

**THE PHYSICAL NEEDS OF THE ELDERLY WITH REGARD TO PHYSIOTHERAPY
SERVICES IN THE LIVINGSTONE DISTRICT, ZAMBIA**

By

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ABSTRACT

The **purpose** of this study was to identify the physical needs of the elderly with regard to physiotherapy services in the Livingstone district in Zambia. The objectives were to determine; (i) the knowledge of the elderly on the role of physiotherapy in the care of the elderly, (ii) the barriers to utilization of the services, (iii) the prevalence of physical problems, and (iv) it also examined associations between education, knowledge and utilization of physiotherapy services in the district. **Methodology:** The study was conducted in the Livingstone District in Zambia utilising a quantitative, descriptive research method. The sample size of 200 elderly people, both males and females aged 60 years and older was chosen using a convenience sampling technique. A structured self-administered questionnaire was used to collect data requesting the participants' knowledge on physiotherapy services, their health status and barriers to utilization. The Excel software programme and Statistical Package for Social Science (SPSS) were used to capture and analyse the data.. Descriptive and inferential statistics were used to analyze the data. The **results** show that the elderly people in the study scored an average score of 45% on the knowledge about the role of physiotherapy services for the elderly. However, the majority (66%) of the elderly were aware of the assistance that physiotherapists can give to patients with stroke, fractures and joint pains. There were also some misconceptions, namely that physiotherapy service are only offered at the hospital and that they can only benefit from physiotherapy services when they are ill. Although, the majority of the participants knew that exercise was not dangerous, the majority (62%) did not engage in any exercise. The most common self-reported physical

problems identified were musculoskeletal problems such as back pain, muscle pain, muscle weakness, joint stiffness and joint pains, decreased ability to walk and the need for walking aids. Hypertension was common among the cardiovascular disorders. The factors that influenced their utilization of physiotherapy services were; (i) non-referral to the service, (ii) long distance, (iii) transport and (iv) unavailability of the service in the communities. The study also revealed a significant association between level of education and knowledge of physiotherapy services. **Conclusion:** There is need for the physiotherapy profession to raise awareness and become promoters of healthy aging by providing services at Primary Health Care level through out-reach programmes.

DECLARATION

I hereby declare that “Physical needs of the elderly with regard to physiotherapy services in the Livingstone District in Zambia” is my own work, and that I have not submitted or any part of it for a degree at any university. All the sources I have used or quoted have been indicated by means of complete references.

Signature.....

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Pasmore Malambo

Date:

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DEFINITION OF TERMS

Elderly in this study will be defined as persons aged 60 years and above (Peil, 1995).

Population ageing is a considerable increase in the absolute and relative numbers of older people in both developed and developing countries (WHO 1998; Kalache 1996)

Physiotherapy Knowledge is having information on the use of the physical approaches in the prevention and treatment of disease and disability (Briefing Paper, 1992)

Disability in the international classification of Functioning, Disability and Health (ICF), disability serves as an umbrella term for impairment, activity limitations and participation restrictions (WHO, 2001).

Rehabilitation is defined as a process that assists people with disabilities to develop or strengthen their physical, mental, and social skills (WHO, 1994).

Health is defined as a status of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 2001).

Health Promotion is the process of enabling people to increase control over and to improve their health (Henley et al, 1995).

Active ageing is defined as the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age (WHO, 2002).

Quality of life is “ an individual’s perception of his or her position in life in the context of the culture and value system where they live, and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept, level of independence, social relationships, personal beliefs and relationship to salient features in the environment (WHO, 2004).”

Independence is commonly understood as the ability to perform functions related to daily living- i.e. the capacity of living independently in the community with no and/or little help from others (WHO, 2004).

Kwacha is the Zambian currency.

ABBREVIATIONS

AIDS	Acquired Immune-Deficiency Syndrome
ADL	Activity of Daily Living
CBR	Community-Based Rehabilitation
CSO	Central Statistics Office
CVA	Cerebrovascular accidents
HIV	Human Immune-Deficiency
PHC	Primary Health Care
PT	Physiotherapy
SPSS	Statistical Package for Social Science
UK	United Kingdom
UN	United Nations
USA	United States of America
WHO	World health Organisation

KEY WORDS

1. Zambia
2. Ageing
3. Quality of life
4. Physical needs
5. Physiotherapy services
6. Role
7. Knowledge
8. Barriers
9. Elderly people
10. Utilisation

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In this chapter the researcher will give an overview of population ageing in both developed and developing countries, including the elderly population growth in Zambia. This phenomenon of population ageing will be discussed further in chapter 2. The objectives and the significance of the study with regard to the physical needs of the elderly are presented. The study was undertaken within the framework of population ageing, primary health care, rehabilitation, health promotion and the rights of the elderly.

1.2 STATEMENT OF THE PROBLEM

Rapid ageing communities in developing countries have become a reality and will advance further in the coming years partly due to improved medical care. This improved healthcare may contribute to an extended life span with some elderly people enjoying relatively good health, but also with a growing number of elderly suffering from diseases related to old age (Van Eeuwijk, 2003). Physiotherapy could play a meaningful role in the management of age-related problems (Briefing Paper, 1992) and also facilitate the implementation of some of the policy recommendations of WHO on active aging, especially in Zambia. Thus, the following two research questions emerged: (i) what are the physical needs of the elderly with regard to physiotherapy services?, and (ii) to what extent are their needs met by the health services in the Livingstone District?

1.3 BACKGROUND OF THE STUDY

One of the main features of the world population within the next few decades will be the rapid increase in the absolute and relative numbers of older people in both developing and developed countries (Kalache & Keller, 2000). In Africa, this prediction has been based on the decline in fertility, an increase in life expectancy and the use of advanced technology and medication (Amosun, 1999; Simelela, 2001; Tembo & Sibanda, 2001). Similarly, the number of older persons in Zambia is expected to rise from 216,196 in 1999 to 1,452,706 by 2050. Thus, an examination of health support in the Zambian society can provide a basis for an assessment of how the health needs of the elderly could be met. These needs could be met through primary health care services that should expand in response to the increasing numbers of elderly people presenting with multiple chronic health problems world-wide (Berkman et al, 1999). Furthermore, the disproportion between older adults in relation to the younger sector of society may become more evident as a result of the HIV/AIDS pandemic in Africa. According to Allain et al (1997) there is an increase in the mortality rates in young adults due to the pandemic. This situation thus requires the elderly to remain active and healthy in order for them to care for the large number of orphaned relatives.

In addition to the above scenario, the gains in life expectancy may be accompanied by an increased incidence of age-related chronic diseases (Amosun & Alawale, 1994). These can lead to activity restriction, participation limitation and a reduced quality of life in the elderly. Also, the rapid population ageing will lead to changing demands on health care systems in developing countries (WHO, 2002). This information is important given that

the elderly are at risk of disability resulting in increased usage of health services (Nordberg, 1997).

In most African countries physiotherapy is still a relatively young profession with fewer members when compared to other health professions and the population they are expected to serve (Mpofu, 1995). Currently, only 91 physiotherapists are in practice in Zambia for a population of 10 million people (Nankwanga, Struthers & Rhoda, 2004). Similarly, the number of physiotherapists practising in the field of gerontology in Africa has gradually decreased despite the increasing demand for their services. This is due to lucrative practices in the private sector and a shift towards the teaching of newer modalities and techniques, which have replaced care of the elderly in undergraduate training (Beenhakker, 1993).

Despite the increased demand on medical services as a result of age-related impairments and disabilities, little is known about the health needs of the elderly population (Allain et al, 1997). The health care system for elderly people should therefore aim at delaying the onset of illness by reducing the final period of infirmity and illness to the shortest possible (Eales, 1999). According to Moody (2002) this is called compression of morbidity.

Like any other African country (Amosun and Alawale, 1994), there is a lack of sufficient data on the role and involvement of physiotherapists among the elderly in Zambia. Physiotherapy services should be at the forefront with the broader team of health

professionals to pool their efforts in preventing or delaying the onset of diseases and to effectively manage these in the elderly. It is hoped that the results of this study will mobilise physiotherapists to becoming more involved in the development of preventive and health promotion programmes for the elderly with other health professionals.

1.4 MOTIVATION FOR THE STUDY

In 1989, the World Confederation for Physical Therapy (WCPT), in collaboration with the World Health Organisation (WHO), presented a report which focused on the potential role for physiotherapists in providing services which could minimise or reverse the effects of age-related disabilities (Amosun & Alawale, 1994). Despite adequate information about the role of physiotherapy in the health care of the elderly in developed countries, there is a lack of such information in many developing countries (Amosun, 2001).

In Zambia, the main objectives of the Health Care Reforms were to provide equitable access to cost-effective quality health care as close to the family as possible (Hjortsberg & Mwikisa, 2002). This is in accordance with the primary health care (PHC) principles of accessibility, affordability and full community participation (Sanders, 1998). Many of the age-related impairments and disabilities can be managed at PHC level. Unfortunately, there is no data on the physical needs and the use of the physiotherapy services by the elderly in the Zambia.

1.5 AIM OF THE STUDY

The purpose of the study was to determine the physical needs of the elderly with regard to physiotherapy services in the Livingstone District in Zambia.

1.6 SPECIFIC OBJECTIVES OF THE STUDY

In order to achieve the aim of the study the following objectives were identified:

1. To determine the knowledge of the elderly about the role of physiotherapy services for the elderly.
2. To identify the prevalent physical problems in the elderly in the Livingstone District
3. To determine the barriers to utilization of physiotherapy services by the elderly.
4. To identify associations between the elderly peoples' level of education, knowledge and utilization of physiotherapy services.

1.7 SIGNIFICANCE OF THE STUDY.

A major implication of the increase in the number of older people is the probability of an increase in the prevalence of physical disabilities (Amosun & Alawale, 1994). This results in a greater number of older persons in need of a wider range of health services, including health promotion, illness prevention, rehabilitation, acute/chronic care and palliative care in both institutions and communities (Simelela, 2001). It is hoped that the outcome of the study will promote the provision of, and effective utilization of physiotherapy services by elderly people in Zambia. It could also encourage the establishment of community-based rehabilitation programmes in the communities and the training of home-based carers. Physiotherapy has to move away from the short-term curative interventions, which are mainly directed at impairment and pathology, towards health promotion for active healthy ageing in improving the quality of life of elderly people. Undergraduate physiotherapy curricula should be evaluated to determine to what extent students are prepared for meeting the challenges of the elderly people in their communities.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The literature review will focus on various aspects of ageing. These are: population ageing worldwide, the biomedical and biopsychosocial aspects of ageing, and finally care of the elderly within a primary health care and human rights context. A reasonable amount of literature about the elderly and covering topics such as current and projected demographic profiles, WHO policies, active ageing policy document, and theories of ageing is available. However, there is limited information on the needs of the elderly regarding physiotherapy services.

2.2 OVERVIEW OF THE ELDERLY

It is now common knowledge that the population of older people worldwide is increasing dramatically (Darnton-Hill, 1995). According to Kirkwood and Ritter (1997), the ageing process is considered to be a normal part of every life history of individuals. The ageing process includes structural alterations and functional decline in the body systems with consequent impairments and increased vulnerability to age-related diseases (Bolognesi et al, 1999). However, for those who become disabled, the provision of rehabilitation and adaptations to the physical environment can greatly reduce the level of disability and improve their functional capacity and quality of life (Kalache & Keller, 2000).

