

UNIT PROJECT



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Implementing a Virtual Mobility Education Program to Impact Nursing Knowledge, Attitudes, and Behaviors toward Patient Mobility

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ABSTRACT

Introduction: Older adults aged 65 and over are vulnerable to functional decline during hospitalization and negative outcomes associated with immobility such as pressure injuries and falls. Studies reveal that nurses overlook patient mobilization due to competing priorities and a lack of comfort with patient mobilization. Hospital-associated functional decline can be mitigated through mobilization protocols. A 36-bed medical surgical unit in a South Florida hospital did not have a protocol for patient mobility.

Methods: Nurses' knowledge, attitudes, and behaviors regarding patient mobility were assessed using a pre-implementation survey. A virtual education program about the mobility protocol was provided via an online platform. Three weeks later, a post-implementation survey was administered to those who attended the education.

Results: Fourteen nurses completed both the pre- and post-test surveys. The nurse-led mobility protocol educational intervention was associated with (a) an increase in average scores from the pre-test nursing mobility attitudes ($M = 3.50$) and behavior subscales ($M = 3.40$) to the post-test scores ($M = 3.56$ and $M = 3.75$, respectively) and (b) a significant increase in the average knowledge scores from the pre-test survey ($M = 4.31$) to the post test survey ($M = 4.62$), $t(13) = -2.74$, $p < 0.05$.

Discussion: The results suggest that the mobility education was successful in increasing nurse mobilization knowledge. Methods to improve nurses' attitudes and behaviors toward patient mobility should be further explored.

Keywords: Mobility protocol, attitudes, knowledge, behaviors, hospitalization, older adult

INTRODUCTION

Globally, the number of adults aged 65 and older is expected to nearly triple to about 1.5 billion, representing 16 percent of the world's population. Older adults are costlier due to chronic diseases and disabilities that occur with aging (Mather et al., 2019). Nearly 40% of hospitalized patients in the United States are 65 years and older and an increased burden on resources and healthcare spending can be expected as the aging population continues to grow (Mattison, 2019). Interventions to reduce resource use and lower costs are essential to all healthcare organizations (Mattison, 2019). According to the National Institutes of Health (NIH, 2011), one approach to

control health and societal costs is to reduce severe disability from disease and health conditions. Older adults remaining mobile and independent for as long as possible is key to reducing disability (NIH, 2011).

A 36-bed medical surgical telemetry unit in an urban acute care hospital in South Florida did not have a standard policy or structured protocol for patient mobility for hospitalized patients. For many older adults, prolonged periods of bedrest and immobility during hospitalization result in functional decline, muscle contractures, pressure injuries, falls, delirium, constipation, and hospital-acquired conditions such as hospital-acquired pneumonia and deep vein thrombosis, which can

lead to increased length of stay at the hospital and rehabilitation facilities (Hoyer et al., 2016). Functional decline is the leading negative outcome of hospitalization for older adults and is defined as the inability to perform activities of daily living (ADLs) due to weakness, reduced exercise capacity, or reduced muscle strength (Abdulaziz et al., 2016). According to Greysen et al. (2017), severe functional decline is associated with increased financial impact on individuals, their families, and community care systems such as home health or skilled nursing facilities compared to older adults with no impairment. The expenses increased in a dose-response relationship as the degree of functional impairment increased: patients with the most functional impairment had costs nearly 80% higher than those with no impairments (\$46 vs. \$26 thousand; Greysen et al., 2017).

Deconditioning and functional decline can occur as soon as day two for hospitalized older adults (Krešević, 2015). Such decline in mobility leads to difficulty in performing ADLs such as ambulating, transferring, dressing, personal hygiene, and toileting (Edemekong et al., 2021; Katz, 1983). Regular physical mobility during hospitalization is critical to prevent loss of functional abilities and to promote well-being. The promotion of physical mobility among hospitalized older adults is considered routine nursing care; however, research indicates that physical mobility is often an overlooked aspect of care. The evidence suggests that nurses overlook patient mobilization due to a heavy workload and a lack of knowledge and comfort with patient mobilization (Smart et al., 2018). Interventions that promote nursing responsibility for patient mobilization and reduce hospital-associated functional decline are essential to improve patient outcomes and to reduce healthcare resource use. Hospital-associated functional decline can be mitigated through evidence-based, nurse-led mobilization programs.

