

**PERCEIVED HEALTH BENEFITS OF PHYSICAL ACTIVITY AMONG
THE ELDERLY IN EGBEDA LOCAL GOVERNMENT AREA,
OYO STATE, NIGERIA**

BY

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DEDICATION

This project is dedicated to the ‘Giver of Life’, without whom this work would be non-existent.

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Folarin Omolara Grace

ABSTRACT

The elderly constitute a growing component of the populations. A spike in attendance and admission rate of the elderly in hospitals due to diseases associated with ageing has been on the increase. Low fitness has been reported has a risk factor for functional decline, and physical activity and fitness has been found to have positive effect. However the benefit of physical activity has not been fully explored among the elderly. Therefore the study investigated the perception of benefits of physical activity among the elderly in Egbeda local government area of Oyo state, Nigeria.

This study employed a cross-sectional design using a three stage sampling technique. Representative wards were selected through random sampling and stratified into settlements. A sample of 403 respondents were selected from the total number allotted for the wards. Information was garnered using interviewer administered questionnaire which contained 21point knowledge scale, pretested 15 point perception scale, factors motivating and hindering adherence to physical activity (PA). Knowledge score of ≥ 11 was categorised as good and perception score of ≥ 8 was rated as good. The data were analysed using descriptive statistics and Chi-square test at $p=0.05$.

The mean age of the respondents was 67.5 ± 6.8 years with 71.2% respondents within 60-69years category. Mean knowledge score was 9.9 ± 3.7 and the mean perception score was 8.1 ± 4.1 . About two thirds (76.9%) of the respondents had a good knowledge of physical activity and 57.4% had good perception on the health effect of physical activity. Respondents listed motivating factors such as support from family, 77.7% respondents would exercise if friends are seen exercising. Half of the respondents would be more active with safer roads to permit walking and cycling, supportive policy for physical activity at workplace and would need continuous reminder over whatever means. 71.5% would be more active if the benefits were seen. Other factors respondents listed as motivating factors were, to be healthier, increased chances of living longer, less chance of becoming depressed, sleep better at night, physical activity helps look good and to be in shape. Results also revealed that 42.2% respondents do not exercise. Several hindering factors listed were fear of fall, failing health, lack of recreational facilities and lack of support from family. Other factors listed were lack of time, lack of company, negative experience, lack of awareness, lack of interest, too much exercise is not good and forgets about physical activity. A significant association was found

between living condition and knowledge of physical activity as well as between level of education and knowledge of PA.

Despite the respondents having good knowledge and perception on the health effect of physical activity, a relatively large percentage still do not involve in physical activity, hence the need for effective communication and community based health promotion programmes among the elderly within the community.

Keywords: Physical activity, Elderly, Knowledge, Perception.

Word count: 459

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CERTIFICATION

I hereby certify that this study was carried out by Omolara Grace FOLARIN in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria

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GLOSSARY OF ABBREVIATIONS

CHD - Coronary Heart Disease

IPAQ -International Physical Activity Questionnaire

NCD - Non Communicable Disease

MET - Metabolic equivalent

PA - Physical Activity

WHO- World Health Organisation

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OPERATIONAL DEFINITION OF TERMS

Elderly: the elderly refers to population older than 60years of age. (UN, 2013)

Physical activity: Physical activity refers to any body movement that works the muscles and requires more energy than resting. (WHO, 2010)

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

The world population has been experiencing significant rise in proportions of elderly persons right from the mid-twentieth century as the population constitutes about 11.7% of the total world population and the elderly persons are expected to increase in number to 21.1% by 2050 (United Nations, 2013). The 2013 World Population Ageing report revealed that, currently, about two thirds of the world's older persons live in developing countries (World Population Ageing, 2013). With this rise in population ageing, some significant social and economic consequences are to be expected. Social and economic consequences such as decline in number of working-age adults per older person in the population with resultant financial pressures on support systems for older persons, increased poverty among older persons especially in countries with limited coverage of social security systems as well as increased prevalence of non-communicable diseases and disability because chronic and degenerative diseases are more common at older ages.

Furthermore, the elderly have the highest rates of chronic conditions and co-morbidities that impair daily functioning and are at a higher risk of falls, with the potential for consequences that can significantly affect their functional abilities and independence. Because they go through the aging process - a dynamic and progressive process which brings morphological, functional, and biochemical changes, with diminished capacity for homeostatic adaptation to situations of functional overload, gradually altering the body and making it more susceptible to intrinsic and extrinsic harm, they experience losses like postural instability, which results from changes in the sensory and motor systems, leading to greater risk of falling. Approximately 30% of the elderly in western countries experience a fall at least once a year. The social cost is immense and becomes even greater when the elderly person loses autonomy and independence or needs to be institutionalized (Mazo, Liposcki, Ananda and Prevê, 2007).

Therefore, because of these factors, the twenty-first century has experienced an increasing emphasis on preventive medicine- a speciality that promotes health and prevents illness with strategies that focus not only on individuals but the entire population. One of these strategies is the promotion of physical activity across populations as physical inactivity has been

identified to be one of the four major risk factors for non-communicable diseases. Its other counterparts are smoking, tobacco use and unhealthy diet. However, regardless of the public health importance of regular physical activity, sedentary lifestyle is yet a growing problem worldwide (Guthold, Ono, Strong, Chatterzi and Morabia 2008) cutting across all populations most particularly the older population (Machado de Rezende, Rey-López, Matsudo and Luiz, 2014) and WHO also observing this rise in prevalence of chronic non-communicable diseases occurring in developing countries, physical activity promotion has become an important public health agenda in sub-Saharan Africa (WHO, 2005).

Physical activity may be a viable tool for enhancing wellbeing because, in general, physical activity has been found to be related to more positive affect and higher satisfaction with life (Ekkekakis, Parfitt, and Petruzzello, 2011) However, the magnitude of the affect vary widely across studies and individuals. (Hyde, Maher, and Elavsky, 2013)

According to WHO (2010), physical activity has been clearly referred to any body movement that works the muscles and requires more energy than resting. Such body movement includes walking, running, dancing, swimming, yoga, and gardening. Although muscle contraction is the common element of all forms of exercise, many other organs and systems are affected, for example, the heart and lungs. Many people also find that regular exercise enhances their sense of mental well-being along with their general physical health (Eime, Young, Harvey, Charity and Payne, 2013)

The World Health Organisation emphasised that to improve cardiorespiratory and muscular fitness, bone and functional health, reduce the risk of Non Communicable Diseases, depression and cognitive decline requires that:

- Older adults should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.
- Aerobic activity should be performed in bouts of at least 10 minutes duration.
- For additional health benefits, older adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate-and vigorous-intensity activity.

- Older adults, with poor mobility, should perform physical activity to enhance balance and prevent falls on 3 or more days per week.
- Muscle-strengthening activities, involving major muscle groups, should be done on 2 or more days a week.
- When older adults cannot do the recommended amounts of physical activity due to health conditions, they should be as physically active as their abilities and conditions allow. (WHO, 2010)

Regular, moderate-intensity physical activity is now seen to have a key role in the promotion of good health and the prevention of disease. For older adults, being regularly active has been found to be associated with better physical and psychological health and older adults who are physically active also have improved functional capacity.

The need to invest in the health of the elderly is paramount because preventive health services which are valuable for maintaining the quality of life and wellness of older adults are underused by this population (Karamarow, Lubitz and Lentzner, 2007). Secondly, quality of life is improved through programs that address chronic illnesses and to combat existing health disparities. Thirdly, to increase ability to complete basic daily activities which may decrease illness, chronic disease, or injury that limits physical or mental abilities of older adults. Although no amount of physical activity can stop the biological aging process, there is evidence that regular exercise can minimize the physiological effects of an otherwise sedentary lifestyle and increase active life expectancy by limiting the development and progression of chronic disease and disabling conditions. There is also emerging evidence for psychological and cognitive benefits accruing from regular exercise participation by older adults. Promoting physical activity for the elderly is especially important because this population is the least physically active of any age group. Recent reports suggest a worldwide epidemic in terms of obesity and a sedentary lifestyle, which are risk factors for multiple adverse health outcomes.

1.2 Statement of problem

Physical activity is an important determinant of health and is associated with reduced risk of chronic diseases such as cardiovascular disease (CVD), diabetes, obesity, and certain form of cancers (WHO, 2002) The nutritional, lifestyle, and socioeconomic transitions occurring in many developing countries have significantly increased the burden of chronic non-communicable diseases (NCDs) in the region (including in Nigeria and other African

countries)(Misra and Khurana, 2008) About 2 million deaths per year are attributable to physical inactivity worldwide, and more than 80% of deaths from chronic diseases occur in developing countries (Abegunde, Mathers, Adam, Ortegón, and Strong, 2007). There is a spike in attendance and admission rate of the elderly in hospitals due to diseases associated with ageing. Recent evidence indicates that, among older adults, low fitness is a risk factor for functional decline, and that there is a protective effect of physical activity and physical fitness on functional limitations. In addition to increased hospital admission, the advent of technology has brought ease to mechanical work with the elderly becoming less physically active.

Furthermore, monetary investments on the healthcare of the elderly generates high expenditures. It is possible that increasing levels of activity could reduce medical expenditures in this group within few years or so on the commencement of behaviour change (Lee, Shiroma and Lobelo, 2012) The persistence of this problem may therefore be associated with poor awareness of physical activity in itself or the perceived barriers outweighs the perceived health benefits.

In addition, it is in fact important to invest in the health of the elderly because preventive health services are valuable for maintaining the quality of life and wellness of older adults. However, preventive services are underused among this group (Kramarow, Lubitz, and Lentzner, 2007). Rapid urbanization and its attendant unhealthy dietary habits and reduced physical activity have been linked to the epidemiologic transition from infectious communicable diseases to chronic NCDs in the African continent.

1.3 Justification of the study

The elderly constitute a growing component of the populations. In 1991 only 5.2% of Nigerian population was aged 60years and above and it is expected that the elderly will become a more significant component of the total population with the new decline in fertility rate, nevertheless, presently, the elderly are still significant as they head many households and still participate more in the labour force. Therefore it is important to invest in the populations' health related matters including promotion of physical activity awareness among the population. The potential health benefits derived from sustained physical activity in older people are numerous; however, sufficient information and evidence based recommendations are needed in building fitness, and training programmes for older adults to help achieve high

levels of physical activity. The promotion of physical activity in older adults should avoid ageism that discourages older adults from reaching their potential, hence modifications appropriate for older adults with accompanying explanation and clarification of these modifications. At the same time, it is difficult or impossible for some older adults to attain high levels of activity. Physical activity promotion therefore should use existing research evidence of the advantages of exercise for various conditions, and target those inactive individuals who currently have no intention of changing their level of physical activity. Also it is important to know that this research will provide baseline knowledge of physical activity among the elderly providing guidance about their perception, more information about their barriers and ways to overcome these barriers can therefore be researched into.

Carrying out this research therefore provided data on the perception of the elderly towards physical activity which will provide reasons for existing physical inactivity. This research also provided answers to motivating and preventing factors that may keep the elderly from imbibing this healthy behaviour. Knowing these factors will help when considering development of effective programmes to tackle NCDs among the elderly.

1.4 Research questions

The following research questions were answered by this study.

- i. What is the level of knowledge of physical activity among the elderly people in Egbeda Local Government Area?
- ii. What are the perceived health effect of physical activity among the elderly?
- iii. What are the factors that serve as motivation for the elderly to enhance their physical activity level?
- iv. What are the factors preventing the elderly from being physically active as required?

1.5 Research objectives

Broad objective

The broad objective of this research was to investigate the perception of the elderly towards benefits of physical activity in Egbeda Local Government Area.

Specific objectives

The specific objectives were to;

- i. Assess the knowledge of the elderly on physical activity.
- ii. Identify the perceived health effect of physical activity among the elderly.

- iii. Examine the motivating factors for physical activities among the elderly.
- iv. Examine the barriers preventing the elderly from being physically active.

1.6 Research hypotheses

The following research hypotheses were tested

- i. There is no association between the living condition of the respondents and level of knowledge on physical activity.
- ii. There is no association between level of education and perceived health benefits of physical activity.
- iii. There is no association between the level of education of respondents and level of knowledge on physical activity.
- iv. There is no association between the gender of the respondents and perceived health benefits of physical activity

CHAPTER TWO

LITERATURE REVIEW

1.1 Conceptual Review of Physical Activity

In this review, physical activity refers to any activity that has an energy cost that is energy use above resting level, such as walking, housework, shopping, gardening and structured exercise programmes. Therefore in disambiguating the term, physical activity as defined by WHO (2012) is any body movement that works the muscles and requires more energy than resting while exercise refers to a type of physical activity that is planned and structured. In explaining further, WHO defines physical activity as 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. Therefore, the term "physical activity" should not be confused with "exercise", which is a subcategory of physical activity that is planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness. Examples of exercise include lifting weights, taking an aerobics class, and playing on a sports team.

Walking is a common, accessible, inexpensive form of physical activity and is an important component of total physical activity in adult populations (Monteiro, Conde, Matsudo, Matsudo, Bonsenor, and Lotufo, 2003) It is aerobic and demands use of large skeletal muscles, and conveys the manifold health benefits of physical activity with few contrary effects (Hallal, Andersen, Bull, Guthold, Haskell, Ekelund, and Wells, 2012)

Physical activity and exercise are usually mixed up to be the same terms but they are different concepts entirely. Physical exercise is considered as a subset of physical activity as a complex set of behaviours which encompasses any bodily movement produced by skeletal muscles that result in energy expenditure above the resting level while physical exercise is seen as a sub-category of physical activity that is planned, structured, repetitive and often results in the improvement or maintenance of one or more of the components of physical fitness.

