Decreasing Hospitalizations Related To Falls And Improving Quality Of Life Using The Otago Exercise Program

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PROBLEM STATEMENT

- **One in Four** older adults will FALL!
- **Falls are the leading cause of injury and death in the elderly reducing their quality of life** (CDC, 2017)
- Direct medical costs added up to $179 million for fatal falls and $19 billion for non-fatal fall-related injuries.
- The majority of hospitalizations in participants enrolled in the Program for All-inclusive Care for the Elderly (PACE) were found to be related to falls, despite interventions to decrease falls rates and screening for fall risk.

PROJECT PURPOSE

- The main purpose of this project is to evaluate the impact of Otago Exercise Program on hospitalizations related to falls and quality of life in older adults at PACE after 8 weeks.
- The goal is to decrease hospitalization related to falls and improve quality of life.

MODEL

- The Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP) guided this project for a practice change.
- Practice Question (P) - In geriatric participants attending the PACE Day Care, does the Otago Exercise Program reduce hospitalizations related to falls and improve quality of life over 8 weeks?
- Evidence (E)- A literature search was performed to find relevant literature and the John Hopkins' Evidence-Based Practice research and non-research evidence appraisal form were used to gauge the strength, level, and quality of evidence.
- Translation (T) – Evaluation of implementation and outcome measures post-intervention.

NURSING THEORY

- Virginia Henderson's Need Theory- The theory focuses on the importance of increasing the patient's independence and emphasizes on the basic human needs and how nurses can assist in meeting those needs
- Virginia Henderson's Need Theory contains 14-components and utilizes a holistic approach to nursing that covers the physiological, psychological, spiritual and social needs.

METHODS

Setting

The project was conducted at the PACE Day Center in Pinellas County located in West Central Florida. They offer services in primary care, skilled care, therapies, mental health support and Day Center, home health care, and transportation to and from PACE or other specialists.

Participants

Total of 36 voluntary participants, 28 females and 8 males.

Inclusion criteria

1) nonsyncopal falls during the last 12 months and/or functional ability indicating risk of falling (balance, strength, gait tests), 2) Able to walk 3 meters with or without an assistive device, and 3) aged 55 and older

Exclusion criteria

1) Individuals with neurodegenerative disease, 2) Previously diagnosed with or suspected to have moderate or advanced dementia (of any type), and 3) absolute contraindications to performing physical exercise.

Sampling strategy

- The voluntary sampling strategy was used for this project from a list of participants at the PACE program. Individuals who meet the criteria was asked if they wish to participate in the project.

Instruments/Tools

- Hospitalizations related to falls using the electronic medical records
- Number of falls - using the electronic medical records
- Quality of Life - Short Form-36
  - Short Form - 36 is a validated questionnaire of 36 questions divided into nine categories to measure quality of life.

Intervention and Data Collection

This project was implemented over eight weeks at the PACE Day Center with instructors trained on the OEP manual. The Otago Exercise was implemented twice a week for 30 to 45 minutes. Participants were encouraged to do an additional session self-administered at home once a week.

RESULTS

- A chi-square test was used to compare pre-and post-hospitalizations within 3 months, showing no significance (p= 0.529)
- Pre-intervention number of people that fell were 10 versus after the intervention there were only 4 participants that experienced a fall (p =0.001).
- Although the average scores for physical function, physical role limits, and energy showed improvement, there were no significant changes (p > 0.05)
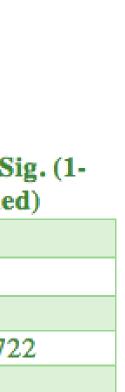
Hospitalization Crosstabulation

		Post-Hospitalization Data		
		No	**No**	**Total**
Pre-Hospitalization data	No	10	25	35
	Yes	0	1	1
	Total	10	26	36

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.396[a]	1	0.529		
Continuity Correction	0.000	1	1.000		
Likelihood Ratio	0.662	1	0.416		
Fisher's Exact Test				1.000	0.722
N of Valid Cases	36				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 0.28
b. Computed only for a 2x2 table

Pre- and Post- Short Form-36 Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95 % Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1: Physical Function	-5.000	21.863	4.288	-12.831	3.831	-1.166	25	0.255
Pair 2: Role function: Physical	-3.846	43.984	8.626	-21.612	13.919	-0.446	25	0.660
Pair 3: Role function: Emotional	0.019	45.241	8.873	-18.254	18.293	0.002	25	0.998
Pair 4: Energy, Fatigue	-4.962	26.085	5.116	-15.498	5.575	-0.97	25	0.341
Pair 5: Emotional well-being	1.692	20.117	3.945	-6.433	9.818	0.429	25	0.672
Pair 6: Social Functioning	-0.481	31.321	6.143	-13.132	12.170	-0.78	25	0.938
Pair 7: Pain	2.115	25.668	5.034	-8.252	12.483	0.420	25	0.678
Pair 8: General health	1.250	20.289	3.979	-6.944	9.445	0.314	25	0.756
Pair 9: Health change	0.962	32.773	6.427	-12.276	14.199	0.150	25	0.882

Falls Crosstabulation

		Post-Falls Data		
		No	**Yes**	**Total**
Pre-Falls data	No	10	16	0	26
	Yes	0	6	4	10
	Total	10	22	4	36

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.249[a]	2	0.001
Likelihood Ratio	16.759	2	0.000
N of Valid Cases	36		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.11.

DISCUSSION

- After implementation of the OEP, no participants were hospitalized related to falls.
- There was a significant difference in the number of people that fell pre-intervention compared to post-intervention (p=0.001).
- The average number of falls decreased from 0.5 to 0.38.
- There was a positive anecdotal impact on quality of life such as decreased pain level and increased stamina for physical activities as well as increased energy levels.
- The OEP in this setting could be beneficial and cost-effective intervention for this group.

IMPLICATIONS FOR ADVANCED PRACTICE NURSING

The exercise program is adaptable in various settings with the ability to improve flexibility, strength, and balance in the geriatric population. Advanced Practice Registered Nurses (APRNs) can prescribe this program to their geriatric population as a physical therapy referral to decrease their rate of hospitalizations related to falls, improve their quality of life as part of a fall prevention program and possibly pain management.

SUSTAINABILITY

- Due to the tremendous amount of positive feedback from participants, the physical therapist (PT) with the aid of the DNP students initiated another cycle of the OEP.
- The OEP will continue at PACE by PT using the format of this initial project and can be adaptable to the participants' level of performance.
- The results of this project will set the premises to evaluate and generate new knowledge on the impact of this fall prevention program in the geriatric population for future projects in various settings.

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*A complete list of references are available upon request

The results reveal that there were no hospitalizations related to falls and an improvement in quality of life after the implementation of the Otago Exercise Program

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