PROJECT AIMS

The primary aim of this project was to determine the impact of a structured virtual mobility education session on nurses' knowledge, attitudes, and beliefs of early mobilization of hospitalized patients. The secondary aim was to promote mobilization practice behaviors that are aligned with evidence-based care.

METHODS

Design, Sample, and Setting

This medical surgical unit project used a comparative pretest posttest design. Nurses from a 36-bed medical surgical unit in an urban community acute care hospital in South Florida participated within a virtual setting. The target population consisted of approximately 35 staff registered nurses (RNs) employed in the medical surgical unit. Participants were identified during the virtual unit staff meeting and nursing staff were emailed an invitation to participate in the voluntary project with direct links to the online survey. Only staff RNs employed by the medical surgical unit were eligible to participate in the virtual mobility education session. Nurses employed by other hospital units, travel nurses, nursing assistants, RNs who did not provide direct patient care, and non-nursing staff were excluded from participation in the project. All nurses who met the inclusion criteria were given the opportunity to take the voluntary pre and post-surveys.

Procedures

An informational letter was sent to all the RNs in the unit to invite the nurses to participate in the project. An anonymous link to the pre-intervention survey was included in the e-mail. Participating RNs completed the pretest Mobility Assessment Survey on their mobile devices or computers via the Qualtrics survey platform. Participants created a unique code identifier for the survey; this code was comprised of the day of the month the participant was born and the first three letters of his or her mother's first name. No personal identifiable information was captured in the pre or posttest. These procedures ensured that participants' privacy was protected and that survey responses could not be linked to participants. Three weeks after the virtual mobility education session, a follow-up reminder was sent to ask the participants' to complete the posttest Mobility Assessment Survey.

Intervention

The virtual mobility education session instructed the staff on the hazards of immobility for the older adult, the benefits of mobility and ambulation, the nurse-led mobilization bundle purpose, nurse role and responsibilities, and how to use the early mobilization bundle based on the Johns Hopkins-Highest Level of Mobility (JH-HLM) Scale (Hoyer et al., 2015). Permission for

use of the JH-HLM scale was obtained. The early mobility bundle integrates the progressive mobility scale that can be used to determine the patient's current mobility level and nursing staff interventions according to the patient's level of mobility. The education session included several videos on gait belt use with skills instruction provided by the hospital physical therapists.

Human Subjects Protection

By entering unique code identifiers used to pair the pre and post-surveys, nurses participating in the survey remained anonymous and the data were secured. The digital data collected from the pre and posttests were housed in Qualtrics and secured on a password encrypted laptop.

Measure

Research from Hoyer et al. (2015) indicated that the Johns Hopkins Patient Mobilization Attitudes & Beliefs Survey is a reliable and valid tool used to assess staff knowledge, attitudes, and behaviors towards patient mobilization. This tool demonstrated reliability in a previous study with a Cronbach's alpha score of 0.87 for the overall barriers scale, 0.82, 0.77, and 0.75 for the knowledge, attitudes, and behavior subscales, respectively (Hoyer et al., 2015). The license for the Johns Hopkins tool indicates that it is permissible to use the material. The Mobility Assessment Survey included the validated Johns Hopkins tool and demographic questions. The survey consisted of three subscales with 18 questions on a 5-point Likert-type scale. The questions range from *strongly agree* to *strongly disagree*. Positively worded statements were ranked as 5 (*strongly agree*), 4 (*agree*), 3 (*neutral*), 2 (*disagree*), and 1 (*strongly disagree*). Items that reflected negative views on mobility were reverse coded (i.e. 5 = *strongly disagree*). Three statements from the survey were part of the knowledge subscale, nine statements were part of the attitudes subscale, and six statements were included in the behaviors subscale. In the survey instructions, mobilizing patients was defined as getting a patient out of bed (e.g., sitting out of bed, toileting at bedside or to a bathroom, standing, and ambulating).

