attended the fall education. The distribution data for those who are encountered fall incident, there are 15 (60%) of the respondents have encountered fall incident while 10 (40%) respondents not encountered the incident.

Table 1: Respondent's Demographic Profile

Characteristic	Frequency (n)	Percentage (%)
Age		
26-30	8	32
31-35	14	56
>36 years old	3	12
Gender		
Male	3	12
Female	22	88

Highest Education		
Certificate	0	0
Diploma in Nursing	25	100
Degree	0	0
Post Basic		
Yes	8	32
No	17	68
Working Experience		
Less than 3 years	11	44
4 – 6 years	4	16
7 – 10 years	5	20
More than 10 years	5	20
Fall Education		
Yes	16	64
No	9	36
Older adult Fall Incident		
Yes	10	40
No	15	60
		Nurses (N = 25)

Level of Knowledge of Nurses on Morse Fall Scale

Table 2 shown the level of knowledge of nurses on Morse Fall Scale. For the level of the knowledge on Morse Fall Scale, for pre-test 2 (8%) participant scored poor, 10(40%) scored adequate, 12 good (48%) and only 1 (4%) excellent. After the Fall Intervention program, the post-test result were, 0 (0%) poor, 2(8%) adequate, 14(56%) good and 9 (96%) excellent.

Table 2 Level of Knowledge Pretest and Posttest

Level of Knowledge	n (%)	
	Pre-intervention	Post- intervention
Poor	2 (8)	0 (0)
Adequate	10 (40)	2 (8)
Good	12 (48)	14 (56)
Excellent	1 (4)	9 (96)

Level of Attitude of Nurses towards fall

Table 3 shown the the attitude of nurses towards fall. Prior to the fall Intervention Programme, the pre-test score were 1(4%) score poor, 3 (12%) sore adequate and 21(84%) excellent. After the intervention, the post-test score were 1 participant (4%) score poor and the remaining score excellent 24(96%).

Table 3 Level of Attitude Pre and Post Intervention Pretest and Posttest

Level of attitudes	n (%)	
	Pre-Intervention	Post - Intervention
Poor	1 (4)	1 (4)
Good	3 (12)	0 (0)
Excellent	21 (84)	24 (96)

Level of Nurses' Competency in Practice – Ability to rate Morse Fall Scale and choosing Fall Prevention Intervention

Table 4 shown the level of nurses' competency in rating Morse Fall Scale. For the level of the competency in rating Morse Fall Scale, there are only 3 (12%) of the respondents are in good level and 22 (88%) of the respondents has excellent level of the competency in Morse Fall Scale after the educational program.

Table 4 Ability to rate Morse Fall Scale and choosing Fall Prevention Intervention Pretest and Posttest

Ability to rate Morse Fall Scale and choosing Fall Prevention Intervention.	n (%)	
	Pre	Post
Poor	0 (0)	0 (0)
Good	3 (12)	1 (4)
Excellent	22 (88)	24 (96)

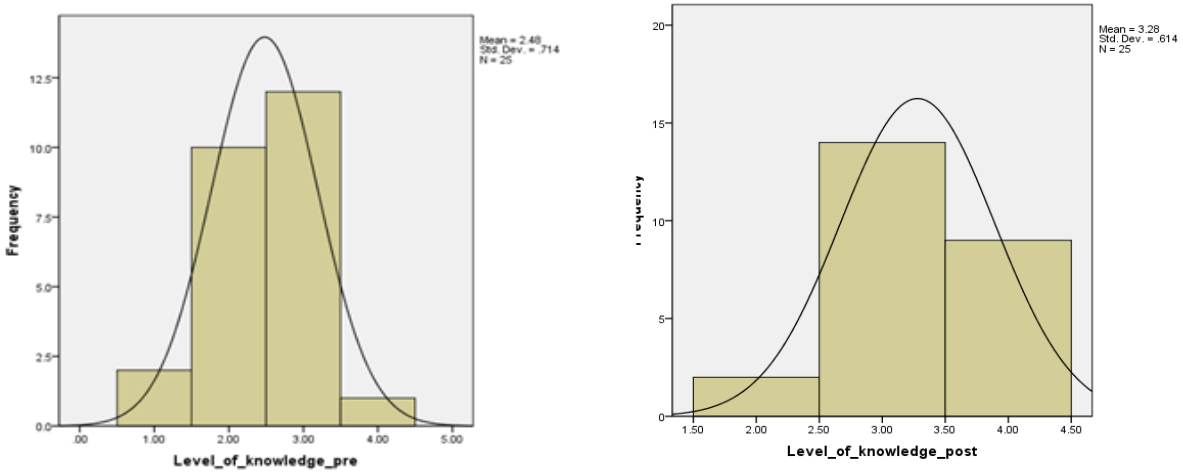

Figure 1 Histogram Normality test for Level of Knowledge

The normality of the distribution was tested by using histogram and normality curve on the histogram. The variable for pre and post fall education is not normally distributed; skewed to the left.

