



Physical Activity Engagement of Older Adults: Basis for Health Promotion and Intervention

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Abstract. This descriptive study aimed to assess the physical activity engagement of older adults within the province of Pampanga. A standard questionnaire, the Physical Activity Scale for the Elderly (PASE), which consists of information on leisure, household, and occupational activity, was used. The study revealed relevant findings, such as the fact that the majority of older adults have sedentary behavior and spend more time in sitting activities. A vast percentage of them did not engage in light sports or recreational activities, never engaged in moderate sports, did not have any strenuous activities, and almost all of them never engaged in muscle strength and endurance exercise. However, despite their older age, the majority still manage to engage in walking activities for at least less than an hour per day. Additionally, participants were still involved in different light household activities, and few of them still engaged in work. Moreover, the PASE scores indicated low engagement in physical activity among participants. The results of this study serve as a basis for health promotion and educational intervention. It is recommended that, despite their age, they should still engage in any physical activities so that they will lessen their exposure to a sedentary lifestyle.

Keywords: *physical activity, engagement, older adults, health promotion, intervention*

INTRODUCTION

Based on the literature, it is projected that there will be a significant increase in the ageing population decades from now. According to the United Nations World Population Prospect (2022), the population over 65 years of age is growing more rapidly than the population below that age. The proportion of people aged 65 years and above is increasing at a faster rate than that of those below that age. This means that the percentage of the global population aged 65 years and above is expected to rise from 10% in 2022 to 16% in 2050. It is projected that by 2050, the number of individuals aged 65 years or above across the world will be twice the number of children under the age of five, and almost equivalent to the number of children under 12 years. The same trend was also observed in the report of the United Nations (2015) World Population Aging: between 2015 and 2030, the number of people aged 60 years or over is projected to grow by 56%, from 901 million to 1.4 billion, and by 2050, the global population of older persons is projected to be more than double



its size in 2015, reaching nearly 2.1 billion. Over the next 15 years, the number of older adults, particularly in Asia (66%), is expected to grow faster.

Such an increase in the aging population is very evident in developing countries, specifically in the Philippines, where it is experiencing a rapidly aging population, and the number of older people in 2050 is expected to double in size from 7 million to approximately 14 million in less than 30 years. This can strain healthcare systems, social welfare programs, and families, who may struggle to care for older adults as their care needs increase (Fajardo, 2024). There were 5.4% (5.86 million) of the 108.67 million household population in 2020. Among the older adults, females (13.4%) outnumbered males (11.2%). A similar trend was observed in 2015. Among those aged 65 years and older, the sex ratio was 73 males per 100 females. This indicates a longer life expectancy among females than males or a higher mortality rate among males than females in older age groups (psa.gov.ph, 2020). Across the country, Region III has 11.6% are senior citizens (psa.gov.ph, 2015).

Based on the above-mentioned facts and details about the anticipated increase in the total population of older adults, issues and concerns relating to them might likewise arise. Identifying their possible challenges as they age is of utmost importance to give proper attention. Health decline is one of the primary challenges associated with aging and requires proper healthcare and support. Health issues related to physiological changes lead to the loss of physical function or disability among older adults. Disability can be defined in several ways, including difficulties with activities of daily living (ADL); difficulties with instrumental activities of daily living (IADL); and mobility limitations, impairments, and participation restrictions. According to Chen and Chen (2017), the disability of older adults is closely related to their degree of weakness, which is determined by aging, diseases, and lack of exercise.

Physical Activity is a key element of the “Healthy Aging” defined as the process of developing and maintaining the functional ability that enables well-being in older age” (World Health Organization, 2019). Physical activity reduces the risk of early mortality (Grande et al., 2019) and may prevent falls in the elderly (Sherrington et al., 2020). Engagement in regular moderate-intensity physical activity has been recognized as a significant beneficial factor for health, reducing the risk of heart disease, stroke, hypertension, type 2 diabetes, colon cancer, breast cancer, osteoporosis, depression, and anxiety (Grande et al., 2019; Cunningham et al., 2020). Scarfo et al. (2022) identified that physical activity affects neuronal function, since it promotes neurotrophic factor production and synaptic plasticity, as well as decreases brain inflammation and oxidative stress. Cammisuli et al. (2022) stated that regular physical activity is considered a relevant healthy behavior that can counteract physiological decline in the elderly, along with a balanced diet and social engagement. Hung et al. (2023) concluded that regular physical activity is crucial for older persons to maintain their physical, mental, and emotional well-being and to prevent age-related health issues.

