

Using the Health Belief Model to Predict the Self-Efficacy of Physical Activity among Older Adults at Geriatric Care Home

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ABSTRACT

Active lifestyles help older adults maintain and enhance their health and well-being, as well as prevent illnesses. Physical activity (PA) benefits in particular by improving physical and mental functioning, as well as social well-being and general physical and physiological health. The study aims to determine the association between study variables and Self-Efficacy for physical activity. A descriptive predictive design was used to identify the association between study variables and SE for PA. The study included a sample of 70 older adults who were randomly selected from geriatric care home. The study instrument included the sociodemographic sheet and includes the Health Beliefs about physical activity. The descriptive statistical measures of frequency and percentage were used. Mean and standard deviation were also used. The linear regression, independent-sample t-test, and one-way analysis of variance were also used. The sociodemographic results showed that the age mean is 67.7 ± 4.45 at 60-65 years old, and 65.7% are males. The majority of participants are singles (38.6%). (45.7%) are elementary school graduates. Finally, more than two fifths are overweight (42.9%). The finding showed there are statistically significant inverse associations between perceived severity, perceived barriers, cues to action, and self-efficacy for physical activity (p-value = 0.005, 0.030, 0.049), respectively. On the other hand, there is a statistically significant positive association between perceived benefits and self-efficacy for PA (p-value = 0.027). The results indicated that using the HBM provides the best predictors of self-efficacy for PA, and the best construct of HBM to predict self-efficacy for PA was cues to action, best predicted, followed by perceived barriers to PA. The researchers recommended conducting studies aimed at reinforcing the beliefs of older adults who suffer from physical inactivity to promote their self-efficacy in physical activity and to motivate them to change their behavior. The researchers also recommended providing training programs suitable to create environments supporting health at geriatric care homes and providing the necessary resources and sports facilities to promote PA among older adults.



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1. INTRODUCTION

Active lifestyles help older adults maintain and enhance their health and well-being, as well as prevent illnesses [1]. Physical activity (PA) benefits in particular by improving physical and mental functioning, as well as social well-being and general physical and physiological health. In addition, it enhances and sustains strength, flexibility, balance, and coordination in older people and also minimizes the chance of falling. Older people are the least physically active age group [2]. According to the most generally used definition, PA is defined as "any bodily movement produced by skeletal muscle that requires energy expenditure" [3]. Moreover, regular PA provides a number of health advantages, such as disease prevention and control. However, physiological changes and rising comorbidity rates need additional measures as age [4]. Globally, the World Health Organization (WHO) recommends that older people engage in (75–150 minutes) of vigorous-intensity aerobic physical activity and (150–300 minutes) of moderate-intensity aerobic physical activity each week. Muscular-strengthening activities of moderate to high intensity, involving all main muscles, should be done two or more times each week [5]. In spite of the known advantages of physical activity, engagement in PA continues to be insufficient. In the United States, around (28%–34%) of individuals aged 65–74 years and (35%–44%) of older adults aged 75 years or more do not engage in any form of physical activity, and inactivity is more widespread in female than in males [6]. Physical inactivity is a major risk factor for a variety of noncommunicable diseases, including heart disease and diabetes, and research shows that it is also one of the main risk factors for death worldwide [7].

Individuals' beliefs about their ability to be active will influence their behavior. Equally, the strength of their beliefs that physical activity would result in particular benefits, such as enhanced health and wellbeing, obviously increases both the adoption and persistence of that behavior [8], [9]. Health Belief Model (HBM) is one of the frameworks for health education that is used to predict the relationship between health beliefs and behaviour [10], [11]. HBM assumes that the probability of performing a particular health behavior is related to an individual's conviction that they are threatened by certain illnesses, their assessment of the severity of these illnesses, and their conviction that the targeted health behavior allows the risk of developing said illnesses to be avoided [12]. It is made up of six primary constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, action cues, and self-efficacy [13]. Self-efficacy (SE) is the belief in one's ability to perform a certain behavior under a variety of conditions. However, compliance with best practice recommendations is frequently inadequate, particularly in those who have chronic disease and feel less confident engaging in physical activity [14].