In Africa, the rapid ageing population has become a reality and will advance in the coming years. In the past the home village provided physical and emotional security for the elderly (Nyanguru et al, 1994). In recent years, urbanization and industrialization of societies have led to the proliferation of the nuclear family structure which has further disintegrated the traditional extended family support system in Africa (Amosun & Reddy, 1997; Ferreira, 2004). Amosun & Reddy (1997) further argue that health care is often hindered in the elderly population by poor access to health services and limited use of preventative services. Thus, as we enter the 21st century, global ageing will put increased economic and social demands on all countries (WHO, 2002). The WHO (1998) also warns that as the population of the elderly continues to increase, the existing social security and the health care services will be strained, particularly in developing countries.

2.3 DEMOGRAPHIC CHANGES IN THE ELDERLY POPULATION.

In this section an overview of population aging globally and in Africa is given.

2.3.1 The demographic changes of elderly globally.

It is projected that between 1970 and 2025 a growth in older persons of some 694 million or 223% is expected. In 2025 there will be a total of about 1.2 billion people over the age of 60. By 2050 there will be 2 billion with (80%) living in the developing countries (WHO, 2002). Until now, population ageing has been mostly associated with the more

developed regions of the world. It is reported that over half of the world's older people live in Asia. This is expected to rise from 53% in 2002 to 59% in 2025 in Asia alone.

Between 2002 and 2025 the absolute number of elderly people above 60 years in the USA is expected to rise from 46.9 to 86.1 million. In countries with more than 10 million inhabitants the highest proportion of people over 60 years of age will increase as follows ; in the United Kingdom from 20.8% to 29.4% by 2025; in Italy from 24.5% to 34% and in France from 20.5% to 28.7% in the same period (WHO, 2002). It is also estimated that between 1990 and 2025 the elderly population of Indonesia will grow more than 414% (Van Eeuwijk, 2003). This increase in the elderly population is partly as a result of advances in bio-technology that are increasingly benefiting individuals that in the past would have become disabled (WHO, 2004).

Currently, in nine of the ten countries with more than ten million elderly inhabitants, the largest proportion of older people live in Europe (WHO, 2002) while, seven developing countries will be among the ten countries with the largest elderly population in the world by 2025 (WHO, 1998). These countries include China (287.5 million), India (168.5 million), Brazil (33.4 million), Mexico (17.6 million), Bangladesh (17.7 million), Nigeria (11.4 million) and Indonesia (35 million) (WHO, 2002).

2.3.2 The demographic changes of elderly in Africa.

Similar trends in population aging have been predicted for African countries owing to the dramatic gains in life expectancy during the 20th century (Amosun & Reddy, 1997). The

elderly population in Africa is currently estimated to be slightly over 38 million and projected to reach 212 million by 2050 (HelpAge, 2000). Although the AIDS epidemic is projected to reduce life expectancy in affected countries, the proportion of elderly population of Africa will continue to grow due to high mortality rates among the youth (HelpAge, 2000).

Over the next 30 years (2000-2030) the population of older people will double in many countries including the Democratic Republic of Congo from 2.1 to 4.9 million, Cameroon from 0.8 to 1.6 million and Uganda from 0.8 to 1.9 million (HelpAge, 2000). According to Ahn and Kim (2004), this rapid growth is attributed to a combination of decreased birth rates and increased longevity, also as a result of effective public health measures and advanced health care. However, the projected increase in the absolute number of older persons is of greater importance, specifically in terms of changes in population structures and in particular as a result of the expected demographic, economic and social impact of the HIV/AIDS epidemics (Ferreira, 2004). For instance, urbanization, the migration of young people to cities in search of jobs, smaller families and more women entering the formal workforce mean that fewer people are available to care for old people when they need assistance (Amosun, 1999). According to Van Eeuwijk (2003), urban growth and the ageing societies show a strong correlation that by 2015 almost 50% of the elderly population in developing countries will be concentrated in urban areas. The author further states that there is increasing evidence that the adverse aspects of urbanization in developing countries, such as poverty and lack of primary education, have a direct harmful effect on the health status of the elderly. Ahn & Kim (2004) also state

that the elderly population has a high prevalence of chronic illness and have difficulties in taking care of themselves. In some countries, people with poor functional ability are more likely to become institutionalized, which in itself can lead to dependence, particularly for the small minority of elderly people who suffer from loss of mental function (Kalache & Keller, 2000). Therefore, the increase in the number of elderly people provides a challenge for the African continent as a whole, as well as for individual countries (HelpAge, 2000). According to Ferreira (2004), the health care services in Africa are under-resourced and often inaccessible to older clients. The author suggests that indigenous solutions and strategies need to be developed in order to provide support and care of older Africans.

2.4 THE AGING PROCESS

Normal biological ageing causes a reduction in the body's reserve capacity. These effects can be seen in all body systems through muscular, skeletal, neural, circulatory, pulmonary, endocrine and immune changes (Vandervoort, 1995). According to Wicht (1990) the ageing process lowers the functional capacity of cells, organs and the entire body. However, the rate and extent at which these changes occur varies among tissues, functions and between individuals. The author further states that the declines, which are observed at the system level, are ultimately a reflection of either a loss of cells with ageing or a reduction in the capacity of a group of cells to carry out their specialized function. Nevertheless, it is documented that loss of some physiological functions is

inevitable for all people, as they grow older, even with well-observed healthy lifestyles (Vandervoort, 1995).

Given the fact that ageing is inevitable and that physiological function declines more attention to health promoting behaviours and activities are required, as people grow old. Physiotherapists can play a role in improving the ability of the elderly to make informed choices regarding health behaviours, adequate physical activities, access to health and community resources, and to advocate for changes in the health services and environmental designs (Henley et al, 1995).

2.4.1 Theories of ageing

The facts about aging and maximum life span have led many biologists to believe that aging may have a single fundamental cause (Moody, 2002). Many theories have emerged to try and understand the process of ageing. According to Moody (2002), at present there is no single theory of aging that explains the entire complexity of the process. However, ongoing research is under way that is leading to new ideas of aging. As no person can believe that they can live forever, most people still gladly undergo the tribulation of aging. The problem is that not enough is known about why ageing occurs to be able to intervene timeously (Clare, 2004).

2.4.1.1. Wear-and-tear theory.

According to Moody (2002), this theory sees aging as a result of changes taking place in human bodies. The author indicates that all human bodies with their multicellular organisms are constantly wearing out and the cells are being repaired each day. The author further states that the wear-and-tear theory is a good example of degenerative disorders in joints over time; for example in osteoarthritis, in which cartilage in joints disintegrates.

2.4.1.2. Aging clock theory.

According to Van der Voort (1995), one of the theories is the idea that there might be a critical group of cells whose deterioration initiates a chain reaction of effects throughout the body. The author reports that ageing is a genetically programmed event in a normal sequence from development to death and also that ageing occur due to the gradual breakdowns of cells. The author supports this idea through observing the effects of some changes in hormonal control that are more profound, such as the reduction of oestrogens (female menopause) and the decline in growth hormone (loss of muscle mass in males). This theory is supported by Moody (2002) who further states that menopause in females is tied with health problems because the loss in oestrogen often weakens bone mineral metabolism resulting in osteoporosis that increases the incidence of fractures in elderly people.

2.4.1.3. Free radicals.

According to Clare (2004) aging is due to an accumulation of random damage, which is as a result of free radicals, toxic by-products of chemical reactions that are released from food. These free radicals are highly reactive and toxic when they come in contact with other cell structures, causing damage to cell membranes or damage by cross-linkage in collagen (Moody, 2002). He further contends that free radical damage has been related to many syndromes linked with aging, such as Alzheimer's disease, Parkinson's disease, cancer, stroke, heart disease and arthritis. However, Clare (2004) argues that eating less reduces the number of free radicals produced from food over time and it improves cardiovascular health, although its long-term effectiveness is unknown. Apart from a conservative approach to reducing free radicals, Moody (2002) highlights that in this theory the body produces the antioxidant substances as a protection against free radicals, which prevents damage to cell structures.

2.4.1.4 Activity theory.

This theory states that the more active people are, the more likely they are to be satisfied with life (Moody, 2002). It is further stated that this theory assumes that how we think of ourselves is based on the roles or activities in which we are engaged. According to the same author the theory recognizes that most people in their old age continue with roles and life activities established earlier because they continue to have the same needs and values.

2.4.2 Physiological changes in the elderly.

This is explained with reference to the different changes in the structures and systems of the body, as well as the impairments and disabilities associated with these changes.

2.4.2.1 Common age-related disabilities among the elderly.

In both developing and developed countries, chronic diseases are significant and costly causes of disability and reduced quality of life (WHO, 2004). This is due to the functional and structural changes that occur in most cells of the body throughout life (Skinner, 1993). The author further reports that the rate at which these age-related changes occur varies from one person to another and from one body system to another within the same person. There is a loss in size and number or both of functional units within every system of the body, as well as a loss in function of those units that remain (Skinner, 1993). Nevertheless, ageing should be considered a normal process, not a disease state (Moran, 1993). The author argues that most of the organs of the human body do not wear out and also that through the use of physical exercise much of the previously lost function due to inactivity can be regained. Therefore, physiotherapists can play a meaningful role in promoting the health of older people through the implementation of physical activity programmes. A health promotion approach, which increases physical capacity, also enhances the elderly's ability to respond favourably to exercise.

2.4.2.1.1 Bone and joint related disabilities.

Skinner (1993) documents that with age there is a gradual loss of bone mass in almost all humans. According to Moran (1993), a total of 30% bone minerals can be lost by the age of 70. The author further states that four times more women than men and 30% of women over the age of 65 are osteoporotic. In the USA, nearly a third of all postmenopausal women have osteoporosis, with 1.3 million related fractures occurring which is preventable (Turner, 2000). Such fractures are increasing in incidence to the extent that osteoporosis is now considered a major health problem in western nations. The annual treatment of osteoporotic related hip fractures in Britain in 1998 was 980 million pounds and in the USA it was 12 billion US dollars (Turner, 2000). In support of this view, Brown (1999) reports that in Australia, as well as many other countries, falls among elderly people are the leading cause of hip fractures and injury-related deaths and hospitalization. Several risk factors have been associated with falls resulting from neurological, musculoskeletal, and cognitive impairment (Brown, 1999). The author further documents that falls are more often associated with restricted activity, persistent disability and vulnerability to loss of independence.

Prevention of falls is a vital strategy for minimizing disabilities and impeding the development of frailty and deterioration in quality of life for older people (Brown, 1999). According to Turner (2000) physiotherapists should be proactive in community health promotion and disease prevention through developing exercise and education

programmes. There is evidence from the literature that prescribed exercise programmes have reduced osteoporosis and falls among the elderly (Turner, 2000; Brown, 1999).

Many people develop disabilities in their later life related to wear and tear of ageing (WHO, 2004; Vandervoort, 1990). The cartilage, tendons and ligaments become stiffer and more rigid with age (Skinner, 1993). Although decreased flexibility has been reported, Adrian (1981) found some evidence that the primary cause was an alteration in connective tissue. However, he suggested that it might be more related to disuse and degenerative changes. These degenerative changes lead to osteoarthritis, which affects about 78% of the elderly world-wide (Moran, 1993); in the USA it accounts for about 11% alone (Baker, 2000).

Exercise may slow the progression of joint damage (Baker, 2000). According to Rantanen et al (1999), resistance training in patients with osteoarthritis has been shown to improve muscle strength and proprioception as well as having a positive psychological effect. A study by Dias & Dias (2003) on exercise and walking programme found a positive effect on the quality of life of elderly people with knee osteoarthritis.

