



# Physical Activity and Self-Efficacy on Exercise among Elderly Retired Philippine Army: Basis for Policy-making on Physical Activity Program

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**Abstract**— This study aimed to investigate the physical activity and the level of self-efficacy in relation to exercise among the retired Philippine Army based in the province of Zamboanga del Norte, Philippines during the months of May and June 2023. A quantitative descriptive-correlational design was utilized in the study. Data were gathered from 19 retired Philippine Army personnel during the Armed Forces Veteran Association- Zamboanga del Norte's monthly meeting. Frequency count, weighted mean and Pearson Correlation was used to analyze the collected data. The study found out that there was no significant relationship between physical activity on age, gender and length of service. It was also noted that there was a positive correlation between the variables age, gender and length of service this suggests that if there were changes in the variable physical activity, all other variables would change on the same direction. Moreover, Results showed that age and gender had a significant relationship as well as age and self-efficacy as both relationships showed a positive correlation. However, length of service and self-efficacy does not show significant relationship because of its negative correlation. Furthermore, results show no significant relationship between physical activity and the level of self-efficacy among Armed Forces veterans in Zamboanga del Norte. The results revealed a positive correlation which indicates that when the variable self-efficacy changes, the variable physical activity also changes on the same direction.

**Keywords**—Elderly, Exercise, Philippine Army, Physical Activity, Self-efficacy

## I. INTRODUCTION

According to the Philippine Statistics Authority (PSA, 2020) people aged 60 and up are considered vulnerable, as are those who suffer from conditions known as comorbidities, such as a) immunocompromised diseases, like cancer and HIV/AIDS; b) diabetes; c) chronic cardiovascular diseases; and d) chronic respiratory conditions including Coronavirus disease 2019 (COVID-19). Based on the 2018 record from PSA's Philippine National Health Accounts, the overall population aged 60 and above spent a total of PhP 171.5 billion, of which PhP 44.4 billion was spent

by the demographic segment with comorbidities. Total health expenses of PhP 101.2 billion by the vulnerable group of 60 years old were paid out-of-pocket by households, accounting for roughly 60% of total health spending. Approximately 15.7 percent of current health expenses were spent on the treatment/management of illnesses associated with severe and serious COVID-19 patients, wherein expenditures on cardiovascular diseases were the highest. This could have been prevented if the government has made physical activity programs to keep elderly population active that would definitely prevent health problems, especially those that are categorized as modifiable. Given these facts of

economic burden among the elderly and knowing that the most expensive medical conditions are usually those that occur near the end of a person's life, has motivated the researchers to conduct the study.

The World Health Organization (WHO, 2022) defines "healthy ageing as developing and maintaining the functional ability that enables well-being in older age". Individual intrinsic capacity (i.e., physical and mental capacities), the environment in which he or she lives (considered in the broadest sense and including physical, social, and policy contexts), and their interactions define functional ability.

Physical activity is "any bodily movement produced by skeletal muscles that requires energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits". Adults of all ages should exercise for at least 150 minutes at a moderate intensity level or 75 minutes at a vigorous level per week. Activity should be done for at least 10 minutes at a time to be beneficial to cardiovascular health (World Health Organization {WHO}, 2018).

Walking, cycling, wheeling, sports, active recreation, and play are all popular activities to be active, and they may be done by anyone of any ability level. Physical activity has been shown to aid in the prevention and management of noncommunicable diseases (NCDs) such as heart disease, stroke, diabetes, and a variety of cancers. It also aids in the prevention of hypertension, the maintenance of a healthy body weight, and the enhancement of mental health, quality of life, and overall well-being (WHO, 2018).

Every citizen in the globe, in every country, should be able to enjoy a long and healthy life. For many older persons, a significant percentage of the normal age-related reduction in functional ability is due to "deconditioning," because most older adults do not engage in enough physical activity and exercise to get the health advantages (Avers & Wong, 2020).

The move to retirement is a significant life adjustment that affects people's lifestyles and activities, especially those related to physical activity, which is a crucial component of active ageing. It is seen as a big life event that has an impact on people's daily routines, lifestyles, and health habits (Socci et al., 2021).

The number of people aged 60 and up is on the rise, as is their proportion in the population. The number of persons aged 60 and up reached one billion

in 2019. According to WHO statistics, this number will have risen to 1.4 billion by 2030, and by 2050, it will have risen to 2.1 billion. This rise is occurring at an unprecedented rate, and it is expected to intensify in the next decades, especially in emerging countries (WHO, 2022)

The Philippines, like many other countries, will see an increase in the number of Filipinos aged 65 and up. Currently, the country is unprepared to handle the influx of elderly Filipinos. The Philippine government must acknowledge that national programs for older Filipinos, such as the Senior Welfare Act, must be revised to meet the special needs of the country's senior population. More aged Filipinos should be covered by social welfare and wellness programs, which should be increased. To promote the well-being of older individuals across the provinces, disparities in access to services must be addressed (Bandana & Anandel, 2018).

The Healthy and Productive Ageing program of the Department of Health (DOH, n.d.), as mandated by Republic Acts 9257 (The Expanded Senior Citizens Act of 2003) and 9994 (The Expanded Senior Citizens Act of 2010), focuses on promoting senior citizens' health and wellness and alleviating the conditions of older people suffering from degenerative diseases. This program primarily aims to improve the quality of life for older people and contribute to the development of the country by ensuring fair access to high-quality healthcare.

Based on the researchers' perspective, the elderly retired Philippine Armies are among those individuals who should be given utmost importance in their declining years. The Philippine Army (PA), also known as Hukbong Katihan ng Pilipinas, is the primary and oldest branch of the Philippine Armed Forces (AFP), headquartered in Taguig City, Metro Manila. The PA is tasked with defending the country through land warfare and operations, with 11 divisions and special forces spread over the islands of Luzon, Visayas, and Mindanao. The Philippine Army has acted as a protector of Filipinos with a significant role in nation-building for 122 years. To serve the people and secure the land, the Philippine Army continues to innovate its forces and emerge victorious in all battles and challenges (Philippine Army {PA}, 2022).

