

## PURPOSE

The purposes of this study were as follows: (1) to describe the use of video game technology, specifically the Nintendo Wii, with older adults living in long term care facilities; (2) to determine if there is a relationship among personal factors, perceived barriers, perceived benefits, perceived self-efficacy, and physical activity; and (3) to examine the effects of this video game technology perceived barriers, perceived benefits, and perceived self-efficacy for physical activity using a 6-week intervention with nursing home residents.

## BACKGROUND

The population of persons age 65 or older in the United States of America (USA) is expected to rise to nearly 89 million by 2050 (Administration on Aging [AOA], 2013). In 2012, persons aged 65y (and above) comprised 1.5 million of the USA population with 3.5% of those in this group living in some type of institutional setting (AOA, 2013).

Examination of the health promoting behaviors of nursing home residents has indicated that past health promoting behavior has a strong positive relationship with current health promoting behavior and residents who conceptualize health as wellness tend to report more health promoting behaviors (Kayser-Jones, 2009) as opposed to those who do not have that perspective of health.

Exergames, or games that include an informal exercise component (Ulbrecht, Wagner, & Grabel, 2012), allow a player to use his/her entire body to play if needed. Health games have been developed recently to encourage participants to engage in healthy behaviors.

## METHODS

- The research design selected for this intervention study was a one group pretest posttest quasi-experimental design.
- The Health Promotion Model by Nola Pender (Pender, Murdaugh, & Parsons, 2011) was used as the conceptual model for this study.
- Nursing home participants from four local nursing homes (N=24) participated in a 6 week intervention twice per week with each session lasting a total of 45 minutes. Each session included 15 minutes of an educational component and 30 minutes of video game play with the Nintendo Wii.
- Intervention measures included a demographic form, The Geriatric Depression scale, The Self-Efficacy for Exercise scale, The Exercise Benefits and Barriers scale, The Mini-Cog assessment, and The Rapid Assessment of Physical Activity scale.

## RESULTS

	Pre		Post		Min/Max	
	M	SD	M	SD	Min/Max	Min/Max
EBBS Barriers (1987)	30.58	3.41	29.58	4.46	22.0/37.0	16.0/37.0
EBBS Benefits (1987)	52.08	12.07	52.42	12.01	31.0/81.0	29.0/79.0
Self-Efficacy (2000)	4.81	2.08	5.34	1.99	.91/9.09	0.0/9.1
	Mdn	IQR	Mdn	IQR		
Depression	1	1-2	1	1-1		
RAPA (2006) (Physical Activity)	3.5	3-4	3.5	3-4		

- The data revealed that there was no change between pretest and posttest in perceptions of exercise benefits and barriers as a result of the intervention. Average efficacy expectations increased from 4.81 to 5.34 from pre- to post-test, suggesting an increase in efficacy expectations at post. The findings suggest that there was no change in self-reported physical activity at post.

	Pre		Post		t	df	p
	M	SD	M	SD			
EBBS Barriers (1987)	30.58	3.41	29.58	4.46	1.04	23	.31
EBBS Benefits (1987)	52.08	12.08	52.42	12.01	-.13	23	.90
SEE (2000)	4.81	2.18	5.34	1.99	-1.31	23	.20

- The majority of the study participants reported currently engaging in physical activity (87.4%). The majority of participants (83.3%) reported prior use of a technological device, with the computer being the most commonly reported.
- Pretest depression was negatively associated with pretest self-efficacy. Posttest perceived benefits was negatively associated with pre self-efficacy. Posttest depression was positively associated with posttest perceived benefits. Posttest perceived barriers were positively associated with posttest self-efficacy.
- There were no significant changes at pretest and posttest of the 6 week intervention on perceived benefits, perceived barriers, self-efficacy, and physical activity ( $p > .05$ ).



## DISCUSSION

- Nursing home residents self-report being physically active, despite their living environment.
- Knowledge of the benefits of physical activity can help encourage others for physical activity participation among nursing home residents.
- Being cognizant of the benefits of engaging in physical activity does not necessarily equate to a belief that one can personally carry out the activity.
- Using video game technology with institutionalized older adults (Brandt & Panigua, 2011) is a feasible alternative opportunity for physical activity engagement outside of traditional therapy which requires staff oversight.
- Interventions in LTC facilities that focus on physical activity have been shown to be beneficial to residents (Jansen, et al., 2014). These programs can not only assist with overall physical activity, but can also aid in unwanted outcomes such as fall (Shakeel, Newhouse, Malik, & Heckman, 2015).

## REFERENCES

- Administration on Aging. (2013). A Profile of Older Americans: 2013. Administration on Aging, Administration for Community Living, U. S. Department of Health and Human Services. Washington, D. C.: US. Printing Office.
- Brandt, K. & Panigua, M. A. (2011). The use of Nintendo Wii with long-term care residents. *Journal of the American Geriatrics Society*, 59(12), 2393-2395.
- Jansen, C., Claben, K., Hauer, K., Diegelmann, M., & Wahl, H. (2014). Assessing the effect of the physical activity intervention in a nursing home ecology: a natural lab approach. *BMC Geriatrics*, 14(117), 1-12. doi: 10.1186/1471-2318-14-117
- Kayser-Jones, J. (2009). Nursing homes: a health-promoting or dependency-promoting environment? *Family & Community Health*, (32)1S, S66-S74.
- Pender, N., Murdaugh, C. L., & Parsons, M. A. (2011). *Health Promotion in Nursing Practice*. (6th ed.). Upper Saddle River, New Jersey: Pearson Education, Inc.
- Ulbrecht, G., Wagner, D., Grabel, E. (2012). Exergames and their acceptance among nursing home residents. *Activities, Adaptation, & Aging*, 36, 93-106. doi: 10.1080/01924788.2012.673155
- Shakeel, S., Newhouse, I., Malik, A., & Heckman, G. (2015). Identifying feasible physical activity programs for long-term care homes in the Ontario context. *Canadian Geriatrics Journal*, 18(2), 73-104. doi: 10.5770/cgi.18.158