Physical fitness is a concept which refers to a set of attributes that relates to the ability to perform physical activity. Fitness is a phenomenon that is fast becoming a thing of much interest to the people of Nigeria especially at this time when the country is plagued with tension and stress which has led to increased inactivity especially among youths. Fitness is that state which characterizes the degree to which a person is able to function efficiently. The

greater the physical fitness the longer the person may keep going (Adesina, 2012). In adults aged 65 years and above, physical activity includes leisure time physical activity (for example: walking, dancing, gardening, hiking, swimming), transportation (e.g. walking or cycling), occupational (if the individual is still engaged in work), household chores, play, games, sports or planned exercise, in the context of daily, family, and community activities

2.1.1 Types of Physical Activity

2.1.1.1 Aerobic activity

Aerobic activity is also referred to as cardio. It is a type of physical activity that gets the heart beating faster and breathing harder. From pushing a lawn mower, to taking a dance class, to biking to the store. These activities vary depending on intensity (that is how hard the body works during activity). Aerobic activity can be further classified into light, moderate intensity and vigorous intensity aerobic activity.

Light intensity aerobic activity: light daily activities such as shopping, cooking, or doing the laundry do not count toward the guidelines in that the required energy expended to raise the heart rate has not been met that is the body is not working hard enough to get the heart rate up.

Moderate-intensity aerobic activity means working hard enough to raise the heart rate and break a sweat. One way to check this is by being able to talk but not sing the words of a well-known song. Examples of such activities that require moderate effort are brisk walking fast, doing water aerobics, riding a bike on level ground or with few hills, playing doubles tennis, pushing a lawn mower, dancing, gardening, housework and domestic chores, traditional hunting and gathering, active involvement in games and sports with children and walking domestic animals, general building tasks (e.g. roofing, thatching, painting), carrying and moving moderate loads less than 20kg.

Vigorous-intensity aerobic activity involves activity that require breathing hard and fast, and making the heart rate a bit high. This activity type is one that requires working at a level that will not permit more than a few words without pausing to breathe. Some examples of activities that require vigorous effort are jogging or running, fast swimming, riding a bike fast or on hills, walking or climbing briskly up a hill, fast cycling, aerobics, competitive sports and games (traditional games, football, volleyball, hockey, basketball, singles tennis), heavy shovelling or digging ditches, carrying or moving heavy loads greater than 20kg

Both, moderate and vigorous intensity physical activity are considered to bring health benefits (WHO, 2015).

2.1.1.2 Muscle-strengthening activities

Besides aerobic activity, strengthening the muscles at least 2 days a week. These activities should work major muscle groups of the body (legs, hips, back, chest, abdomen, shoulders, and arms). To gain health benefits, muscle-strengthening activities need to be done to the point where it is hard to do another repetition without help. A repetition is one complete movement of an activity, like lifting a weight or doing a sit-up. Doing 8-12 repetitions per activity counts as a set. Examples of muscle strengthening activity are lifting weight, working with resistance bands, doing exercises that use the body weight for resistance (i.e., push ups, sit ups), heavy gardening (i.e., digging, shovelling)

2.1.2 Categorical Classification of Physical Activity by International Physical Activity Questionnaire (IPAQ)

IPAQ is an internationally accepted standard questionnaire for measuring physical activity comprising a set of 4 questionnaires. There are variations to the IPAQ which are; the Long (5 activity domains asked independently) and short (4 generic items) versions for use by either telephone or self-administered methods. The purpose of the questionnaires is to provide common instruments that can be used to obtain internationally comparable data on health-related physical activity.

IPAQ categorised physical activity into three levels. The suggested levels for classifying populations are

- (a) Inactive
- (b) Minimally active
- (c) HEPA active. (Health Enhancing Physical Activity; a high active category)

Criteria for these three levels are:

1. Inactive

This is the lowest level of physical activity. Those individuals who do not meet criteria for Categories 2 or 3 are considered 'insufficiently active'

2. Minimally Active (category 2)

The minimum pattern of activity to be classified as sufficiently active is any one of the following;

- a) Three or more days of vigorous activity of at least 20 minutes per day or
 - b) Five or more days of moderate-intensity activity or walking of at least 30 minutes per day
- or

c) Five or more days of any combination of walking, moderate-intensity or vigorous intensity activities achieving a minimum of at least 600 MET-min/week.

Individuals meeting at least one of the above criteria would be defined as achieving the minimum recommended to be considered 'minimally active' This category is more than the minimum level of activity recommended for adults in current public health recommendations, but is not enough for total physical activity when all domains are considered. IPAQ measures total physical activity whereas the recommendations are based on activity (usually leisure-time or recreational) over and above usual daily activities.

3. HEPA active (category 3)

A separate category labelled 'HEPA' level, which is a more active category can be computed for people who exceed the minimum public health physical activity recommendations, and are accumulating enough activity for a healthy lifestyle. This is a useful indicator because it is known that higher levels of participation can provide greater health benefits, although there is no consensus on the exact amount of activity for maximal benefit. Also, in considering lifestyle physical activity, this is a total volume of being active which reflects a healthy lifestyle. It is at least 1.5- 2 hours of being active throughout the day, which is more than the LTPA-based recommendations of 30 minutes.

In the absence of any established criteria, the IPAQ scientific group proposes this new cut-point, which equates to approximately at least 1.5 -2 hours of total activity per day, of at least moderate intensity activity. It is desirable to have a HEP Activity category, because in some populations, a large proportion of the population may be classified as minimally active because the IPAQ instrument assess all domains of activity. Category 3 sets a higher threshold of activity and provides a useful mechanism to distinguish variation in sub-population group.

2.1.3 Measurement of physical activity

Review of several literature on prevalence of physical activity brought to light that each researcher used different forms of measurement of level of physical activity. Some used the metabolic equivalent (MET), some used self-recollection method, that is, through the use of questionnaire to get information of past physical activity like the use of the IPAQ. Other literature revealed the use of ACSM (American College of Sports Medicine) standards and some went to the extent of using real time recording through the use of accelerometers and pedometers.

2.1.3.1 Metabolic equivalent

In a review made by Taylor (2013), he explained, when accessing the research-based literature on physical activity and exercise, it is important to understand how physical activity levels and intensity are measured. One frequently used method of calculating intensity of physical activity or exercise is the metabolic equivalent (MET) value, which is an indicator of energy expenditure. One MET is roughly equivalent to the energy expended during quiet sitting. Physical activities have been categorised to produce a compilation of MET values, (Ainsworth, Haskell, and Herrmann, 2011) for example, bicycling at a leisurely pace of 5.5 mph has a MET value of 3.5 and washing dishes has a MET value of 1.8

Examples of activities at a MET level of 3.5 and above are gardening, housework and domestic chores, traditional hunting and gathering, active involvement in games and sports with children and walking domestic animals, general building tasks, carrying and moving moderate loads less and greater than 20kg, riding a bike fast or on hills, walking or climbing briskly up a hill, fast cycling, aerobics,, competitive sports and games, digging and shovelling (WHO, 2010)

Physical activity below 3.5 METS (light activities) or a total amount of activity that is below around 4200 kJ/week (equivalent to more than 3 hours of brisk walking per week) is unlikely to produce health-related changes in adults. However, in older adults who have mobility limitations, the metabolic cost of activities that involve walking are higher than the average adult (Knaggs, Larkin and Manini, 2011) and should be considered when advising people with mobility limitation about physical activity levels. For people without a mobility limitation, time spent in sedentary activities (such as watching TV) and light activities (including light housework) does not reach activity levels high enough to improve health outcomes (U.S. Department of Health and Human Services, 2008)

2.1.3.2 Perceived rate of exertion

In most publically available guidelines, the MET unit is replaced by a more readily understandable metric. In the guidelines published by the ACSM, a simple scale of intensity based on a self-perceived rate of exertion is used. It is scaled from 0–10 with 5–6 being moderate-intensity exercise and 7–8 being vigorous-intensity exercise (Chodzko-Zajko, Proctor, and Singh, 2009). The ACSM guidelines clarify physical activity intensity by describing sitting as 0 and the greatest effort possible is 10, with moderate-intensity activity being 5 or 6 and producing noticeable increases in breathing and heart rates, and vigorous-intensity activity (7–8) producing large changes in breathing and heart rates. (U.S. Department of Health and Human Services, 2008)

2.1.3.3 Pedometers and accelerometers

Pedometers and accelerometers have gained considerable popularity as reliable methods of objectively measuring physical activity (Mudge, Taylor and Chang, 2010). Pedometers are low-cost mechanical counters that determine the number of steps a person takes throughout the day by detecting vertical motion during walking. Accelerometers measure accelerations in one or more planes of motion and can give an indication of the frequency, intensity and duration of different types of movement. Pedometers, in particular, are cheap, easily accessible and unobtrusive, allowing data to be collected during normal daily activities. In older adults, data collected from 2–3 days is considered a reliable indicator of usual daily physical activity (Mudge et al, 2010). There is no complete agreement on how many steps a day are optimal. As a useful guide, an older adult achieving 10 000 or more daily steps is categorised as highly active, over 5000 but less than 10 000 as moderately active, and 5000 steps or below as inactive (Cavanaugh JT, Kochi N, Stergiou, 2010). Accelerometers can provide a profile of activity throughout the day, determining time of the day with higher activity or lower activity, duration of inactivity and duration of intensity of activity. Current research is exploring the pattern of activity over the day in relation to health (Cavanaugh et al, 2010).

2.2 Epidemiological statistics of physical inactivity and its Consequences

Despite the public health importance of regular physical activity, sedentary lifestyle is yet growing problem worldwide (Guthold et al, 2008). Physical inactivity is estimated to contribute to 2 million deaths per year worldwide (WHO, 2002). It is associated with cardiovascular diseases, stroke, type-2 diabetes, cancer, and obesity which account for 66% (WHO, 2004) to 80% (Abegunde, 2007) of all deaths from chronic diseases in the developing countries. The nutritional, lifestyle, and socioeconomic transitions occurring in many developing countries have significantly increased the countries' burden of chronic- non communicable diseases. The World Health Organization recommended reduction in the level of inactivity as a key priority intervention for preventing the increasing chronic diseases' mortality and morbidity occurring in Africa and there is also ample evidence that lower mortality rates are associated with regular physical.

However, the majority of studies on physical inactivity prevalence have been conducted in Western high income countries. In the United States, approximately one-quarter of the population was estimated to be completely inactive (Brownson, Boehmer and Luke, 2005). In Europe, about 84% of Portuguese adults were physically inactive (Gal, Santos and Barros,

2005) and about 39.5% and 43% of Turkish men and women respectively were reported to be physically inactive (Guthold et al, 2008). Similar physical inactivity rates have been reported for the Spanish (Sjostrom et al, 2006) and Belgian (Stephenson, Bauman, Armstrong, Smith, Bellew, 2009) adults. Only recently have comparative physical inactivity prevalence rates become available across a large number of low and middle income countries (Bauman et al, 2009).

The prevalence rates were based on the International Physical Activity Questionnaire (IPAQ), varied widely and the reasons for the variations were not obvious. Identifying country specific correlates of physical inactivity may be important for explaining these variations. For reasons unknown, Nigeria was not included as one of the sixteen African countries in the recent worldwide physical inactivity prevalence survey (Oyeyemi et al 2013) and empirical data are sparse on physical inactivity prevalence in Nigeria. This situation has special relevance for Nigeria for two basic reasons. First, Nigeria is a major country in transition to rapid urbanization and attendant non communicable diseases of physical inactivity is on the increase (Olayinka et al, 2004). Second, Nigeria is the most populated country in sub-Saharan Africa and with diverse ethnicity. Information on physical activity levels and associated social factors in Nigerian can fill an important gap in understanding the correlates of physical inactivity in Africa. This study aims to assess the prevalence of physical inactivity, and examine the influence of socio-demographic variables on physical activity categories, highlighting the correlates of physical inactivity in Nigerian young adults (Oyeyemi et al 2013).

In another study, the prevalence and socio-demographic correlates of physical activity in a subnational sample of adults in Maiduguri, Nigeria was assessed. The study is one of the first to use WHO recommendations and guidelines to estimate the prevalence of physical activity among Nigerian adults. About 68% of Nigerian adults living in Maiduguri city met the WHO recommendation. However, the proportion of adults that met these recommendations for physical activity varied significantly by socio-demographic characteristics: those who were divorced/separated, did not own a car, and had a lower socioeconomic status—as indicated by low income, low education level, and blue collar occupation—were more likely to be physically active. Given that the prevalence of physical activity varied between socio-demographic subgroups, the researchers recommended that interventions based on ecologic

models of health behaviours may be necessary in promoting physical activity among Nigerian adults.

Furthermore, globally, around 23% of adults aged 18 and over were not active enough in 2010 (men 20% and women 27%). In high-income countries, 26% of men and 35% of women were insufficiently physically active, as compared to 12% of men and 24% of women in low-income countries. Low or decreasing physical activity levels often correspond with a high or rising gross national product. The drop in physical activity is partly due to inaction during leisure time and sedentary behaviour on the job and at home. Likewise, an increase in the use of "passive" modes of transportation also contributes to insufficient physical activity. Globally, 81% of adolescents aged 11-17 years were insufficiently physically active in 2010. Adolescent girls were less active than adolescent boys, with 84% vs. 78% not meeting WHO recommendations (Lim, Vos, Flaxman, Danaei, Shibuya, Adair-Rohani, 2010)

2.2.1 Physical inactivity and non- communicable disease

Strong evidence shows that physical inactivity increases the risk of many adverse health conditions, including the world's major non-communicable diseases (NCDs) of coronary heart disease (CHD), type 2 diabetes, and breast and colon cancers, and shortens life expectancy. Because much of the world's population is inactive, this presents a major public health problem.

In a study carried out by Lee, Shiroma, Lobelo, Puska, Blair and Katzmarzyk in 2012 that aimed at quantifying the impact of physical inactivity on major NCDs by estimating how much disease could be averted if those inactive were to become active and to estimate gain in life expectancy, at the population level, found out that, worldwide, physical inactivity was estimated to be responsible for between 6% and 10% of the major NCDs of CHD, type 2 diabetes, and breast and colon cancers. And this unhealthy behaviour is responsible for 9% of premature mortality, or greater than 5.3% of the 57 million deaths in 2008. By eliminating physical inactivity, life expectancy of the world's population may be expected to increase by 0.68 years.