The researchers were able to retrieve data from the Philippine Army Attrition Branch on the retired army personnel from 2016 to 2021 totalling to 13,929

(H.Garcia, personal communication, February 8, 2022). Yet, the researchers were not able to gather any information based on studies that are available in the country pertaining to a program that promotes physical activities for elderly Filipinos, specifically the retired Philippine Army (who during their active service, was engaged in strenuous physical activities). This has led the researchers to conduct the said study.

### Theoretical Framework

The Social-Cognitive Theory (SCT), which employs tactics to foster behavioral change, is an effective model for increasing physical exercise (Merryman, 2017). Behavioral change is influenced by environmental effects, personal factors, and the characteristics of the behavior itself, according to social learning theory, which was later renamed social cognitive theory. This means that the person must have confidence in his or her capacity to do the behavior (self-efficacy) and perceive an incentive (positive expectations must outweigh negative expectations) in order to be able to do so.

Retirement can be essential in influencing PA behavior because of the multiple changes involved with this transition (e.g., decreased income, fewer social contact, loss of daily routine). The belief in one's ability to effectively conduct the desired behavior (i.e. self-efficacy) is a crucial determinant of PA adoption, especially in older persons, according to SCT. The findings of the study of Kosteli et al. (2016) are consistent with SCT and point to self-efficacy as one of the underlying reasons for people in their retirement years participating in PA.

### Conceptual Framework

Figure 1 describes the conceptual framework of the study wherein the independent variables consist of the following demographic profile: Age, Gender and Length of Service. On the other hand, the dependent variables are the level of Physical Activity and the level of Self-efficacy on Exercise.

This study aimed to find out if there is a significant relationship between the demographic variables and the level of physical activity, as well as a significant relationship between the demographic variables and the level of self-efficacy on exercise among elderly retired Philippine Army of Zamboanga del Norte. Further, results will serve the desired output of the study which is the amendment of the retirement

benefits of the elderly retired Philippine Army, a Physical Activity Program.

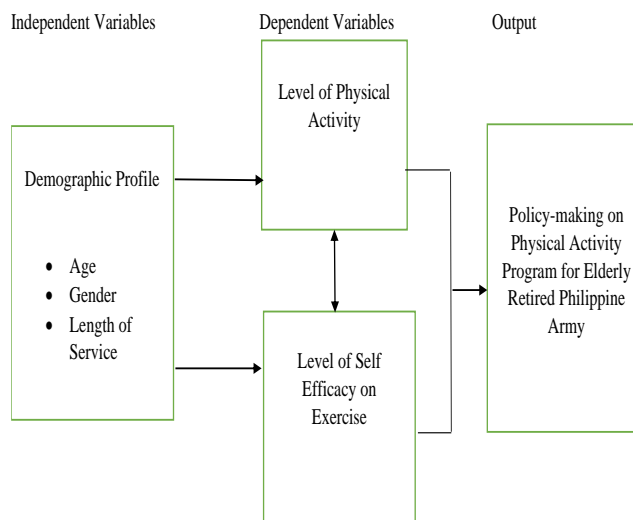


Fig 1. Conceptual Framework of the Study

### Statement of the Problem

This paper aimed to identify and explain the level of physical activity and self-efficacy on exercise among the respondents as a basis for policy-making on physical activity program.

This study specifically seeks to answer the following questions:

1. What is the demographic profile of the respondents in terms of:
  - 1.1 Age;
  - 1.2 Gender;
  - 1.3 Length of Service
2. What is the level of physical activity among elderly retired Philippine Army?
3. What is the level of self-efficacy on exercise among elderly retired Philippine Army?
4. Is there a significant relationship between the level of physical activity and the level of self-efficacy on exercise among elderly retired Philippine Army?
5. Is there a significant relationship between the level of physical activity and the age, gender and length of service among elderly retired Philippine Army?
6. Is there a significant relationship between the level of self-efficacy on exercise and the age,

gender and length of service among elderly retired Philippine Army?

## II. LITERATURE

Despite the fact that older Filipinos appear in national reports, empirical studies including older individuals appear to be rare in the Philippines. The Philippines' major universities house research institutes that study a wide range of topics; however, the University of the Philippines Manila is currently the only major institution with a dedicated center for aging research. The majority of research on older Filipinos appears to be focused on aging perceptions, older Filipinos' quality of life, and older adults in the workforce (Bandana & Andel, 2018).

According to one survey, persons over the age of 65 volunteer more hours per year than any other cohort. Older adult volunteers have a plethora of personal and professional experiences that can be used to help the organization or community with whom they volunteer. Furthermore, volunteering contributes to healthy aging by: (1) improving quality of life, strengthening social networks, increasing physical activity, and lowering mortality rates; (2) increasing social support; (3) improving life satisfaction and wellbeing, sense of purpose, self-confidence, and personal growth; and (4) providing a fulfilling way to use valuable skills, give back to communities, and mentor others (Philippine National Volunteer Service Coordinating Agency {PNVSCA}, 2021)

Workplace practices have a substantial long-term impact on well-being, including chronic physical health issues resulting from lack of protective clothing among UK Armed Forces (AF) veterans. Due to logistical issues or musculoskeletal ailments (believed to be caused by very strenuous AF physical activity), some difficulties sustaining physical activity were experienced after leaving the AF. This explains why some AF veterans may be more prone to obesity once they leave the service. When they leave the military, working-age veterans are more likely to have hearing impairments, musculoskeletal disorders, and arthritis (Williamson et al., 2019).

### Physical Activity

Physical inactivity (sedentary lifestyle) is a major public health concern for people of all ages. A sedentary lifestyle accelerates the rate of age-related functional decline and lowers the capacity for sustained

exercise to reestablish physiological reserve following an injury or illness. It was reported that only 22% of elderly persons engage themselves in regular leisure-time physical activities (Guccione et al., 2012).

