Implementation of an Evidence-Based Falls Prevention Educational Program in a Long-Term Care Facility

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Problem

- Falls among older adults (OAs) 65 years and over in long-term care facilities (LTCFs) are a persistent public health care issue and are due to multiple intrinsic and extrinsic fall risk factors.[1]
- Older adult residents in LTCFs fall frequently and repeatedly, thus, sustain more serious injuries.[1]
- Physical impairment, functional decline, fear of falling, decreased quality of life, and increased cost of care to residents and institutions alike[1]
- In United States (US), the total medical cost for falls and fall-related injuries amounted to more than $50 billion annually.[2]

1. Agency for Healthcare Research and Quality. (2017). *The falls management program: A quality improvement initiative for nursing facilities.* Content last reviewed December 2017. Retrieved from https://www.ahrq.gov/professionals/systems/long-term-care/resources/injuries/fallspx/index.html.
2. Center for Disease Control and Prevention. (2016). *Cost of falls among older adults.* Retrieved from https://www.cdc.gov/homeandrecreationalsafety/falls/fallcost.html.

Evidence

- The Falls Management Program (FMP) is a product of 13 years of expert fieldwork on falls prevention in LTCFs.[1]
- A seminal study revealed effectiveness of a structured falls prevention safety program, which became the groundwork of the in-service component of the FMP.[4]
- Decreased fall rate, fall-related injury rate, rate of recurrent fallers, reduced restraint use, and improved process-of-care documentation of fall risk[1, 3, 4, 6]
- Lack of knowledge on falls prevention has been an identified gap in long-term care environment.[2]
- Staff education is an important component of falls prevention program.[1, 3]

1. Agency for Healthcare Research and Quality. (2017). *The falls management program: A quality improvement initiative for nursing facilities.* Content last reviewed December 2017. Retrieved from https://www.ahrq.gov/professionals/systems/long-term-care/resources/injuries/fallspx/index.html.
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3. Jackson, K. (2016). Improving nursing home falls management program by enhancing standard of care with collaborative care multi-interventional protocol focused on fall prevention. *Journal of Nursing Education and Practice, 6*(6), 84-96. DOI: https://doi.org/10.5430/jnep.v6n6p84.
4. Rask, K., Parmelee, P.A., Taylor, J.A., Green, D., Brown, H., Hawley, J., . . . Ouslander, J.G. (2007). Implementation and evaluation of a nursing home fall management program. *Journal of the American Geriatric Society, 55*(3), 342-349. DOI: 10.1111/j.1532-5415.2007.01083.x.
5. Ray, W.A., Taylor, J.A., Meador, K.G., Thapa, P.B., Brown, A.K., Kajihara, H.K., . . . Griffin, M.R. (1997). A randomized trial of a consultation service to reduce falls in nursing homes. *JAMA, 278*(7), 557-562.
6. Taylor, J.A. (2002). The Vanderbilt fall prevention program for long-term care: Eight years of field experience with nursing home staff. *Journal of the American Medical Directors Association, 3*(3), 180-185. DOI: https://doi.org/10.1016/S1525-8610(04)70462-4.

Purpose of the Project

- To implement the FMP Educational Program at the LTCF
- To assess effectiveness of the FMP Educational Program on the knowledge of the facility staff regarding common fall risk factors and strategies to reduce risk of falling among OAs in the LTCF
- To improve fall outcomes in terms of fall rate and fall-related injury rate at the LTCF

Objectives

- Increase understanding on the importance of reducing falls in the LTCF
- Heighten awareness on the common causes of falls and strategies to reduce modifiable fall risk factors
- Enhance understanding on the application of strategies to reduce fall risk
- Improve views/judgments of the facility staff regarding implementation of an evidence-based falls prevention educational program in the LTCF
- Increase intention of the facility staff to change falls prevention safety practices, which may potentially improve fall outcomes at the LTCF

Clinical Questions

- Does implementing the FMP Educational Program increase the knowledge of the facility staff regarding common multifactorial causes of falls and preventive strategies to mitigate modifiable risk factors among OAs 65 years and over in the LTCF?
- Does the FMP Educational Program have an effect on fall rate and fall-related injury rate at the LTCF?

Ethical Considerations

- American Nurses Association supports high quality care[1]
- Four core competencies for interprofessional collaborative practice[2]
- LTCF code of ethics
- Written permission from AHRQ for the FMP educational tools
- Written permission from Dr. Terrence Haines, PhD for the education program evaluation survey tool

1. American Nurses Association. (2016). *The nurse's role in ethics and human rights: Protecting and promoting individual worth, dignity, and human rights in practice settings.* Retrieved from https://www.nursingworld.org/~4af078/globalassets/docs/ana/ethics/ethics-and-human-rights-protecting-and-promoting-final-formatted-20161130.pdf.
2. Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel.* Washington, DC: Interprofessional Education Collaborative.