2.4.2.1.2 Neuromuscular system changes

Skinner (1993) documents that within the nervous system, there is a decrease in the number and size of neurons, nerve conduction velocity, maximal conduction frequency and increased connective tissue within the nerve. Hence, the information processing in the nervous system slows down with age. This leads to an increase in time needed to elicit an organized response to stimuli (Simpson, 1993). As a result, the control of movement is less precise and requires more cognitive concentration (Skinner, 1993). Also changes in the organs which affect the responses, such as skeletal muscles, may contribute to increased reaction time in old age (Simpson, 1993). In support of this view, Yah et al (1998) document that a central deficit in mental processing speed, motor response planning and executing is a potential cause for age-related slowing behaviour. Their study on motor control of target-oriented arm movements, revealed a regression in the quality of the elderly's control of rapid aiming arm movements, suggesting a lack of movement planning, resulting in greater use of visual feedback during movement execution. A similar study by Seidler et al (2002) to determine whether elderly adults exhibit deficits in the performance of multi-joint movements revealed that the elderly produced less smooth and accurate movements with increasing shoulder contribution. According to the authors, these results indicated coordination deficits with ageing.

A study by Cohen et al (1996) on the test of vestibular function in balance between the young and elderly found a significant age-association in movement strategy. The results also suggest that those parts of the vestibular system involved with balance have age-

related declines during the life span. Eales (1999) also documents that elderly people cannot effectively control posterior sway and it is possible that a backwards loss of balance may be due to weak ankle dorsiflexors. Similarly, there is loss of proprioception with age and touch sensitivity also decreases. Therefore it is possible that impaired sensory function may contribute to the poor postural response in fallers (Eales, 1999).

Decreased hearing and vision are also related to falls in the elderly. According to WHO (2002) there are currently 180 million people with visual disability worldwide of whom 60% live in Sub-Saharan Africa, China and India. It is estimated that over 50% of people aged 65 years have hearing impairment. Therefore, this high incidence of both hearing and visual impairment contributes to the high levels of falls among the elderly.

Loss of brain cells, degeneration of cortical neurons and reduction in the number of cortical synapses are examples of cerebral changes that occur with aging (Filley, 1995).

All these changes increase the likelihood that an elderly person may fall because of slower reactions in a risk situation in the environment for example, loose mats and lack of supporting rails (Simpson, 1993).

Despite collagen changes with aging, the elderly can regain flexibility (Moran, 1993).

The author states that this could be achieved through an effective treatment modification by providing slow, prolonged stretching activities. Physiotherapists are well trained and qualified to prescribe effective exercise programmes for this age group.

2.4.2.1.3 Cardiovascular disorders.

Cardiovascular performance deteriorates with age and in both the developing and developed world it is the primary cause of death in the elderly (Eales, 1999). According to Skinner (1993) the changes are due to increased amounts of connective tissue, decreased elasticity, high total peripheral blood vessel resistance and high blood pressure. This forces the heart to work harder to pump the same volume of blood throughout the body. However, Eales (1999) argues that it is not always clear whether the decline of function is purely due to an ageing process or due to poor lifestyle or disease. But Moran (1993) documents that high blood pressure is attributed to aging. The WHO (1998) also documents that the high prevalence of cardiovascular diseases in the elderly is a risk factor, particularly those with high blood pressure, diabetes and raised cholesterol levels. According to Eales (1999), cardiorespiratory fitness in the elderly can be improved through aerobic exercise programmes with low resistance

2.4.2.1.4 Cerebrovascular disorders.

Those older adults with high blood pressure or cholesterol levels are more prone to developing cerebrovascular accident (CVA) or stroke which is the second common cause of death and disability world wide (Eales, 1999). The author also notes that CVA accounts for 50% of deaths in the elderly aged 65 and above and stroke is responsible for 20%. A study by Jelsma et al (2002) on disability in Zimbabwe found that 65% of clients had hypertension and 17% had CVAs. Therefore, as the proportion of elderly increases in

the world, health professionals will be expected to treat and manage increasing numbers of stroke survivors.

It is well documented that physical activity is associated with improved length and quality of life and plays an important role in maintaining health and effective function among older people (Buchner, 1997; Carter & O'Driscoll, 2000; Hage et al., 2003; Mazzeo et al., 1998; McPherson, 1994; Nied & Franklin, 2002; O'Brien Cousins, 1998; Shepard, 2002). Research shows that being physically active is an important factor in reducing mortality and morbidity (Blair et al, 1989), lowering the risk of osteoporosis (Nelson et al., 1994) and reducing falls and fractures (Flemming & Pendergast, 1993). It can also improve certain areas of cognitive function and reduce depressive symptoms (McNeil, LeBlanc & Joyner, 1991), and improving psychological well-being (King et al, 2000; Krawczynski & Olszewski, 2000).

2.5 CHALLENGES OF AN AGEING POPULATION

It is well known that population ageing creates challenges for our society. The impact of this increase in the number of elderly has an effect on economical, health and social issues, because the elderly have an increased risk for poorer health outcomes (Nordberg, 1997; Ahn & Kim, 2004). The authors further state that the health outcomes can be attributed to their level of poverty, age-associated health status, generally low educational levels and limited access to quality health care (Ahn and Kim 2004). The WHO (2002) reports that the increase in the elderly population is a global, national and local challenge

that requires innovative planning and substantive policy reforms in developing countries and countries in transition. In some developed countries, for instance the USA, disability rates in older age have declined in recent years. But the most likely future scenario will depend on the political will of governments to implement the policies (WHO, 2002).

According to Darkwa (1999), the social changes and changes in informal care giving pose numerous challenges to the elderly and their caregivers. For instance in Zambia, many caregivers in both the community and homes for the aged lack the skills and knowledge needed to effectively work with and for the aged (Kamwengo, 1997). Peil (1995) documents that extended family obligations in Africa have been affected because of increasing migration of the youth from rural to urban centers in search of better life prospects. Therefore, the elderly are no longer receiving adequate physical and social support due to the consequences of migration of their children (Darkwa, 1999).

Today, economic insecurity is a major concern among elderly in many developing countries (Peil, 1995). In Zambia, the elderly have little recourse to justice in situations where they have been abused due to lack of domestic laws to protect or promote their rights and welfare (Tembo & Sibanda, 2001). The authors further document that the elderly have poor access to their pensions, even those with retirement benefits. According to Helpage (2004) social pensions play a significant role in reducing chronic poverty among the elderly.

Subsidizing health care and providing adequate health care to a nation's senior citizens are challenges for every country as they have special needs for health services due to the strong relationship between aging and health status (Darkwa, 1999). However, there appears to be a denial of basic rights to treatment because of negative attitudes of health care workers who seem to regard elderly people as a waste of scarce medical resources (Kamwengo, 1997).

This deteriorating socio-economic situation and the failure by the policy makers to enact legislation that benefits the elderly pose several challenges to this age group. According to Amosun (1999) most of the health care planners and policy makers lack adequate information on the health needs, as well as physical and functional disabilities of the elderly. Thus, in order to facilitate effective policy-making and appropriate targeting of aid, it is important that the current health status of the elderly is known (Allain et al, 1997).

2.6 QUALITY OF CARE FOR THE ELDERLY

As a result of the increased burden of diseases and disability associated with ageing, older persons require more health care than younger persons do. This care is expensive and the cost is rising at a faster rate than healthcare costs for younger persons. In spite of these high expenditures, studies have shown that the care that older persons receive is frequently inadequate, especially for geriatric conditions (Reuben et al, 2003b). Although, the cost of health care is soaring and becoming beyond the means of many

elderly people (Beenhakker, 1993), all over the world, family members, friends and neighbours still provide the bulk of support and care to older adults that need assistance (WHO, 2002).

In developing countries the majority of elderly people are still living in rural areas, often far from health facilities and social support infrastructures that cater for their needs (Beenhakker, 1993). The extended family and community have played a role as the primary source of care for the elderly, but urbanization, modernization, political and social strains such as war, poverty and economic insecurity are changing these traditional support systems (Amosun & Reddy, 1997).

It is considered, in general, that elderly people living alone are a low-income group and they tend to be powerless. According to Ahn and Kim (2004), poverty and powerlessness create circumstances that predispose them to the highest incidence of social dysfunction, higher rates of morbidity and mortality, the lowest access to primary care and little or no access to primary preventative programs. In Sub-Saharan Africa, comprehensive social security programs do not exist and few people are in pension schemes. In Nigeria, the majority of older persons living in rural communities are self-employed and do not receive any retirement benefits (Akanji et al, 2002). A study by Baiyewu et al (1997) on the socio-economic status of the elderly in Nigeria found that only 6.4% of those aged 60 and older were receiving pensions, with 74% living below the poverty line.

2.7 RIGHTS TO HEALTH CARE.

The United Nations resolution (1991) states that the “Older persons should have access to health care to help them maintain or regain the optimum level of physical, mental and emotional well-being and to prevent or delay the onset of illness”. However, Reuben et al (2003b) argues that implementing changes to improve the care of older persons in existing settings has been remarkably difficult. Hence this situation places the elderly in Sub-Saharan Africa in a very vulnerable position of reduced support in old age (Adamchak et, 1991). Therefore, accessibility to, and affordability of health care are real issues for the elderly, particularly for the rural and poor elderly. According to Gandhi (1937) in Helander (1999) the weakest should be have the same opportunities as the strongest under a democracy.

However, there are many barriers that apply to the management of geriatric conditions. According to Reuben et al (2003b), inadequate case recognition, lack of physician knowledge about management, poor patient adherence and inadequate follow-up are likely to affect the provision of care that will be consistent with evidence-based standards.

A recent study by Reuben et al (2003a) in the USA on common age-related diseases found that older patients are receiving improved care. Despite this improvement, the current quality of care rendered to older persons is less than optimal, and there is substantial room for continued improvement. The author further identified that the

national data on elderly showed that after myocardial infarction, 14% of patients were discharged from the hospital without aspirin and 21% without a beta-blocker. Nearly one-third did not receive adequate evaluation or medication for congestive heart failure, and about one quarter received inadequate diabetes mellitus care and immunizations. This still shows that successful efforts to improve quality of care for older persons have lagged behind even in some developed nations.

However, it has been documented that in the UK and most other developed nations, comprehensive health care starts with the primary health care team, which for most elderly mean their family doctor (Iliffe, 1995). Geriatric teams consisting of doctors, nurses, physiotherapists, social workers and occupational therapist have come on the scene in the developed world (Michael-Davies, 1989). Despite improved services in the developed world, the inadequately funded health care system has placed little emphasis on the care of older people in many developing countries (Akanji et al, 2002). Furthermore, Abyad (2001) documents that despite the large number of physicians in Lebanon there is a shortage of primary care and geriatric physicians. Therefore there is a need to define the policies and programs that will reduce the burden of an ageing population on its society and economy and also, to ensure the availability and utilization of primary healthcare facilities and social services for the older persons in order for them to continue participating in a socially and economically productive life (WHO, 2002).

2.8 COMMUNITY-BASED CARE.

Community-based rehabilitation is described as a “strategy whereby resources for rehabilitation are made available in the community at an affordable and acceptable cost (World Program of Action Concerning Disabled Persons 1992)”. It involves the transfer of knowledge about disabilities and basic rehabilitation skills to people with disabilities, their families and communities (WHO, 1994; Amosun et al, 1998). Community involvement and participation in the planning, decision-making, monitoring and evaluation of the CBR programs are the essential components in CBR. According to Gandhi (1937) cited in Helander (1999) democracy has to be initiated by the people of every village, not by people sitting in offices. It also includes referral services where client problems that cannot be solved at community level are referred to the district, provincial and eventually to national levels. According to Kassah (1998), a coordinated and multi-sectoral approach is required in order to provide effective CBR services. It has been documented that physiotherapists and other rehabilitation staff have found it appropriate to be leaders in the provision of CBR, which is an integral part of primary health care. However, the concept and effectiveness of CBR, as described above, is now being questioned. Thomas and Thomas (2000) suggested that the efficacy and effectiveness of CBR in the provision of community-based rehabilitation services has largely remained unproved. These authors further stated that the CBR strategy assumes that the local community, which is usually rural, will play a pivotal role in service provision.