Physical activity as defined by the American College of Sports Medicine (ACSM) and the Centers for Disease Control and Prevention (CDC) is "any bodily movement produced by the contraction of skeletal muscles that result in a substantial increase over resting energy expenditure (Kisner et al., 2018). Physical activity promotes cardiorespiratory fitness and has a variety of benefits for the cardiovascular system. All healthy adults, those with coronary risk factors, and patients with chronic heart illnesses should participate in aerobic physical exercise, which is the most researched modality with a positive dose-response effect on prognosis (Makar & Siabrenko, 2018).

Regardless of whether or not a chronic condition or impairment exists, regular physical activity can improve the health and quality of life of Americans of all ages. Physical activity can reduce the risk of: Early death, Coronary heart disease, Stroke, High blood pressure, Type 2 diabetes, Breast and colon cancer, Falls, and Depression in adults and older persons (Office of Disease Prevention and Health Promotion {ODPHP}, 2022).

McTiernan et al. (2019), discovered compelling evidence that physical activity lowers the risk of breast, colon, endometrium, bladder, stomach, esophagus (adenocarcinoma) and kidney cancers and moderate evidence for an association with lung cancer risk, with 10% to 20% reductions in relative risk.

The effects of PA on the brain and its functions, including social cognition, are more than sufficient to justify the need to promote PA among the elderly, given that our physical, cognitive, and social well-being are all dependent on it (Alarcon-Jimenez et al., 2020). Physical activity enhances cognition, particularly executive functioning and memory in mild cognitive impairment (MCI), independent functioning in MCI and dementia, and mental health in dementia patients (Nuzum et al., 2020).

Increases in moderate to vigorous PA has reduced psychological distress that improves the quality of life in older adults (Awick et al., 2017). Depression in older people is linked to a variety of unfavorable health consequences, and it is more chronic than depression in younger people. Physical activity has been considered

as a favorable non-pharmaceutical treatment for and prevention of depression in older persons (Zhang et al., 2021).

Physical activity is linked to increased independence in later life. The biggest advantages on ADL physical performance may come from moderate physical activity levels combined with high levels of mental, physical, and social demands. However, promoting milder levels and simpler forms of physical exercises may still be beneficial for older persons with mobility restrictions (Roberts et al., 2017).

In young, middle-aged, and older persons, physical activity was linked to life satisfaction and happiness. Furthermore, as people grow older, their life satisfaction and happiness increase. Wherein the amount of physical activity was more important than the type of physical activity with emphasis on lifestyle modification (An et al., 2020).

The Physical Activity Guidelines for Americans provides physical activity recommendations for persons of different subgroups, including adults and older adults (65 years and older). It was published in 2008 by the US Department of Health and Human Services. Physical activity recommendations are identified for each age group to achieve the most health benefits. Adults and older adults should: participate in moderate intensity physical activity for a minimum of 150 minutes or vigorous intensity for 75 minutes per week, episodes of at least 10 minutes count toward daily total and at least 2 days per week of muscle strengthening exercises. Additional activity specific for older adults is incorporating balance exercises to reduce risk of falls (Kisner et al., 2018).

### **Exercise**

Exercise is any planned and structured physical activity designed to improve or maintain physical fitness (Kisner et al., 2018). Regular exercise can aid in weight loss, decreasing triglycerides and raising HDL levels, as well as lowering blood pressure. Exercise training, greater cardiorespiratory fitness, or both, appear to enhance the metabolic syndrome's underlying factors, according to single-center trials and current meta-analyses. Aerobic or resistance exercise, or a combination of the two, has a substantial impact on one's health (Meyers et al., 2019).

In the senior population, sarcopenia is a health issue linked to aging. Sarcopenia lowers physical performance, muscle strength, and muscle mass which

can be prevented by engaging in physical exercise. The majority of older adults exercise intervention studies found that the participants had good results, but muscle strength maintenance appeared to be dependent on continuing to do particular sorts of physical activities on a regular basis (Lee et al., 2018).

According to the current US Department of Health and Human Services, the standard for physical exercise in older individuals that everyone should follow are these five-part activity routines: aerobic activity (cycling, jogging), muscle strength training, balance, flexibility, and avoidance of inactivity — which are all important components. A 30-minute interval of moderate to intense activity, with the goal of achieving a minimum of 150 minutes of activity every week is recommended on most days of the week incorporating balance training to help reduce fall risks (Orkaby & Forman, 2018).

With the ever-increasing number of older people in South Asia and Southeast Asia, factors including exercise frequency, consistency, and length appear to have a good impact on the mental health and wellbeing of older persons. Similarly, any intervention that encouraged older adults to be more active was found to be beneficial to their mental health and wellbeing as long as it was done in a fair amount of time. (Kadariya et al., 2019).

### **Self-efficacy and Social-Cognitive Theory**

Positive self-efficacy has been highlighted by many researchers as the key to successful physical activity engagement (Kisner et al., 2018). One of the most studied personality attributes that contributes to exercise adherence is self-efficacy, or the belief in one's ability to do something. It was found out in a study that self-efficacy played a significant role in determining the course of exercise activity, and those with higher self-efficacy were more likely than those with lower self-efficacy to continue participating in PAs for a longer period of time (Bandura, 2004, Belza et al., 2008, and Litt et al., 2002, as cited in Ceria-Ulep et al., 2011)

Within the psychological literature, beliefs about capability are frequently referred to as self-efficacy. Self-efficacy theory, a core component of social cognitive theory, one of the primary theories of motivation, claims that those who feel effective are more likely to engage in learning-enhancing cognitive and behavioral activities. Self-efficacy in physical

exercise has repeatedly been linked to levels of physical activity (Walker et al., 2021)

The social cognitive theory's core concept is that learning occurs in a social context, with a dynamic and reciprocal interaction between cognitive processes, environment, and behavior. A person must believe that he or she has the ability to change his/her habit and that modifying that habit will result in beneficial outcomes that surpass the possibility of negative outcomes one may go through. (Kisner et al., 2018).