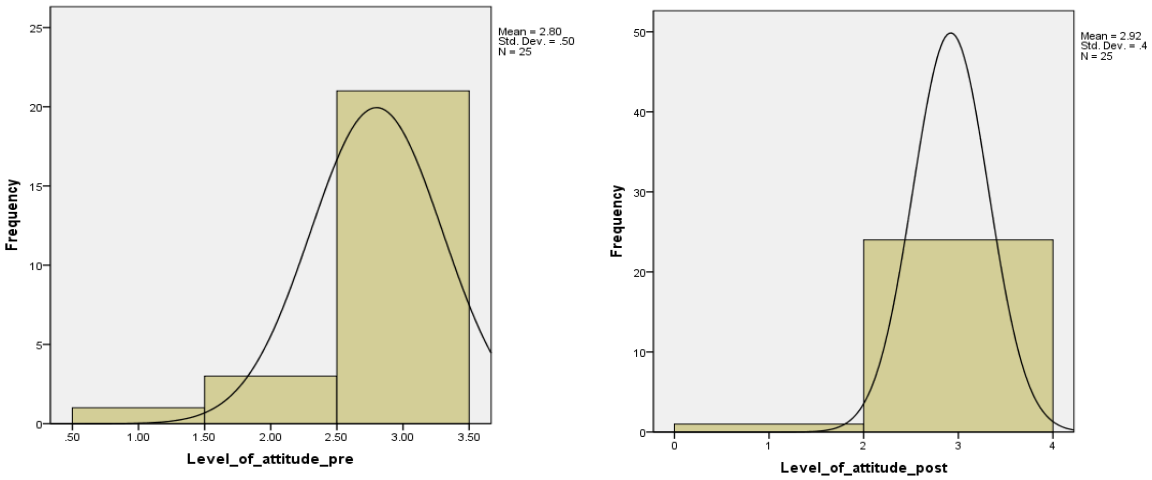

Figure 2 Histogram for Level of Attitude Pre and Post Intervention

The normality of the distribution was tested by using histogram and normality curve on the histogram. The variable for pre and post fall education is not normally distributed; skewed to the left

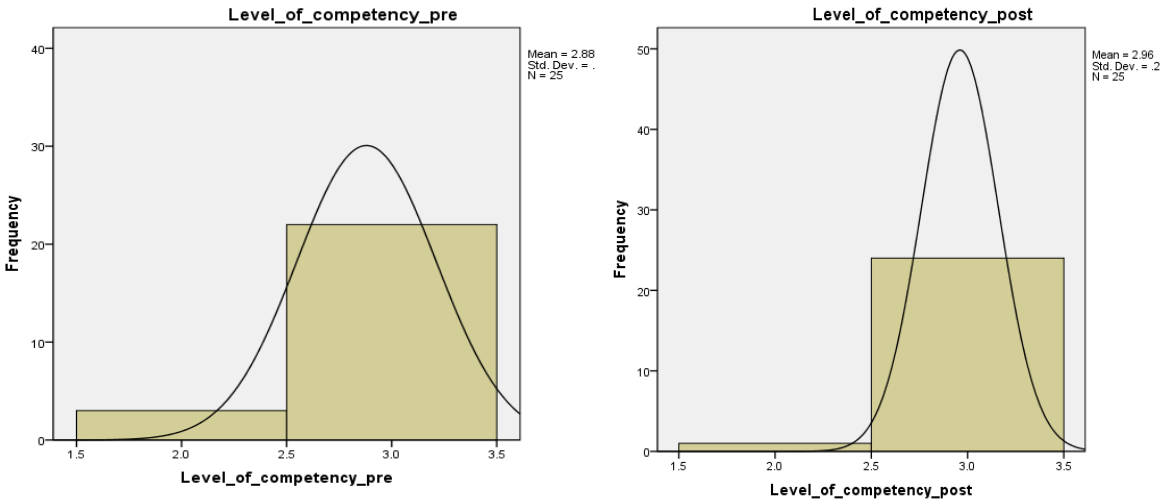

Figure 3 Histogram for Level of Nurses' Competency in Practice Pre and Post Intervention

The normality of the distribution was tested by using histogram and normality curve on the histogram. The variable for pre and post fall education is not normally distributed; skewed to the left

Relationship between Pre and Post Fall Education towards Knowledge, Attitude and Competency of Nurses in Rating of Morse Fall Scale

All the variables were tested using non-parametric test since the variable are not normally distributed. The test was used is Wilcoxon to determine the significant between pre and post intervention (fall education).