The above literature specifies that there is evidence of health benefits of engaging in physical activity among older adult populations. However, as people age, their



engagement with physical activity declines. Older adults tend to exhibit sedentary behavior, which has been linked to functional limitations and disability. As Halma and Marik (2024) mentioned, as individuals age, they undergo significant physiological changes that affect their functional capacity and often necessitate increased reliance on external support systems. Enhancing the autonomy and well-being of elderly individuals has emerged as a critical imperative, serving not only individual interests, but also broader societal goals.

How to address the inevitable phase of life, which is aging, is the major concern of this study, since the elderly represent a growing age group and an integral part of modern society. Suryadi et al. (2024) identified that the aging process introduces significant health challenges, making exercise an essential component in maintaining the quality of life and well-being among the elderly. Physical exercise interventions have been shown to provide substantial benefits, not only in physical function, but also in cognitive performance and the overall quality of life for older adults. Overall, engagement in physical exercise could improve physical fitness among older adults, which could prevent morbidity and reduce disability.

Following the concept of the positive effect of exercise in improving lifelong health, it is of utmost importance to promote regular physical activities in older adults. The WHO (2020) recommends that individuals aged 65 and above should engage in at least 150 minutes of moderate-intensity aerobic physical activity or at least 75 minutes of vigorous-intensity aerobic physical activity weekly, supplemented with muscle-strengthening activities for at least 2 days per week and balance or multi-component exercises. Daniels et al. (2023) revealed that older adults recognized the health benefits of engagement in physical activities, such as improved mobility and balance, and reduced fall risk, while emphasizing the social and mental aspects. This only proves that engagement in physical activities has beneficial effects on achieving lifelong health. Hence, compelling evidence supports the promotion of physical health activities in older adults.

This study highlights the problems that society faces with an aging population and the epidemic of functional limitations and physical disability—the process of physical disability. This study also addressed the formidable topic of promoting physical activity among older adults. The primary focus is on older adults who are at risk for or who have evidence of functional limitations or physical disabilities that often accompany chronic diseases.

Thus, this study aimed to determine the current status of the physical activity engagement among older adults in Pampanga Province, which will serve as a basis for health promotion and intervention. While a number of existing programs related to the aging population exist, many of them may not generally apply to the needs of the aging population of Filipinos. Therefore, this study is important to support a tailored-fit program that will address the priority needs and issues of the aging population in the province.



Significance of the Study

The results of this study will be of great benefit, specifically to all older adults within the province of Pampanga, by providing them with awareness of the importance of how physical activity engagement affects their health in general. That is, on the one hand, those who are poor in engagement with physical activity may be encouraged to take an active part in older adults' physical fitness programs in order to improve health and well-being. On the other hand, those who are physically active and enjoy the benefits of healthy life are motivated and reinforced to continue engaging in physical activity. Likewise, it could increase awareness of their respective roles, efforts, and support from their family members, who are the forefront and must be the first to assimilate the value of active and healthy lifestyles on them. Further, this study will help the government identify the needs of older residents, assistance, and the interventions necessary for them. Finally, the results of this study could aid researchers as baseline data for future undertakings related to physical activity engagement among older adults.

General Objective

The primary objective of this study was to assess the physical activity engagement of older adults, which will serve as a basis for health promotion and educational intervention.

Specific Objectives

1. To describe the demographic profile of the respondents.
2. To assess the physical activity level of the older adults such as:
 - a. leisure activity
 - b. household activity
 - c. occupational activity
3. To develop a health promotion and education intervention tailored-fit to the needs of older adults' residents.