Data Analysis Procedures

Data from Qualtrics was exported to Microsoft Excel and analyzed using RStudio. Using descriptive statistics, calculations included percentages, mean, standard deviations, and effect sizes. Inferential statistics were used to analyze

the responses from the pre and posttest surveys. A paired t-test was used to determine whether a significant change in nurses' knowledge, attitudes, and behaviors occurred after nurses attended the virtual education session.

RESULTS

Pre-Intervention Sample

Of the 22 participants in the pre-intervention sample, over half held a bachelor's in nursing degree ($n = 12, 55\%$). Additionally, the majority of the participants in the sample had been RNs for more than 5 years ($n = 13, 59\%$). Last, the pre-intervention sample was evenly distributed between nurses whose primary work shift was the day shift versus the night shift.

Post-Intervention Sample

Fourteen of the original 22 nurses participated in the educational intervention and post-intervention survey. The majority of post-intervention participants were from day shift ($n = 11, 79\%$). Similar to the pre-intervention sample, the largest group of nurses that completed the post-survey had a bachelor's degree in nursing ($n = 6, 43\%$), and had more than 5 years of nursing experience ($n = 8, 57\%$).

Data Analysis

Change Analysis

As shown in Table 1 there was a significant increase in the knowledge scale with a medium effect size and non-significant increases in the attitudes, behaviors, and overall scales with negligible to small effect sizes. See Table 1 for descriptive statistics and results of the dependent t-test of pre and posttest scores from the overall scale and knowledge, attitude, and behaviors survey subscales.

The inferential statistics do not suggest a high degree of confidence due to the small effect sizes. Figure 1 shows the pre- and post-intervention average scores for the three subcategories as well as the overall composite score. See Table 2 for the pretest and posttest score averages and standard deviation for each statement from the knowledge, attitude, and behaviors survey subscales.

Table 1

Descriptive Statistics and Results of a Dependent t-test of Pre and Post-test Scores by Scale and Subscale on the Mobility Assessment Survey

Scale	Pretest		Posttest		<i>t</i> - statistic	<i>p</i> - value	Cohen's <i>d</i>
	<i>M</i> (<i>n</i> = 14)	<i>SD</i>	<i>M</i> (<i>n</i> = 14)	<i>SD</i>			
Overall	3.60	0.46	3.75	0.59	1.54	0.15	0.27
Knowledge	4.31	0.44	4.62	0.50	-2.74	0.02*	0.65
Attitudes	3.50	0.50	3.56	0.68	0.47	0.64	0.09
Behavior	3.40	0.53	3.60	0.70	1.41	0.18	0.30

df = 13

**p* < .05

Figure 1

Average Pre and Post-Test Scores by Scale and Subscale on the Mobility Knowledge Assessment Survey