There is also recognition of the fact that a range of skills and expertise is required to meet the multiple needs of elderly disabled people. This requires the creation of a multi-disciplinary team and the organization of regular meetings to plan treatment objectives and set realistic individual patient goals (Hawker, 1993). According to the UN (1999), older persons should benefit from family and community and have protection in accordance with each society's system of cultural values. Furthermore, the development of primary health care in the last decade has seen physiotherapists forging closer relationships with general practitioners in both the prevention and management of illness in the community (McCallum, 1987).

In America, nursing homes have become the primary institution-based setting for older persons with age related illness, accounting for 89% of all older persons in healthcare institutions, compared with 11% receiving services in hospitals (Bartels et al, 2003). In contrast, nursing homes for older people are culturally unacceptable in most African countries (Akanji et al, 2002). It also argued that community-based care for the older adults allows them to continue living in their community (Ritchie, 2000). In addition, a study by Bartels et al (2003) in the USA showed that most of the elderly preferred to live in their own house with a spouse and not to live alone with others in a nursing home. In attempts to maintain frail elders at home, the CBR concept has received attention in the UK since 1981 (Mehta, 2000). The model has demonstrated its effectiveness as a sustainable and alternative to institutional care, even in the context of social and economic instability (Do-Le, 2002). Hence, community care has emerged as a sustainable and developmentally sound approach in service provision for the elderly people.

However, Eisdorfer (1989) argues that with the rapid growth of the aging population and recent changes in the financing of health care, hospitals are likely to continue caring for the aged, but it is proposed that they must also transform themselves to provide an array of health and related services for their aging patients. In the spectrum of health care settings the hospital is the most expensive way to deliver care. However, it remains the only place to deliver certain types of care. Nevertheless, a study by Bernabei et al (1998) in Italy on the integration of care for older people living in the community showed that social and medical care programs can provide a cost effective approach to reduce admission to institutions and functional decline in older people. A similar study by Mehta (2000) in Singapore reviewed that less than 2 % of the elderly live in institutions. Therefore, it is the aim of community-based care for the elderly to establish a supportive environment in which the needs of elderly people are addressed at different levels.

Hence, physiotherapists working in community-based care should provide a service to clients in their own homes, which are the most appropriate environment for assessment and treatment, particularly of functional problems (Session, 1996). Therefore, in order to permit elderly persons to be as functionally independent as possible in their own communities and improve their quality of life, physiotherapists should be involved in the planning and implementation of community education programs with an emphasis on health promotion and prevention of impairment. The needs of community elders are as diverse and multifaceted as the elders themselves (Ahn and Kim, 2004). Therefore, a comprehensive geriatric assessment is needed on multidimensional aspects, including their physical, psychological, economical and social needs.

It is argued that if physiotherapists and other health workers were active in the community, there would be less need for old age homes. Many of the elderly, at present in residential homes, could be in the community if adequate services were provided to assist in the maintenance of functional independence and for screening of potential problems. List (1993) reports that physiotherapists in Germany are mainly involved in therapeutic and rehabilitative programs for children and adults. Very little work is done in the field of preventative and rehabilitative care of elderly people. The author further reports that if physiotherapists were to seek out future fields of activities, they should strongly consider the care of elderly people and foster the health of an aging population. Other professions such as occupational therapists in the health service have taken on the tasks in geriatrics, which physiotherapists would normally have carried out. List (1993) further reports that preventative care for elderly people is discussed widely but little is done and the little in existence is in a private program carried out by health educators and gymnastic teachers.

Based on the above scenario, there is a need for developing community-focused intervention programs using community resources that are directed towards the elderly population, i.e. CBR should benefit the elderly. These interventions will provide integrated health care and social welfare services that are of high quality, while keeping costs down. Ahn and Kim (2004) found in Korea, like in any other developing countries, the situation is different due to the fragmented services where clients receive primary care in one setting and social welfare service in another. Integrated community-based

health and social welfare services are essential for prolonging independence and functional status of the elderly in the community.

2.9 PHYSIOTHERAPY IN THE CARE OF ELDERLY.

According to the WHO (2002) policy on active ageing, it is recommended that policies should be made to target those approaching old age or older people themselves in order to prevent and reduce disabilities, chronic disease and premature mortality. The document also encourages the development of affordable, accessible health and social services that address the needs and rights of men and women as they age. Physiotherapists, as health promoters, can play a role in advocating for policy development and implementation in order to provide quality health services.

2.9.1 Knowledge of physiotherapy services among the elderly

Knowledge is essential for reasoning and decision-making. It lies at the center of professional practice and implies an awareness, which is judged to reach some standard (Higgs & Titchen, 1995). According to Zusman (1984), the public uses information to make decisions regarding the management of their symptoms. A study conducted by Jaswal et al (1997) among 100 elderly adults in Canada investigating the use of out-patient physiotherapy services, revealed limited knowledge of the service among the patients. Although the perceived knowledge about physiotherapy services have been documented in developed countries, there is no such information available in Zambia.

2.9.2 Role of physiotherapy in the care of the elderly.

According to Moran (1993), gerontology and rehabilitation of the older adult are increasingly being recognised in physiotherapy training programmes. Physiotherapists play an important role in the care of older people as they enable them to use a number of the body's systems better to enhance mobility and independence (Briefing Paper, 1992). When improvement or maintenance of functional mobility is no longer a reasonable goal, physiotherapy can still contribute to pain management and to helping older people remain comfortable (Briefing Paper, 1992). Studies have shown the benefits of physiotherapy in older persons. When function improves, the need for drug prescription can be reduced and the well-being of elderly people could increase (Barrier et al, 1995). Physiotherapists can contribute to restoring elderly peoples' confidence in their ability to move about safely. They also promote safe environments to prevent the risk of falls (Reece & Simpson, 1995).

Physiotherapists can play an active role by increasing the exercise component of healthy lifestyle habits for older individuals. In promoting health and active ageing, physiotherapists are truly making the patient or client part of the decision making process (Greenwald & Groat, 1993). They are ideally suited to provide supervision and co-ordinate rehabilitation care for older people (Kay et al, 1994). While there is ongoing research about the benefits of physiotherapy for the elderly in many developed nations (Amosun et al, 1994), there is a lack of similar information in many developing African countries, particularly in Zambia (Amosun, 2001).

2.9.3 Utilization of physiotherapy services by the elderly.

Everybody ages, and aging is associated with an increased need for, and utilization of health care services. An understanding of the health needs of the current generation of older persons in Africa is essential if appropriate interventions are to be provided (Amosun, 2001). According to Jaswal et al (1997), with the predominance of disability in the elderly, one can assume that geriatric care will become a leading area in physiotherapy practice. However, information on the use of physiotherapy services by the older persons in Africa (Amosun, 2001), particularly in Zambia is lacking. An analysis of hospital utilization in Canada revealed that the high users of hospital care services are those with multiple chronic conditions and elderly persons with multiple pathologies and disabilities (Morreale, 1998). Two similar retrospective studies were carried out in Nigeria and Zimbabwe to obtain baseline information on the disabilities of the elderly persons who use physiotherapy services. The study revealed stroke and fractures as the main causes of disabilities among older persons (Amosun et al, 1995).

2.9.4 Barriers to the utilization of physiotherapy services by the elderly.

A number of studies in industrialized countries show that some factors influence the utilization behavior of medical services (Oshomuvwe, 1990). A survey carried out in Nigeria revealed that inadequate utilization of health services was due to the unavailability, inaccessibility and the costs of health facilities catering for the elderly in rural areas. The study also revealed that low income and long waiting periods before

being attended to by health professionals were contributing factors. For these reasons there was shift towards traditional medicine, which is inexpensive and culturally accepted (Oshomuwe, 1990). A similar study in Zimbabwe revealed that medical aid schemes do not cover the elderly and physiotherapy services (Amosun et al, 1995). According to a study by Allain et al (1997) in Zimbabwe, age was a limiting factor in the utilization of health services and no home visits were being done for those who could not afford to access the health centers.

Another study by Ahmed et al (1986) on attitudes towards geriatric patients, maintained that the attitudes of professional workers toward the elderly were affecting the type and quality of care provided to them. Thus, the attitudes of health professionals towards elderly persons should be positive. It seems also that poor attitudes towards the elderly are common around the world. According to Spier (1992) attitudes must be changed through improving the curriculum to include gerontological issues for most health practitioners such as physiotherapy.

2.10 SUMMARY

This literature review explored issues related to population ageing and its challenges to society and health care. The role of the physiotherapist and the incorporation of elderly in CBR as a means of service provision were discussed. Government's responsibility and health professionals to enact the policy recommendations on health and active ageing were highlighted.

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

The main purpose of this study was to determine the physical needs of the elderly with regards to physiotherapy services in the Livingstone District in Zambia. In this chapter, the researcher will describe the research method used for the study. It will include the study design, the research setting, the study sample, and data collection methods. This is then followed by an outline of the validation of the instrument and the data analysis. A statement of the ethical considerations is also presented.

3.2 RESEARCH SETTING

The study was carried out in the Livingstone District in the southern province of Zambia with an estimated population of 1,500 urban elderly people (Central Statistics Office, 2000). The district has a tertiary level hospital (Livingstone General Hospital), twelve clinics and one emergency home for destitute older people. The hospital covers the whole southern province and it offers both in-patient and out-patient physiotherapy services. The clinics and the elderly people's home do not offer physiotherapy services. The study was conducted at the hospital, three clinics, three churches and an elderly people's home. The three churches were selected on the grounds that it was a convenient way of getting people from a community. The other eight clinics were not included in the study because they serve children, prisoners and police. Also due to limited time the researcher only managed to conduct the study in the clinics that were close by.

3.3 STUDY DESIGN

A cross-sectional study design utilizing a quantitative research method was chosen to determine the physical needs of the elderly with regard to physiotherapy services in the Livingstone district. This design is considered appropriate for providing information on the health care services, for health education and for the evaluation of community health services. According to Hicks (1995) quantitative responses are easily aggregated for analysis because they are systematic and easily presented in a short space of time. Barnes (1987) reports that this study design provides information on the status of people prevailing in the population at a certain point in time. Hence, it provides baseline data upon which other studies can be built (Mahasneh, 2001). Thus this type of design suitably addresses the objectives of the study.

3.4 STUDY POPULATION

Elderly people, both males and females aged 60 years and above, were recruited from the Livingstone District to participate in the study.

3.5 STUDY SAMPLE

A convenience sampling technique was used to recruit the subjects who were readily accessible and available for the required sample size of the study. Therefore, the researcher recruited 200 subjects, both male and female aged 60 years and above out of

the total estimated elderly population of 1,500 (CSO, 2000) to participate in the study. In convenience sampling, any case that happens to cross the researcher's path and has anything to do with the phenomenon is included in the sample until the desired number is obtained (De Vos, 2002). Due to financial and time constraints, the researcher used 13% of the total population of older people in the district as per recommendation from a statistician.

3.6 PROCEDURE

The procedure for recruiting the required number of participants for the study is explained in this section.