METHOD

This study used a descriptive research design that aimed to assess the physical activity engagement of older adults. The participants of this study were older adults in the province of Pampanga, Philippines. Men and women aged ≥ 60 years were included in this study. The participants had no cognitive deficits that prevented them from fully understanding the instructions in the survey questionnaire. Participants such as blind, deaf and mute, bedridden, and other conditions that would impede their participation in the current study were also excluded.

The sample size was calculated using a cluster sampling procedure. To obtain a better estimate of the sample size from each municipality, the actual number of older adults from each municipality was requested from the municipal Office of Senior Citizen's Affairs (OSCA). Using these data, representative sample sizes from each municipality were



calculated at a 5% margin of error and 50% response rate and 1.80 design effect adjustments. A total of 899 older adults were included in this study. Categorical data are presented as frequencies and percentages, and normally distributed quantitative data are presented as means, while non-normally distributed quantitative data are presented as medians. The range is also presented for the numerical data.

As part I of this study, a structured questionnaire was used to gather demographic profile information. The demographic questionnaire comprises a set of questions aimed at gathering data of the target participants, such as age, gender, and civil status. This tool enables researchers to gather background information from the participants (Kobiruzzaman, 2023). Apart from the demographic information, Part II is a self-administered questionnaire that was used to collect data on the physical activity engagement of older adults. The Physical Activity Scale for the Elderly (PASE) (Washburn et al. (1993, as cited in Hatami et al., 2021) was the main instrument used to assess participants' physical activity engagement. This instrument is a brief (5 minutes) and easily scored survey designed specifically to assess physical activity in epidemiological studies of persons aged 65 years and older. The PASE score combines information on leisure, households, and occupational activities. The Physical Activity Scale for the Elderly (PASE) instruments used in this study are standard and free to use without permission.

This study followed a step-by-step procedure to gather data and information. Prior to the actual data collection for the study, a communication letter of approval from the proper authorities was secured. A comprehensive discussion and explanation of the study's rationale, potential benefits, procedures, and the nature of the questions followed. Approval and signed consent forms were obtained from participants before the administration of the questionnaire. Following the Data Privacy Act of 2020, the data gathered are accessible only to researchers who are bound by confidentiality agreements. All data gathered will be collected and stored in a secure Google Drive Folder until the study is completed. After the study, all the data collected will be deleted properly, including backups. In some instances, however, particularly for the purpose of enhancing scientific knowledge, the research findings may be shared with specific institutions, published in scientific journals, or even presented in conferences. Nevertheless, the anonymity of the participants will always be guarded, and their participation will not be traceable in publications or presentations.

RESULTS AND DISCUSSION

Demographic Characteristics of the Participants

Table 1 presents the demographic characteristics. The mean patient age was 70 years, with 60 years as the youngest and 96 years as the oldest. The majority of the participants were female (55.4%), while 44.6% were male. The majority (57.1%) were still married, whereas 35.2% were widowed.



Table 1. Demographic Characteristics of Older Adults

Variable	n (%)
Age	
Mean (range)	70 (60-96)
Sex	
Male	401 (44.6)
Female	498 (55.4)
Civil Status	
Single	49 (5.5)
Married	513 (57.1)
Widowed	316 (35.2)
With live-in partner	8 (0.9)
No response	13 (1.5)

Physical Activity Scale of the Participants

Table 2 shows the physical activity scale. More than half (55.8%) of the participants reported having sitting activities very often (5-7 days a week) while 26.8% indicated “sometimes (3-4 days a week)” and 14.8% answered “seldom (1-2 days a week).” Approximately one-third (34.9%) of the participants said that sitting activities lasted for an average of less than one hour. The rest of the participants were divided equally in the number of hours they were performing their sitting activities, ranging from one to more than four hours a day. The results showed that the majority of participants had sedentary behavior and spent more time sitting. Raichlen et al. (2023) indicated that adults aged 60 and older who spend more time engaging in sedentary behaviors such as sitting while watching TV or driving may be at increased risk of developing dementia, according to a new study by the University of Arizona. Their study showed that the risk of dementia significantly increases among adults who spend more than 10 hours a day engaging in sedentary behaviors, such as sitting.