### **Studies of Retired Military**

The majority of people believed that serving in the military was good for one's physical health. The majority of veterans attributed their improved physical health later in life to the exercise they gained while serving in the military. When they left the military, however, numerous veterans expressed difficulties in sustaining their desired level of physical activity due to new obligations and limited sports facilities (Williamson et al., 2019).

The members of the Royal British Legion ages 60 and above who participated in a study, recognized the importance of regular physical activity, but their perceptions were typically based on the 'felt' limitations of aging bodies, which were often in stark contrast to their earlier 'disciplined' active military bodies (Williams et al., 2017).

In a study conducted by Fisher et al., (2021), it was mentioned that after transitioning to military retirement, participants reported that their physical activity was negatively impacted. Not working out or exercising was one of the negative adjustments, decreasing one's exercise routine (e.g., not jogging as often or as far), avoiding the same physical activities (e.g., organized sports teams or attending to the gym), or being less active and sedentary are all examples of sedentary behavior.

Marciniak et al., (2021) discovered three new things about veterans and the chance of falling. First, non-injurious falls were 11% higher than injurious falls among veterans, while non-injurious falls were 28% lower than non-veterans. Second, among veterans, the risk of an NIF increased more with age than for non-veterans, with the oldest veterans having a 10–15 percent higher relative risk. Third, veterans who engage in at least one day per week of moderate or vigorous physical activity have a ~10% lower risk for NIF than non-veterans. Therefore, engagement in physical activity

may be a particularly effective way for veterans to reduce the risk of falling and injury as they get older.

Gerofit is a continuing workout that began in 1986 at the Veterans Affairs Medical Center (VAMC) in Durham, North Carolina. Gerofit's purpose is to promote physical activity among older adults who have served in the military for their health and wellness. Veterans aged 65 and up can participate in an intervention program such as strength and aerobic exercises or participate in group classes like tai chi, dancing, walking, and balance. According to the study of Brown et al., (2021), the preservation of their health and well-being, and the social opportunity to spend time with others were all factors that motivated veterans to join Gerofit. Interest/enjoyment was rated second highest in terms of intrinsic motivation, indicating that future research is needed to see if these and other factors (such as competence and attractiveness) have an impact on older individuals' engagement in group fitness programs.

## **III. METHODOLOGY**

### **Method Used**

This study employed a quantitative descriptive-correlational design which applies correlational statistics to measure and describe the degree of association among variables or sets of scores.

This study was conducted to determine the level of physical activity and self-efficacy on exercise among elderly retired Philippine Army and the relationship between the level of physical activity and the level of self-efficacy on exercise among elderly retired Philippine Army, the relationship between the level of physical activity and the length of service, age and gender among elderly retired Philippine Army and the relationship between the level of self-efficacy and the length of service, age and gender among elderly retired Philippine Army in Zamboanga del Norte.

### **Research Instrument**

There were two instruments used in this study. One instrument was adapted from the Godin and Shephard Leisure-Time Physical Activity Questionnaire, which was developed by Godin and Shephard in Canada in 1985. The other instrument used was the Self-Efficacy and Exercise Habits Survey which was developed in California by Sallis et al., 1988.

The Godin and Shephard Leisure-Time Physical Activity Questionnaire is a quick, simple and easy-to-use questionnaire that does not require high self-reporting skills to identify leisure-time physical activities. According to Goddin (2011), a few researchers (Gionet and Godin, 1987; Jacobs et al., 1993; Miller et al., 1994; Sallis et al., 1993) tested and confirmed the questionnaire's validity to assess leisure-time physical activity. Using the kappa index, the questionnaire's reliability was found to be 0.94 for the strenuous activity score and 0.74 for the total leisure-time physical activities (LTPA) score when it was designed. The Leisure-Time Exercise Questionnaire are classified into three activities: "strenuous," "moderate," and "light". Multiplying activities performed for more than 15 minutes in a week with their coefficients yield the scores corresponding to the energy expenditure (metabolic equivalent {MET}). The numbers reflect MET intensity ratings (strenuous/exhausting workouts are 9 METs, moderate exercises are 5 METs, and light exercises are 3 METs) (Sari and Erdogan 2016). The Godin Scale Score interpretation are as follows: Active (Substantial benefits) = 24 units or more, Moderately Active (Some benefits) = 14-23 units and Insufficiently Active (Less substantial or low benefits) = less than 14 units (Godin, 2011).

On the other hand, the Self-Efficacy and Exercise Habits Survey comprises 12 activities that people might do to urge themselves to increase or maintain regular exercise. There was a five-response Likert scale to choose from, ranging from I know I cannot (1) to I know I can (5) with an additional option of does not apply. The two factors "(1) sticking to it" and "(2) making time for exercise" for the Self-Efficacy and Exercise Habits Survey are scored as follows: Sticking to it: mean items 2, 3, 5, 6, 8, 9, 10, 11 and Making time for exercise: mean items 1, 4, 7, 2. (Sallis et al., 1988).

#### Statistical Treatment of the Data

In this study, a percentage frequency distribution was employed to show the relative frequency with corresponding percentages of survey responses and other information gathered that was presented in tabular or graphic form. A correlation statistic was used to show the relationship between variables. The Pearson-product moment correlation coefficient measured the relationship between two variables and their association with each other. It

calculated the influence of a change in one variable on a change in the other variable. The Jeffrey's Amazing Statistics Program (JASP) software was used in analyzing all the gathered data.

#### IV. RESULTS AND DISCUSSIONS

There was a total of 19 responses retrieved from the 25 questionnaires distributed during the Armed Forces Veteran Association- Zamboanga del Norte's monthly meeting. Some questionnaires were excluded due factors like incomplete data and some others declined to participate.