Insufficient physical activity has also been rated as 1 of the 10 leading risk factors for global mortality and is on the rise in many countries, adding to the burden of NCDs and affecting general health worldwide. People who are insufficiently active have a 20% to 30% increased

risk of death compared to people who are sufficiently active, Noncommunicable diseases (NCDs) kill 38 million people each year(Lim et al. 2010)

Almost three quarters of NCD deaths - 28 million - occur in low- and middle-income countries. Sixteen million NCD deaths occur before the age of 70; 82% of these "premature" deaths occurred in low- and middle-income countries. Cardiovascular diseases account for most NCD deaths, or 17.5 million people annually, followed by cancers (8.2 million), respiratory diseases (4 million), and diabetes (1.5 million). These 4 groups of diseases account for 82% of all NCD deaths. (WHO. 2015)

Tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets all increase the risk of dying from an NCD.

All age groups and all regions are reported to be affected by NCDs, although, NCDs are often associated with older age groups, but evidence shows that 16 million of all deaths attributed to noncommunicable diseases (NCDs) occur before the age of 70. Of these "premature" deaths, 82% occurred in low- and middle-income countries. Children, adults and the elderly are all vulnerable to the risk factors that contribute to noncommunicable diseases, whether from unhealthy diets, physical inactivity, exposure to tobacco smoke or the effects of the harmful use of alcohol.

These diseases are driven by forces that include ageing, rapid unplanned urbanization, and the globalization of unhealthy lifestyles. For example, globalization of unhealthy lifestyles like unhealthy diets may show up in individuals as raised blood pressure, increased blood glucose, elevated blood lipids, and obesity. These are called 'intermediate risk factors' which can lead to cardiovascular disease.

2.2.1.1 Socioeconomic impacts of NCDs

NCDs threaten progress towards the UN Millennium Development Goals and post-2015 development agenda. Poverty is closely linked with NCDs. The rapid rise in NCDs is predicted to impede poverty reduction initiatives in low-income countries, particularly by increasing household costs associated with health care. Vulnerable and socially disadvantaged people get sicker and die sooner than people of higher social positions, especially because they are at greater risk of being exposed to harmful products, such as tobacco or unhealthy food, and have limited access to health services.

In low-resource settings, health-care costs for cardiovascular diseases, cancers, diabetes or chronic lung diseases can quickly drain household resources, driving families into poverty. The exorbitant costs of NCDs, including often lengthy and expensive treatment and loss of breadwinners, are forcing millions of people into poverty annually, stifling development.

In many countries, harmful drinking and unhealthy diet and lifestyles occur both in higher and lower income groups. However, high-income groups can access services and products that protect them from the greatest risks while lower-income groups can often not afford such products and services.

2.2.1.2 Prevention and control of NCDs

In order to lower the impact of NCDs on individuals and society, a comprehensive approach is needed that requires all sectors, including health, finance, foreign affairs, education, agriculture, planning and others, to work together to reduce the risks associated with NCDs, as well as promote the interventions to prevent and control them. An important way to reduce NCDs is to focus on lessening the risk factors associated with these diseases. Low-cost solutions exist to reduce the common modifiable risk factors (mainly tobacco use, unhealthy diet and physical inactivity, and the harmful use of alcohol) and map the epidemic of NCDs and their risk factors (Mozaffarian, Fahimi, Singh, Micha, Khatibzadeh, Engell, Lim, 2014)

Other ways to reduce NCDs are high impact essential NCD interventions that can be delivered through a primary health-care approach to strengthen early detection and timely treatment. Evidence shows that such interventions are excellent economic investments because, if applied to patients early, can reduce the need for more expensive treatment. These measures can be implemented in various resource levels. The greatest impact can be achieved by creating healthy public policies that promote NCD prevention and control and reorienting health systems to address the needs of people with such diseases (Mozaffarian et al, 2014)

Lower-income countries generally have lower capacity for the prevention and control of non-communicable diseases. High-income countries are nearly four times more likely to have NCD services covered by health insurance than low-income countries. Countries with inadequate health insurance coverage are unlikely to provide universal access to essential NCD interventions.

2.3 Profile of the Elderly

The elderly is also referred to as older population, older adults and older people in many literatures. According to the Report of the Working Group on Care for the Elderly (2014) as cited by Gong (2014), the older population may be classified into four groups:

- a) Soon-to-old: 60-64
- b) Young-old: 65-74
- c) Middle-old: 75-84
- d) Old-old: 85 and over

Therefore, an elder is an individual that is older than sixty years of age and often time are being referred to as an elder but elder's age varies in different cultures, as some societies refer to elders as people above seventy years old.

According to United Nations' World Populaton ageing 1950-2050 report, older people today are significantly less likely to participate in the labour force than they were in the past. Illiteracy remains high among older people, especially women, in the less developed regions. The elderly go through the aging process which is a complex process involving many factors that interact with one another, including primary aging process, secondary aging effects (resulting from chronic disease and lifestyle behaviour) and genetic factors (Weinert and Timiras, 2003) Matters on ageing have become topical in most countries due to increase in number of people getting old. This will have implication on hospital services as elderly people are admitted more frequently, stay longer, and are more likely to die on admission. Ageing population has been associated with the change in epidemiologic pattern of diseases from infectious to increase in number of noncommunicable diseases such as cardiovascular diseases, osteoarthritis, diabetes, cancers, and degenerative diseases. Projection by World Health Organization (WHO) is that by year 2050 population of elderly people would have increased by 60%, majority of whom will be residing in industrially developing countries (WHO, 2004)

Twenty three percent of the total global burden of disease is attributable to disorders in people aged 60 years and older. Though the percentage of the burden arising from older people is highest in high-income regions, disability-adjusted life years (DALYs) per head are 40% higher in low-income and middle-income regions. The accounted for by the increased burden per head of population arising from cardiovascular diseases, and sensory, respiratory, and infectious disorders. The leading contributors to disease burden in older people are cardiovascular diseases (30.3% of the total burden in people aged 60 years and older), malignant neoplasms (15.1%), chronic respiratory diseases (9.5%), musculoskeletal diseases (7.5%), and neurological and mental disorders (6.6%). A substantial and increased proportion of morbidity and mortality due to chronic disease occurs in older people (Prince, Wu, Guo, Robledo, O'Donnell, Sullivan and Yusuf, 2015)

Although the elderly are plagued with numerous health challenges but they are yet a set of persons that are motivated with regulated emotion. Shifts in motivation and emotion regulation may help explain the enhancement of wellbeing seen in old age. Older adults show more flexibility in adjusting goals than younger adults and regulate goals with the primary purpose of avoiding losses as opposed to striving for gains (Heckhausen, Wrosch, and Schulz, 2010). Older adults are more likely to disengage from unobtainable or unrealistic goals and are more likely to adopt more age-appropriate goals as well as view themselves as healthier or more exceptional when compared to others. These adaptive tendencies help older adults optimize their development by protecting their self-esteem and motivational resources from the negative impact of failure or loss experiences (Heckhausen et al., 2010).

2.4 Knowledge of Physical Activity among the Elderly

In a study carried out by Crombie, Irvine, Williams, McGinnis, Slane, Alder and Mcmurdo (2004) revealed that levels of knowledge about the specific health benefits from participating in physical activity were high with specific statistics that 97% of the participants thought that physical activity helps to keep the body agile, 96% thought physical activity can improve health. 15% of the participants gave the incorrect responses that physical activity can lead to long-term hypertension and 13% thought physical activity can weaken the bones. Crombie et al (2004) also revealed that 30% were unsure of the effects of physical activity on blood pressure and 21% on bone strength. Almost 90% believed that taking part in regular physical activity could help remain independence and would help to feel better. Most believed that physical activity would confer actual physical improvements by improving muscle strength and tone, by increasing levels of energy and by helping to relieve aches and pains. In addition most believed that physical activity could improve general well-being and mental health.

Despite this high level of knowledge, levels of physical activity remained relatively low in that 53% did less than 2 hours of leisure time physical activity per week, with 36% doing none at all. The time spent on leisure time physical activity decreased with age with only 10% of participants reported taking part in physical activities that involved strenuous exercise greater than 20 minutes (Crombie et al, 2004)

Negative trends in physical activity participation are corroborated by objective surveillance data (Davis and Fox, 2006; Troiano et al., 2008). One of such study estimated that older adults, with obtained mean age of 76years, average about two-thirds of the estimated physical activity energy expenditure and perform half as many minutes of moderate physical activity

as younger adults (Davis and Fox, 2006). These trends continue across old age with an increasing proportion of older adults engaging in no leisure time physical activity, less moderate and vigorous physical activity, and fewer older adults meeting current physical activity guidelines with advancing age (Pleis et al., 2009; Tucker et al., 2011). Overall, nearly 52% of older adults in United States report engaging in no leisure-time physical activity (Barnes, 2007).

There are motivational changes in terms of what drives older adults to adopt or maintain physical activity. Older adults are less likely to be motivated by appearance or body image than young adults (Brunet and Sabiston, 2011) and instead choose to stay active to maintain their physical and mental health, functional independence, and for social benefits (Belza et al., 2004; Cohen-Mansfield, Marx, Biddison, & Guralnik, 2004). Additionally, health problems and functional limitations present barriers to physical activity participation for many older adults that were not present in younger age. Older adults report walking as their activity of choice (Belza et al., 2004) it may be that preferred less intense physical activity, such as walking, replaces more vigorous physical activities that were performed during younger age, so that less energy is expended in old age. Changes in motivation, abilities (actual and perceived), and preferences may help explain the decline of physical activity present in old age (Hyde, Maher and Elavsky, 2013)

Cross-sectional and longitudinal data also indicate that physical activity indirectly enhances satisfaction with life in old age through its influence on affect, mental health, and self-efficacy (Elavsky et al., 2005; McAuley et al., 2006). For example, McAuley and colleagues (2006) showed that greater amounts of physical activity were associated with greater self-efficacy, which was associated with more positive physical and mental health. In turn, health status was positively related to satisfaction with life. Elavsky and colleagues (2005) found that self-efficacy and positive affect were significant mediators of the association between physical activity and wellbeing (i.e. global quality of life) at a 1-year follow-up of a physical activity intervention for older adults, and that changes in positive affect mediated this relation across an additional four years of follow-up.

2.5 Health Effects of Physical Activity among the Elderly

Several literature has reported numerous changes in health that result from physical activity. These health outcomes produced in this literature were garnered from information provided

by British Heart Foundation on physical activity in older adults in the United Kingdom as well as other journals. Some of these benefits are as follows;

2.5.1 Mortality

Some studies show there is a reduced all-cause mortality and reduced risk of developing conditions such as cardiovascular disease and type 2 diabetes in people, including older adults, who exercise regularly at a moderate level (Ueshima, Ishikawa-Takata, and Yorifuji 2010; Gregg, Cauley and Stone, 2003) conducted in a large prospective cohort study of older American women, higher levels of physical activity were associated with around 40–50% lower all-cause, cardiovascular disease and cancer mortality rates compared with women with lower activity levels. It was also showed that older men who indulged in high or vigorous physical activity had lower mortality rate than those with lower or medium physical activity (Byberg, Melhus, Gedeberg, Sundstrom, Ahlbom, Zethelius, Berglund, Wolk, and Michaelsson, 2009)

In a reported findings from a large observational study, showed that a small amount of leisure-time physical activity reduces total mortality, mortality from cardiovascular disease, and mortality from cancer. (Wen, Wai, and Tsai, 2011) Wen et al reported that if half amount of the recommended physical activity is carried, that is, 15 minutes per day for 6 days a week, there will be reduction in all-cause mortality by 14%, cancer mortality by 10%, and mortality from cardiovascular disease by 20%. To current knowledge, this is the first observational study of this size to report important and global health benefits at such a low volume of leisure-time physical activity with this degree of precision

2.5.2 Disease prevention and improvement in disease symptoms

Physical activity was also associated with reversing the decline of physical function even in later life. In comparison with inactive peers, active older adults were said to have higher levels of cardiovascular fitness and physical function, an improved disease risk factor profiles, lower body weight and lower incidence of chronic non-communicable diseases, coronary heart disease and stroke. Those who are overweight or obese were also considered to gain health benefit from physical activity even if they do not lose the excess weight.

Physical activity can also have a beneficial effect on symptoms caused by several diseases which includes reduction of joint pain in those with arthritis and osteoarthritis, decrease in symptoms of breathlessness in those with chronic obstructive pulmonary disease (COPD) and decreasing age related bone loss and increasing bone repair. (Taylor, 2013)

2.5.2 Falls prevention

Falls are a major source of injury for older adults and entail substantial healthcare costs. The Centre for Disease Control and Prevention recorded that 2.5 million older people are treated in emergency departments for fall injuries each year, hence, proposed that structured physical activity programmes aimed at improving postural stability are most effective at preventing falls. As balance impairment is one of the main risk factors for falls, regular physical activity can be used to maintain balance. (CDC, 2016) Known risk factors for falls include lower extremity weakness, previous falls, gait and balance disorders, visual impairment, depression, functional and cognitive impairment, dizziness, low body mass index.

2.5.3 Mental wellbeing

Physical activity is associated with promotion of psychological well-being (Hyde et al, 2013). In a study carried out by Verghese, Lipton, Katz, Hall, Derby, Kuslansky, Mabrose, Sliwinski, and Buschke (2003), individuals who frequently played board games and read were less likely to develop dementia. Physical activity lowers the risk of dementia and improves day to day cognitive functioning. In addition, with regards to mild-cognitive impairment (MCI), reading books, playing board games, craft activities, computer activities and watching television were significantly associated with a decreased odds of having MCI (Geda, Topazian, Roberts, Roberts, Knopman, Pankratz, Christianson, Boeve, Tangalos, Ivnik, and Petersen 2011).

The review made by Rolland, van Kan and Vellas (2010) as well showed that regular physical activity has protective effect on brain functioning in elderly population. It is therefore important that elderly people be encouraged to undertake regular physical activities. Summarily, physical activity was said to improve perceptions of mental wellbeing of the elderly, increases their self-esteem and improves the older population's ability to cope with stress. Symptoms of some clinically defined mental illnesses such as depression and anxiety may potentially be alleviated by physical activity. Quality and quantity of sleep can also be improved through physical activity.