Ethical Considerations (cont)

- Content validity of the PowerPoint presentation based on the Fall Reduction Program video – reviewed and approved by two experts in education
- CITI Program courses completed (Biomedical Research, Social and Behavioral Research, and Responsible Conduct for Research)
- Written approval from the senior management of the LTCF
- Written approval from the IRB of Molloy College
- All data of participants were de-identified

Conceptual Framework

Malcolm Knowles' Theory of Andragogy

Knowles, M.S. (1970). *The modern practice of adult education: From pedagogy to andragogy.* Englewood Cliffs: Prentice Hall/Cambridge.

Project Design

- Evidence-Based Quality Improvement Project
- Pretest-posttest intervention
- FMP Educational Program by AHRQ
- Knowledge on the common causes of falls and strategies to reduce modifiable risk
- Pretest and posttest knowledge before and after the educational intervention
- Attitude and behavior post-implementation

Project Design (cont)

- Multiple educational sessions – one hour in length
- Various shift schedule
- PowerPoint presentation and handout

Recruitment

- Recruitment of participants started on January 2019
- Staff development monthly calendar schedule for February 2019 and March 2019
- Invitational flyers
- Email, telephone call, personal face-to-face invitation, and overhead announcement
- One hour was credited to the annual in-service requirement of the participant
- Refreshments provided during the educational sessions

Setting

- 705-bed LTCF in New York City
- Subacute and long-term care services
- Subacute units - most number of falls
- Long-term care units - most number of fall-related injuries
- Lack of education among facility staff on falls prevention

Sample

Convenience sampling design

Inclusion Criteria

- All facility staff employed in the facility including students and volunteers

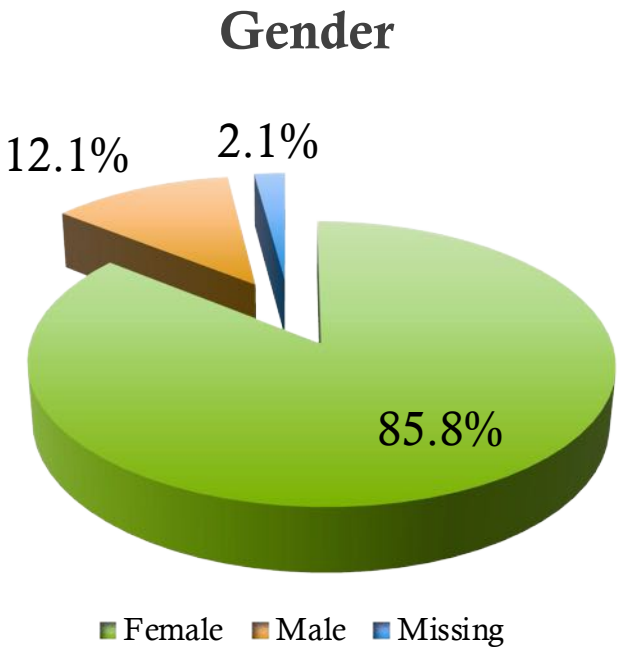
Exclusion Criteria

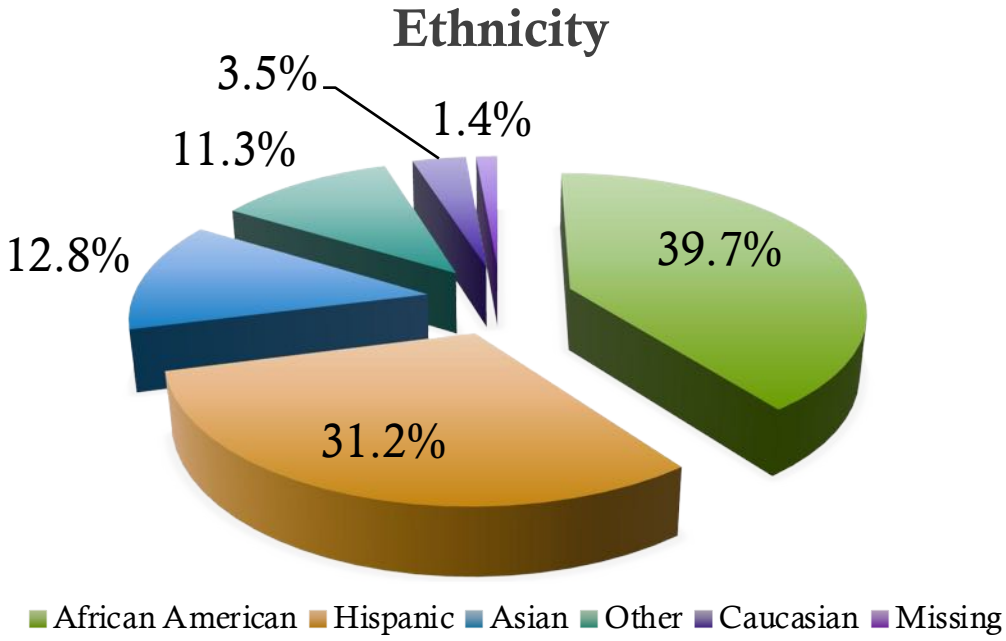
- Facility staff not able to read, write, speak or understand English