Table 5: Relationship between Pre and Post Fall Education towards Knowledge, Attitude and Competency of Nurses in Rating of Morse Fall Scale

Variable	p-Value
Knowledge of nurses on Morse Fall Scale	0.001
Attitude toward fall	0.257
Competency in Practice - rating Morse Fall Scale and choosing intervention	0.157

Knowledge of nurses on Morse Fall
P-Value is 0.001 as shown in the Table 4.3 where P > 0.05. Hence, null hypothesis is rejected. There is statistically significant relationship of level of knowledge between pre and post intervention (fall education).

Attitude toward fall please
P-Value is 0.257 as shown in the Table 4.5 where P > 0.05. Hence, null hypothesis is accepted. There is no statistically significant relationship of level of attitude between pre and post fall education.

Competency in rating Morse Fall Scale
P-Value is 0.157 as shown in Table 4.7 where P > 0.05. Hence, null hypothesis is rejected. There is no statistically significant relationship of level of competency in rating Morse Fall Scale between pre and post fall education.

6.0 CONCLUSION

The paper has shown that nurses play an important role in prevention. Nurses make immense contribution to quality care and ensuring patient safety is crucial. With the huge responsibility they should be equipped with competencies that cover the element of cognitive, attitude, skill as well as clinical judgement. Among the most important knowledge is Fall Education Training, which is deemed a priority in healthcare setting both in hospital and nursing home. Besides, it is considered part of patient safety improvement programme.

Nurses are the main care provider in healthcare setting and their role to ensure patient safety is crucial, hence the need to equip them with educational programme and competencies. On that line, Fall Education Training is deemed a priority in healthcare setting, both in hospital and nursing homes, and is considered part of patient safety improvement programme. Thus, a nursing team with the correct attitude, understanding and abilities in fall prevention will eventually put a stop to this untoward incident. On the other hand, nurses who are less caring and with lack of knowledge would eventually lead to failure to prevent falls. Thus, a comprehensive understanding of the pathophysiology, effect of fall and fall prevention strategies among nurses would create an enhanced awareness as well as compliancy. However, the study had some limitations, such as small size of sample and self-administration data that might influenced the finding and generalization of topic.

In conclusion, from data analysis confirm the relevance of providing more training and guidance to ensure competency and compliancy. The Nursing Unit of the centre shall promote the safety culture especially to reduce fall by arranging regular training with practice of MFS and Fall Care Plan.

CONFLICT OF INTEREST

The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its submission, and declare no conflict of interest on the manuscript.

REFERENCES

Ahmad, H., & Halim, H. (2017). *Determining Sample Size for Research Activities : The Case of Organizational Research*. *2*(1), 20–34.

Chan, D. K. Y., Sherrington, C., Naganathan, V., Xu, Y. H., Chen, J., Ko, A., … Cumming, R. (2018). Key issues to consider and innovative ideas on fall prevention in the geriatric department of a teaching hospital. *Australasian Journal on Ageing*, *37*(2), 140–143. https://doi.org/10.1111/ajag.12528

Cho, M. young, & Jang, S. J. (2020). Nurses' knowledge, attitude, and fall prevention practices at south Korean hospitals: a cross-sectional survey. *BMC Nursing*, *19*(1), 1–9. https://doi.org/10.1186/s12912-020-00507-w

Choi, S. D., & Andrade, E. L. (2022). *Critical Analysis of Fall Risk Factors and Socioeconomic Status (SES) Among Older adult People in Community Settings*. 97819384962–97819384963.

Cruz, S., Carvalho, A. L., Barbosa, P., & Lamas, B. (2015). Morse Fall Scale User's Manual: Quality in Supervision and in Nursing Practice. *Procedia - Social and Behavioral Sciences*, *171*, 334–339. https://doi.org/10.1016/j.sbspro.2015.01.130

Curtis, E. A. (2008). on Job Satisfaction Among Nurses. *Nursing*, *17*(3), 174–181.