2. Methodology

A descriptive predictive design was used to determine the association between study variables and Self-Efficacy for PA. The study included a sample of 70 older adults who were randomly selected from geriatric care home. The study instrument included the sociodemographic sheet (age, gender, marital status), level of education, and body mass index(BMI). It also includes the Health Beliefs about Physical Activity based on HBM, which includes 36 items relating to PA beliefs separated into six subscales of perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy of physical activity. These items were scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating greater agreement with the beliefs. The descriptive statistical measures of frequency and percentage were used. Mean and standard deviation were also used. The linear regression, independent-sample t-test, and one-way analysis of variance were also used.

3. Results

The sociodemographic results showed that the age mean is 67.7 ± 4.45 ; less than two fifth age 60-65-years ($n = 37$; 38.6%), followed by those who age 66-70-years ($n = 26$; 37.1%), and those who age 70-77-years ($n = 17$; 24.3%). Concerning the gender, most are males ($n = 46$; 65.7%) compared to females ($n = 24$; 34.3%). In terms of marital status, less than two-fifths ($n = 37$; 38.6%) are single, followed by those who are married ($n = 3$; 4.3%), divorced or separated ($n = 15$; 21.4%), and widowed or widowers ($n = 10$; 14.3%). With respect to the level of education, less than a half are elementary school graduates ($n = 32$; 45.7%), followed by those who are unable to read and write, middle school graduates, and high school graduates ($n = 10$; 14.3%) for each of them, those who read and write ($n = 4$; 5.7%), and those who hold a diploma degree and a bachelor's degree ($n = 2$; 2.9%) for each of them. Finally, more than two fifth are overweight ($n = 30$; 42.9%), followed by those who are within normal weight-to-height proportion ($n = 22$; 31.4%), those who have obesity class I ($n = 12$; 17.1%), those who are underweight ($n = 4$; 5.7%), and those who have obesity class II ($n = 2$; 2.9%) (Table 1). The finding showed there are statistically significant inverse associations between Perceived Severity, Perceived Barriers, Cues to Action and Self-Efficacy for physical activity (p -value = 0.005, 0.030, 0.049) respectively. On the other hand, there is a statistically significant positive association between Perceived Benefits and Self-Efficacy for physical activity (p -value = 0.027) (Table 2).

Table 1. Participants' sociodemographic characteristics (N = 70)

Variable	Frequency	Percent
Age (Years)		
60-65	27	38.6
66-70	26	37.1
71-77	17	24.3
Mean (Standard Deviation): 67.7 ± 4.45		
Gender		
Male	46	65.7
Female	24	34.3
Marital Status		
Single	27	38.6
Married	3	4.3
Widow/Widower	10	14.3
Divorced	15	21.4
Separated	15	21.4
Level of education		
Unable to read and write	10	14.3
Read and write	4	5.7
Elementary school	32	45.7
Middle school	10	14.3
High school	10	14.3
Diploma	2	2.9
Bachelor's degree	2	2.9

BMI Category		
Underweight	4	5.7
Within Normal	22	31.4
Overweight	30	42.9
Obesity Class I	12	17.1
Obesity Class II	2	2.9

Table 2. Association between study variables and Self-Efficacy for physical activity

Coefficients^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Age Study	.011	.055	.014	.194	.847
BMI	.016	.068	.018	.232	.817
Susceptibility	.208	.157	.395	1.326	.190
Severity	-.304	.105	-.786	-2.890	.005
Benefits	.240	.106	.332	2.269	.027
Barriers	-.208	.093	-.303	-2.223	.030
Cues to Action	-.404	.201	-.204	-2.010	.049

a. Dependent Variable: Self-Efficacy

Table 3. Difference in Self-Efficacy for physical activity between gender group

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SE	Equal	.104	.748	-.172	68	.864	-.14674	.85451	-1.85190	1.55842

variances assumed									
Equal variances not assumed			-.175	49.382	.862	-.14674	.83783	-1.83010	1.53662

There is no statistically significant difference in in Self-Efficacy for PA between gender group.