In addition to the benefits of physical activity on improving health and reducing risk factors for chronic disease, it has been shown to be effective in improving mental health, which is also a major cause of disability worldwide. Estimates made by the World Health Organization are 154 million people globally suffer from depression, and mental illnesses

effect and are affected by chronic conditions such as cancer, heart and other cardiovascular diseases, diabetes and HIV/AIDS.

Evidence is growing fast, with many studies and clinical trials having shown specific benefits including: improved mood, reducing symptoms of stress, anger and depression, alleviating anxiety and slowing cognitive decline (Penedoa and Dah, 2005)

Among older people, physical activity can be of benefit to maintaining mental health, with one study of women aged 70 to 81years showing that those in the highest physical activity quintile to have a 20 per cent lower risk of cognitive decline including tests of general cognition, verbal memory and attention (Weuve, Kang and J. Manson, 2004)

2.5.4 Maintaining mobility

Medium to high intensity resistance training can improve everyday physical function such as walking speed and time taken to stand up from a chair.

Cardiorespiratory exercise performed regularly offsets declines in endurance and reduces general breathlessness and fatigue. Even those already in nursing or residential care can benefit from physical activity, mostly in the form of rehabilitation exercise. Vincent, Raiser, and Vincent (2012) concluded in a review that for obese older adults, participation in a programme of exercise that included aerobic and resistance exercises combined with dietary restriction did lead to improvements in functional mobility.

2.5.5 Functional independence

Both muscle strength and aerobic fitness have been strongly linked to functional independence. In older adults without disabilities, improvements in muscle strength and aerobic fitness resulted in improved functional independence. Findings from a systematic review indicated that when older adults participated in exercise of sufficient intensity and frequency, the reduction in risk of functional limitation and disability was in the range of 30–50%. (Paterson and Warburton, 2010) Aerobic training alone or aerobic training combined with resistance training have been shown to result in improved physical function in older adults without disabilities.

2.6 Motivation For Physical Activity

2.6.1 Environmental factors

Supportive environments and communities may help the older people to be more physically active. Urban and environmental policies can have huge potential to increase the physical

activity levels in the population. Examples of these policies include ensuring that walking, cycling and other forms of active transportation are accessible and safe for all, labour and workplace policies encourage physical activity and recreation facilities provide opportunities for everyone to be physically active.

Safety and accessibility are two important environmental factors associated with activity participation across the age span, although these two factors have not been studied extensively. Walking and running on bicycle paths and recreational areas, which are set away from traffic and are patrolled and well-lighted, are very important for older people, especially older people living in underserved urban environments where sidewalks are often in disrepair or non-existing. Summarily, several environmental factors which are linked to urbanization can discourage people from becoming more active, such as; fear of violence and crime in outdoor areas, high-density traffic, low air quality, pollution, lack of parks, sidewalks and sports/recreation facilities (WHO, 2015)

From an evolutionary perspective, humans are designed for a physically active lifestyle, while cultural circumstances permit and reinforce an inactive alternative in industrialised countries (Malina and Little, 2008). Throughout human evolution history, the lifestyle of humans included physical activity on a regular basis except for the past two or three generations (Malina and Little, 2008). Consequently, the combined effects of the transition to a sedentary lifestyle and attendant dietary changes have resulted first in an epidemic of coronary heart disease and more recently an epidemic of overweight/obesity in post-industrial societies (Malina and Little, 2008) Social and environmental changes have accompanied the ongoing rapid urbanisation in a number of countries during recent decades and therefore, understanding the role of urbanisation in the health risk transition is important for health policy development at national and local levels (Lim, Kjellstrom, Sleight, Khamman, Seubsman, Dixon and Banwell, 2009). Urbanisation is recognized as a driver of the globally changing health hazard panorama with specific proximate social, economic, environmental and behavioural health risks developing in the wake of urbanisation (Ompad, Galea, Caiaffa and D. Vlahov, 2007). Low involvement in health improving physical activity may be attributed to urbanisation, which unavoidably affects population health significantly.

Urbanisation is a global trend which may be altering habitual physical activity and sedentary behaviour of the entire population including children, adolescents and adults adversely. A

reflection of the decline in physical activity levels in Europe was demonstrated in a study by Riddoch, Mattocks, Deere, Saunders, Kirkby, Tilling, Leary, Blair and Ness in 2008 where only 2.5% of the 5,595 school children surveyed appear to have met recognized physical activity guidelines for children and adolescents. These findings reflect an ongoing decline in physical activity across all age groups during the past several decades in Europe (WHO, 2006) This decline in physical activity may be due to mechanisation of work and daily activities, thus, less labour intensive, the increased use of motorised transport instead of walking or cycling and increased sedentary behaviour such as inactive leisure time activities (such as watching television and using a computer). These trends are beginning to be replicated in the developing world. For example, it is estimated that by 2020 chronic diseases of lifestyle will be almost 50% of the burden of disease in Sub Saharan Africa (Kagwiza, Phillips and Struthers, 2005). Rapid urbanisation with changes in lifestyle, such as physical activity patterns could explain at least partially, the ongoing epidemiological switch in Sub Saharan Africa (Kagwiza, et al).

2.6.2 Previous Positive Experience from physical activity

In addition to positive physical effects of increasing physical activity there is a growing body of evidence indicating cognitive benefits. A Cochrane systematic review of the effect of aerobic exercise on cognition in people over the age of 55 years showed a positive effect, improving auditory attention and cognitive processing speed (Angevaren, Aufdemkampe, and Verhaar, 2008). From this evidence, making the subject of physical activity known to the older population can be a source of encouragement for the elderly to be more physically active.

2.6.3 Social support.

Social influences on physical activity patterns appear to be strong throughout life span. Peer reinforcement is especially important to physical activity patterns in youth (Crombie, Irvine, Williams, McGinnis, Slane, Alder and Mcmurdo, 2004), and social support from friends and spouses has correlated with vigorous activity in younger and older adult populations (Crombie et al 2004)

2.7 Barriers To Physical Activity

These are constraints that prevents most of the elderly from being physically active. These include:

2.7.1 Poor self-related health

The most common reasons given by older adults for not participating in physical activity was ill-health, pain and injury (Schutzer and Graves, 2004) Symptoms of diseases such as pain and fear of pain also serve as hindrance to increasing physical activity.

2.7.2 Knowledge and beliefs.

Studies among adults suggest that knowledge and beliefs about the health effects of physical activity are positively associated with current physical activity levels. Conversely, a less than favourable perception of one's own health status is associated with reduced participation in cardiac rehabilitation programs and at the community level as well. Perceived enjoyment and satisfaction are positive predictors of physical activity in both men and women of all ages however, intentions to be physically active do not necessarily predict subsequent participation. Existing beliefs that can be categorised as misconceptions that older people are expected to rest all the time especially those with disability or has limitation in mobility.

2.7.3 Lack of suitable environment

Unsafe road networks in terms of lack of proper pedestrian walkways, unenforced traffic rules and regulations with lack of recreation centres has hindered the spread of knowledge and improvement in practices of physical activity in Nigeria. The percentage of older persons recorded to be active only do so by chance not by planned activity. Also fear of crime is an important barrier to physical activity and functional ability in older populations. Also, among older adults, membership fees or lack of transportation often present overwhelming barriers to supervised programs in health clubs or recreational facilities. Thus, unequal access to safe, supervised exercise programs and facilities may serve as an important mediating factor in the relationship between age, sex, and race and physical activity level. (WHO, 2015)

2.7.4 Other barriers

Other barriers faced by the elderly in keeping up with the WHO's recommended level of physical activity gathered from literature include lack of time and interest, lack of company, negative experiences such as falls and injury.

2.8 Conceptual Framework

Recommended conceptual framework for this study is the Health Belief Model

The Health Belief Model HBM was spelled out in terms of four constructs representing the perceived threat and net benefits: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. These concepts were proposed as accounting for people's "readiness to act." An added concept, cues to action, would activate that readiness and stimulate overt behaviour. A recent addition to the HBM is the concept of self-efficacy, or one's confidence in the ability to successfully perform an action. This concept was added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviours, such as being sedentary.

This research focussed on three of the constructs which were the perceived benefits, perceived constraints and cues to action. The scalar construct is broken down as follows;

1. Perceived Susceptibility: this construct looks at the participants' beliefs about what would happen if they did not achieve the WHO's recommended level of physical activity. This includes how likely they would develop complications, have complications worsen, or have shortened life expectancy.
2. Perceived Severity: this looks at the participants' beliefs about the seriousness of non-communicable disease or the severity of complications arising from low levels of physical activity.
3. Perceived Benefits: this emphasises the participants' perception of how being physically active will benefit their overall health. This construct is influenced by Section C of the research instrument. Respondents were asked to agree or disagree what they perceive as the health effects of PA.
4. Perceived Constraints: this is the participants' perception of the discomfort, negative experience of body pain that has been encountered by some that has engaged in intense physical activity in the past and fear of fall. This construct influenced Section E of the research instrument. The respondents, whom believed they are inactive gave reason such as fear of fall, failing health, lack of recreational facilities, lack of support from family, lack of time and interest, lack of company, lack of awareness. Some mentioned other constraints like too much exercise is not good and some forgets about being active.
5. Cues to action: these are reinforcing factors that will encourage adoption of healthy behaviour of being physically active such as continuous messages from mass media e.g TV, Radio, Billboards, Social support from family, friends and peers, supportive

workplace policy that encourages health promotion. This construct influenced Section D of the research instrument. Respondents stated factors that can and motivates adherence to PA. Some of which were support by friends and family and also to meet new people.

6. Likelihood of action: the confidence the participant feel in imbibing the behaviour. From this study the likelihood of the respondents to remain physically active is high providing all barriers are adressed.

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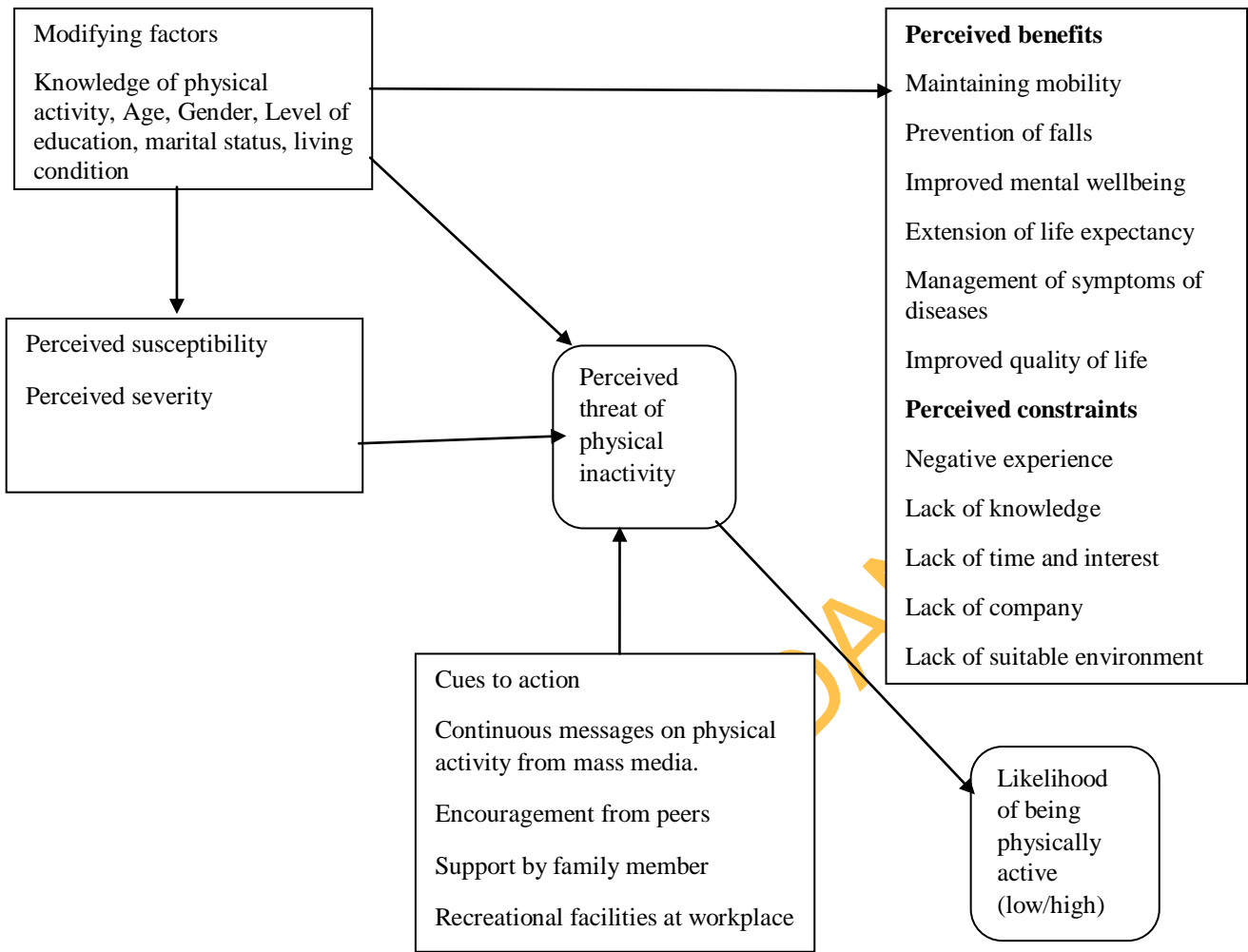


Figure 2.1: Conceptual Framework showing the application of Health Belief Model to the study.

CHAPTER THREE

METHODOLOGY

3.1 Study Design

A descriptive cross-sectional study design was used for this study to investigate the perceived health benefits of physical activity among the elderly at Egbeda Local Government Area, Ibadan.

3.2 Study Area

The study was carried out in Egbeda LGA. Egbeda is a Local Government Area in Oyo State, Nigeria. The LGA headquarter is in the town of Egbeda. It has an area of 191 km². At the 2006 census, the local government area accounted for 281,573 persons. Egbeda local government area is subdivided into 11 wards: Erunmu, Ayede/Alugbo/Koloko, Owo Baale/Kasumu, Olodan/Ajiwogbo, Olodo/Kumapayi I, Olodo II, Olodo III, Osegere/Awaye, Egbeda, Olode/Alakia, and Olubadan Estate.