One hundred forty-one facility staff ($N = 141$)

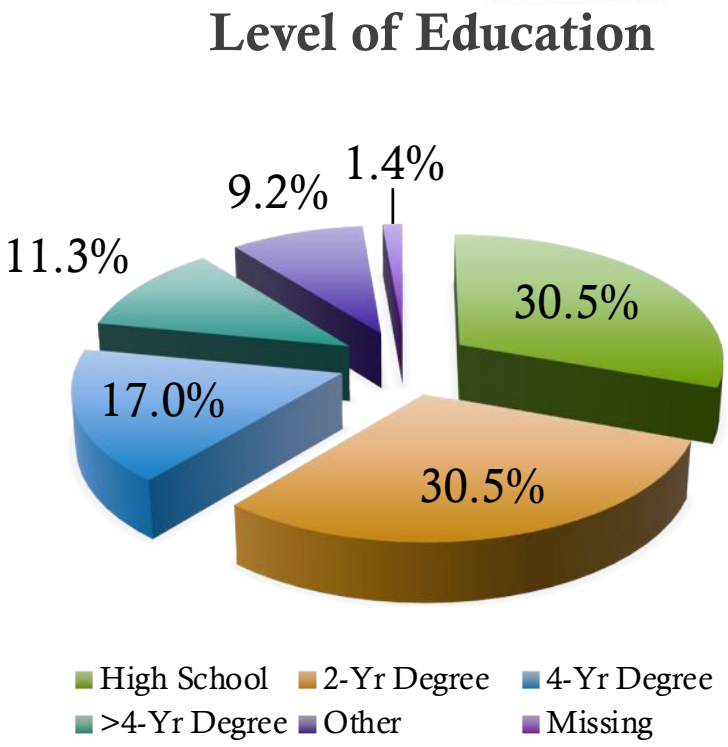
Sample: Demographics

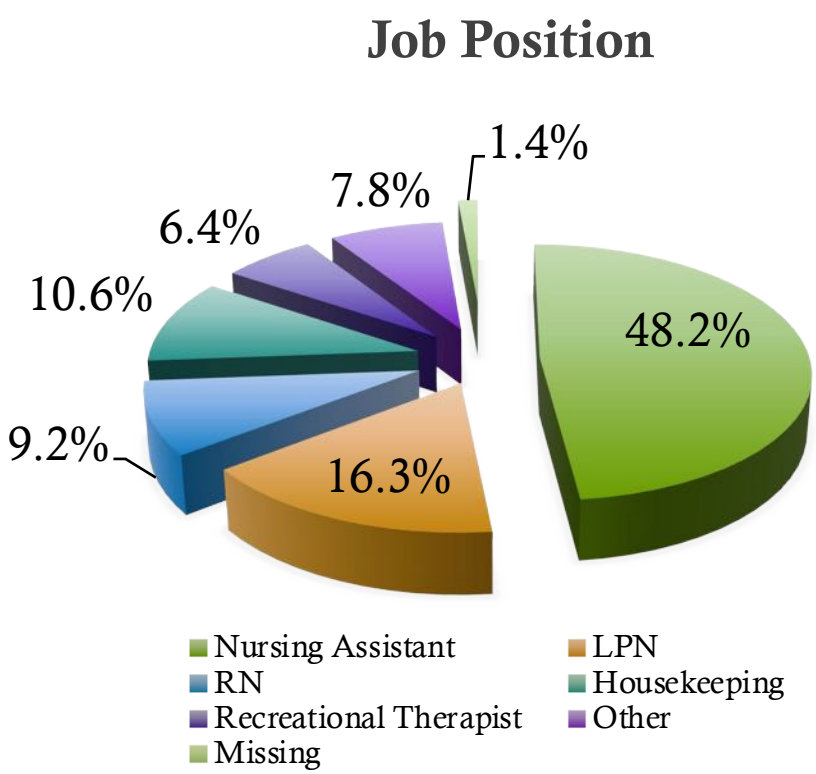
$N = 141$





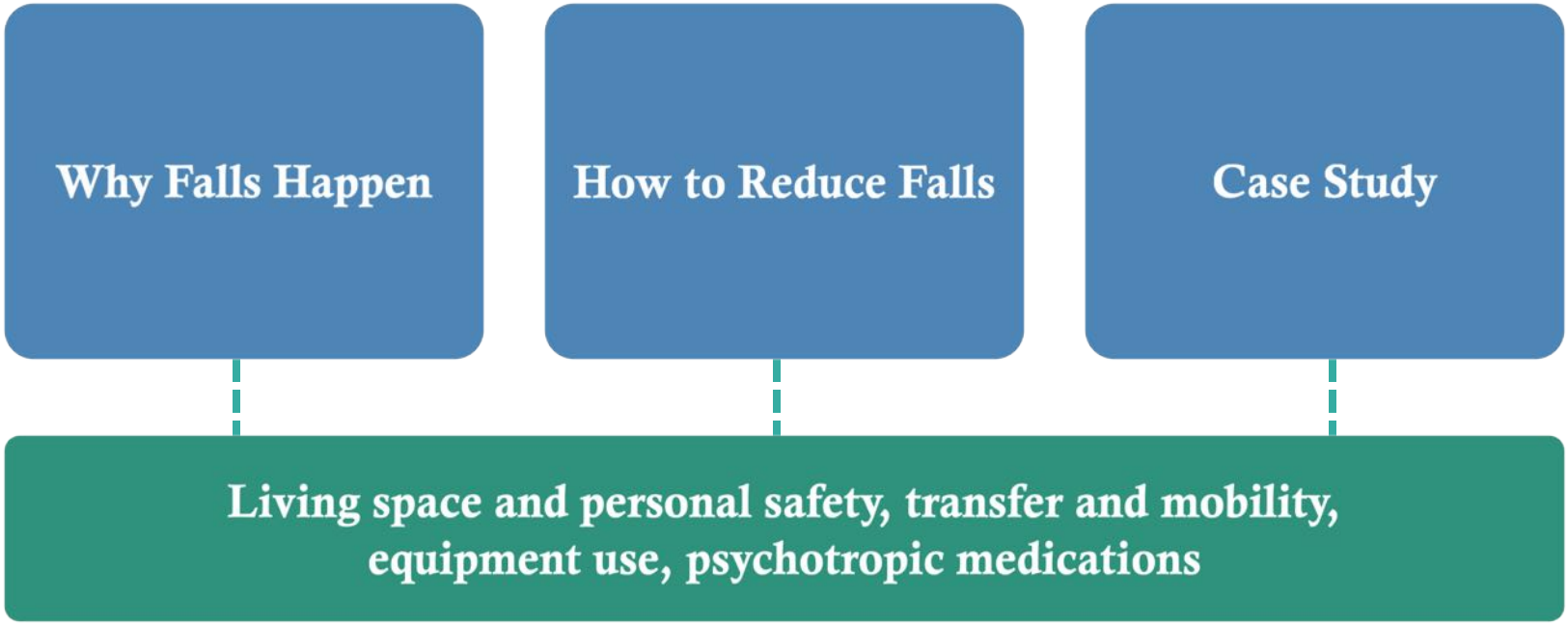
Sample: Demographics (cont)





Intervention

FMP Educational Program



Instruments

- 10-item FMP Pretest/Posttest Questionnaires: Why Falls Happen and How to Reduce Falls
- Embedded in the FMP
  - Product of 13 years of fieldwork on falls prevention[2, 3]
  - Evidence and experienced-based QI program[1, 2, 3]
  - Pulls from research on falls and fall risk factor reduction[2, 3]
- Improved falls prevention safety practices[2, 3]
- Five items of true/false and five items of short-answer questions[1]

1. Agency for Healthcare Research and Quality. (2017). *The falls management program: A quality improvement initiative for nursing facilities.* Content last reviewed December 2017. Retrieved from https://www.ahrq.gov/professionals/systems/long-term-care/resources/injuries/fallspx/index.html.
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Instruments (cont)

Pretest/Posttest, Why Falls Happen

Pretest/Posttest

Name: _____ Date: _____

1. List 3 common safety problems in the resident's room and bathroom.
   a. _____
   b. _____
   c. _____

2. For most residents, the bed should be left in the lowest position. True or False (Circle one)

3. New admissions have the same risk of falling as residents who have been in the facility more than 60 days. True or False (Circle one)