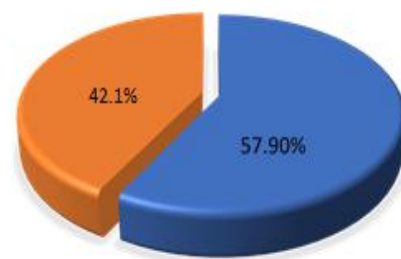


Fig 2. Distribution of Gender

Figure 2 shows the distribution of respondents according to gender. There was a total of 19 respondents, 11 males (57.90%) and 8 females (42.1%) who qualified for the study. According to Strong, et.al (2017), over 2 million women served as veterans in 2014, or about 10% of all veterans. Many female veterans must not only balance their personal and professional obligations but also learn to live with the physical and/or mental health issues they develop after returning from deployment. How well a woman transitions to civilian life after deployment may be influenced by the biological, psychological, and social factors present in her household and neighborhood. The following elements—(a) the availability of gender-specific Veterans Affairs policies and services; (b) accessibility to education and employment; (c) supports tailored to mental health and/or sexual trauma suffered in service; and (d) social stigmas associated with being a female veteran—can facilitate or obstruct the reintegration of female veterans.

Table 1. Distribution on Duration of Service among Respondents

LENGTH OF SERVICE	
20-25 years	42.1%
26-30 years	21.1%
31-35 years	21.1%
Above 35 years	15.8%

Table above shows the distribution of respondents according to their duration of service. Most of the respondents (42.1%) served the military between 20-25 years while 15.8% of them at above 35

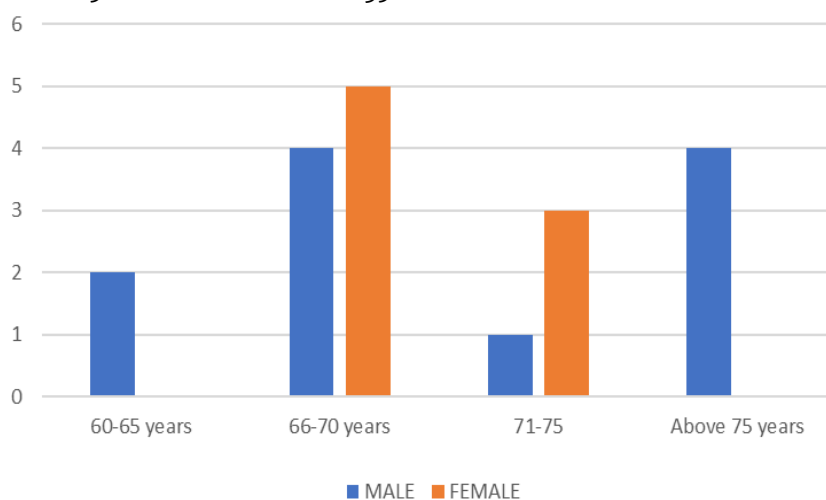


Fig 2. Distribution of Demographics and Military Tenure

Figure 2 offers a convenient visual representation of demographic distribution of respondent's age and military tenure according to gender. Data shows that the age ranges from 66-75 were all represented by both gender, female being dominant in this age bracket. The most senior respondents were represented by male. Jonathan E. Vespa (2020) highlighted that woman make up 9% (1.7 million) among veterans and by 2040 that number is expected to rise to 17%. Across all age ranges, male respondents were represented.

The frequency of physical activities among respondents of age range 60-65 years old is displayed in Table 2. The physical activities were categorized as strenuous, moderate, and mild. Strenuous activity is when the respondent feels the heart beats rapidly; moderate as

years. A lengthy military career provides the chance to gain considerable knowledge, abilities, and experience in a variety of military activities and leadership roles. Increased chances of advancements and promotions mean greater ranks and more responsibility. Long-term military duty also encourages close relationships, camaraderie, and enduring friendships between service members. However, there are drawbacks to consider, the physical and mental demands of military life might start to wear on an individual, increasing body wear and tear, increasing the risk of injuries, and increasing weariness (Cramm, et.al, 2019).

not exhausting and mild activity when the respondent exerts effort only minimally (Godin, 2011). The activities listed include walking, and Zumba. Respondents engage frequently in Zumba than walking and consider it a strenuous exercise which they performed four to five times a week. The study of Ljubojevic et al., (2023) imply that the Zumba fitness workout is an effective exercise technique for enhancing pulmonary function in sedentary women in addition to reducing body fat percentage. All respondents agree though that walking is their moderate and mild exercise with varying frequencies a week. An increase of the time spent in brisk walking may increase intestinal *Bacteroides* in association with improved cardiorespiratory fitness in healthy elderly women (Moreta et al., 2019).



Table 2. Level of Physical Activity of Age Range: 60-65 years old

<b>STRENUOUS ACTIVITY ( 60-65 y/o)</b>			
Frequency	2-3x/week	4-5x/ week	More than 5 times a week
Brisk Walking	50%	-	50%
Zumba	-	100%	-
<b>MODERATE ACTIVITY</b>			
Walking	50%	-	50%
Zumba	-	100%	-
<b>MILD ACTIVITY</b>			
Slow Walking	50%	100%	50%
Zumba	-	-	-

Table 3. Level of Physical Activity for Age Range: 66-70 years old

<b>STRENUOUS ACTIVITY (66-70 y/o)</b>			
Frequency	2-3x/week	4-5x / week	More than 5 times a week
Brisk Walking	-	-	89%
Chopping woods	-	11%	
<b>MODERATE ACTIVITY</b>			
Walking	22%	56%	11%
Bicycling	11%	-	-
<b>MILD ACTIVITY</b>			
Slow Walking	56%	11%	11%
Tai Chi	22%	-	-

The table above (Table 3) provides a clear overview on the frequency of physical activities of respondents with age range 66-70 years old. Unlike the previous table, this age group categorizes walking as strenuous, moderate, and mild activity at the same time. Many respondents (89%) executing it more than 5 times a week, while 11% of them chopped wood four to five times a week and consider it a strenuous activity. 56% of the respondents were involved in slow walking as an exercise that does not require them to exert effort. Other respondents tried other activities such as bicycling (11%) two to three times a week, and Tai Chi (22%). A meta-analysis study on the effects of Tai Chi reveals that there is strong evidence the exercise lowers blood pressure, total cholesterol, triglycerides, LDL-C, and blood glucose and significantly increases the quality

of life (Hao Liang et al, 2020). Bicycling on the hand might be as useful as walking in patients with peripheral arterial disease (Haga et al., 2020).