Frameworks, C. (2021). *TWO no t co py po s t , or d is t rib ut e o no t co rib e*.

Ghanim, S., Mohamed, S., Mohamed, A., & Hassan, H. (2024). Nurses' Knowledge and Practice for Reducing Falls among Older Adult Women. *NILES Journal for Geriatric and Gerontology*, *7*(1), 104–126. https://doi.org/10.21608/niles.2024.318085

Ghosh, M., O'Connell, B., Afrifa-Yamoah, E., Kitchen, S., & Coventry, L. (2022). A retrospective cohort study of factors associated with severity of falls in hospital patients. *Scientific Reports*, *12*(1), 1–9. https://doi.org/10.1038/s41598-022-16403-z

Grillo, D. M. (2019). Implementation of Purposeful Hourly Rounds in Addition to a Fall Bundle to Prevent Inpatient Falls on a Medical-Surgical Acute Hospital Unit.

MEDSURG Nursing, *28*(4), 243–246. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=138187887&site=ehost-live&authtype=ip,uid

Hakvoort, L., Dikken, J., van der Wel, M., Derks, C., & Schuurmans, M. (2021). Minimizing the knowledge-to-action gap; identification of interventions to change nurses' behavior regarding fall prevention, a mixed method study. *BMC Nursing*, *20*(1), 1–14. https://doi.org/10.1186/s12912-021-00598-z

Han, Y. H., Kim, H. Y., & Hong, H. S. (2020). The Effect of Knowledge and Attitude on Fall Prevention Activities among Nursing Staff in Long-Term Care Hospitals. *Open Journal of Nursing*, *10*(07), 676–692. https://doi.org/10.4236/ojn.2020.107048

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, *18*(3), 66–67. https://doi.org/10.1136/eb-2015-102129

Hicks, D. (2015). Can rounding reduce patient falls in acute care? an integrative literature review. *MEDSURG Nursing*, *24*(1), 51–55.

Hussain, S. T., Lei, S., Akram, T., Haider, M. J., Hussain, S. H., & Ali, M. (2018). Kurt Lewin's change model: A critical review of the role of leadership and employee involvement in organizational change. *Journal of Innovation and Knowledge*, *3*(3), 123–127. https://doi.org/10.1016/j.jik.2016.07.002

Innab, A. M. (2022). Nurses' perceptions of fall risk factors and fall prevention strategies in acute care settings in Saudi Arabia. *Nursing Open*, *9*(2), 1362–1369. https://doi.org/10.1002/nop2.1182

Jensen, J., Lundin-Olsson, L., Nyberg, L., & Gustafson, Y. (2002). Falls among frail older people in residential care. *Scandinavian Journal of Public Health*, *30*(1), 54–61. https://doi.org/10.1080/140349401753481592

Kim, T., Choi, S. D., & Xiong, S. (2020). Epidemiology of fall and its socioeconomic risk factors in community-dwelling Korean elderly. *PLoS ONE*, *15*(6), 6–10.

https://doi.org/10.1371/journal.pone.0234787

Kirkpatrick, H., Boblin, S., Ireland, S., & Robertson, K. (2014). The nurse as bricoleur in falls prevention: Learning from a case study of the implementation of fall prevention best practices. *Worldviews on Evidence-Based Nursing*, *11*(2), 118–125. https://doi.org/10.1111/wvn.12026

KKM. (2019). MOH/P/HKL/09.19(GU)-e. *Falls Guidelines*, *19*, 61.

Lambert, C., Sterbenz, K. A., Womack, D. E., Zarrinkhameh, L. T., & Newton, R. A. (2001). Adherence to a fall prevention program among community dwelling older adults. *Physical and Occupational Therapy in Geriatrics*, *18*(3), 27–43. https://doi.org/10.1300/J148v18n03_02

Lange, J., Wallace, M., Gerard, S., Lovanio, K., Fausty, N., & Rychlewicz, S. (2009). Effect of an acute care geriatric educational program on fall rates and nurse work satisfaction. *Journal of Continuing Education in Nursing*, *40*(8), 371–379. https://doi.org/10.3928/00220124-20090723-03

Leah, N. (2024). *Types of Purposive Sampling Techniques with Their Examples and Application in Qualitative Research Studies*. *5*(1), 90–99.