4. List two common problems with wheelchairs that increase a resident's risk of falling.
   a. _____
   b. _____

5. List three side effects of sedatives that increase a resident's risk of falling. An example of a sedative is Ativan.
   a. _____
   b. _____
   c. _____

Instruments (cont)

Pretest/Posttest, How to Reduce Falls

Pretest/Posttest

Name: _____ Date: _____

1. List 3 ways to improve safety in a resident's room and bathroom.
   a. _____
   b. _____
   c. _____

2. Personal items should be kept within 10 feet of the resident. True or False (Circle one)

3. List three ways to improve the resident's safety during transfer and mobility.
   a. _____
   b. _____
   c. _____

4. Staff should use behavior management skills with residents who have unsafe behaviors. True or False (Circle one)

5. A resident who leans over or slides down while seated in a wheelchair is more likely to fall out of the chair. True or False (Circle one)

Instruments (cont)

Grading System

- 2 points
- 1 point
- 0 point

Responses specified on the FMP handout

Random or not related to fall risk factors

decrease the risk

Instruments (cont)

- Five-item education program evaluation survey
- Captures information related to attitude and behavior
- Uses a five-point Likert scale
- One open-ended question

Haines, T.P., Hill, K.D., Bennell, K.L., & Osborne, R.H. (2006). Patient education to prevent falls in subacute care. *Clinical Rehabilitation, 20*(11), 970-979. DOI:10.1177/0269215506070694.