Table 4 demonstrates the level of physical activities for the age range 71-75 years old. Walking is the physical activity of their choice, with most of them executing it two to three times a week. For the exhausting activity, 100% of the respondents engaged in bicycling four to five times per week and 50% were involved in zumba. Bicycling helps Parkinson's disease (PD) patients with their motor function and enhances key aspects of their gait Tiihonen, et. al (2021). The table also reveals that the frequency of respondent's physical activity had reduced to mostly two to three times a week.

Table 4. Level of Physical Activity for Age Range: 71-75 years old

<b>STRENUOUS ACTIVITY (71-75 y/o)</b>			
Frequency	2-3x/week	4-5x / week	More than 5 times a week
Brisk Walking	50%	-	-
Zumba	-	-	50%
<b>MODERATE ACTIVITY</b>			
Walking	-	-	-
Bicycling	-	100%	-
<b>MILD ACTIVITY</b>			
Slow Walking	50%	-	-
Tai Chi	50%	-	-

Table 5. Level of Physical Activity of Age Range: Above 75 years old

<b>STRENUOUS ACTIVITY (above 75 y/o)</b>			
Frequency	2-3x/week	4-5x / week	More than 5 times a week
Brisk Walking	-	-	-
Chopping wood	25%	-	-
<b>MODERATE ACTIVITY</b>			
Walking	100%	-	-
Bicycling	-	-	-
<b>MILD ACTIVITY</b>			
Slow Walking	25%	-	-
Tai Chi	50%	-	-
House cleaning	25%	-	-

The frequency of physical activity among respondents who are above 75 years old is shown in Table 5. It is demonstrated in the table that there is a complete reduction on the frequency of physical activity to two - three times per week with mostly only walking exercises. It is further observed that only 25% of respondents performed strenuous activity while the rest are engaged with mild activities such as Tai Chi (50%), slow walking (25%), and house cleaning (25%) respectively. Further, there were no activities performed for more than three times a week. Engaging in higher frequency of moderate to vigorous physical activity (MVPA) or maintaining MVPA level is beneficial to older people as this would reduce the risk of

cardiovascular disease (CVD) according to Kim et al. (2020).

Table 6 shows the self-efficacy level of the age group 60-65 years old. There were twelve items in the survey to assess how confident they are that they could really motivate themselves to the tasks consistently for at least six months. These items will evaluate their self-efficacy and confidence in performing physical exercises. In the context of exercise, confidence level typically refers to an individual's belief or certainty in their ability to successfully perform a specific exercise or physical activity, it reflects their self-assurance and mental state regarding their physical capabilities. Respondents believed that they are extremely confident that they "can get up early in the morning"

(1),” set aside time for at least 30 minutes a week (4) to exercise”, “stick to their exercise program even through a stressful life change” (6) and “stick to the program even when there are household chores to attend to” (9), respectively. Item 11 scores the lowest, with the respondents slightly confident that they “can stick to their exercise program when social obligations are time

consuming”. Physically active adults in the Established Populations for Epidemiological Studies of the Elderly (EPESE) were more likely to survive to age 80 or beyond and had approximately half the risk of dying with disability than their sedentary peers (Izquierdo et al., 2021).

Table 6. Self-efficacy among Age Group: 60-65 years old

Task	Weighted Mean	Description
1.Get up early, even on weekends, to exercise.	4	Extremely confident
2. Stick to your exercise program after a long, tiring day at work.	3.5	Very confident
3.Exercise even though you are feeling depressed.	3.5	Very confident
4.Set aside time for a physical activity program; that is, walking, jogging, swimming, biking, or other continuous activities for at least 30 minutes, 3 times per week.	4	Extremely confident
5.Continue to exercise with others even though they seem too fast or too slow for you.	3	Moderately confident
6.Stick to your exercise program when undergoing a stressful life change (e.g., divorce, death in the family, moving).	4	Extremely confident
7.Attend a party only after exercising.	3.5	Very confident
8.Stick to your exercise program when your family is demanding more time from you.	3.5	Very confident
9.Stick to your exercise program even when you have household chores to attend to.	4	Extremely confident
10.Stick to your exercise program even when you have excessive demands at work.	3	Moderately confident
11.Stick to your exercise program when social obligations are very time consuming.	2	Slightly confident
12.Read or study less to exercise more.	3.5	Very confident

Scale range: Not at all confident-1.0-1.75; Slightly confident-1.76-2.5; Moderately confident-2.6-3.25; Very confident-3.26-3.99.

Extremely confident-4.0-5.0

Table 7. Self-efficacy among Age Group: 66-70 years old

Task	Weighted Mean	Description
1.Get up early, even on weekends, to exercise.	3.44	Very confident
2. Stick to your exercise program after a long, tiring day at work.	2.33	Moderately confident
3.Exercise even though you are feeling depressed.	1.89	Slightly confident
4.Set aside time for a physical activity program; that is, walking, jogging.	2.78	Moderately confident

swimming, biking, or other continuous activities for at least 30 minutes, 3 times per week.		
5.Continue to exercise with others even though they seem too fast or too slow for you.	2.33	Slightly confident
6.Stick to your exercise program when undergoing a stressful life change (e.g., divorce, death in the family, moving).	2.33	Slightly confident
7.Attend a party only after exercising.	2.89	Moderately confident
8.Stick to your exercise program when your family is demanding more time from you.	1.44	Not at all confident
9.Stick to your exercise program even when you have household chores to attend to.	2.89	Moderately confident
10.Stick to your exercise program even when you have excessive demands at work.	3.44	Very confident
11.Stick to your exercise program when social obligations are very time consuming.	2.56	Moderately confident
12.Read or study less to exercise more.	2.78	Moderately confident