Informed consent was obtained from authorities of the respective institutions. The researcher addressed people in the hospital and clinic waiting rooms, churches and at the old people's home to explain the purpose of the study. The churches were included in the study in order to have community representation. The physiotherapy department at the hospital was excluded from the study to minimize sampling bias which could have affected the results if people who attended physiotherapy were included. The elderly were invited to voluntarily participate in the study. Verbal consent was obtained from the volunteers. These were elderly people in waiting rooms either coming to consult doctors, Clinical Officers or accompanying sick relatives. A research assistant was trained to assist with the issuing and collection of the questionnaires. Subjects were asked in which language they were fully conversant (English or Tonga) in order to complete the

appropriate questionnaire in writing. Data collections were done as follows: one (1) week at the hospital with fifty (50) questionnaires; two (2) weeks in 3 clinics with eighty (80) questionnaires; two (2) consecutive Sundays from the churches with fifty (50) questionnaires, and one day at Maramba old people's home with twenty (20) questionnaires. The questionnaire was self-administered but the research assistant assisted those who could not read or write. The completion of the questionnaire took not more than 20 minutes of the participants' time.

3.7 DATA COLLECTION

3.7.1 Instrumentation

A structured self-administered questionnaire with pre-coded and closed-ended questions was used to determine the physical needs of the elderly with regard to physiotherapy services. The questionnaire was adapted and modified using the existing literature Oshomuvwe (1990), Cheonga (2001), Ahn & Kim (2004). The questionnaire was divided into 4 sections as follows: **Section A** was for capturing socio-demographic data. **Sections B, C and D** covered the following domains, namely knowledge of physiotherapy services, physical needs and barriers to utilization (Appendix F).

3.7.2 Validation of the instrument.

The validity of the instrument is defined as its ability to measure and describe what it is supposed to measure and describe or the way a researcher conceptualizes the idea in a conceptual definition and a measure (Norris 1997). Thus, to ensure validity of the instrument, the content validity was used to measure the construct. The questionnaire was adapted and modified from previous studies and literature by Oshomuvwe (1990), Cheonga (2001), Ahn & Kim (2004). The questionnaire by Oshomuwe (1990) looked at factors that influence the use of the health care services by the elderly. Cheonga (2001) surveyed knowledge of physiotherapy and use of physiotherapy services by elderly patients, while the study by Ahn and Kim (2004) examined health care needs with regard to medical problems, physical state and functional capability of the elderly in Korea.

A pilot study was carried out using 10 subjects from the Livingstone General Hospital waiting room prior to the main study. A pilot study was done in one (1) day. Ten questionnaires, 5 in Tonga and 5 in English were randomly given to elderly people aged 60 years and above who were in the waiting room. The study was done to familiarize the researcher with the administration of the instrument and to assess the subjects' understanding of the questions. It was done to establish validity of the instrument. Thereafter minor changes were done to the Tonga questionnaire that had spelling and grammatical errors. Spelling corrections were also done to the English version. However, due to time-constraints and the difficulty with doing a test re-testing of the instrument with the same elderly people, the reliability of the instrument could not be established.

3.8 TRANSLATION

The original questionnaire was designed in English and translated by a professional translator into Tonga, the local language spoken in the Livingstone district. Thereafter a different independent translator translated the Tonga version back to English in order to ensure that the translated version has the same meaning as the original English questions. A few corrections such as “izya” to “ii” in the Tonga version were made.

3.9 DATA CAPTURING AND ANALYSIS

The data collected were nominal in nature. Data were numerically coded and captured into Excel and SPSS version 12.0 software programs. Descriptive and inferential statistical analyses were used to calculate the frequencies and percentages with use of SPSS. The descriptive analysis of data was presented as figures and tables. Cross-tabulation analysis was used to determine the associations between knowledge and barriers to utilization of services. The Chi- squared test was used to statistically determine associations (p-value 0.05) between elderly people’s level of education, knowledge and utilization of physiotherapy services.

3.10 ETHICAL CONSIDERATIONS

Permission to conduct the study was obtained from all institutions involved, namely the Senate Higher Degrees and Research Committees of the University of the Western Cape (Appendix A) and the Provincial Health Director of Livingstone (Appendix B). Written consent (Appendix E) was obtained from the hospital to use its waiting rooms and the medical clinic in the study. Verbal consent was obtained from the Executive Director of the Livingstone District to conduct a study in 3 clinics and from the Provincial Office of Community and Social Development Services to recruit subjects from Maramba old people's home. Similarly, informed consent was also obtained from three church leaders to include the identified churches in the study. Informed verbal consent was obtained from all participants in the study. Participation was voluntary. The purpose of the study was explained and the participants were assured of the confidentiality and anonymity of the responses. All the participants were assured of their rights to participate, to decline or to withdraw from the study at any time should they feel uncomfortable. There were neither risk of harm to the elderly nor any expectations associated with the completion of the questionnaires. The results of the study will be made available to the Provincial Health Director's office.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

This chapter describes the results of the study. These will be under the following sections, namely, socio-demographic characteristics of participants, knowledge of physiotherapy services among the elderly, physical needs of the elderly and barriers to utilization of physiotherapy services. Descriptive statistics were used to analyse and present the nominal data. Thereafter inferential statistical analyses were used to identify associations between selected nominal variables.

4.2 SOCIO-DEMOGRAPHIC DATA

A total number of 200 elderly participated in the study. Their mean age was 72.37 years with the youngest aged 60 and the oldest 93 years. The majority of the elderly who participated were males. The results also show that the majority was married while 29.5% were widowed. Most of the elderly 54.4% (n=107) were unemployed.

The highest level of formal education among the elderly was basic primary school (35.5%; n=71) whereas 33.5% (n=67) had no schooling. The majority of the elderly (79.5%, n=159) had no income and only 0.5% (n=1) was earning more than K 1.3 million¹ per month. The demographic profile of the sample is presented in Table 4.1.

¹ Kwacha: 1 (US)\$ = Zm K 5000.00

Table 4.1 Socio-demographic data

Variables	Characteristics	Number (%)	
Gender	Male	107	(53.3)
	Female	93	(46.6)
Age	60 – 70 years	99	(49.5)
	71 – 80 years	68	(34)
	81 – 90 years	28	(14)
	> 90 years	5	(2.5)
Marital status	Married	87	(43.5)
	Single	16	(8.0)
	Divorced	37	(18.5)
	Widow	59	(29.5)
	Never married	1	(0.5)
Employment	Employed	22	(11.0)
	Retired	52	(26.0)
	Unemployed	109	(54)
	Self-employed	17	(8.5)
Education	No schooling	67	(33.5)
	Primary	71	(35.5)
	Secondary	36	(18)
	Post secondary	13	(6.5)
	Tertiary	13	(6.5)
Income K ¹ per month	No income	159	(79.0)
	Less than K 500,000	32	(16.0)
	K500, 000-K900, 000	5	(2.5)
	K900, 000-K1.3 million	3	(1.5)
	More than K1.3 million	1	(0.5)

N=200

4.3 KNOWLEDGE OF THE ELDERLY ABOUT PHYSIOTHERAPY SERVICES

4.3.1 Score on the knowledge of the elderly about physiotherapy services

In order to determine the average score of the participants' knowledge about the physiotherapy services, the number of correct responses out of six questions (QB.3 to QB.8) was expressed as a percentage for each participant. The average score obtained was 45%, which indicates that the participants had insufficient knowledge. This is demonstrated in responses to questions 4 and 8, which showed a lack of understanding of the physiotherapy services. The majority (71.5%) believed that these services are only offered at a hospital (Q.4). There was a small difference in the numbers of participants who answered Q 8 correctly (38%) and incorrectly (41%). However, when one adds those who were not sure in both Q.4 and Q.8, then the lack of knowledge appears greater. Table 4.2 shows this.

Table 4. 2. Knowledge of physiotherapy services

Question items	Correct %	Incorrect %	Not sure %
Q3. In Zambia, patients are often referred for physiotherapy by some of the specialist, doctors, clinical officers, nurses and sometimes self-referrals.	71	2	27
Q4. Physiotherapy services are only offered at the hospital	2.5	71.5	26
Q5. Physiotherapists can assist elderly people who suffer from the following: stroke, broken bones and joint pains.	66	5	29
Q6. Physiotherapy is of more benefit to the youth than to the older people	41.5	35	23.5
Q7. Elderly people should never do exercise as this is dangerous to their health	50.5	31	18.5
Q8. Elderly people only benefit from physiotherapy when they are ill.	38	41	21

N=200

4.3.2 Awareness of physiotherapy

Question B.1 identified elderly people's awareness of physiotherapy. Of the 200 elderly who participated in the study 57.5% (n=115) indicated that they had heard about physiotherapy before (Table 4.3).

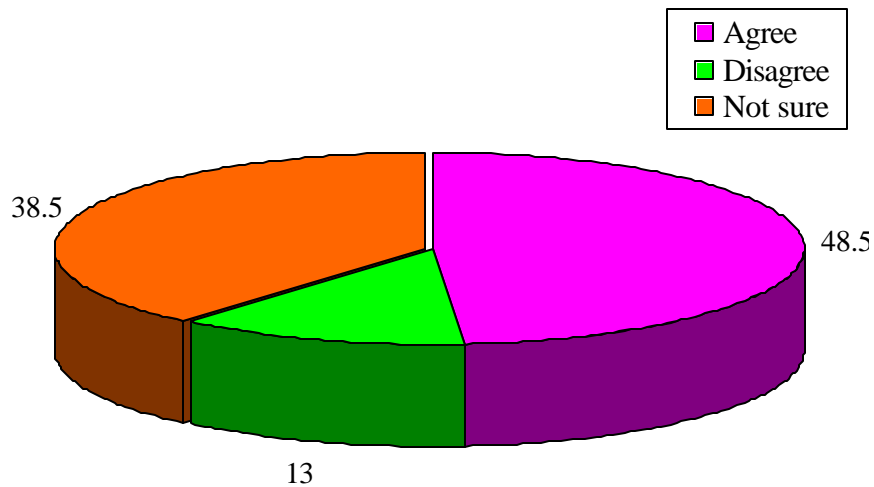
Table 4.3. Awareness of physiotherapy

Heard of PT	Number	Percentage
Yes	115	57.5
No	85	42.5
Total	200	100.0

4.3.3 Role of physiotherapy in the care of the elderly

Question B.2 identified the participants' knowledge of the role physiotherapy in the care of the elderly. The results in Figure 4.1 show that the majority of the elderly who participated (48.5%; n=97) agreed that physiotherapy plays a role in the care of the elderly. The result shows a lack of understanding of the physiotherapist's role especially if the 'disagree' and 'not sure' responses are grouped (51.5%).

Figure 4.1. Knowledge on role of physiotherapy



Responses in percentage (%)

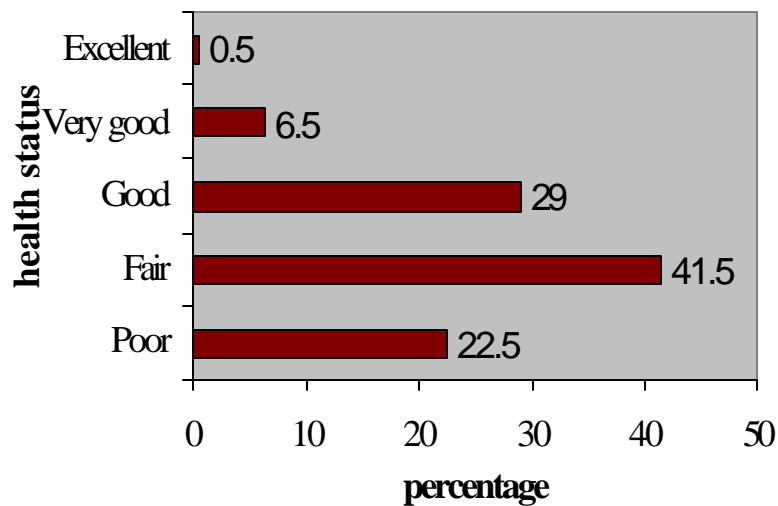
N=200

4.4 PHYSICAL PROBLEMS IN THE ELDERLY

4.4.1 General health of the elderly

The information on the participants' general health was self-rated and was not based on specific criteria, but mainly on their own perception. The results in Fig 4.2 show that only 36% of the sample rated their health as ranging from good to excellent, with only one person (0.5%) indicating excellent health. The remaining majority rated their health status as ranging from fair to poor health.