An estimated four out of five (42.5%) of the elderly reported having walking activities “often” (5-7 days a week) and almost a quarter of them (24.1%) do it seldom (1-2 days a week). In addition, 60.2% of the elderly perform walking activity for less than one hour a day.

A vast percentage of respondents (84.1%) did not engage in light sports or recreational activities. Only 10.2% reported doing so seldom (1-2 days a week), and the majority (74.8%) reported doing so less than an hour a week.

Only five percent of the elderly were engaged in moderate sports or recreational activities, while the rest (95.1%) never did so. Seventy-five percent (75%) of those engaged in it are doing it less than one hour per week.

A large percentage (84.4%) also reported not having any strenuous or recreational activities, while some say they seldom do (7.9%), and 5.9% are often engaged in it.



Almost 66% of those who reported engaging in it did so in less than one hour, while 22.8% of them did so between one to two hours a week.

Less than three percent of the participants engaged in muscle strength and endurance exercises, but 96.1% did not. Eighty percent of those reported doing so in less than an hour.

Since the participants of the study were older adults, most were afraid of engaging much of themselves in physical activities due to fear of falling and other physical injuries. Soomar et al. (2023) reported that fall injuries and trauma-related hospitalizations are the most common causes of injury and in-hospital stays among the elderly population. After the age of 65, the severity and frequency of fall-related problems increased, and the repercussions were challenging for senior citizens, caregivers, and healthcare professionals. Smith et al. (2021) also mentioned that there is a worldwide increase in the elderly population, and that falls are a major global health problem in this age group. According to the Center for Disease Control (CDC), falls are the leading cause of injury-related deaths among adults aged 65 years and older.

The aforementioned facts about falls are possible reasons why older adults tend to engage in sedentary behavior and physical inactivity. However, it is surprising that the majority of the participants, despite their older age, still manage to engage in walking activity, which is an easy and safe form of physical activity and does not require any special equipment. Ungvari et al. (2023) identified that walking decreases the risk or severity of various health outcomes, such as cardiovascular and cerebrovascular diseases, type 2 diabetes mellitus, cognitive impairment, and dementia, while also improving mental well-being, sleep, and longevity. Dose-response relationships for walking duration and intensity were established for adverse cardiovascular outcomes. The favorable effects of walking on cardiovascular risk factors are attributed to its impact on circulatory, cardiopulmonary, and immune functions. Meeting current physical activity guidelines by briskly walking for 30 min per day for 5 days can reduce the risk of several age-associated diseases. Additionally, low-intensity physical exercise, including walking, exerts anti-aging effects and helps to prevent age-related diseases, making it a powerful tool for promoting healthy aging.



Table 2. *Distribution of Responses on Physical Activity Scale for Elderly (PASE)*