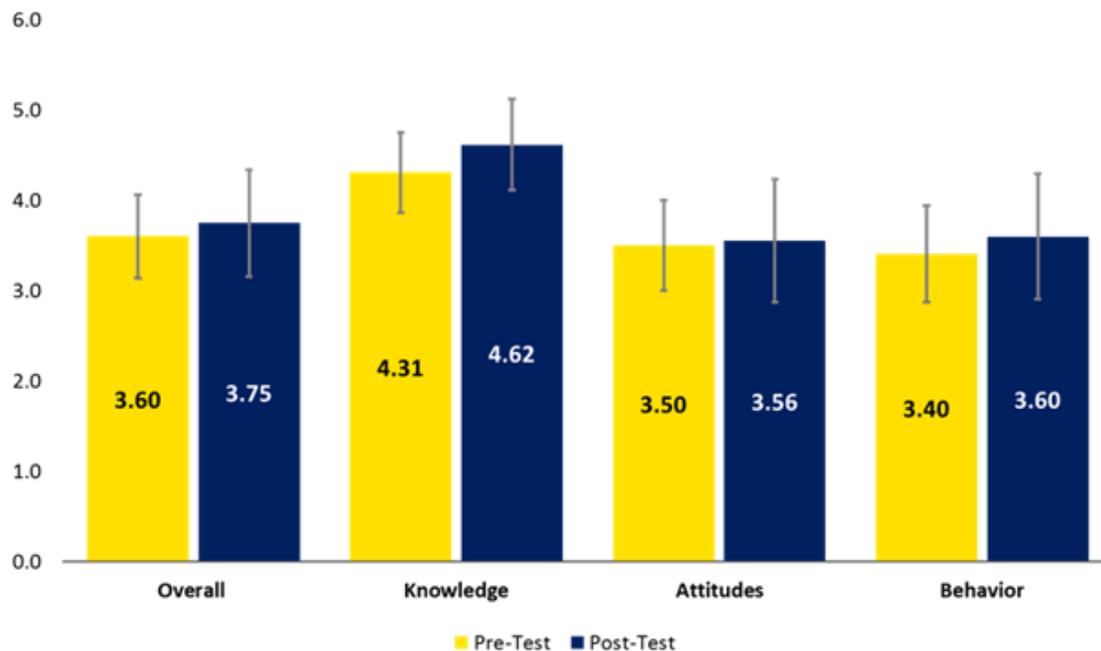


Table 2

Individual Average Pre and Post-Test Scores and Standard Deviation by Scale and Subscale on the Mobility Assessment Survey

Scale	Mean		Standard Deviation	
	Pre	Post	Pre	Post
Knowledge				
I have received training on how to safely mobilize my patients	4.29	4.50	0.73	0.65
I understand which patients are appropriate to refer to physical therapy	4.36	4.64	0.50	0.50
Unless there is a contraindication, I educate my patients to exercise or increase their physical activity	4.29	4.71	0.61	0.47
Knowledge	4.31	4.62	0.44	0.50
Attitudes				
My patients are too sick to be mobilized*	3.36	3.07	0.93	1.27
Increasing mobilization of my patients will be harmful to them (i.e. falls, IV removal, etc.)*	3.50	3.36	0.94	1.34
A physical therapist or occupational therapist should be the primary care provider to mobilize my inpatients*	3.14	3.00	1.10	1.30
Increasing mobilization of my patients will be more work for nurses*	2.86	3.29	1.29	1.33
Increasing mobilization of patients will be more work for physical therapists	3.50	3.93	1.02	0.83
My patients have time to be mobilized at least three times per day	3.00	3.36	1.18	1.15
I am not sure when it is safe to mobilize my patients	4.00	4.07	0.55	0.73
I believe that my patients who are mobilized at least three times per day will have better outcomes	4.14	4.36	0.66	0.63
I do not feel confident in my ability to mobilize my patients*	4.00	3.57	0.00	1.09
Attitudes	3.50	3.56	0.50	0.68
Behavior				
We don't have the proper furnishing or equipment to mobilize my patients*	3.50	3.93	1.09	0.73
The physical functioning of my patients is regularly discussed between the patient's healthcare providers (nurses, physicians, nurse practitioners, physical and occupational therapists)	3.57	3.71	1.02	0.73

Scale	Mean		Standard Deviation	
	Pre	Post	Pre	Post
Nurse-to-patient staffing is adequate to mobilize patients on my unit	3.21	3.50	1.19	0.94
My inpatients often have contraindications to be mobilized*	3.21	3.14	1.05	1.03
Unless there is a contraindication, I mobilize my patients at least once during my shift	3.29	3.71	0.99	0.99
My departmental leadership is very supportive of patient mobilization	3.64	3.57	0.74	1.02
Behavior	3.40	3.60	0.53	0.70
Overall	3.60	3.75	0.46	0.59