Figure 4. 2 General health

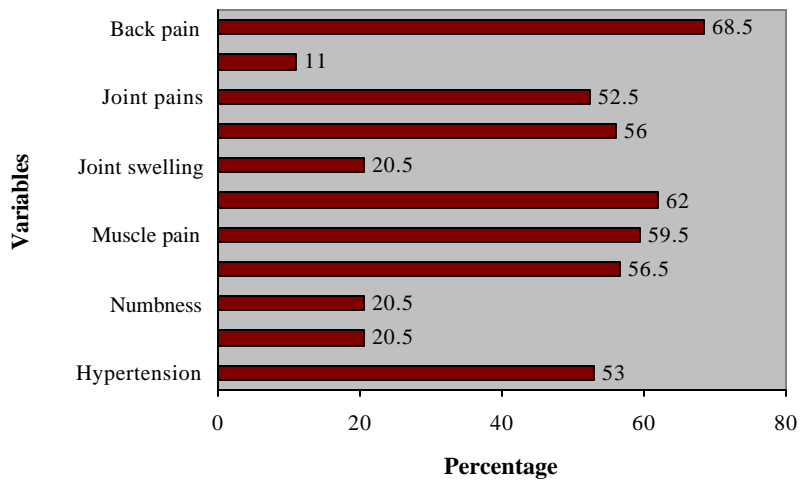


N=200

4.4.2 Prevalent physical problems

Question C.3 identified the most prevalent health problems reported by the elderly in the study. Here the respondents could indicate more than one problem. The results in Figure 4.3 show that musculoskeletal problems were reported by most of the elderly, with 68.5% (n=137) indicating back pain, and 62% (n=124) walking difficulties. It is noteworthy that more than 50% of the participants reported that they have hypertension. Respiratory problems were present in a minority (20.5%). These results are a clear indication to physiotherapists on where they should focus their efforts.

Figure 4.3 Physical problems



N=200

4.4.3 Need for walking aids

Of the 124 elderly who had problems with walking 69.4% (n=86) indicated that they require walking aids (Table 4.4). One would have expected more people to be in need of walking aid if the frequencies for muscle pain, weakness, joint stiffness and mobility are taken into consideration.

Table 4.4 Need for walking aids

Response	Number	Percentage
Yes	86	69.4
No	38	30.6
Total	124	100.0

N= 124

4.4.4 Participation in physical activity

In response to question (Q7) on regular physical activity, only 38% (n=76) indicated they were doing some exercises while the majority 62% (n=124) were not involved in any kind of regular exercises (Table 4.5). This question referred to exercise in general and did not attempt to identify the nature, frequency, duration and the intensity of the exercises.

Table 4.5 Physical activity

Phys. Act	Number	Percentage
Yes	76	38.0
No	124	62.0
Total	200	100.0

4.5 FACTORS INFLUENCING THE USE OF PHYSIOTHERAPY SERVICES

4.5.1 Need for physiotherapy services.

Data on utilization of physiotherapy shows that 78% (n=156) needed the service (Table 4.6). It is noteworthy that in spite of the lack of knowledge about physiotherapy, the majority (78%) realized their need for the service. Considering the high prevalence of musculoskeletal and mobility problems, it is understandable why the majority needed the service.

Table 4.6. The elderly who wanted to utilize physiotherapy

Need for PT	Number	Percent
Yes	156	78.0
No	44	22.0
Total	200	100.0

4.5.2 Ability of the elderly to go for physiotherapy

Of the 156 elderly who wanted to use the service, only 22.4% (n=35) were able to go for physiotherapy and 77.6% (n=121) were unable to do so. The response is shown in Table 4. 7 below. Despite the high prevalence of musculoskeletal and mobility problems and the majority indicating the need for physiotherapy services only a minority were able to utilize the service. This demonstrates the gap between need and utilization.

Table 4.7. Elderly who had the ability to go for physiotherapy

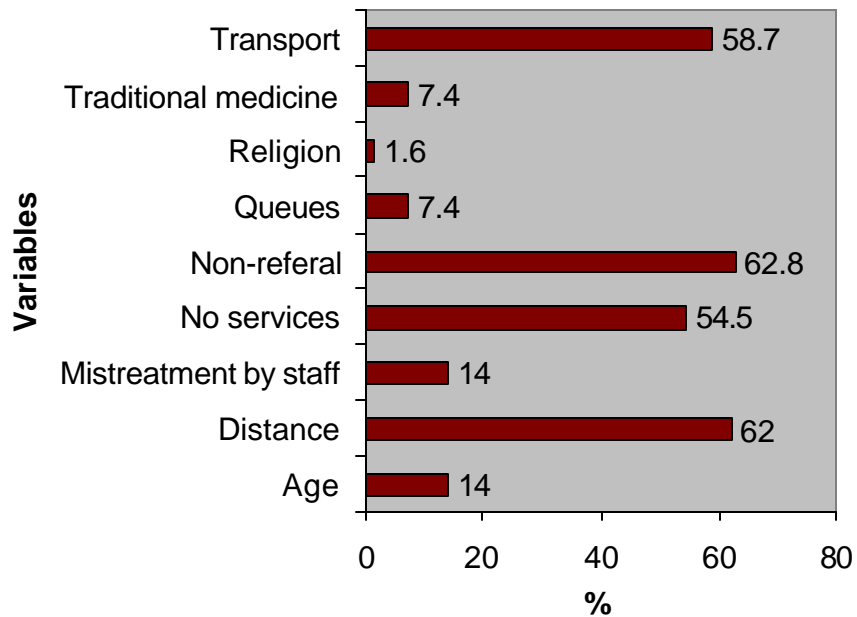
Able to go	Number	Percentage
Yes	35	22.4
No	121	77.6
Total	156	100.0

4.5.3 Barriers to utilization of physiotherapy services

Of the 121 elderly who were not able to go for physiotherapy, the following reasons were indicated as shown in Figure 4.4. The majority (62.8%; n=76) indicated non-referral to the physiotherapy service. This was followed by long distances (62%; n=75), transport

difficulties (58.7%; n=71) and no physiotherapy services in the area (54.5%; n=66). On further questioning of the respondents on religion as a barrier, interesting responses such as ‘praying and drinking water’ were volunteered by some respondents. This constituted a minority of 1.6 % who indicated religion as a barrier. Some respondents also indicated that they were not aware of the service.

Figure 4.4 Barriers to utilization



N=121

4.6 ASSOCIATION BETWEEN PARTICIPANTS' LEVEL OF EDUCATION, KNOWLEDGE AND UTILIZATION OF PHYSIOTHERAPY SERVICES

In order to explore the associations between the participants' level of education, knowledge of physiotherapy and utilization of the service, cross-tabulations and the Chi-squared statistical test were used. The p-value was established at $p < 0.05$

4.6.1 Awareness and utilization of physiotherapy services

There is significant association ($p=0.03$) between the opinion of the elderly on the role of physiotherapy and ability to utilize the service (Table 4.8). In spite of the statistically significant associations between knowledge and utilization the majority (77.6%) did not utilize the service. This supports the trends observed in Table 4.7 with the majority being unable to go for physiotherapy in spite of 78% indicating their need for physiotherapy in Table 4.6.

Table 4.8 Knowledge and utilization

	Utilization		Total
	Yes	No	
Knowledge			
Agree	30.8% (24)	69.2% (54)	78
Disagree	23.5% (4)	76.5% (13)	17
Not sure	11.5% (7)	88.5% (54)	61
Total	22.4% (35)	77.6% (121)	156

p-value=0.03 ($p < 0.05$)

4.6.2 Level of education and awareness of physiotherapy

A highly significant association ($p=0.000$) was found between the participants' level of education and hearing about physiotherapy. It shows that awareness of physiotherapy increases as the participants' level of education increased in the study sample (Table 4.9).

Table 4.9. Level of education and awareness

Education	Awareness of Physiotherapy		Total
	Yes	No	
No schooling	41.8% (28)	58.2% (39)	67
Primary	52.1% (37)	47.9% (34)	71
Secondary	72.2% (26)	27.8% (10)	36
Post secondary	100% (13)	0%	13
Tertiary	84.6% (11)	15.4% (2)	13
Total	57.5% (115)	42.5% (85)	200

p -value=0.000 ($p<0.05$)

4.6.3 Level of education and physical activity

The study found that those elderly people with a lower level of education believed that exercise was dangerous for the elderly. In contrast, those with a higher level of education believed that exercise was not dangerous. Thus, the associations between level of education and perception of exercise is significant ($p= 0.031$). The result is illustrated in Table 4.10. Again, physiotherapists need to change these perceptions among the elderly, irrespective of their level of education.

Table 4.10. Level of education and perception of exercises

Education	Dangerous to do exercises			Total
	Yes	No	Not sure	
No schooling	43.3% (29)	40.3% (27)	16.4% (11)	67
Primary	28.2% (20)	46.5% (33)	25.4% (18)	71
Secondary	25.0% (9)	63.9% (23)	11.1% (4)	36
Post secondary	30.8 (4)	53.8% (7)	15.4% (2)	13
Tertiary	0%	84.6% (11)	15.4% (2)	13
Total	31.0% (62)	50.5% (101)	18.5% (37)	200

p-value = 0.031 (p< 0.05)

4.6.4 Level of education and benefits from physiotherapy

There was a significant association (p=0.039) between the participants' level of education and their knowledge of the benefits of physiotherapy. The elderly who had no schooling indicated that they could only benefit from physiotherapy when they are ill as compared to those with formal education who believed that physiotherapy is beneficial even in the absence of illness (Table 4.11). This implies that the latter are aware of the health promoting benefits of physiotherapy.

Table 4.11. Level of education and benefits of physiotherapy

Education	Only in illness			Total
	Yes	No	Not sure	
No schooling	50.7% (34)	20.9% (14)	28.4% (19)	67
Primary	38.0% (27)	40.8% (29)	21.1% (15)	71
Secondary	30.6% (11)	55.6% (20)	13.9% (5)	36
Post secondary	46.2% (6)	46.2% (6)	7.7% (1)	13
Tertiary	30.8% (4)	53.8% (7)	15.4% (2)	13
Total	38.0% (76)	38.0% (76)	21.0% (42)	200

p-value=0.039 (p<0.05)

4.7 SUMMARY

The results showed that the majority of elderly had musculoskeletal and mobility problems and were in need of physiotherapy services, but they were unable to utilize the service for various reasons. Statistically significant associations were found between the participants' level of education, their knowledge and utilization of physiotherapy services. In the next chapter, the results will be discussed.

CHAPTER 5

DISCUSSION

5.1 INTRODUCTION

In this chapter the results are discussed with reference to the aim and objectives of the study, as well as to the relevant literature. The chapter is divided into 4 (four) sections according to the objectives of the study. These are the knowledge of the elderly about the role of physiotherapy services for the elderly, the prevalence of physical problems in the elderly, the barriers to utilization of physiotherapy services by the elderly and finally, the associations between participants' level of education, knowledge and barriers to utilization of physiotherapy services.