The local government is headed by an elected chairman and 11 councillors elected from each ward. There are about 195 settlements in the Local Government Area, over 60% of these settlements are urban in nature, the urbanized ones are found along the Ibadan-Ife Road as far as Adegbayi and on the Ibadan-Iwo Road as far as Olodo. Also included in the urbanized section of the Local Government Area is the Old-Ife Road Area, the New-Ife Road Area, the New Gbagi Market and Agugu-Ogbere Road which have formed a huge urban sector ending at the New Airport Area. Apart from these parts which form the main urban section of the Local Government Area, other semi urbanized settlements include Erunmu, Owobaale and Egbeda, which is the Local Government Area Headquarters. The urbanized part of the Local Government Area is the most populated; about 75% of the population live in the urban area. These include the Old-Ife and New Ife Roads Areas; and the Iwo Road Area. The rate of acquired land in Egbeda is very high. Hardly can one go through any direction in the Local Government without interjection of either Federal or state acquisition. On Iwo Road, there is the Muslim Pilgrim acquired land and Ajoda Extension, on Ife Road is the New Gbagi Market, Olubadan Housing Estate, Airport and Ajoda land extending close to the boundary at Asejire Water Works.

3.3 Study Population

This study was carried out among the elderly persons of 60 years and above in Egbeda LGA. In this local government area, it is assumed there are over 15000 elderly persons.

3.4 Inclusion Criteria

This research strictly involved elders of 60 years old and above, literate and those without a formal education either staying alone or with relatives.

3.5 Exclusion Criteria

This research excluded anyone that is not aged 60 years old irrespective of whether old age health problems have taken a toll on or not. In addition, respondents that refuse to give informed consent were not involved in the research.

3.6 Sample Size Determination

Using the standard formula by Leslie Kish model of 1965 in derivation of sample size

$$n = \frac{Z^2 pq}{d^2}$$

p is prevalence of physical inactivity 39.1% among older adults (Oyeyemi et al, 2013)

$$q = 1 - p = 1 - 0.391 = 0.609$$

Z is confidence limit of 95% = 1.96

d is the level of precision of 0.05

$$\text{Thus, the sample size, } n = \frac{(1.96)^2 \times 0.391 \times 0.609}{0.05^2} = 366$$

However, an additional 10% of the sample size was added to avoid errors that arose, making the total sample size add up to 403.

3.7 Sampling Technique

A multistage sampling procedure was used in selecting the respondents. This consisted of 3 stages.

Stage 1: this involved random selection of representative sample of five wards out of the eleven wards were selected.

Stage 2: this involved stratification of the wards into settlements.

Stage 3: this involved random selection of the respondents from the allotted population within the settlements represented in the selected wards.

The elderly were also identified through snowballing sampling technique as well as through residents association within the communities revealed by community diagnosis.

3.8 Research Instrument

Questionnaire was used as instrument for this research study. The questionnaire contained five sections including a section with socio-demographic section as section A. Section B

addressed the knowledge of the elderly towards physical activity, Section C addressed the elderly's perceived effect of physical activity, Section D addressed the factors that motivate, the elderly to adhere to WHO's recommended level of physical activity for the elderly and Section E addressed factors that hinder the elderly from being physically active.

3.9 Validity of the Instrument

For validation of the research instrument, draft copy of the instrument was given to the researcher's supervisor for comment, addition, subtraction and suggestions. The research instrument was translated into Yoruba language which is the local language in Egbeda Local government area to aid understanding of the instrument among the participants. 10% of the instrument was pretested in Ibadan North East local government area. It shares demographic characteristics with Egbeda LGA. After the field testing, additional responses were added to Section E as stated by the respondents.

3.10 Reliability of the Instrument

The data collected from the field testing was subjected to a measure of internal consistency using the Cronbach's technique. The reliability value obtained from the field test analysis was 0.808. More questions were added to the knowledge questions and some questions were removed because they had negative correlation before proceeding with data collection.

3.11 Data Collection Procedure

Seven research assistants were recruited to collect data from the respondents. The research assistants had at least secondary level of education with good understanding of both oral and written knowledge of Yoruba and English languages. The research assistants were trained in English and Yoruba languages on questionnaire administration with explanations on peculiarity of relating with the elderly. With the help of the seven trained research assistants, the research respondents were accessed within selected communities in Egbeda local government area.

3.12 Data Analysis and management

The administered copies of the questionnaire were assigned serial numbers for easy identification during the process of data entry. The collected data were coded, entered and cleaned by the researcher. The analysis was done using the software – IBM Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics such as frequencies, means, percentages and standard deviation were used to summarise the independent and dependent variables.

The hypotheses were tested using chi-square test and cross-tabulations between the independent and dependent variables such as living condition and knowledge of physical activity at 5% level of significance. Results were presented in forms of tables.

The respondents' knowledge of physical activity was measured on a 21point scale with scores ≤ 10 , ≥ 11 were categorised as poor and good knowledge respectively.

The perception level was measured on a 15point scale with scores ≤ 7 categorised as poor perception and scores ≥ 8 categorised as good perception of the health benefits of physical activity.

3.13 Ethical consideration

Ethical approval was obtained from the Oyo State Ethical Review Board and approval was given to carry out the research. Informed consent to participate in the study was obtained from the respondents by trained research assistants. Care was taken during the course of data analysis by using the most appropriate technique to arrive at valid conclusion. Data was stored in secure and accessible form, documented and archived for a substantial use. There was restriction on access to data.

Beneficence: This research will contribute to existing knowledge of physical activity of older people in the country which invariably can help in the designing of health programmes for the elderly in tackling the increasing prevalence of non-communicable disease in Nigeria.

Justice: Both the burdens and benefits of participating this research were equitably distributed among all segment of the communities rural and urban alike.

Respect for persons: This study maintained the participants' autonomy that is participants had the right to voluntarily decide whether or not to take part in this study and can decide to withdraw from the research without suffering any reprisal. Adequate information about the research in a language the participants understood was provided through the informed consent process.

Non maleficent: Finally, this research did not cause any harm to any of the participants either physical, mental or emotional harm.

CHAPTER FOUR

RESULTS

4.1 Socio-Demographic Characteristics of the Respondents

The age of respondents ranged from 60 to 99 years with a large number of respondents 287(71.2%) within the 60-69years age category followed by 89(22.1%) respondents. The mean age was 67.5 ± 6.8 years. About half of the respondent were Female 217(53.8%). About three quarter of the respondents were married 268(66.5%) followed by widowed 93(23.1%) and the least were divorced (2.2%). A larger percentage of the respondents 327(81.1%) were of Yoruba ethnic group, Igbo 58(14.4%) and Hausa 18(4.5%). Two hundred and seventy nine (69.2%) of the respondents are Christians, 120(29.8%) practise Islam and 4(1.0%) are of the traditional religion. The respondents' level of education ranged from 79(19.6%) with no formal education, 99(24.6%) with primary education, 122(30.3%) with secondary education to 103(25.6%) with tertiary education. Three quarters 244(60.5%) of the respondents are entrepreneur, 120 (29.8%) are retired and 39(9.7%) are civil servants. Larger percentage 353(87.3%) of the respondents were staying with family and the corresponding percentage 20(12.4%) were staying alone.

TABLE 4.1 Socio Demographic Characteristics of the Respondents**(N=403)**

Socio-demographic	Frequency	Percentage
SEX		
Male	186	46.2
Female	217	53.8
MARITAL STATUS		
Single	16	4.0
Married	268	66.5
Separated	17	4.2
Divorced	9	2.2
Widowed	93	23.1
RELIGION		
Christianity	279	69.2
Islam	120	29.8
Traditional	4	1.0
ETHNIC GROUP		
Igbo	58	14.4
Hausa	18	4.5
Yoruba	327	81.1
LEVEL OF EDUCATION		
No formal	79	19.6
Primary	99	24.6
Secondary	122	30.3
Tertiary	103	25.6
OCCUPATION		
Entrepreneur	244	60.5
Retired	120	29.8
Civil servant	39	9.7
LIVING CONDITION		
Staying with family	353	87.6
Staying alone	50	12.4

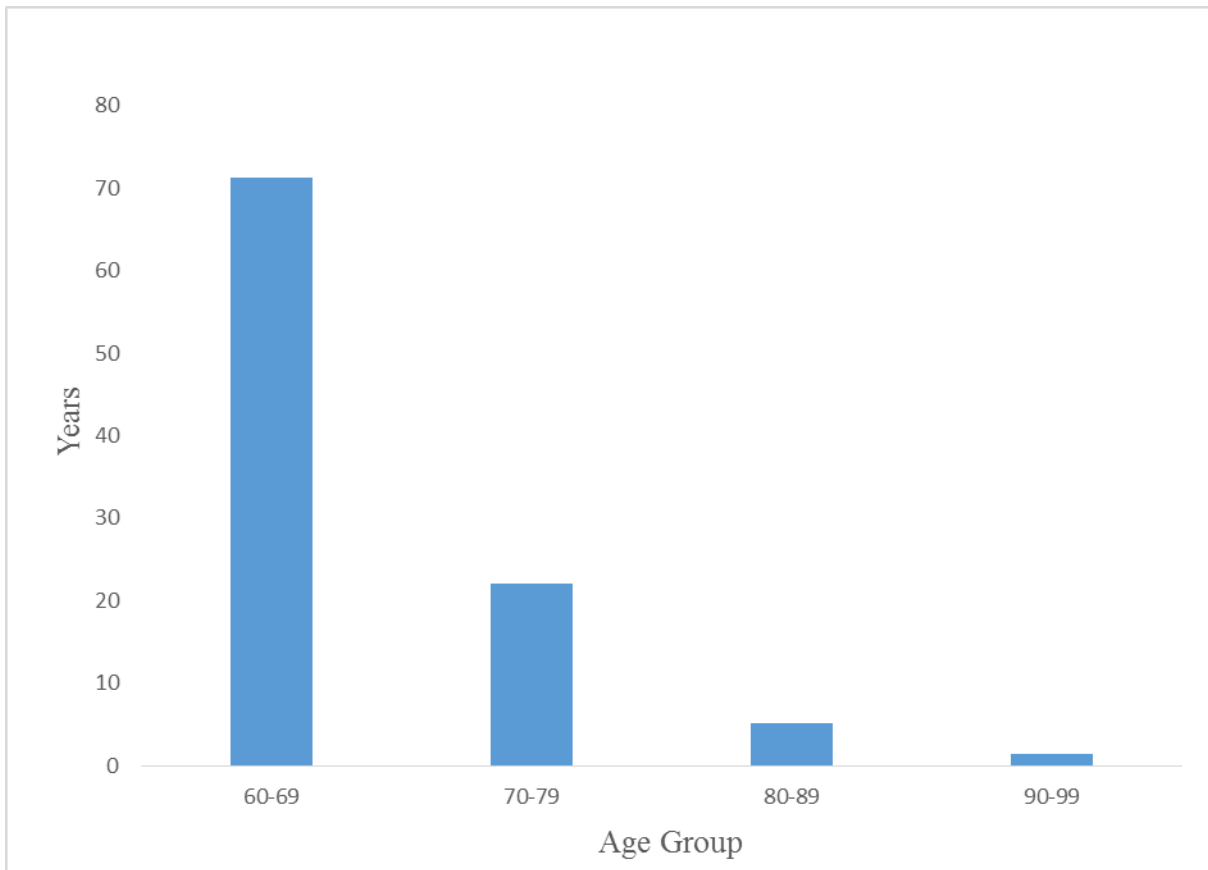


Figure 4.1 Age distribution of respondents

MEAN= 67.5±6.7, (MINIMUM= 60, MAXIMUM= 99)

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4.2 KNOWLEDGE OF RESPONDENTS

Majority of the respondents 380(80.6%) are aware of what physical activity. One hundred and thirty (32.3%) of the respondents are aware of the World Health organisation's recommended physical activity level for the elderly. About two thirds 272(67.5%) of the respondents know physical activity is a complex set of behaviours which comprises of any bodily movement that result in energy expenditure above resting level while 39(9.7%) gave a negative response to the statement and 89(22.1%) declares not knowing what physical activity means. 233(57.8%) knows that physical activity helps in management of some non-communicable diseases like coronary heart disease, diabetes and cancers, 48(11.9%) said no and 121(30.0%) do not know. Two hundred and eighty (69.5%) of the respondents considers physical activity and exercise to be the same while 61(15.1%) gave response that physical activity and exercise are different and 58(14.4%) do not know. Respondents 222(55.1%) said that the elderly should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75minutes of vigorous-intensity aerobic physical activity throughout the week with 127(31.5%) do not know. Majority of the respondents 139(34.5%) the elderly are expected to rest all the time and not be involved in any strenuous activity.

Two hundred fifty (62.0%) of the respondents said if the elderly cannot do the recommended amounts of physical activity due to health conditions they should be active as their abilities and conditions allow. About two third 289(71.7%) of respondents has been advised at some point to be more physically active, 98(24.3%) has never been advised to be physically active and 13(3.2%) do not know if they have been ever advised as shown below in Table 4.2

The commonest source of advice given to the elderly regarding physical activity is through a health worker which accounts for 49.5%, followed by family which accounted for 20.3% family then through social media platform which accounted for 16.4% and finally friends accounted for 13.8% as shown in figure 4.2.