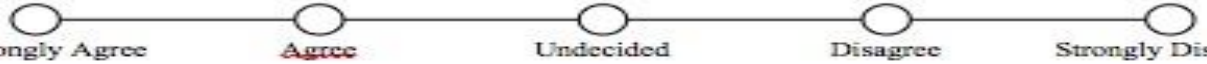
Instruments (cont)

Please rate how much you agree or disagree with the following statements.

1. The FMP Educational Program was easy to understand.

2. The handout provided me with information that I was previously unaware of.

3. I felt comfortable to participate in the case study discussion.



4. The FMP Educational Program provided me with information that I was previously unaware of.

5. As a result of attending the FMP Educational Program, reading the handout, and participating in the case study discussion, I plan to change my actions to decrease the risk of falling of older adult residents.

If you plan to make changes in your actions, please list what changes you will apply to decrease the risk of falling of older adult residents.

Data Collection

- Completion of demographic questionnaire, pretest/posttest, and program evaluation
- Face-to-face written paper format
- Numbered folders
- All folders were filed securely in a locked drawer
- Fall rate and fall-related injury rate – *PointRight* system

Data Analysis

- Descriptive statistics – demographic data, pretest/posttest, program evaluation
- Paired samples *t*-test with a $p < 0.05$ – pretest/posttest mean score
- Pearson's chi-square testing with a $p < 0.01$ – job position/program evaluation and level of education/program evaluation
- Content analysis – program evaluation open-ended question
- IBM SPSS software version 22
- *PointRight* system – falls data three months pre- and post-intervention

Results and Analysis of Results: Pretest/Posttest Questions

True/False Questions

Question	Question Description	(% of Participants Who Answered Correctly)	
		Pretest	Posttest
Q2	Height of bed	**92.9 (*n*=118/127)**	**99.2 (*n*=126/127)**
Q9	Behavioral management skills	**96.1 (*n*=122/127)**	**100 (*n*=127/127)**
Q10	Leans/slides while in wheelchair	**97.6 (*n*=124/127)**	**99.2 (*n*=126/127)**
Q3	New admission vs >60 days	**18.9 (*n*=24/127)**	**44.9 (*n*=57/127)**

Prior to intervention, most participants had a general understanding of the fall risk factors associated with bed position and wheelchair posture, as well as the use of behavioral management skills for high-risk residents. However, the majority lacked awareness that newly admitted residents were at a greater risk of falling.

Results and Analysis of Results: Pretest/Posttest Questions (cont)