5.2 KNOWLEDGE OF THE ELDERLY ABOUT THE ROLE OF PHYSIOTHERAPY SERVICES

It is believed that when clients get satisfaction from physiotherapy services they receive, they tend to share their experience and knowledge with others, thereby raising the awareness of the profession (Sabourin, 1993). The result of the study by Sabourin (1993) in Canada showed that physiotherapists enjoy a good public image but what they do is not well known.

5.2.1 Knowledge of the elderly about physiotherapy services

In this study, the average score obtained by the elderly on their knowledge about the role of physiotherapy in care of the elderly was 45%. This level of knowledge of the elderly in this district should be regarded as inadequate. As this study sample was only from urban areas, a lower knowledge score could be expected if rural elderly from other districts were included in the study. This lack of knowledge could also be as a result of the very few physiotherapists working in the entire country resulting in limited exposure of the profession to the Zambian people. Currently, there are only 91 physiotherapists practising in both private and public hospitals in the country (Nankwanga et al, 2004). In the Livingstone District where this study was conducted there were only 5 physiotherapists working to serve a population of 150,000 people at the time of the study (Personal communication with official from Provincial Office, 14/01/05). Therefore, one would suggest that more could be done by physiotherapists to raise awareness among the Zambian communities, especially in the Livingstone District, to educate elderly people about the benefits and range of services that physiotherapists provide.

In contrast, a study by Cheonga (2001) on the knowledge of the functions of a physiotherapist among the elderly in Malawi revealed that they had good knowledge. The 100 respondents in the Malawian study scored an average of 70.6% on knowledge. The research setting, namely two central hospitals that are usually a higher-level health service, could have influenced the high knowledge score obtained by the elderly in

Malawi. The former is different from the settings in which the current study was carried out, namely at the district level.

Therefore, there is a need to sensitize the community on the role of physiotherapists in the district. This is in support of a study by Wazakili (2001) utilizing 100 subjects in Cape Town, South Africa, which revealed that 60% of the respondents demonstrated that by increasing physiotherapy awareness, this would improve the services in the communities. For instance, in a study by Sabourin (1993) in Canada, 49.6% had heard about physiotherapy through word of mouth. This can be seen as an inexpensive way of making services known to the public.

In comparison with Sabourin's study, slightly more elderly people who participated in the present study (57.5%) had heard about physiotherapy. However, this does not imply that the elderly have a good understanding of the profession but they could have heard about it through other ways such as those working in the health field. Similarly, a study by Wazakili (2001) showed that of the 45 subjects who had knowledge of physiotherapy, 28.9% (n=13) of them knew a neighbour who had received physiotherapy. One could infer from this study that there is awareness about the professional, but everyone does not know what they offer.

A study by Sabourin (1993) also identified the perceptions among the Canadian population about the role of physiotherapy on the general market. The study revealed that 58.3% of subjects agreed that physiotherapists play a role in treating musculoskeletal

problems. This is supported by Wazakile (2000) who found that 68% of the 100 subjects agreed that physiotherapists play a role in the treatment of people with disabilities. However, in this current study less than half of the subjects (48.5%) agreed that physiotherapy plays a role in the care of the elderly. This is considered to be a low response and demonstrates the need for the physiotherapy profession to inform people of their role, especially in the care of the elderly.

However, there was a misperception among the majority of the elderly in this current study that physiotherapy services are only offered at the hospital. This implies that they were not aware that physiotherapy services could also be offered in other settings such as community health centers, sports clubs, special schools and occupational health. However, Wazakile's study (2001) also revealed that 77% of the respondents were aware that the appropriate place for physiotherapy services was in the community health centers. This indicates that the physiotherapy services in the Livingstone District need to be taken into the communities where people could have easy access.

The majority of the elderly (71%) in this study had good knowledge about the referral systems in Zambia (QB.3). This is probably due to the standard practice where the doctor, clinical officer or nurses are the first contact persons who later refer patients to special clinics such as physiotherapy. A related study by Sabourin (1993) on the best way in which the general public could contact a physiotherapist revealed 48.2% as being referred by a physician. A study by McCallum (1987) on the doctor's opinions about the physiotherapy services to the elderly in the UK, 46.6% indicated having referred patients

to physiotherapists. Although many of the participants were aware of which disorders can benefit from physiotherapy, there were misconceptions such as exercise being dangerous and benefiting only from physiotherapy when a person is ill. This shows that elderly people are not aware that they could benefit from the physical activity programmes that physiotherapists prescribe. A study by Banata (2003) on the knowledge about physical activity among 147 elderly in Ethiopia revealed that 57.8% did not know the importance of physical activity and only 2.0% knew that physical activities could prevent heart problems. However, a study by McCallum (1987) revealed that 94.5% of doctors agreed that the elderly could benefit from posture awareness, care of joints and home exercise programmes that are prescribed by physiotherapists. Therefore, the physiotherapists should work in collaboration with other health professionals in order to increase their awareness of the benefits of physical activity for the elderly in the Livingstone District.

In addition to the core functions of the physiotherapist, namely, curative and rehabilitative, there is a need for physiotherapists in the country to be involved in community educational programs with other health professionals with the emphasis on health promotion and prevention of impairment, disability and minimizing the disability associated with aging. Such programmes could include exercise and physical fitness guidance and advice on the type and frequency of activities to be undertaken. Life-style education, which may include care of the back and stress management, as well as prevention of falls, should also be included. Through these programmes the professional will be made known to the elderly people in the communities and improve their image and visibility to the public.

5.3 PHYSICAL PROBLEMS AMONG THE ELDERLY

The health problems found in this study and ranging from the most to the least reported are back pain (68.5%), mobility (62%), muscle pain (59.5%), muscle weakness (56.5%), joint stiffness (56%) and pain (52.5%), hypertension (53%) and physical activity (38%).

5.3.1 Back pain

This current study revealed that the commonest physical problem among the elderly was back pain. This finding is comparable to those studies from the USA where 63.6% of the sample complained of back pain (Imamura 2002) and in 55% of the sample in Zimbabwe (Allain et al 1997). However, contrasting results were obtained in Canada where 42.6% complained of back pain (Sabourin 1993) and 36% of 2,766 subjects in the USA (Weiner et al, 2003). It is the opinion of the researcher that in Livingstone, the prevalence of back pain may be attributed to a lack of health promotion from physiotherapists, degenerative changes related to the ageing process and lack of knowledge on back management by the elderly. Physiotherapists could advise on ergonomic care of the back and to minimize the effects of degenerative changes through physical activities. However, the study revealed that the majority of the elderly were not involved in exercise. With such prevalence of back pain one would suggest that back pain is probably the reason for their limited activity. According to Ladislav (1994) a high frequency and intensity of back pain is associated with difficulties in performing important tasks.

5.3.2 Mobility

Moore & Rosenberg (1995) state that multiple disabilities are much higher among older people and a very high proportion of those with multiple disabilities have impaired mobility, which means that access to services can often be a problem for them.

This statement is supported by the findings of the current study that mobility (62%) was a common physical problem among the elderly in the Livingstone District (Q4 Section C). This result correlates with a study in the UK where 70% had mobility problems (McCallum1990). In contrast, in Korea only 30.9% of the 97 subjects had mobility problems (Ahn & Kim 2004). Mobility is a basic human function essential for an individual's independence to maintain social and intellectual interaction and the basic activities of daily living (Eales, 1999). Therefore the elderly in this district are restricted in participating in activities of daily living as 69.4% indicated the need of walking aids for their mobility.

5.3.3 Muscle pain

Muscle aches and pains were reported by nearly 60% of the participants of Livingstone District. Consistent with the findings of the Canadian study by Sabourin (1993) 60.4% had muscle pain and had seen physiotherapists for treatment. However, traditionally in Africa, older people in the villages are not supposed to do manual activity in the presence of the young ones. This does not show respect and most times they are encouraged to be

resting, as it is an expected privilege for older people. On the contrary, the developed countries and scientific studies report that aerobic exercise training can improve the ability of ageing skeletal tissues to resist any injuries (Skinner, 1993). It is therefore, the role of physiotherapists in the district to explain to older people and their families about the importance of regular exercises. Physiotherapists should also become involved in education programmes focusing on the importance of physical activities and avoid lifestyles that encourage physical inactivity among the elderly.

5.3.4 Muscle weakness

This study reveals that muscle weakness was also common among the elderly. In a similar study by McCallum (1990) in Canada, 76% of the elderly had muscle weakness and they responded well to physiotherapy treatment. The muscle weakness of the participants in the district could be attributed to disuse, as the majority indicated not doing any exercises or involvement in physical activities. Muscle weakness is also associated with aging, pain and neurological causes. It is documented that muscle wasting occurs with age if they are not kept active (Skinner, 1993). This weakness leaves a muscle more prone to injury even when it's exposed to light activity. It is reported that elderly people with muscle weakness are at higher risks for falls (Simpson, 1993). It is therefore suggested that the elderly in this district could be avoiding participation in physical activities not only due to fear of falling, but also because of their lack of recognizing the benefits, and exposure to a variety of the physical activities (Braithwaite, 1998).

According to the American College of Sports Medicine (1998), health promotion through physical activity can increase an individual's aerobic capacity and strength, as well as improve flexibility and balance and decrease the risk of falling. Therefore physiotherapists need to train community health workers that can implement group aerobic exercises in order to improve the endurance and co-ordination of muscles to reduce the risk of falling among the elderly in communities.

5.3.5 Joint problems

According to Herman and Scudds (1995) common health problems are disorders of the musculoskeletal system that present in more than 50% of elderly above 65 years as arthritis. This study revealed that 56% of the participants reported joint stiffness and 52.5% joint pains. These results correlate with other studies. In Canada 79% complained of joint pains (McCallum 1990), in the USA 76% had joint stiffness (Imamura, 2002) and in Zimbabwe 66% reported joint pains (Allain et al., 1997). In contrast, there were lower prevalence of arthritis 13.4% in Nigeria (Amosun & Alawale 1994) and 11% in Zimbabwe (Amosun et al., 1995). The lower prevalence could be as a result of a retrospective type of study that surveyed the hospital records to determine the number of elderly who attended physiotherapy treatment for a certain period. The samples used in the Zimbabwean and Nigerian studies could not be seen as representative of elderly peoples' problems. Usually it is only those who are able to go to hospitals for treatment that are included in the study.

Information on the prevalence of the different musculoskeletal problems of the elderly in the Livingstone District will be useful for service planning, defining the physiotherapists' preventative and rehabilitative roles in improving the quality of life of the elderly by ensuring their optimal functioning in ADL and social integration..

5.3.6 Hypertension

The incidence of hypertension (high blood pressure) in the geriatric population is high and is a significant determinant of cardiovascular risk in this group (Sowers, 1987). According to Eales (1999) cardiovascular diseases are responsible for an increasing number of deaths and disability in persons over the age 65, while stroke is responsible for 20% of all deaths from cerebrovascular disorders.

In this study 53% of the elderly reported that they had hypertension. This condition is one of the major non-communicable diseases that can cause stroke. There is scientific evidence that physical inactivity is associated with increased blood pressure in the elderly (Stewart et al, 2005), but also that physical activity can modify hypertension. It is also the researcher's own experience that the Zambian people who add a lot of salt to their food. These habits worsen their high blood pressure because of the water retention characteristics of salt. The result of the study correlates with other studies in the USA by Imamura (2001) where 63.6% of the elderly had hypertension. A study by Amosun and Alawale (1994) found that hemiplegia due to hypertension was as high as 53.1% in Nigeria.