Note. Response options were as follows: 1 *strongly disagree*; 2 *disagree*; 3 *neutral*; 4 *agree*; 5 *strongly agree*

*Response options were reverse coded for subsequent analyses

From "Barriers to early mobility of hospitalized general medicine patients: Survey development and results" by E. H. Hoyer et al., 2015, *American Journal of Physical Medicine & Rehabilitation*, 94(4), 304–312. CC BY-NC-ND-4.0.

DISCUSSION

This project revealed the impact of a structured virtual mobility education session on nurses' knowledge, attitudes, and beliefs. The results indicate that although there were increases in the mean posttest scores in the knowledge, attitudes, and behaviors subscales, only the knowledge mean sub-scale score increase was statistically significant. These findings suggest that the education can be an effective strategy to increase nurses' knowledge about mobility and may change the way nurses mobilize their patients. The average score increase for the knowledge subscale was statistically significant; however, the results had a medium effect size, which can be attributed to the small sample size. Future researchers should implement the intervention on multiple medical surgical units across different hospitals to increase the sample size and diversity, thus increasing the power of the significance of the results. These results are in line with multiple studies that indicate that nursing staff education led to an increase in nurses knowledge of the concepts of early mobility (Dermody & Kovach, 2018; Wang et al., 2020). In addition, a Canadian review revealed that although most nurses had a satisfactory level of knowledge toward patient mobilization, further

interventions are needed to dispel negative attitudes and beliefs among nurses (Swoboda et al., 2020). Interventions that include leadership involvement and continuous training are known strategies that influence nursing attitudes and behaviors (Tucker & Gallagher-Ford, 2019). Practices that improve nurses attitudes and behaviors toward patient mobility should be further explored.

Limitations

This project lacked randomization or a control group. Further limitations included the small sample size due to recruiting participants from a single medical surgical unit. The participants consisted of one male with the remaining participants being female, thus limiting generalizability of results. In addition, sample attrition occurred due to the loss of eight night-nurse participants in the post-intervention survey. The sample attrition is likely attributable to the opposite sleep and work schedules for day- and night-shift nurses. To capture as many nurses as possible, future researchers should provide multiple educational sessions to accommodate day- and night-shift nurses.

Implications for Practice

Nurses value continued education but do not have the time to read the literature themselves. Therefore, healthcare organizations are charged with cultivating a spirit of inquiry and providing easily accessible educational opportunities for the nursing staff (Tucker & Gallagher-Ford, 2019). The education sessions provided should focus on the low scoring areas from the Mobility Assessment Survey to target staff weaknesses and address identified barriers to improve nursing attitudes and behaviors. Formal written guidelines and policies should also be developed to guide the implementation of the mobility protocol and organizational support are needed to overcome resistance to change. The virtual mobility education and implementation of the nurse-led mobility protocol benefits the patients and the professional development, responsibility, and capability of nurses. The protocol used in nursing practice presents an opportunity to close the gap between recommended care and actual care delivered, supports nursing autonomy, and gives nurses the enhanced ability to make decisions based on sound clinical judgement.

CONCLUSION

The findings reveal that although there were increases in the mean pre and posttest scores in the knowledge, attitudes, and behaviors subscales, only the knowledge mean sub-scale score increase was statistically significant. The virtual education led to improvements in nursing mobility knowledge which may increase nurse motivation to mobilize patients. These findings suggest the need to further evaluate methods to improve nursing attitudes and behaviors toward patient mobility.