Lee, S. H., & Kim, H. S. (2017). Exercise Interventions for Preventing Falls Among Older People in Care Facilities: A Meta-Analysis. *Worldviews on Evidence-Based Nursing*, *14*(1), 74–80. https://doi.org/10.1111/wvn.12193

Leong Joyce, W. S., Zukri, I. N. M., Ching, S. M., & Devaraj, N. K. (2020). Factors associated with falls among the older adult attending a government clinic in Kuala Lumpur. *Malaysian Journal of Medicine and Health Sciences*, *16*(1), 183–190.

Leung, D. D. M. (2019). Influence of functional, psychological, and environmental factors on falls among community-dwelling older adults in Hong Kong. *Psychogeriatrics*, *19*(3), 228–235. https://doi.org/10.1111/psyg.12386

Lim, S. G., & Yam, S. W. (2016). The level of knowledge and competency in the use of

the Morse Fall Scale as an assessment tool in the prevention of patient falls. *International E-Journal Of Science, Medicine & Education*, *10*(3), 14–23.

Maggio, L. A., Sewell, J. L., & Artino, A. R. (2016). The Literature Review: A Foundation for High-Quality Medical Education Research. *Journal of Graduate Medical Education*, *8*(3), 297–303. https://doi.org/10.4300/JGME-D-16-00175.1

Malaysian Patient Safety Goal, Guideline on Implementation & Surveillance (2013)

Mentis, M. N., Mavroeidi, E., & Konstantopoulou, G. (2023). The Impact of Fear of Falling (FOF) on the Quality of Life of the Elderly: A Cross-Sectional Clinical Study in a Regional Health Center. *Journal of Psychology and Neuroscience*, (January). https://doi.org/10.47485/2693-2490.1066

Miller, L., & Limbaugh, C. M. (2008). Applying evidence to develop a medical oncology fall-prevention program. *Clinical Journal of Oncology Nursing*, *12*(1), 158–160. https://doi.org/10.1188/08.CJON.158-160

Minister, P., & Cam, D. (2012). *Taking the time to care New guidance helps limit fall*. *14*(3).

Moreland, B., Kakara, R., & Henry, A. (2020). *Trends in Nonfatal Falls and Fall-Related Injuries Among Adults Aged ≥ 65 Years — United States , 2012 – 2018*. *69*(27), 2012–2018.

Morse, J., Black, C., Oberle, K., & Donahue, P. (1989). Falls : Morse Fall Scale Falls. *Soc Sci Med*, *28*(1), 81–86.

Nguyen, L., & Ho, H. (2015). *A Proposed Method for Choice of Sample Size without Pre-Defining Error*. *100*(November), 163–167.

NICE. (2013). NICE clinical guideline 161. Falls: Assessment and prevention of falls in older people. *National Institute of Health and Care Excellence*, *161*(June), 1–315. https://doi.org/10.7748/nop.26.6.18.e586

Ojo, E. O., & Thiamwong, L. (2022). Effects of Nurse-Led Fall Prevention Programs for Older Adults: A Systematic Review. *Pacific Rim International Journal of Nursing Research*, *26*(3), 417–431.

Okano, R., Ishii, T., Murata, T., Kato, N., Inaba, H., Kosuzume, K., & Ohnishi, H. (2006). The Use and Int. *J Am Med Inform Assoc.*, *13*(1), 16–23. https://doi.org/10.1197/jamia.M1749.Background

Olrich, T., Kalman, M., & Nigolian, C. (2012). Hourly rounding: a replication study. *Medsurg Nursing : Official Journal of the Academy of Medical-Surgical Nurses*, *21*(1).

Orimo, H., Ito, H., Suzuki, T., Araki, A., Hosoi, T., & Sawabe, M. (2006). Reviewing the definition of "elderly." *Geriatrics and Gerontology International*, *6*(3), 149–158. https://doi.org/10.1111/j.1447-0594.2006.00341.x

Polit, D. F., & Beck, C. T. (2006). Essentials of nursing research: methods, appraisal, and utilization. In *Philadelphia, Pa. : Lippincott Williams & Wilkins*. https://doi.org/10.1017/CBO9781107415324.004

Ramasamy, K. (2019). Educational Training on Falls Intervention for Older adult Patients in Acute Care Settings. *ProQuest Dissertations and Theses*, 64. Retrieved from http://ezproxy.puc.cl/dissertations-theses/educational-training-on-falls-intervention/docview/2244709920/se-2?accountid=16788%0Ahttp://todosibuc.uc.cl/openurl/56PUC_INST/56PUC_INST_SP?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre

Safril, S. (2018). *Enfermería Clínica*. *28*, 144–148.