Respondents also considers walking 341(84.6%), running 340(84.4%), dancing 262(65.0%), shopping 210(52.1%), swimming 225(55.8%), gardening 257(6.8%), cooking 225(55.8%), doing laundry 241(59.8%) as physical activity as represented in table 4.3

Table 4.2 KNOWLEDGE OF RESPONDENTS ON PHYSICAL ACTIVITY**N=403**

Knowledge variable	Yes	No	Don't know
Aware of what Physical Activity is	325(80.6%)*	62(15.4%)	15(3.7%)
Aware of the World Health Organisation's recommended level of Physical Activity for the Elderly	130(32.3%)*	184(45.7%)	87(21.6%)
Physical activity is a complex set of behaviours which comprises any bodily movement that result in energy expenditure above the resting level	272(67.5%)*	39(9.7%)	89(22.1%)
Physical Activity helps in management of some non-communicable diseases like coronary heart disease, diabetes and cancers.	233(57.8%)*	48(11.9%)	121(30.0%)
Consider physical activity and physical exercise to be the same	280(69.5%)	61(15.1%)*	58(14.4%)
The Elderly should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week.	222(55.1%)*	49(12.2%)	127(31.5%)
The Elderly are expected to rest all the time and not be involved in any strenuous activity	139(34.5%)	194(48.1%)*	70(17.4%)
If elder cannot do the recommended amounts of physical activity due to health conditions, they should be as physically active as their abilities and conditions allow	250(62.0%)*	57(14.1%)	90(22.3%)
Been given advice to be more physically active at any time	289(71.7%)*	98(24.3%)	13(3.2%)

*correct response

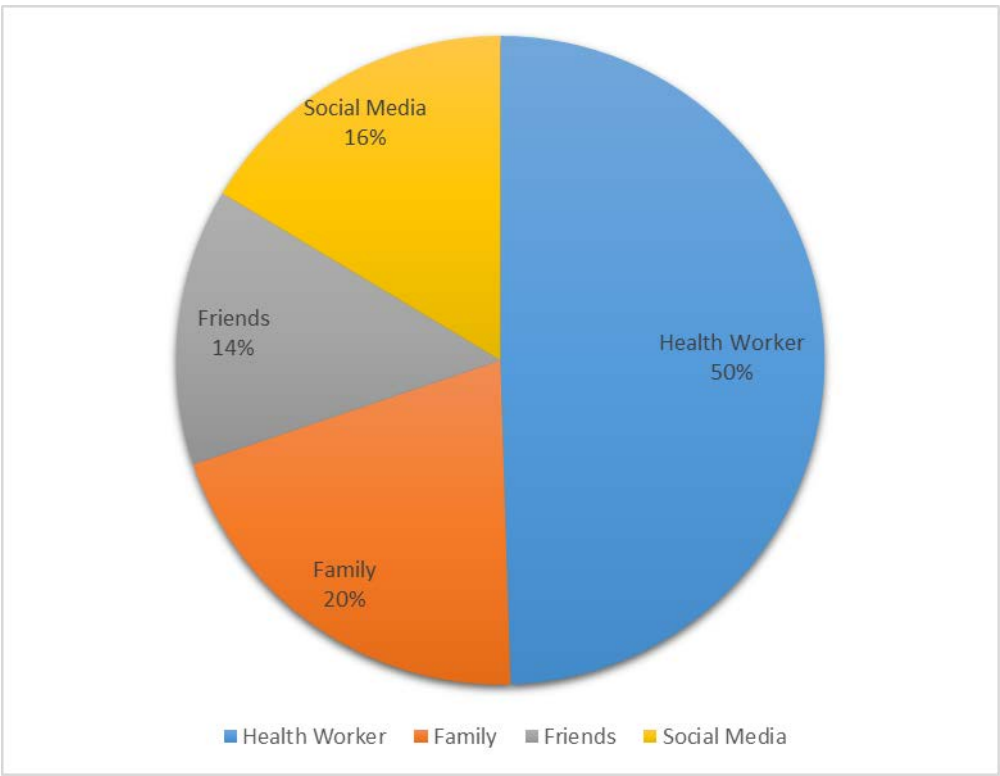


Figure 4.2 Sources of advice on physical activity to the respondents.

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Table 4.3 Respondents' Perception of what constitute physical activity

Knowledge variable	Yes	No	Don't know
Walking	341(84.6%)*	25(6.2%)	19(4.7%)
Running	340(84.4%)*	15(3.75)	21(5.2%)
Dancing	262(65.0%)*	44(10.9%)	54(13.4%)
Shopping	210(52.1%)*	77(19.1%)	60(14.9%)
Swimming	225(55.8%)*	59(14.6%)	53(13.2%)
Gardening	257(63.8%)*	48(11.9%)	43(10.7%)
Cooking	225(55.8%)*	66(16.4%)	59(14.6%)
Doing Laundry	241(59.8%)*	46(11.4%)	63(15.6%)

*correct response

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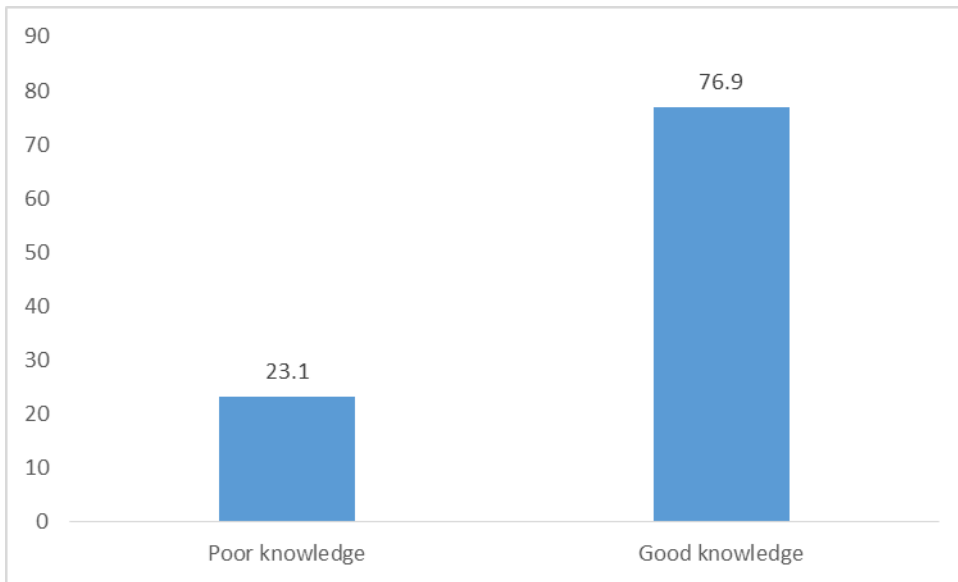


Figure4.3 Respondents' Knowledge Score

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4.3 Perceived Health Effects of Physical Activity among the Elderly

Majority 347(86.1%) of the respondents perceived that physical activity is good for them. Three hundred and twenty five (80.6%) also perceived that physical activity makes them feel healthy. About half of the respondents 192(47.6%) disagrees with the statement that physical activity for the elderly makes their health challenges to be more severe. Respondents 107(26.6%) also perceived that elderly who do not have any risk factors for non-communicable diseases do not need to increase their physical activity levels while 161(40.0%) respondents perceived otherwise.

Two hundred twenty (54.6%) respondents perceived that physical activity helps prevent the elderly from falls with 68(16.9%) disagreed with this perception. Three quarters of respondents 251(62.3%) agreed with the perception that physical activity can improve perceptions of mental well-being, 113(28.0%) were undecided and 37(9.2%) disagreed. Half of the respondents 208(51.6%) perceived physical activity increases self-esteem with 55(13.6%) perceiving otherwise. Two hundred and sixty-one (64.8%) improves one's ability to cope with stress as one of the health benefits of physical activity 48(11.9%), can lead to long term hypertension 43(10.7%) 219(54.3%), being physically active is harmful to health status 74(18.4%) while 224(55.6%) disagreed.

Respondents believed that physical activity can improve some named non-communicable diseases. Two hundred and seven (51.4%) respondents believed diabetes can be improved through being physically active. Hypertension 170(42.2%), Stroke 190((47.1%), Dementia 125(31.0%) and Cancers 140(34.7%) as represented in Table 4.5.

Table 4.4 Perceived Health Effects of Physical Activity among the Elderly**N=403**

Statement	Agree	Undecided	Disagree
Physical activity is good for me	347(86.1%)*	39(9.7%)	14(3.5%)
Physical Activity makes me feel healthy	325(80.6%)*	50(12.4%)	25(6.2%)
Physical activity for the elderly makes their health challenges to be more severe	87(21.6%)	116(28.8%)	192(47.6%)*
Elders who do not have any risk factors for non-communicable diseases do not need to increase their physical activity levels.	107(26.6%)	131(32.5%)	161(40.0%)*
Physical activity helps prevent the elderly from falls	220(54.6%)*	112(27.8%)	68(16.9%)
Physical activity can improve perceptions of mental wellbeing	251(62.3%)*	113(28.0%)	37(9.2%)
Physical activity increases self-esteem	208(51.6%)*	126(31.3%)	55(13.6%)
Being physically active improves one's ability to cope with stress	261(64.8%)*	78(19.4%)	48(11.9%)
Physical activity can lead to long-term hypertension	43(10.7%)	125(31.0%)	219(54.3%)*
Being physically active is harmful to health status	74(18.4%)	87(21.6%)	224(55.6%)*

***Correct responses**

Table 4.5 Respondents' perception of the benefit of that physical activity to improve health

PA improves	Agree	Undecided	Disagree
Diabetes	207(51.4%)*	124(30.8%)	38(9.4%)
Hypertension	170(42.2%)*	143(35.5%)	52(12.9%)
Stroke	190((47.1%)*	140(34.7%)	43(10.7%)
Dementia	125(31.0%)*	177(43.9%)	51(12.7%)
Cancers	140(34.7%)*	151(37.5%)	63(15.6%)

* correct responses

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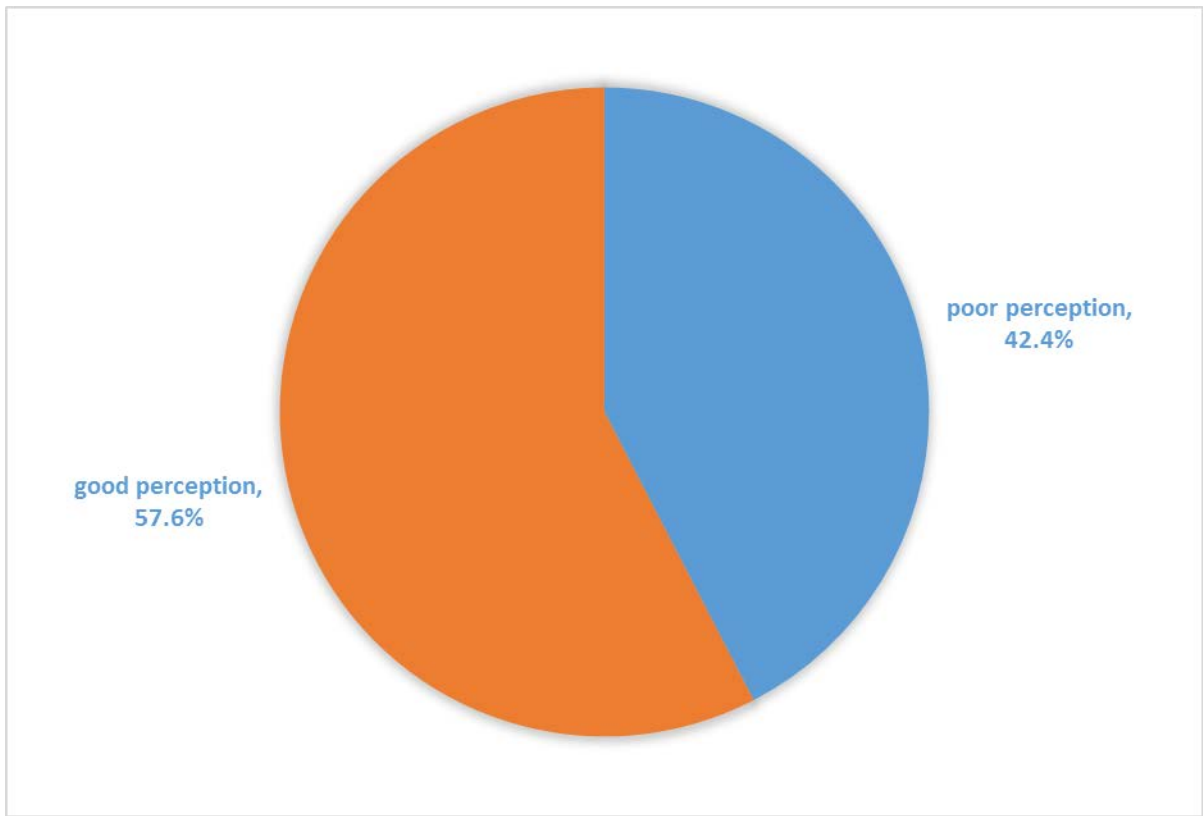


Figure 4.3 Respondents'perceived health benefits of physical activity

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4.4 FACTORS THAT MOTIVATE PHYSICAL ACTIVITY

The largest percentage of respondents 321(79.7%) would be more physically active if there is support from family and followed by 313(77.7%) respondents would exercise if they see friends exercising. Two hundred and thirty two (57.6%) respondents would be more active with safer roads to permit walking and cycling and 207(51.4%) with supportive policy for physical activity at workplace. Two hundred and nineteen (54.3%) would need continuous reminder over whatever means and about two thirds 288(71.5%) would be more active if the benefits were seen.

Other factors respondents listed as motivating factors were, to be healthier 310(76.9%), increased chances of living longer by 293(72.7%) respondents, to feel better about oneself by 259(64.3%), less chance of becoming depressed by 247(61.3%), sleep better at night by 260(64.5%), physical activity helps look good by 240(59.6%) and to be in shape by 265(65.8%). Close to three quarters of the respondents 240(59.6%) mentioned physical motivates them to stay or get a healthy weight, 227(56.3%) mentioned physical activity helps them to get around better and have strong muscles and bones by 256 (63.5%) respondents. Two hundred and seventeen (53.8%) were motivated to physically active to be with friends or meet new people while about half 229(56.8%) said to enjoy oneself and have fun shown in Table 4.6.