DECLARATION OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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REFERENCES

- Abdulaziz, K., Perry, J. J., Taljaard, M., Émond, M., Lee, J. S., Wilding, L., Sirois, M., & Brehaut, J. (2016). National survey of geriatricians to define functional decline in elderly people with minor trauma. *Canadian Geriatrics Journal*, *19*(1), 2–8. <https://doi.org/10.5770/cgj.19.192>
- Dermody, G., & Kovach, C. (2018). Barriers to promoting mobility in hospitalized older adults. *Research in Gerontological Nursing*, *11*(1) 17-27. <https://doi.org/10.3928/19404921-20171023-01>
- Edemekong, P. F., Bomgaars, D. L., Sukumaran, S., & Levy, S. (2021). Activities of daily living. *National Center for Biotechnology Intervention Bookshelf*. <https://www.ncbi.nlm.nih.gov/books/NBK470404/>
- Greysen, S. R., Stijacic Cenzer, I., Boscardin, W. J., & Covinsky, K. E. (2017). Functional impairment: An unmeasured marker of medicare costs for postacute care of older adults. *Journal of the American Geriatrics Society*, *65*(9), 1996–2002. <https://doi.org/10.1111/jgs.14955>
- Hoyer, E. H., Brotman, D. J., Chan, K., & Needham, D. M. (2015). Barriers to early mobility of hospitalized general medicine patients: Survey development and results. *American Journal of Physical Medicine & Rehabilitation*, *94*(4), 304–312. <https://doi.org/10.1097/PHM.000000000000185>
- Hoyer, E. H., Friedman, M., Lavezza, A., Wagner-Kosmakos, K., Lewis-Cherry, R., Skolnik, J. L., Byers, S. P., Atanelov, L., Colantuoni, E., Brotman, D. J., & Needham, D. M. (2016). Promoting mobility and reducing length of stay in hospitalized general medicine patient: A quality-improvement project. *Journal of Hospital Medicine*, *11*(5), 341–347. <https://doi.org/10.1002/jhm.2546>

- Katz, A. (1983). Assessing self-maintenance: Activities of daily living, mobility, and instrumental activities of daily living. *Journal of the American Geriatrics Society*, 31(12), 721–727. <https://doi.org/10.1111/j.1532-5415.1983.tb03391.x>
- Krešević, D. M. (2015). Reducing functional decline in hospitalized older adults. *American Nurse Today*, 10(5), 8-10. <https://www.americannursetoday.com/reducing-functional-decline-hospitalized-older>
- Mather, M., Scommegna, P., & Kilduff, L. (2019). *Fact sheet: Aging in the United States*. Population Reference Bureau. <https://www.prb.org/aging-unitedstates-fact-sheet/>
- Mattison, M. (2019). *Hospital management of older adults*. UpToDate. <http://www.uptodate.com/contents/hospital-management-of-older-adults>
- National Institutes of Health. (2011). Global health and aging. *World Health Organization*. https://www.who.int/ageing/publications/global_health.pdf?ua=1
- Smart, D. A., Dermody, G., Coronado, M. E., & Wilson, M. (2018). Mobility programs for the hospitalized older adult: A scoping review. *Gerontology & Geriatric Medicine*, 4, 1-18. <https://doi.org/10.1177/2333721418808146>
- Swoboda, N. L., Dahlke, S., & Hunter, K. F. (2020). Nurses' perceptions of their role in functional focused care in hospitalized older people: An integrated review. *International Journal of Older People Nursing*, 15(4). <https://doi.org/10.1111/opn.12337>
- Tucker, S., & Gallagher-Ford, L. (2019). EBP 2.0: From Strategy to implementation. *American Journal of Nursing*, 119(4), 50–52. <https://doi.org/10.1097/01.NAJ.0000554549.01028.af>
- Wang, J., Xiao, Q., Zhang, C., Jia, Y., & Shi, C. (2020). Intensive care unit nurses' knowledge, attitudes, and perceived barriers regarding early mobilization of patients. *Nursing in Critical Care*, 25(6), 339-345. <https://doi.org/10.1111/nicc.12507>