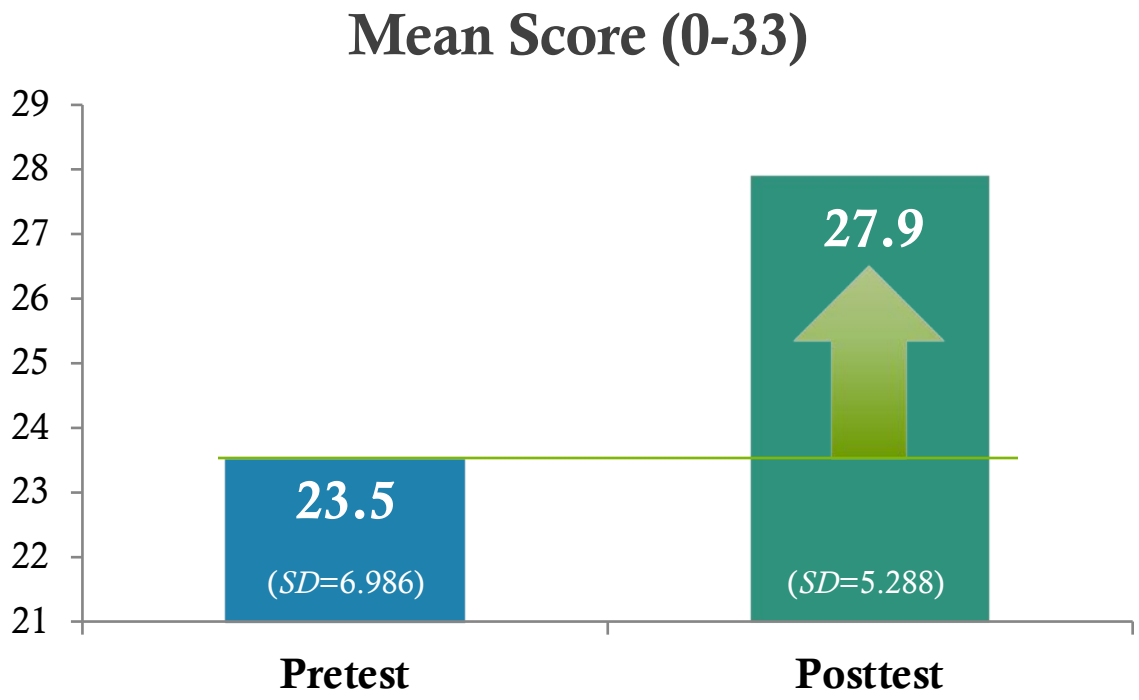
Side Effects of Sedatives

Short Answer Question	Mean Score (0-2 points)	
	Pretest *(M/SD)*	Posttest *(M/SD)*
Q5a	**1.44** (0.897)	**1.55** (0.823)
Q5b	**1.20** (0.946)	**1.43** (0.878)
Q5c	**0.96** (0.971)	**1.30** (0.911)

The majority of participants lacked awareness of the side effects of sedatives that increase a residents' risk of falling.

Results and Analysis of Results: Pretest/Posttest Mean Score (cont)

n = 127/141



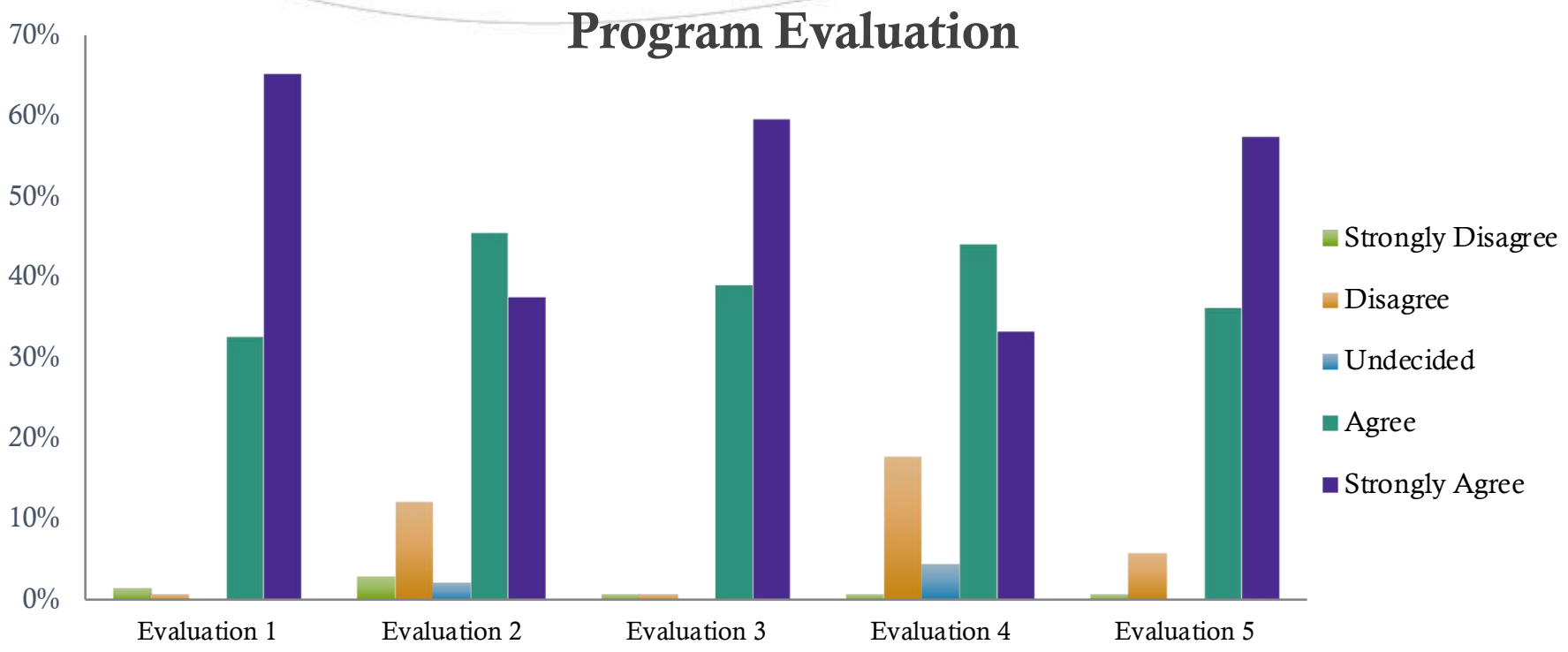
Results and Analysis of Results: Pretest/Posttest Mean Score (cont)

Paired Samples *t*-Test

	Paired Differences					*t*	*df*	Sig. (2-tailed)
	M	*SD*	Std. Error Mean	Posttest (*M*/*SD*)				
				Lower	Upper			
Pretest Score-Posttest Score	-4.402	5.732	0.509	-5.408	-3.395	-8.653	126	0.000

$t\,(126) = -\,8.653,\ p < 0.05$

Results and Analysis of Results: Program Evaluation (cont)



Participants improved views/judgments towards the FMP Educational Program and their intention to change safety practices increased as a result of the program.