Table 4.6 Factors that Motivate Physical Activity among Elderly**N=403**

Statement	Yes (%)	No (%)
Would be more physically active if there is support from family	321(79.7)	82(20.3)
Would exercise if see friends exercising	313(77.7)	90(22.3)
Safer Roads to permit walking and cycling	232(57.6)	171(42.4)
Supportive policy for physical activity at workplace	207(51.4)	196(48.6)
Continuous Reminder over whatever means	219(54.3)	184(45.7)
Seeing its benefits	288(71.5)	115(28.5)
Be healthier	310(76.9)	93(23.1)
Increase my chances of living longer	293(72.7)	110(27.3)
Feel better about myself	259(64.3)	144(35.7)
Have less chance of becoming depressed	247(61.3)	156(38.7)
Sleep better at night	260(64.5)	143(35.5)
Helps me look good	240(59.6)	163(40.4)
Be in shape	265(65.8)	138(34.2)
Get around better	227(56.3)	176(43.7)
Have stronger muscles and bones	256(63.5)	147(36.5)
Help me stay at or get to a healthy weight	240(59.6)	199(49.4)
Be with friends or meet new people	217(53.8)	186(46.2)
Enjoy myself and have fun	229(56.8)	174(43.2)

4.5 FACTORS THAT HINDER PHYSICAL ACTIVITY

Respondents that exercise often were 230(57.1%) and 170(42.2%) respondents do not exercise. Several factors listed as barriers to being physically active include fear of fall 94(23.3%), failing health by 91(22.6%), lack of recreational facilities 77(19.1%) and lack of support from family 69(17.1%). Other factors listed by eighty (19.9%) respondents was lack of time, 55(13.6%) said lack of company, 48(11.9%) said negative experience, 58(14.4%) said it was due to lack of awareness and 57(14.1%) said lack of interest. A small percentage of the respondent 37(9.2%) gave hindering factor that too much exercise is not good and 57(14.1%) forgets about physical activity shown in Table 4.7.

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Table 4.7 Factors that Hinder Physical Activity

Variable	Frequency	Percentage
Exercise often		
Yes	233	57.8
No	170	42.2
Factors that hinder physical activity		
	Frequency	Percentage
Fear of fall	94	55.3
Failing Health	91	53.5
Lack of recreational facilities	77	45.3
Lack of support from family	69	40.6
Lack of time	80	47.1
Lack of company	55	32.4
Negative experience	48	28.2
Lack of awareness	58	34.1
Lack of Interest	57	33.5
Too much exercise isn't good	37	21.7
Forgets about physical activity	57	33.5

TEST OF HYPOTHESES

Hypothesis 1- There is no association between the living condition of the respondents and level of knowledge on physical activity. The result of the association is shown in Table 4.8. The association between living condition of the respondents and knowledge on physical activity was statistically significant ($X^2=5.37$, $p<0.05$)

Since the $p<0.05$, the hypothesis is rejected, thus, there is significant association between living condition of the respondents and knowledge of physical activity. From the result, the category of respondents living with family are more likely to have knowledge of physical activity.

TABLE 4.8 ASSOCIATION BETWEEN LIVING CONDITION AND KNOWLEDGE OF RESPONDENTS ON PHYSICAL ACTIVITY

LIVING CONDITION	KNOWLEDGE CATEGORY			Chi square	p-value
	POOR	GOOD	TOTAL		
Staying with family	75	278	353	5.37	0.030
Staying alone	18	32	50		
TOTAL	93	310	403		

Hypothesis 2- There is no association between level of education and the perceived health benefits of physical activity. The result of the association between respondents' level of education and perceived health benefits of physical activity is shown in table 4.9. It was observed that the association between level of education and perceived health benefits of physical activity is statistically significant ($X^2=12.14$, $p<0.05$)

Since the $p<0.05$, the hypothesis is rejected, thus, there is significant association between respondents' level of education and perceived health benefits of physical activity. From the result the category of respondents with tertiary education are more likely to have good perception of the health benefits of physical activity.

TABLE 4.9 ASSOCIATION BETWEEN LEVEL OF EDUCATION AND RESPONDENTS' PERCEIVED HEALTH EFFECTS OF PHYSICAL ACTIVITY

LEVEL OF EDUCATION	PERCEPTION CATEGORY			CHI SQUARE	df	p-value
	POOR	GOOD	TOTAL			
No Formal Education	32	47	79	12.141	3	0.007
Primary	33	66	99			
Secondary	67	55	122			
Tertiary	39	64	103			
TOTAL	171	232	403			

Hypothesis 3- There is no association between the level of education and level of knowledge on physical activity

The comparison shown above shows the observed count of level of education and level of knowledge of physical activity is shown in Table 4.10. It was observed that the association between level of education and perceived health benefits of physical activity is statistically significant ($X^2=16.39$, $p<0.05$)

Since p-value is less than the level of significance, the null hypothesis would be rejected. As a result, there is a significant association between level of education and level of knowledge on physical activity.

TABLE 4.10 ASSOCIATION BETWEEN LEVEL OF EDUCATION AND KNOWLEDGE OF PHYSICAL ACTIVITY

LEVEL OF EDUCATION	KNOWLEDGE CATEGORY		TOTAL	CHI SQUARE	df	p-value
	POOR	GOOD				
No Formal Education	23	56	79	16.39	3	0.001
Primary	17	82	99			
Secondary	40	82	122			
Tertiary	13	90	103			
TOTAL	93	310	403			

Hypothesis 4: There is no association between the gender of the respondents and perceived health benefits of physical activity.

The comparison between gender and perceived health benefits of physical activity is shown in Table 4.11

Since p-value is greater than the level of significance (0.05). The hypothesis cannot be rejected. As a result there is no significant association between the gender of the respondents and their perceived health benefits of physical activity.

TABLE 4.11 ASSOCIATION BETWEEN GENDER AND PERCEIVED HEALTH BENEFITS OF PHYSICAL ACTIVITY

GENDER	PERCEPTION CATEGORY			Chi square	df	p-value
	POOR	GOOD	TOTAL			
Male	80	106	186	0.047	1	0.907
Female	91	126	217			
TOTAL	171	232	403			

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

5.1.1 Socio-demographic characteristics of respondents

A larger percentage of the respondents 327(81.1%) were Yoruba which is in relation with the fact that the study area is located in the South-western region of the country where the predominant ethnic group are Yorubas (Olaniyi, 2009).

Majority of the respondents were within the subgroup soon to old or young old (Gong, 2014) facing little or no mobility limitation. About three quarter of the respondents were married, followed by widowed which is expected of this population.

5.1.2 Knowledge of physical activity

Majority of the respondents were aware of what physical activity is and gave correct response that physical activity is a complex set of behaviours which comprises of any bodily movement that result in energy expenditure above resting level which closely corresponds to findings by Crombie, Irvine, Williams, Mcginnis, Slane, Alder and Mcmurdo (2004). A good number of the respondent had a good knowledge of physical activity. A relatively small percentage of the respondents were aware of the World Health Organisation's recommended level of physical activity for the elderly.

Many of the respondents agreed that walking is a form of physical activity which aligns with (Monteiro, Conde, Matsudo, Matsudo, Bonsenor, and Lotufo, 2003) findings that described walking has a common, accessible, inexpensive form of physical activity and is an important component of total physical activity in adult populations.

A relatively large number of the respondents responded that physical activity and exercise are the same which affirms (Adesina, 2012) findings that physical activity and exercise are usually mixed up to be the same terms but they are different concepts entirely. Physical activity is not the same as exercise. The term "exercise" is a subcategory of physical activity that is planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness.

Level of education is significantly influenced by knowledge of the respondents as well as perception on health effects of physical activity. Also the living condition that is (the elderly staying with family and those living alone) is significantly associated with the knowledge of PA with those staying with family more likely to have better knowledge of physical activity.

5.1.3 Perceived Health Effects of Physical Activity

In this study, three quarters of respondents agreed with the perception that physical activity can improve perceptions of mental well-being. Physical activity is associated with promotion of psychological well-being (Hyde et al, 2013)

A third of the respondents believed that physical activity can improve dementia which is consistent with discovery that physical activity lowers the risk of dementia and improves day to day cognitive functioning (Geda, Topazian, Roberts, Roberts, Knopman, Pankratz, Christianson, Boeve, Tangalos, Ivnik, and Petersen 2011)

This study coincides with existing misconception that can be categorised that older people are expected to rest all the time especially those with disability. Evidence is growing fast, with many studies and clinical trials having shown specific benefits including: improved mood, reducing symptoms of stress, anger and depression, alleviating anxiety and slowing cognitive decline (Penedoa and Dah, 2005)

A small fraction of the respondents perceived that physical activity can lead to long term hypertension in line with Crombie et al (2004) discovery, which is a poor perception on the benefits of physical activity.

Crombie, Irvine, Williams, McGinnis, Slane, Alder and Mcmurdo (2004) revealed that levels of knowledge about the specific health benefits from participating in physical activity were high. Participants also thought that physical activity helps to keep the body agile, thought physical activity can improve health. The participants gave the incorrect responses that physical activity can lead to long-term hypertension (Crombie et al, 2004) which is consistent with the findings of this study.

5.1.4 Motivating Factors for Physical Activity

From this study, respondents stated that they would be more physically active if they had support from family and friends which coincided with Crombie, Irvine, Williams, McGinnis, Slane, Alder and Mcmurdo (2004) findings that social influences on physical activity patterns appear to be strong throughout life span as well as social support from friends and spouses has correlated with vigorous activity in younger and older adult populations (Crombie et al 2004).

Many of the respondents reported that they are physically active in order to be healthier, to get around better, increase chance of living longer, to meet new people, to feel better about oneself and to sleep better at night.

5.1.5 Factors Preventing the Elderly from being Physically Active

Some of the respondents stated that they do not exercise and had several factors that contributed to this behaviour. Some of the factors listed were fear of fall and failing health which corresponded with (Schutzer and Graves, 2004) findings that most common reasons given by older adults for not participating in physical activity was ill-health, pain and injury.

Factors such as lack of recreation facilities, lack of support from family were also listed as barriers.

Other factors include lack of company, negative experience also listed by WHO, lack of awareness, lack of interest and a quarter percentage of the respondents that faces barriers said too much exercise is not good.

WHO's recommended level of physical activity barriers gathered from literature include lack of time and interest, lack of company, negative experiences such as pains and injury is consistent with this study's findings

5.2 Implication of Findings for Health Promotion and Education

Health education is about providing health information and knowledge to individuals and communities and providing skills to enable individuals to adopt healthy behaviours voluntarily. It is a combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes.

The findings of this study showed that not enough elderly are aware of the recommended physical activity level for them which has contributed to the existing record of increased prevalence of physical inactivity among the population.

Although a good percentage of the respondents has been advised at some point to be physically active by a health worker, family, friends and through social media but there is a possibility that specifics on what to do were not simplified. This study also affirms that the elderly encounters barriers that has prevented them from being physically active.

It is therefore important that through health, planned learning activities that increase participants' knowledge and skills, Implementation of programs with integrated, well-

planned curricula and materials take place in a setting convenient - the community for the elderly. Presentation of information with audiovisual e.g. videos, books, posters, pictures for effective communication focussed on promoting physical activity among the elderly.

Health promotion takes a more comprehensive approach to promoting health by involving various players and focusing on multisectoral approaches. Health promotion has a much broader perspective and it is tuned to respond to developments which have a direct or indirect bearing on health such as inequities, changes in the patterns of consumption, environments, cultural beliefs therefore through health promotion belief that the elderly are meant to rest all the time could be targeted.

Through the use of health promotion strategy such as social support interventions in community settings, families and peers groups can be influenced to maintain healthy living. Social support interventions in community settings focus on building, strengthening, and maintaining social networks that provide supportive relationships for physical activity behaviour change. New social networks can be formed or existing networks in a social setting outside the family, such as in the workplace can be used. Intervention components can include setting up a “buddy” system, making “contracts” with others to complete specified levels of physical activity, or setting up walking or other groups to provide companionship, friendship, and support while being physically active. Participants can be connected with other participants and program staff members to monitor progress and encourage continuation of activities. Some programs or interventions involve formal discussion groups in which barriers and negative perceptions about activities can be addressed.

5.3 Conclusion

The study among the elderly suggest that knowledge and perception on health effects of physical activity are significantly associated with current physical activity levels. Conversely, a less than favourable perception of one's own health status is associated with reduced participation in cardiac rehabilitation programs and at the community level as well. Perceived enjoyment and satisfaction are positive predictors of physical activity in both men and women of all ages however, intentions to be physically active do not necessarily predict subsequent participation. There is also a need to correct an existing beliefs that can be categorised as misconceptions that older people are expected to rest all the time especially those with disability or has limitation in mobility.

Physical activity knowledge is affected by level of education which consequently could increase the proportion of appropriate information that include counselling or education related to physical activity. Community-wide campaigns are not short term interventions. They need to be sustained for a period of time in order to change the knowledge, attitudes, and behaviours of the intended audiences. Changes in knowledge or attitudes only are not appropriate end goals. It is important to conduct formative research to help develop an appropriate theme and effective messaging.

5.4 Recommendations

The following recommendations should be considered;

1. Fitness programmes for the elderly which is not hospital based but community based to enhance participation
2. The planning and implementation of these community fitness programmes should involve the target population in order to increase awareness of the benefits
3. Awareness of physical activity for the elderly can be incorporated into primary health care level for better access to the community.
4. Evidence of health benefits from good community design should be shared through social media platforms, billboards and broadcast channels to increase awareness.
5. Re-orientation of many professionals outside public health on the potential direct and indirect health benefits of community based programmes.
6. It is important to conduct a health impact assessment of the community fitness programmes to evaluate success and garner support from policy makers.
7. Provision of recreational facilities such as parks.
8. Construction of safer roads that can permit walking and cycling that is establishing roadway standards that require bicycle lanes and pedestrian walkway.

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APPENDIX I
CONSENT FORM

My name is FOLARIN Omolara Grace, a Masters student of Public Health from the Department of Health Promotion and Education, University of Ibadan.

I am carrying out a research on THE PERCIEVED HEALTH BENEFITS OF PHYSICAL ACTIVITY AMONG THE ELDERLY IN EGBEDA LOCAL GOVERNMENT AREA. It is expected that the outcome of this study may provide evidence that is useful in addressing the knowledge and factors that hinder promotion of physical activity among the older populations. You are invited to participate in this research which involves providing answers to the question below. Information provided will be kept confidential and used for research purposes only. Also research is risk free and participation is entirely voluntary.

Thanks for your anticipated cooperation

Part II

I have read the information above concerning the study and I understand what will be required of me if I take part in the study. I agree to take part in the study

.....