Scale range: Not at all confident-1.0-1.75; Slightly confident-1.76-2.5; Moderately confident-2.6-3.25; Very confident-3.26-3.99. Extremely confident-4.0-5.0

The self-efficacy level among age group 66-70 years old is demonstrated in Table 7. Results suggest that out of all the items, they are very confident that they can “get up to exercise” and “can stick to exercise program even they have excessive demands at work” with a weighted mean of 3.44. It is also noted that they are not at all confident when asked if they can “stick to your exercise program when your family is demanding more time from you” with a weighted mean value of 1.44. It is also further noted that these age group are not extremely

confident in any of the tasks. Confidence in exercise can be influenced by various factors, such as previous experience, knowledge of proper form and technique, physical fitness level, and perceived barriers or challenges. When someone has a high confidence level, they are more likely to approach exercise with enthusiasm, motivation, and a positive mindset, which can lead to better performance and adherence to a workout routine (Chan et.al, 2018).

Table 8. Self-efficacy among age group: 71-75 years old

Task	Weighted Mean	Description
1.Get up early, even on weekends, to exercise.	4	Very confident
2. Stick to your exercise program after a long, tiring day at work.	3	Moderately confident
3.Exercise even though you are feeling depressed.	2	Slightly confident
4.Set aside time for a physical activity program; that is, walking, jogging. swimming, biking, or other continuous activities for at least 30 minutes, 3 times per week.	3.5	Very confident
5.Continue to exercise with others even though they seem too fast or too slow for you.	4.25	Extremely confident
6.Stick to your exercise program when undergoing a stressful life change (e.g., divorce, death in the family, moving).	3.5	Very confident
7.Attend a party only after exercising.	1.75	Not at all confident

8.Stick to your exercise program when your family is demanding more time from you.	3.5	Very confident
9.Stick to your exercise program even when you have household chores to attend to.	3.5	Very confident
10.Stick to your exercise program even when you have excessive demands at work.	2.75	Moderately confident
11.Stick to your exercise program when social obligations are very time consuming.	1.5	Not at all confident
12.Read or study less to exercise more.	3.25	Moderately confident

Scale range: Not at all confident-1.0-1.75; Slightly confident-1.76-2.5; Moderately confident-2.6-3.25; Very confident- 3.26-3.99.

Extremely confident-4.0-5.0

Age group 71-75 years old is extremely confident that they can “continue to exercise with others even though they seem too fast or too slow for you” as shown in Table 8. It is also noted that younger respondents are not as confident as this age group when it comes to their commitment given the same task. Although, they are not at all confident if they can “attend a party only after exercising” and “stick to your exercise program when social obligations are very time

consuming” with a weighted mean of 1.75 and 1.5 respectively. Furthermore, the respondents also demonstrated that they could set aside time for physical activity program for at least 30 minutes, three times a week very confidently (WM=3.5). Exercise training positively impacts mental health (Hall, et al., 2020), and the motivation to perform such is dependent on the person’s commitment and motivation

Table 9. Self-efficacy among Age Group: Above 75 years old

Task	Weighted Mean	Description
1.Get up early, even on weekends, to exercise.	3.25	Moderately confident
2. Stick to your exercise program after a long, tiring day at work.	3.25	Moderately confident
3.Exercise even though you are feeling depressed.	2.25	Slightly confident
4.Set aside time for a physical activity program; that is, walking, jogging, swimming, biking, or other continuous activities for at least 30 minutes, 3 times per week.	3.25	Moderately confident
5.Continue to exercise with others even though they seem too fast or too slow for you.	2.5	Slightly confident
6.Stick to your exercise program when undergoing a stressful life change (e.g., divorce, death in the family, moving).	3.25	Moderately confident
7.Attend a party only after exercising.	1.0	Not at all confident
8.Stick to your exercise program when your family is demanding more time from you.	2.0	Slightly confident
9.Stick to your exercise program even when you have household chores to attend to.	3.25	Moderately confident

10. Stick to your exercise program even when you have excessive demands at work.	1.0	Not at all confident
11. Stick to your exercise program when social obligations are very time consuming.	1.0	Not at all confident
12. Read or study less to exercise more.	2.75	Moderately confident

Scale range: Not at all confident-1.0-1.75; Slightly confident-1.76-2.5; Moderately confident-2.6-3.25; Very confident- 3.26-3.99.

Extremely confident-4.0-5.0

Table 9 shows that overall, respondents in this age group's exercise confidence level and self-efficacy have dropped. None of them is extremely confident or very confident in performing any of the tasks. Data also reveals that they are not confident at all to perform tasks 7 ("Attend a party only after exercising"), 10 ("Stick to your exercise program even when you have excessive demands at work") and 11 ("Stick to your exercise program when social obligations are very time consuming"). It is well observed in the table that task 5 ("Continue to exercise with others even though they

seem too fast or too slow for you") where age group 71-75 years is extremely confident that they can commit to performing, this age group suggests that they are slightly confident on their commitment to the same task. It is further manifested in the table (9) that there are several tasks an above 75 years old are moderately confident of performing such as tasks 1, 2, 4, 6, 9 and 12 respectively. Increasing chronological age was associated with decreased participation in organized sport (particularly team-based) and increased non-participation according to Smith, et al. (2022).

Table 10. Relationship of Physical Activity on Age, Gender and Length of Service

Variable	p-value	PHYSICAL ACTIVITY	AGE	GENDER	LENGTH OF SERVICE
1. PHYSICAL ACTIVITY	Pearson's r	—			
	p-value				
2. AGE	Pearson's r	0.894	—		
	p-value	0.106			
3. GENDER	Pearson's r	0.894	1.000	—	
	p-value	0.106	< .001		
4. LENGTH OF SERVICE	Pearson's r	0.269	-0.395	-0.395	—

Level of significance= 0.05

Results reveal the relationship of physical activity on age, gender, and length of service of respondents in Table 10. Using Pearson's correlation, the relationship between physical activity, gender (p= 0.106) and length of service (0.731) is not statistically significant. It is also noted that there is a positive

correlation between the variables age (r = 0.894), gender (r = 0.894) and length of service (r = 0.269) respectively. These results suggest that if there are any changes in the variable physical activity, all other variables will change in the same direction.