Shaharudin, M. I., Singh, D. K. A., & Shahar, S. (2018). Falls prevalence and its risk assessment tools among Malaysian community-dwelling older adults: A review. *Malaysian Journal of Public Health Medicine*, *18*(2), 35–38.

Shaw, L., Kiegaldie, D., & Farlie, M. K. (2020). Education interventions for health

professionals on falls prevention in health care settings: a 10-year scoping review. *BMC Geriatrics*, *20*(1), 1–14. https://doi.org/10.1186/s12877-020-01819-x

Sherrington, C., & Tiedemann, A. (2015). Physiotherapy in the prevention of falls in older people. *Journal of Physiotherapy*, *61*(2), 54–60. https://doi.org/10.1016/j.jphys.2015.02.011

Slade, S. C., Carey, D. L., Hill, A. M., & Morris, M. E. (2017). Effects of falls prevention interventions on falls outcomes for hospitalised adults: Protocol for a systematic review with meta-Analysis. *BMJ Open*, *7*(11), 1–6. https://doi.org/10.1136/bmjopen-2017-017864

Sukreep, S., Elgazzar, K., Chu, H., Mongkolnam, P., & Nukoolkit, C. (2019). iWatch: A Fall and Activity Recognition System Using Smart Devices. *International Journal of Computer and Communication Engineering*, *8*(1), 18–31. https://doi.org/10.17706/ijcce.2019.8.1.18-31

Tavakol, M., & Dennick, R. (2011). *Making sense of Cronbach ' s alpha*. 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd

Tucker, S. J., Bieber, P. L., Attlesey-Pries, J. M., Olson, M. E., & Dierkhising, R. A. (2012). Outcomes and Challenges in Implementing Hourly Rounds to Reduce Falls in Orthopedic Units. *Worldviews on Evidence-Based Nursing*, *9*(1), 18–29. https://doi.org/10.1111/j.1741-6787.2011.00227.x

van der Vet, P. C. R., Kusen, J. Q., Rohner-Spengler, M., Link, B. C., Houwert, R. M., Knobe, M., … Beeres, F. J. P. (2021). Fear of falling, recurrence of falls, and quality of life in patients with a low energy fracture—part ii of an observational study. *Medicina (Lithuania)*, *57*(6). https://doi.org/10.3390/medicina57060584

Vernon Odom, J. (2011). Falls and falls prevention. *Insight: Research and Practice in Visual Impairment and Blindness*, *4*(2), 43. https://doi.org/10.1007/978-3-319-29182-6_38

Wang, L., Zhang, L., Roe, E., Decker, S., Howard, G., Luth, A., … Whitman, B. (2022). The Perceived Knowledge of Fall Prevention in Nurses Working in Acute Care Hospitals in China and the United States. *Journal of Patient Safety*, *18*(2), E580–E584. https://doi.org/10.1097/PTS.0000000000000873

Warrington, D. J., Shortis, E. J., & Whittaker, P. J. (2021). Are wearable devices effective for preventing and detecting falls: an umbrella review (a review of systematic reviews). *BMC Public Health*, *21*(1), 1–12. https://doi.org/10.1186/s12889-021-12169-7

While, A. E. (2020). Falls and older people: Preventative interventions. *British Journal of Community Nursing*, *25*(6), 288–292. https://doi.org/10.12968/bjcn.2020.25.6.288

Yin, L. P., Wang, F., Li, Q., Feng, X. N., Li, Y. L., & Li, L. L. (2023). A Cross-Sectional Descriptive Study on the Attitudes Towards Patient Safety and Influencing Factors of Nurses in Infectious Diseases Wards. *Journal of Multidisciplinary Healthcare*, *16*(March), 731–740. https://doi.org/10.2147/JMDH.S401373

Yang, Y., Ye, Q., Yao, M., Yang, Y., & Lin, T. (2022). Correction: Development of the home-based fall prevention knowledge (HFPK) questionnaire to assess home-based fall prevention knowledge levels among older adults in China. *BMC Public Health*, *22*(1). doi:10.1186/s12889-022-14761-

Zijlstra, G.A.R, van Haastregt, J.C.M van Ejik,,J.T.M et al(2007) . Prevalemce and correction of faeroffalling, and associated avoidance of activity in the general population population of community-living older people: Age and Ageing, 36(3), 304-309