Results and Analysis of Results: Job Position and Program Evaluation (cont)

There were no significant relationships ($p>0.01$) between the participants' job position and their responses to the program evaluation questions.

Program Evaluation	1	2	3	4	5
p-value	0.026	0.924	0.769	0.925	0.688

The FMP Educational Program was appropriate for all facility staff regardless of their job position.

Results and Analysis of Results: Level of Education and Program Evaluation (cont)

There were no significant relationships ($p>0.01$) between the participants' level of education and their responses to the program evaluation questions.

Program Evaluation	1	2	3	4	5
p-value	0.025	0.728	0.322	0.881	0.870

The FMP Educational Program was appropriate for all facility staff regardless of their level of education.

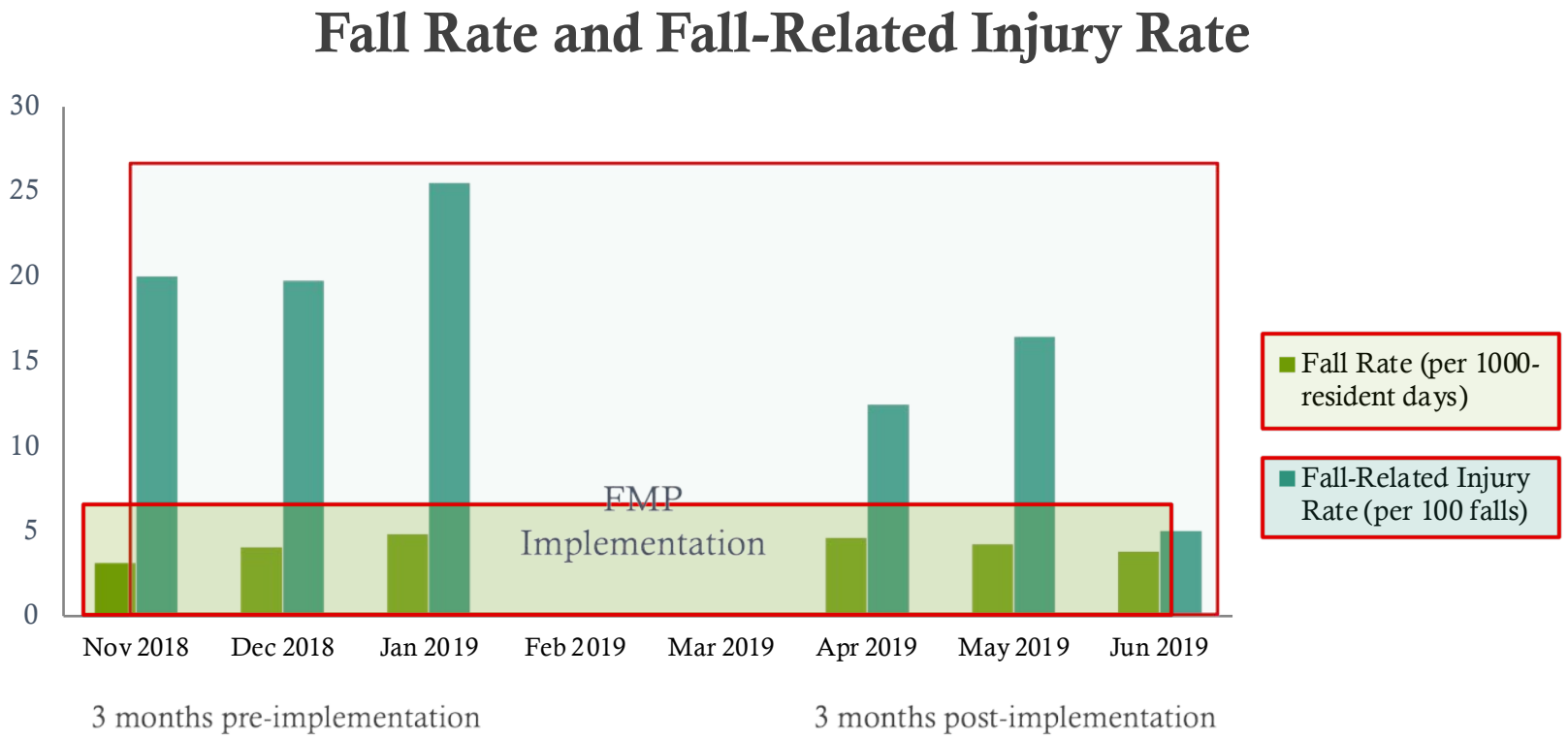
Results and Analysis of Results: Open-Ended Question (cont)