Respondent's signature/thumb print

Date.....

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APPENDIX II

QUESTIONNAIRE

PERCEIVED HEALTH BENEFITS OF PHYSICAL ACTIVITY AMONG THE ELDERLY OF EGBEDA LOCAL GOVERNMENT AREA

Dear Respondent,

I'm a postgraduate student of Health Promotion and Education of Faculty of Public Health, College of Medicine, University of Ibadan. I am undertaking a study to investigate the perceived health benefits of physical activity among the elderly of Egbeda LGA. This research is in partial fulfilment for the award of the degree of Masters of Public Health in Population and Reproductive Health Education and the findings will be of immense benefit in adoption of healthy living.

Your response will be treated with uttermost confidentiality. Kindly feel free to express your opinion. Your honest and sincere response to the questions will be highly appreciated. With the help of the interviewer, your answers will be elicited.

Respondent's signature/thumb print..... Serial no....

Section A: SOCIO-DEMOGRAPHIC DATA

Please fill or tick (✓) responses in the appropriate boxes

1. Age as at last birthday (in years):
2. Gender: [1] Male [2] Female
3. Marital Status:
(1) Single (2) Married (3) Separated (4) Divorced (5) Widowed
4. Religion: (1) Christianity [] (2) Islam [] (3) Traditional []
(4) Others (specify).....
5. Ethnic Group: (1) Igbo [] (2) Hausa [] (3) Yoruba [] (4) Others (specify).....
6. Level of Education (1) No formal education (2) Primary (3) Secondary (4) Tertiary
7. Occupation (1) Entrepreneur (2) Retired (3) civil servant
8. Living situation (1) staying with family (2) staying alone

SECTION B: Knowledge of Physical activity

Tick the appropriate response to the following statements.

	STATEMENT	Yes	No	I don't know
9	Are you aware of what Physical Activity is?			
10	Are you aware of the World Health Organisation's recommended level of Physical Activity for the Elderly?			
11	Physical activity is a complex set of behaviours which comprises any bodily movement that result in energy expenditure above the resting level			

12	Physical Activity helps in management of some non-communicable diseases like coronary heart disease, diabetes and cancers			
13	Do you consider physical activity and physical exercise to be the same?			
14	The Elderly should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week.			
15	The Elderly are expected to rest all the time and not be involved in any strenuous activity			
16	If elder cannot do the recommended amounts of physical activity due to health conditions, they should be as physically active as their abilities and conditions allow.			
17	Have you been given advice to be more physically active at any time?			
18	If yes, Who gave you the advice?			
1	Health Worker			
2	Family			
3	Friends			
4	Social Media			

19 Do you consider the following activities as physical activity?

	Activity	Yes	No	I don't know
1	Walking			
2	Running			
3	Dancing			
4	Shopping			
5	Swimming			
6	Gardening			
7	Cooking			
8	Doing laundry			

SECTION C: Perceived health effect of physical activity

The following statements are towards perception of physical activity. Please tick Agree, undecided or disagree to indicate your disposition towards the following statements.

	STATEMENT	Agree	Undecided	Disagree
20	Physical activity is good for me			
21	Physical Activity makes me feel healthy			
22	Physical activity for the elderly makes their health challenges to be more severe			

23	Elders who do not have any risk factors for non-communicable diseases do not need to increase their physical activity levels.			
24	Physical activity helps prevent the elderly from falls			
25	Physical activity can improve perceptions of mental wellbeing			
26	Physical activity increases self-esteem			
27	Being physically active improves one's ability to cope with stress			
28	Physical activity can lead to long-term hypertension			
29	Being physically active harmful to your health status			

30. Which of the following health challenges do you believe physical activity can improve?

	Health Challenge	Agree	Undecided	Disagree
1	Diabetes			
2	Hypertension			
3	Stroke			
4	Dementia			
5	Cancers			

SECTION D: Factors that Motivates Physical Activity among the Elderly

31. Would you be more physically active if you have support from family?

(1) Yes (2) No

32. Would you exercise if you see your friends exercising? (1) Yes (2) No

33. What other factors can motivate you to be physically active? Check the box where applicable.

1. Safer Roads to permit walking and cycling
2. Supportive policy for physical activity at workplace
3. Continuous Reminder over whatever means
4. Seeing its benefits

34. Tick which of these benefits you hope to get from active living

1	Be healthier	
2	Increase my chances of living longer	
3	Feel better about myself	
4	Have less chance of becoming depressed	
5	Sleep better at night	
6	Help me look good	

7	Be in shape	
8	Get around better	
9	Have stronger muscles and bones	
10	Help me stay at or get to a healthy weight	
11	Be with friends or meet new people	
12	Enjoy myself and have fun	

SECTION E: Factors that prevents the Elderly from being Physically Active

35. Do you exercise often? (1)Yes (2) No

36. If No, what prevents you from exercising? Tick all that apply.

1	Fear of fall	
2	Failing health	
3	Lack of recreational facilities	
4	Lack of support from family	
5	Lack of time and interest	
6	Lack of support company	
7	Negative experience	
8	Lack of awareness	
9	Lack of interest	
10	Too much exercise isn't good	
11	Forgets about physical activity	

THANK YOU FOR THE TIME YOU SPENT AND FOR YOUR PARTICIPATION

APPENDIX III

IWE IBEERE.

IWOYE ANFANI TINBE NINU ASAYAN ERE IDARAYA FUN AWON AGBALAGBA NI IJOBA IBILE NI IJOBA IPINLE IBADAN NORTH EAST"

Eyin oludahun ibeere wa ni tooto,

Mo je akeko ile iwe giga ti unifasiti ilu ibadan Eka ti Igbelruge ati eko eto ilera, ile iwe imo iwosan, ti ilu Ibadan. Mo je ikan lara awon egbe ti ohun gbe igbese lati se iwaadi kan ti akole re je "Iwoye anfani tinbe ninu asayan ere idaraya fun awon agbalagba ni ijoba ibile ni ijoba ipinle Oyo". Iwadi se pataki fun gbagba iwe eri giga Akose mose eto ilera gbogbogboo, ekati Igbelruge ati eko eto ilera ibis, Gbogbo awon abajade ti oba jeyo ninu iwadi yi yio se ifilele ati itokasi pelu ojuami ni siseda awon ohun elo fun ijoba ati ile ise tikiise ti ijiba (NGOs) lati gbero ati ni sise ifilole onan lati seto fun ipolongo lori ona lati se agbateru itewogba igbe aye ilera ti opeye.

Gbogbo esi yin ti yio jeyo ninu iwadi yi ni yio wa ni pipamo laarin wa. Inu wa yio dun pupo ti ebale dara po mowa ninu iwadi yi nitoriwipe aseyori iwadi yi duro lori idahun yin tokan tokan.

Ese pupo. Anfani wa fun yin lati bere ibere eyi keyi ti eba fe lowo awon oluforowani lenu wo ti owa pe;u yin li oni, Inu wa yiodun ti ebale dahun awon ibeere woyi lotito ati lododo With

Ifowosi oludahun ibeere:

Nomba Iwe ibeete...

Section A: SOCIO-DEMOGRAPHIC DATA

Ejowo esami (✓) si idahun ti oba bojumu julo si awon ibeere ti owa ninu awon apoti yi

1. E jowo, eso ojo ori yin ni ojo ibi ti ese kehin _____ (Ni odun)
2. [1] Okunrin [2] Obirin
3. Ipowo ni ewa nipa igbeyawo (1)). Nko gbeywo ri [] (2) Moti gbeyawo [] (3) Ati pinya (4) Ofintitu igbeyawo waka (5) Opo []
4. Elesin woni yin
1. Kristiani [] 2. Musulumi [] 3. Elesin Abalaye [] 4. Imiran eso pato (edaruko) []
5. Omo eya wo ni yin: (1) Igbo [] (2) Hausa [] (3) Yoruba [] (4) Eya Imiran (eso pato)
6. Iwe melo ni eka: (1) Nko kawe rara (2) . Ile-Iwe alako bere (3) Iwe mewa (4) Ile iwe eko giga julo
7. Iru Isewo lense (1) Onisowo onise owo (2) Osise fehinti (3) Osise ijoba
8. Irufe ile ti angbe (1) Mongbe pelu ebi mi (2) Mon dagbe

SECTION B: Imo nipa asayan ere idara

Ejowo esami (✓) si idahun ti oba bojumu julo si idahun awon ibeere ti owa ninu awon apoti ti owa ni isale na.

IBEERE	BEENI	BEEKO	NKO MO
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9	Nje e mo oun ti asayan ere idaraya je?			
10	Nje e mo nipa oun ti ajo to n mojuto ilera agbaye so nipa asayan ere idaraya fun agbalagba?			
11	Asayan ere idaraya je eka ihuwasi onipenija ti onise pelu sisi 'ara nipo pada nipa sise ise agbara ti opeleke ju agbara ti anlo lai se ere idaraya lo.			
12	Asayan ere idaraya dara fun isakoso awon aisan ti koni akoran gegebi aarun okan, ito suga, jejere			
13	Nje elero wipe iyato wa larin asayan ere idaraya ati ere idaraya?			
14	Awon agbalagba ye kiwon se okeretan ere idaraya ranpe tabi ere idaraya lilefun iseju bi ogorun kan ati aadotaninu ose tabi okeretan patapata ere idaraya fun aadorin maarun ninu ose kan.			
15	Oye ki awon agbalagba ma sun ni gbo gbo igbani koye funwon lati ma se ere ti oba la agbara lo.			
16	Ti awon agbalagba ko bale se asayan ere idaraya bi ose ye niitori ailera ara won, wosa gbodo se ere idaraya bia agbara won base mon.			
17	Nje wonti gbayin nimonran lati maase asayan ere idaraya loore kore.			
18	Ti oba jewipe bee ni, tani ofunyin ni imoran yi			
1	Osise Ilera			
2	Ebi			
3	Ore			
4	Ero igbohun sa fefe			

19 Nje elero pe awon wonyi je asayan ere idaraya?

	Ere Idaraya	Beeni	Beeko	Emi komo
1	Irin			
2	Si sare			
3	Ijo			
4	Lilo soja			
5	Iluwe			
6	Okoro			
7	Ina dida			
8	Aso fifo			

IPIN C: Iwoye afani asayan ere idaraya

Awon ibeere wonyi wa fun asayan ere idaraya. Ejowo esami (✓) si idahun tioba bojumu julo.

S/N	IBEERE	Mofar amo	Nko mo	Nkofaram o
20	Asayan ere idaraya dara fun mi			
21	Asayan ere idaraya manje ki arami da perepere			
22	Asayan ere idaraya man dakun aisan lara awon agbalagba			
23	Awon agbalagba ti kobati ni aisan ti ki kolu omo lakeeji koni lo lati se asayan ere idaraya			
24	Nje elro wipeasayan ere idaraya lere daabobo awon baba kuro ninu sisubo nigbogbo igba			
25	Nje elro wipeasayan ere idaraya le sa fikun opolo ?			
26	Nje elero wipe asayan ere idaraya lese afikun fun igboy eniyan			
27	Nje eyin lero wipe asayan ere idaraya ma safikun fun ipa enniyan lati le farada aapon ati wahala			
28	asayan ere idaraya le yori si eje riru olojo pipe			
29	Nje ere asayan ere idaraya gegebi ohun ti olewu fun ilera yin?			

30. Ewo ninu awon aisan wonyi ni elero wipe ere idaraya le sa mu igbelaruge ba ni pa ilera yin?

	Ipenija nipa ilera	Beeni	Beeko
1	Itoosuga		
2	Ejeriru		
3	Ropa-rose		
4	Nje ere idaraya le mu ki igbelaruge ba aisan opoolo tin fa igbagbe		
5	Jejere		

IPIN D: Ohun ti ole se okunfa Imoriya fun asayan ere idaraya laarin awon agbalagba

31. Nje eele kopa ninu asayan ere idaraya bi otito ati bi ose ye si ti eba ri ifowosowopo lati odo awon ebi ati ara yin

(1) Beeni (2) Beeko

32. Nje eese kopa ninu asayan ere idaraya ti eba ri oore yin toun kopa ninu asayan ere idaraya? (1) Beeni (2) Beeko

33. Kinin awon nkan ti ole se imoriya fun yin lati se asayan ere idaraya loore kore?

(1) Ona ti kolewu fun nrin ati keke gigun

(2) Ofin tin satilehin fun asayan ere idaraya ni ibi ise

(3) Riranyin leti lori pataki re

(4) Riri anfani re

34. Ejowo esa mi si awon anfani ti elero lati gba lati ara sise asayan ere idaraya ni gbogbogba:

(1) Nini ilera ti opeye

(2) Yio fikun anfani pipe laye mi

(3) Inu mi atun dun dadara si ara mi

(4) Koni je ki inumibaje nipa ironu arokan

(5) Maale fedo lori ororo sun lale

(6) Yo tunbo bukun ewa mi

(7) Yobukun irisi mi

(8) Yoo jeki ara mi dapepe

(9) Yioje ki isan ati eegun mi le pere-pere

(10) Yio je ki arami da saksaka

(11) Maale wa pelu awon oore ati lawujo awon eniyan

(12) Yio je kin gbadun ori mi

IPIN E : Ohun ti ole se okunfa idena fun awon agbalagba lati ma kopa ninu asayan ere idaraya

35. Nje ense ere idaraya dede? (1) Been (2) Beeko

36. Ti obajewipe Beeko Kini nkan na? Ejowo esami (✓) si idahun bi obase bojumu.

(1) Eru kin masubu

(2) Ailera ton peleke si

(3) Aisi ile ati awon ohun elo fun ere idaraya

(4) Aisi atilehin lati odo awon ebi ati ara

(5) Aisi aye ati ainifesi ere idaraya sise

(6) Aisi oore tabi oloro eni

(7) Iriri odi

(8) Aini imo to

(9) Kosi ewu bioti ki okere mo fun aisan ti kole ran omonikeji

(10) Ere idaraya pipo ko dara

(11) Ma n gbagbe lati se asayan ere idaraya

ADUPE PUPO FUN AKOKO YIN NINU DIDARAPO MOWA NINU IWADIYI.