Table 4. Difference in Self-Efficacy for physical activity among body mass index groups

ANOVA					
Self-Efficacy					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.991	4	5.248	.447	.774
Within Groups	762.452	65	11.730		
Total	783.443	69			

There is no statistically significant difference in Self-Efficacy for PA among body mass index groups.

Table 5. Difference in Self-Efficacy for physical activity among marital status groups

ANOVA					
Self-Efficacy					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	41.443	4	10.361	.908	.465
Within Groups	742.000	65	11.415		
Total	783.443	69			

There is no statistically significant difference in Self-Efficacy for PA among marital status groups.

Table 6. Difference in Self-Efficacy for physical activity among level of education groups

ANOVA					
Self-Efficacy					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	43.393	6	7.232	.616	.717
Within Groups	740.050	63	11.747		
Total	783.443	69			

There is no statistically significant difference in Self-Efficacy for PA among level of education groups.

4. Discussion

This study aimed to determine the association between study variables and self-efficacy for PA. According to the HBM, participants' perceived self-efficacy shows their belief in their ability to engage in new health behaviors. An older adult who is more confident is more likely to engage in certain physical activities in order to improve their health. The findings revealed that self-efficacy for PA had a substantial association with the HBM components. The findings confirm previous research that suggests self-efficacy is important in physical activity and should be included in interventions to increase its effectiveness in improving physical activity [15]. Moreover, a study by [16] confirmed this important role of self-efficacy as a major element in PA performance. In general, the results showed that there were statistically significant inverse associations among perceived severity, perceived barriers, cues to action, and self-efficacy for PA. The regression model demonstrates that cues to action best predict self-efficacy for PA, followed by perceived barriers to PA. These findings imply that study participants receive the necessary healthcare to motivate them to engage in PA. On the other hand, there was a statistically significant positive association between the perceived benefits and the self-efficacy of physical activity. According to the Health Belief Model, the likelihood of individuals engaging in a healthy behavior would be greater if they believed in the benefits of that behavior. This result is similar to the results of the studies by [17], [18] that showed physical activity self-efficacy was statistically significant and negatively correlated with perceived barriers. There is also a significant relationship between the perceived severity and the self-efficacy of PA, but it does not agree with the results of the current study because of the kind of association. Moreover, among the HBM components, perceived barriers were a strong predictor of physical activity self-efficacy.

The findings of this study disagree with those of [19], who conducted that study in Saudi Arabia to investigate the relationship between the stages of change for PA and perceived barriers, as well as self-efficacy, and found that males had a higher self-efficacy score (33.1 ± 6.9) than females (29.3 ± 7.4), indicating a significant difference between the groups. In a study by [20], gender was found to be substantially linked with self-efficacy in physical activity.

There was no statistically significant difference in self-efficacy for physical activity among body mass index groups. This finding could be explained by the fact that these participants, irrespective of their body weight status, have comparable levels of physical activity. That is to say, participants who are overweight do not believe their weight as a factor that could threaten their health. The findings of this study are similar to those of a study by [21].

In this study, there was no statistically significant difference in self-efficacy for physical activity among marital status groups, which contradicts the findings of [22]. These results could be explained by the reality that the largest proportion of participants are single, which means they lack the social support for physical activity.

There was no statistically significant difference in Self-Efficacy for physical activity among level of education groups. This finding could be explained by the fact that most of the participants have low educational levels, which implies that they lack the health awareness that can propel them to engage in PA behavior. The findings of this study disagree with those of [23] that found significant associations between self-efficacy for physical activity and education level.

5. Conclusion

The results indicated that using the HBM provides the best predictors of self-efficacy for PA, and the best construct of HBM to predict self-efficacy for PA was cues to action, best predicted, followed by perceived barriers to PA. That is, the self-efficacy of PA increases among older adults whenever they have good health beliefs to be more confident in and engage in certain physical activities in order to improve their health.

6. Recommendations

The researchers recommended conducting studies aimed at reinforcing the beliefs of older adults who suffer from physical inactivity to promote their self-efficacy in physical activity and to motivate them to change their behavior. The researchers also recommended providing training programs suitable to create environments supporting health at geriatric care homes and providing the necessary resources and sports facilities to promote PA among older adults.

7. References

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