Table 11. Relationship of Self-efficacy on Exercise, Age, Gender and Length of Service

		Pearson's Correlations			
Variable		AGE	GENDER	LENGTH	SELF-EFFICACY
				OF SERVICE	
1. AGE	Pearson's r	—			
	p-value	—			
2. GENDER	Pearson's r	1.000	—		
	p-value	.001	—		
3. LENGTH OF SERVICE	Pearson's r	-0.395	-0.395	—	
	p-value	0.605	0.605	—	
4. SELF-EFFICACY	Pearson's r	0.998	0.998	-0.376	—
	p-value	0.002	0.002	0.624	—

Level of significance= 0.05

Table 11 shows the relationship between self-efficacy with age, gender, and length of service using Pearson's correlation. Data suggest that the relationship between age and gender is statistically significant ( $p=.001$ ) as well as self-efficacy and age ( $p=0.002$ ). Both relationships imply a positive correlation value of  $r= 1.00$  and  $r=0.998$  respectively. However, on the relationship between self-efficacy with length of service is not significant ( $p=0.624$ ) with a negative correlation value of  $r= - 0.376$ . This result suggests that if there are changes in the self-efficacy variable, the changes of variable length of service will be on the opposite direction (Bhandari, 2022).

Table 12. Relationship between Physical Activity and Level of Self-efficacy

		Pearson's Correlations	
Variable		SELF-EFFICACY	
1. SELF-EFFICACY	Pearson's r	—	
	p-value	—	
2. PHYSICAL ACTIVITY	Pearson's r	0.856	
	p-value	0.144	

Level of significance= 0.05

Table 10 shows the relationship between physical activity and self-efficacy among Armed Forces veterans in Zamboanga del Norte. Using Pearson's correlations, the result suggests that there is no significant correlation between physical activity and the level of self-efficacy with a  $p$ -value of 0.144, higher than the alpha value set at 0.05. Pearson's  $r$  value of 0.856 also reveals a positive correlation, which indicates that when the variable self-efficacy changes, the variable physical activity will also change in the same direction (Shaun Turney, 2022).

## V. CONCLUSION

This study concluded that respondents aged 60-65 considers walking as their mild and moderate exercise and that Zumba is their strenuous exercise which they frequently attended four to five times a week. This study also found out that elderly people aged 66-70 years old considered walking as their strenuous, mild and moderate exercise. 89% of the total respondents of this age group, does walking more than five times a week. For the respondents aged 71-75 years old, walking was their activity of choice, with most of them executing it two to three times a week. For this age group, 100% were engaged in bicycling four to five

times per week and 50% were also involved in Zumba. Result shows that people aged 75 years old and above has a decreased on the frequency of physical activity to only two to three times a week. Mostly, people of this age considered walking as their primary exercise that consisted 25% and that 50% of the respondents aged 75 and above were engaged in mild activities and the remaining 25% were engaged in house cleaning.

Moreover, in the level of self-efficacy, respondents aged 60-65 and 71-75 years old were extremely confident while elderly respondents aged 66-70 and 70 and above were very confident and moderately confident, respectively, in getting up early. In sticking to their exercise program only respondents aged 60-65 years old were very confident while the remaining respondents were moderately confident. The same level of self-efficacy in terms of doing exercise while feeling depressed is was recorded for the age group 60-65 years old, which is very confident while the rest were only slightly confident. For setting aside time for physical activity, 60-65 years old respondents were extremely confident, age group 71-75 years old were very confident while the rest of the group were moderately confident. Respondents from the 71-75 years old age group were extremely confident in continuing doing exercise with others despite of their phasing while respondents aged 60-61 were moderately confident and the rest of the groups were just slightly confident in doing so. For sticking to their exercise program while undergoing a stressful life changing event, elderly respondents aged 60-65 were extremely confident; aged 71-75 were very confident; aged 76 and above were moderately confident while aged 66-70 were slightly confident.

Furthermore, in attending a party only after doing exercise, respondents aged 60-65 were very confident, aged 66-70 were moderately confident and the rest of the groups were not confident at all. For sticking to their exercise program while their family is demanding more time from them, respondents age 60-65 and 71-75 were very confident while age group 70 and above were slightly confident and the group age 66-70 were not confident at all. Respondents whose age were 60-65 were very confident in sticking with their exercise program while having household chores while the 71-75 age group were very confident and the rest of the groups were moderately confident.

Additionally, the age group 66-70 were very

confident in sticking to their exercise program even when having excessive demands at work. Both the 60-65 and 71-75 age group were moderately confident while the 76 and above respondents were not confident at all. The age group 66-70 years old were moderately confident in sticking to their program even when social obligations were very time consuming. Age group 60-65 were slightly confident while groups with age range of 71-75 and 76 and above were not confident at all. In reading or studying less in order to exercise, the 60-65 years old respondents were very confident while the rest of the groups were moderately confident.

In regards to this, it was found out that there was no significant relationship between physical activity on age, gender and length of service. It was also noted that there was a positive correlation between the variables age, gender and length of service this suggests that if there were changes in the variable physical activity, all other variables would change on the same direction. Results showed that age and gender had a significant relationship as well as age and self-efficacy as both relationships showed a positive correlation. However, length of service and self-efficacy does not show significant relationship because of its negative correlation.

Lastly, the study showed no significant relationship between physical activity and the level of self-efficacy among Armed Forces veterans in Zamboanga del Norte. Using the Pearson's Correlation, the results revealed a positive correlation which indicates that when the variable self-efficacy changes, the variable physical activity also changes on the same direction.

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