Activity	n (%)	Activity	n (%)
Sitting Activities		Moderate Sport/ Recreational Activities	
Never	23 (2.6)	Never	855 (95.1)
Seldom (1-2 days)	133 (14.8)	Seldom (1-2 days)	32 (3.6)
Sometimes (3-4 days)	241 (26.8)	Sometimes (3-4 days)	8 (0.9)
Often (5-7 days)	502 (55.8)	Often (5-7 days)	4 (0.4)
Sitting Activities Number of Hours		Moderate Sport/ Recreational Activities Number of Hours	
Less than 1 hour	306 (34.9)	Less than 1 hour	33 (75.0)
1 but less than 2 hours	164 (18.7)	1 but less than 2 hours	6 (13.6)
2-4 hours	200 (22.8)	2-4 hours	3 (6.8)
More than 4 hours	206 (23.5)	More than 4 hours	1 (2.3)
Walking Activities		Strenuous Sport/ Recreational Activities	
Never	123 (13.7)	Never	759 (84.4)
Seldom (1-2 days)	217 (24.1)	Seldom (1-2 days)	71 (7.9)
Sometimes (3-4 days)	177 (19.7)	Sometimes (3-4 days)	16 (1.8)
Often (5-7 days)	382 (42.5)	Often (5-7 days)	53 (5.9)
Walking Activities Number of Hours		Strenuous Sport/ Recreational Activities Number of Hours	
Less than 1 hour	467 (60.2)	Less than 1 hour	92 (65.7)
1 but less than 2 hours	176 (22.7)	1 but less than 2 hours	32 (22.8)
2-4 hours	95 (12.2)	2-4 hours	10 (7.1)
More than 4 hours	37 (4.8)	More than 4 hours	6 (4.3)
Light Sport/ Recreational Activities		Muscle Strength and Endurance Exercises	
Never	756 (84.1)	Never	864 (96.1)
Seldom (1-2 days)	92 (10.2)	Seldom (1-2 days)	26 (2.9)
Sometimes (3-4 days)	21 (2.3)	Sometimes (3-4 days)	1 (0.1)
Often (5-7 days)	30 (3.3)	Often (5-7 days)	8 (0.9)
Light Sport/Recreational Activities Number of Hours		Muscle Strength and Endurance Exercises Number of Hours	
Less than 1 hour	107 (74.8)	Less than 1 hour	28 (80.0)
1 but less than 2 hours	14 (9.8)	1 but less than 2 hours	2 (5.7)
2-4 hours	17 (11.9)	2-4 hours	3 (8.6)
More than 4 hours	4 (2.8)	More than 4 hours	1 (2.9)

Household and Work-Related Activity in PASE

The participants of the study were still involved in different household activities, as shown in Table 3. The data collected show that light housework is the number one household activity they engaged in (82.8%), followed by heavy housework (65.4%), caring for another person (52.7%), outdoor gardening (25.9%), home repairs (19.9%), and lawn work or yard care (11.9%). It is quite interesting to note that the majority of the elderly female respondents are still engaged in several household activities such as cooking, cleaning, sweeping, washing clothes and utensils, gardening, and caring for children and



grandchildren. Involvement in household- and work-related activities could be partially attributed to the fact that people of different ages and genders have different preferences (hobbies) and motives for activity participation (Finkel et al., 2018). Liao et al. (2021) identified that women engage in more light-intensity activities, whereas men exert more energy in moderate-intensity activities, and the influence of physical exercise on cognition is stronger among older men than among women.

Only 14.2% still worked for pay or served as a volunteer for an average of 10 hours a week, while the vast majority (85.2%) were not working. The work activity of the working participants was categorized as 1 (mainly sitting and some slight arm movement) with 38.3% of the participants, 2 (sitting or standing with some walking) with 44.5%, 3 (walking with some handling of materials) with 14.1%, and 4 (walking and heavy manual work) with 3.1%. Results with regard to work-related activity concluded that few elderly still engage in work to keep themselves occupied and to stay mentally and physically active. Giving people better choices and employment opportunities at older ages will be key to sharing the benefits of increased longevity more fairly and deliver inclusive labor markets in which skills and talents of different ages are put into use (Aitken and Singh, 2023).

The PASE scores of the respondents ranged from 0 to 521.71. This signifies the large variety of participants in terms of their types of activities. A mean PASE score of 97.01 (max=793) indicated low physical activity among the study respondents.

Table 3. *Distribution of Responses on Household and Work-Related Activity in PASE*

	Yes	No	No Response
Household Activity			
<i>Light Housework</i>	743 (82.6)	156 (17.4)	
<i>Heavy Housework</i>	588 (65.4)	309 (34.4)	2 (0.2)
<i>Home repairs</i>	179 (19.9)	714 (79.4)	6 (0.7)
<i>Lawn work or yard care</i>	107 (11.9)	789 (87.8)	3 (0.3)
<i>Outdoor Gardening</i>	233 (25.9)	664 (73.9)	2 (0.2)
<i>Caring for another person</i>	474 (52.7)	424 (47.2)	1 (0.1)
Work-related Activity	Yes	No	No response
Work for pay or as a volunteer	128 (14.2)	766 (85.2)	5 (0.6)
Work hours per week	median (range)	10 (1-70)	
	Category 1	Category 2	Category 3
*Category of work activity	49 (38.3)	57 (44.5)	18 (14.1)
			Category 4
			4 (3.1)