An ounce of prevention is worth a pound of cure.	"Reduce clutter in room." "Make sure bed and wheelchair breaks are locked." "Make sure to let nurses know when wheelchair does not have a footrest." "Report broken bed locks." "Report broken equipment and those that need cleaning." "Make sure bed is in low position." "Make sure there is enough lighting." "Make sure resident's environment is safe." "Check for objects in the middle and move them away." "Proper wardrobe that's easy to manage or proper footwear/gripper socks for residents." "Make sure floors are not torn." "Change wheelchairs so residents will not slouch and fall."
It is better to be safe than sorry.	"Replace unstable furniture." "Ensure that personal items are close by – within arms length." "Make sure resident can reach the call light." "More attention to residents who need assistance and with change of behavior." "Escort resident when needed."

Results and Analysis of Results: Open-Ended Question (cont)

A stitch in time saves nine.	"Closer look on residents at a higher risk of falling." "Respond to call bells promptly." "Check wheelchair break before transfer." "Make sure all equipment is working properly." "Make sure wheelchair are not shared between residents." "Equipment in good order/condition."
It is easy to be wise after the event.	"Observe residents on psychotropic drugs." "Be aware of the medications that residents are taking that alter mental state." "Ask nurse about medication schedule of residents who appear dizzy or drowsy.' "Be aware of residents on sedatives and assist them." "Monitor closely medicated residents to see how medications are affecting them." "Know which residents take benzodiazepines and antipsychotics." "Evaluate psychotropic medications – times and dosage."

Results and Analysis of Results: Fall Rate and Fall-related Injury Rate (cont)



Discussion

- Effectiveness in increasing the knowledge on common causes of falls and strategies to reduce modifiable risk factors
- Effectiveness in increasing intention to change safety practices
- A well-suited evidence-based educational program for facility staff at all levels of the organization
- Enhanced intention to change safety practices may have contributed to the decreased fall-related injury rate

Discussion (cont)

- Significant reduction in fall-related injury rate was achieved through improved suboptimal safety practices in the four safety domains[1]
- Decreased recurrent fallers and fall-related injury rate a year post-FMP implementation[2]
- Consistent falls prevention education must be conducted[2, 3]
- Effectiveness of the FMP for several decades and in current times

1. Ray, W.A., Taylor, J.A., Meador, K.G., Thapa, P.B., Brown, A.K., Kajihara, H.K., . . . Griffin, M.R. (1997). A randomized trial of a consultation service to reduce falls in nursing homes. *JAMA, 278*(7), 557-562.
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3. Vlaeyen, E., Stas, J., Leysen, G., Van der Elst., E., Janssens, E., Dejaeger, E., . . . Milisen, K. (2017). Implementation of fall prevention in residential care facilities: a systematic review of barriers and facilitators. *International Journal of Nursing Studies, 70,* 110-121. doi: 10.1016/j.ijnurstu.2017.02.002.

Limitations

- No documented validity and reliability testing on the instruments
- Written paper format
- Manual checking of questionnaire
- Establishment of grading system
- No weekly educational sessions

Implications

	The FMP Educational Program should be:
Clinical Practice	added as a component to the current falls prevention program at the facility.
Policy	a regular part of the staff development monthly calendar schedule at the facility.
Education	included in the orientation for all newly hired employees, students, and volunteers.
Future Research	duplicated to build upon findings from this DNP project.

Dissemination

- **DNP Project Proposal Abstract**
  - Sigma Theta Tau Nursing Research and EBP Conference
  - NPALI Annual Conference
  - CHSLI EBP and Nursing Research Conference
- **DNP Project Abstract**
  - Mount Sinai South Nassau Nursing Research and EBP
  - Maimonides Medical Center's 7th Annual Nursing Research Conference
  - 14th National DNP Conference in Chicago, IL
- Submission to a peer-reviewed nursing journal (Geriatric Nursing)

Sustainability

- Consistent falls prevention education
- Regular part of the staff development monthly calendar schedule
- Training the staff educators
- Included in the orientation for newly hired employees, students, and volunteers
- Full support from senior management

Conclusions

- The FMP Educational Program was effective in increasing knowledge on common causes of falls and strategies to reduce modifiable risk factors.
- The program was effective in increasing intention to change falls prevention safety practices to reduce risk of falling.
- Consistent falls prevention education and full compliance on recommended interventions can reduce fall rate and fall-related injury rate in long-term care.
- Conduct QI projects to evaluate the effectiveness of individual intervention of a multicomponent falls prevention program.

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- Dr. Joan Ginty
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- Facility Staff

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- Felix Suba, Jr.
- Aurora Suba
- Dr. Febes Suba-Valdez
- Alan Suba
- Chrysanne Marzan
- Charles Xavier
- Erik Magnus

- Dr. Noreen Giordano
- NPALI
- AANP

- DNP Class of 2020
- Bernadette Weldon

Facility Staff Photo

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