Conclusions

Based on the findings of the study, the following conclusions are drawn:

The mean age of the participants was 70 years old, with 60 years old as the youngest and 96 years old as the oldest. The majority of the participants were female and married. With regard to the physical activity scale of the participants, more than half of the total population had sedentary behavior, spending more time in sitting activities very often (5-7 days a week). The majority of participants, despite their older age, still managed to engage in walking activities. A vast percentage of the participants did not engage in light sports or recreational activities at all, moderate sports or recreational activities, strenuous or recreational activities, and muscle strength and endurance exercises. The participants of the study still involved themselves in different household activities, and a few of them still engaged in work.

Scores on the Physical Activity Scale for the Elderly (PASE) indicate low physical activity among the study participants.

Recommendations

Based on the findings and conclusions of the study, the researcher recommended that older adults, in spite of their age, may still engage themselves incessantly in any physical activities that they enjoyed so that they will lessen their exposure to inactivity and sedentary lifestyle. Physical exercise interventions play a crucial role in maintaining physical and cognitive functions in older adults. Exercise programs tailored to the specific health conditions of individuals can significantly improve a healthy life and reduce the risk of declining physical and cognitive function in the elderly population. This could be possible through socializing with older adults in the form of any engagement in physical activities, such as leisure-based activities within the community. Engagement in light physical activities such as simple exercises, walking, arts and craft, cleaning, planting, etc., will help improve and maintain health. They could also engage in helping the community with any voluntary civic activities.

The following are the recommended health promotions and interventions suitable for older adults' capabilities and needs.

1. **Physical Recreation for Older Adults.** In this program, participation is implemented through engagement in several physical activities to maintain older adults' functional capabilities. Exposure to inactivity and a sedentary lifestyle will be lessened. Physical activities such as stretching exercises, exercises for joints and muscles, balance exercises, breathing exercises, laughter exercises, meditation exercises such as *tai chi*, walking, and similar light physical activities could help maintain and improve older adults' health. Planned physical activity and lightweight exercises that best suit older adults' level of physical capacity can help improve cognition, reduce the risk of dementia (including Alzheimer's disease), and lower the risk of falls and injuries from falls.



2. Series of Seminars and Lectures to Both Older Adults and Their Family Members. Participation was implemented by attending listed seminars intended for senior adults. Topics that concern older adults should be considered for them to become aware of their importance. The following are the possible topics for the seminar:

- a. Health Promotion and Safety
- b. Principles and practices of safe, appropriate and effective medication in older adults
- c. Bone Screening
- d. Eye Examination
- e. Healthy food consumption
- f. Fall Risk Assessment and Prevention Programs

3. Engagement Through the Use of Technology. Interested older adults will be trained to become computer literate and become familiar with technology. A wide group of older adults was able to use the internet for daily life. This is likewise their way of being updated on what is happening within their environment and their means of socialization. This program will serve as an important initiative, and education must continue regardless of age.

4. Go Green, Planting and Gardening. Older adults are engaged in planting and gardening. Through active participation, they could feel a sense of belongingness and purpose that, despite their age, they were still capable of doing such activities. This can be a sort of competition that promotes the beautification of the community. Similarly, it is a form of relaxation. Older adults gain an improved perception of themselves through activities that promote healthy aging.

5. Older Adults Association. This will be made possible by identifying the leaders and members of each community. Regular meetings for older adults will serve as a form of socialization for them. They may conduct a group of activity or engage in other activities through simple projects for the community, such as cleaning and planting (in the form of competition). Through active participation, they can maintain good relationships, team spirit, and mutual encouragement. Older adults gain an improved perception of themselves through activities that promote healthy aging. This program will contribute to increasing the self-esteem and motivation of older adults by engaging them in social activities.

The aforementioned health promotion and education intervention program for older adults will not be possible without mutual support among older adults and from their family members, who are the forefront and must be the first to assimilate the value of healthy living on the. Lastly, the government needs moral support and financial assistance from older adults.



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