A healthy lifestyle, including regular physical activity and a proper balanced diet are influential in helping elderly people reduce their risk of chronic diseases. According to Varo Cenarruzabeitia et al (2003), research has consistently shown that physical activity decreases the risk of coronary heart disease, hypertension and stroke. It is obvious that high blood pressure is one of the major self reported health problems in the district and that inadequate control is a potential source for cardiovascular problems such as heart attack, stroke, heart failure and angina pectoris. Hence the emphasis on the need for implementing an educational program on lifestyle changes as well as sensitization campaigns targeting people, particularly the youth and those aged 60 years.(Laouani Kechrid et al, 2004).

5.3.7 Participation in physical activity

The researcher is aware that the study did not probe in depth the reasons why the elderly were not involved in physical activity and there were no criteria to define exercise. However, based on the findings of the study on the common physical problems (Figure 4.3, p.48) it is reasonable to expect that the elderly would not be involved in physical activities due to musculoskeletal problems. This is supported by Imamura's study (2002) where 40.9% participants did not exercise because of problems related to backs or arthritis. The other reason, as already mentioned before, could be associated with lack of knowledge of the indication for and benefits of exercises. This is evident from the findings in Ethiopia by Banata (2003) where 83.0% of the elderly did not participate in exercises due to lack of knowledge.

Furthermore, what seems to prevail in this district in Zambia is that people still live in a traditional way, where being physically active means carrying on with their daily routine ADLs. Therefore the elderly people may be involved in other routine activities such as gardening, walking to the fields, shopping and selling in the markets. These may seem to be activities in the traditional context, which may be viewed by them in the same light as exercise. According to Braithwaite (1998) the inability to fit exercise into a daily routine and the need to get enough rest, as opposed to exercise, is the reason for physical inactivity in the elderly. A lack of health advisors like physiotherapists could further contribute to the lack of knowledge of and participation in physical activity. The cost of exercise equipment could also contribute to physical inactivity in the district.

Studies have shown that there is degeneration of each part of the body systems due to lack of use of physical activities (Cororan, 1991). According to Mazzeo et al (1998) regular physical activity and moderate exercise can help in maintaining and enhance functioning, health and psychological well-being among elderly people. Therefore, health professionals, together with physiotherapists, in the district have to promote health through physical activities in order to minimize age-related impairments, which are associated with normal physiological ageing.

5.4 BARRIERS TO UTILIZATION OF PHYSIOTHERAPY SERVICES

The literature on the utilization of health services is extensive, but on the utilization of physiotherapy services is scarce (Hendriks et al, 2003). There are many factors that can predispose elderly people to inadequate utilization of health services. These include socio-economic factors, physician supply, policies and beliefs of a nation's health, risk behaviours and health status (Morreale, 1998). The participants in this study reported the following factors as barriers to utilization of physiotherapy services.

5.4.1 Lack of referral system

In this study, 62.8% of the elderly reported that they could not use the physiotherapy services because they were not being referred for the service. This is in spite of the standard practice where doctors or clinical officers refer patients in the public hospitals in Zambia to other services such as physiotherapy departments. Thus it seems that elderly people are not effectively utilizing the referral system. This could be as a result of lack of knowledge among the elderly or doctors about the benefits of physiotherapy. It therefore becomes probably easier for the doctors to prescribe pain relieving medication than referring the elderly for physiotherapy.

There is thus a need to improve the communication system and awareness between the physiotherapy department and the referring departments in order to increase the number of elderly patients who could benefit from physiotherapy services. Physiotherapists

should be more proactive through awareness campaigns to inform both the public and other medical workers, especially doctors, about different aspects of physiotherapy. There is a need for doctors to learn from other professionals on what they can offer to the public. According to Parry (1995), doctors have enjoyed a position of power and control in the medical field for a long time. Consequently, it seems that many of them are not prepared to learn from other members of the medical field who are not doctors. In support, Ahmed et al (1986) advocates that every doctor should be knowledgeable of the course of ageing, irrespective of his or her specialty.

A study by Hendriks et al (2003) on health care utilization in the Netherlands highlighted the role of primary care physicians as the gatekeepers, controlling the distribution of resources to the various health care providers. However, Hendriks' study on referral patterns and utilization of physiotherapy services revealed that 70% of patients with mobility impairment who were referred directly by Primary Care Physicians (PCP) for physiotherapy had improved. This indicates that a good working relationship between doctors and physiotherapy departments would improve access to the service and improve the quality of life of elderly people in the Livingstone District. A similar study by McCallum (1987), on the general practitioners' opinion to determine the extent to which physiotherapy services fulfilled their role in relation to the needs of the elderly in the UK, revealed that 92% of general practitioners had referred patients for physiotherapy. The study also revealed that doctors appreciated the services in treating acute and chronic conditions of patients.

However, the situation of doctors in Zambia, like in many other African countries is a concern as the majority of them are leaving the country for greener pastures in developed countries (Muula, 2005). According to Labonte (2004), of over 600 medical graduates trained between 1977 and 2000 in the country, only 50 were still working in the public-sector health service in 2000. During the period of this study, there were only 6 (six) doctors in the district to cater for a population of 198,000 people at hospital of 500 bed capacity (Personal communication with officials from the Provincial Office, 14/12/04). This could contribute to ineffective screening of patients who need special attention such as physiotherapy services. Hence there is need to increase and retain health workers in the health system. Morreale (1998) argues that an increase in the proportion of doctors or access to doctors in the community results in an increase in health utilization of all types. This means that many patients, including elderly people, will use or be encouraged to use the services such as physiotherapy when the physicians are made aware of it.

Another factor that must be taken into consideration when looking at the referral of the elderly for other health services, is ageism (Matteson & McConnell, 1988). Ageism is a term that denotes a negative predisposition towards the elderly. At times physicians may feel that elderly patients are too frail to undergo rehabilitation and may not benefit from it because they have passed the appropriate age in life (Mayer-Oakes et al, 1992). This attitude will contribute to limitations in using physiotherapy services among elderly people who are already disadvantaged groups and vulnerable in society.

5.4.2 Affordability

When determining the cost of access to health care, an important starting point is the distance from home to the nearest health care facility for households in the analysis (Hjortsberg & Mwikisa, 2002). In the present study the majority of the elderly (62%) indicated distance and associated travelling costs as a big problem in seeking physiotherapy services. The physiotherapy department is only found at the hospital that covers an area of 282 square kilometers for the urban community and 1145 square kilometer for the rural community (Personal Communication with officials from CSO, 03/01/05). This study did not cover the elderly from the rural areas. However, even those within the urban area have to cover long distances as the service is only offered at the hospital. There are no out-reach physiotherapy services at the clinics in the district to cater for the elderly in the communities. The resultant effects are long and costly journeys to the health facilities (Oshomuvwe, 1990). The problem is compounded by poor road infrastructure and lack of transport in the district. Despite the physical impairments that make mobility very difficult, the only way to attend physiotherapy services is to walk long distances. These costs and difficulties could be avoided if the physiotherapy services are extended in order to benefit the elderly in their communities.

5.4.3 Availability

The study revealed also that 54.5% indicated the lack of service in their communities prevented them from using the service. This finding is supported by the opinion of Oshomuvwe (1990) who states that inadequate utilization of the health services is due to unavailability of the facilities to cater for the elderly population. This could have been attributed to a lack of involvement by the physiotherapists in community out-reach programs for the elderly in the district. This lack of involvement could be due to legitimate reasons whereby physiotherapists may not be allowed to work outside the confines of the hospital boundaries. Such out-reach programmes would help to impart knowledge to the elderly about the service. This view is supported by Ahmed et al (2001) who found in their study that lack of information on the availability of free or reduced costs medical services in the USA was the biggest barrier to utilization of the health centers.

5.4.4 Accessibility

As stated previously, transport to attend physiotherapy services was another barrier among 58.7% of the elderly. Public transport is very difficult to manage and costly in addition to long journeys with poor road networks in the district. This is supported by Darkwa (1999) and Oshomuvwe (1990) who are of the opinion that elderly people who travel from rural areas to a city to seek medical care incur added transport costs. This

finding correlates with another study by Fitzpatrick et al (2004) in the USA where 21.1% of the elderly indicated transport as the most common barrier for them in accessing the hospitals.

It is also evident from the study that the majority of the elderly (79.5 %) had no income to sustain them (Table 1, p.43). Accessibility to health services still remains a problem in spite of the Zambian government's policy of free health services for the elderly aged 65 years and older. It is apparent that the elderly in the district, who are more subjected to economic insecurity, are also more vulnerable to transport costs. Thus they cannot afford to attend for physiotherapy services.

Although the participants in this study indicated negative attitudes by some staff, age, long queues, religion and alternatives such as traditional medicines, these were not common barriers to the utilization of physiotherapy services among the elderly (Figure 4.4, p.51). However, these barriers have been found in the literature which also state others such as long waiting hours, poor infrastructure, high medical bills and work as common barriers to utilization of health care in general (Morreale, 1998; Allain et al, 1997; Amosun et al, 1995; Oshomuvwe, 1990).

Therefore, in order to utilize physiotherapy services in the district, there is a need to provide home-based care and mobile health services in the area to meet the needs of the elderly who have limited mobility. This will be in accordance with some of the UN (1999) policy recommendations for older people namely: to have access to health care

and help them maintain or regain the optimum level of physical, mental and emotional well-being, and prevent or delay the onset of age-related illnesses and disabilities.

5.5 ASSOCIATION BETWEEN EDUCATION, KNOWLEDGE AND UTILIZATION OF PHYSIOTHERAPY SERVICES

5.5.1 Awareness and utilization of physiotherapy services

The result shows a significant association of $p = 0.026$ between the participants' knowledge of, and utilization of physiotherapy services (Table 4.8, p.52). It is the researcher's opinion that lack of awareness of the physiotherapist's role in the care the elderly prevents them from using the service in the district, although this is limited to one hospital. A study by Hall and Kirby (1979) in Australia showed that respondents who had sought treatment from a physiotherapist had significantly better awareness of a physiotherapist's functions than those elderly who indicated no professional contact. This shows that the visits to a physiotherapy department exposed them to the role physiotherapists can play through the different treatment modalities that they can offer to elderly people. Therefore, visits to a physiotherapy department by the elderly could be a primary source of information on physiotherapy and positively influence service usage in the district. The lack of awareness in the community can result in failure to seek advice on the prevention of age-related impairments or minimizing the discomfort in elderly people, despite the need for physiotherapy services to improve their functional ability.

Therefore, there is a need for physiotherapists to broaden the knowledge of the elderly about their role in improving their health situation.

5.5.2 Level of education and awareness of physiotherapy services

The result shows a highly significant association ($p = 0.000$) between the participants' level of education and awareness of physiotherapy. It has been reported in the literature that knowledge of physiotherapy is associated with the level of education (Hsu & Hsu, 1998). The result of this study shown in Table 1 demonstrates that the majority of the elderly (35.5 %) had only attained primary school education. The low level of formal education is confirmed in the Zambia Demographic and Health Survey (1996). These results are in contrast to findings in Malawi where the majority of the elderly in the study (87.2%) had achieved tertiary education (Cheonga, 2001).

Another study in the USA by Mayer-Oakes et al (1992) to determine patient factors that predict the use of physical or occupational therapy (PT/OT) services by elderly people revealed that there was significantly less frequent use among groups with a lower educational level. Their findings suggest that there may be important socio-demographic inequalities among the users and non-users of physiotherapy services and raise the possibility of inappropriate under-use in certain subgroups.

Another study by Jaswal et al (1997) on baseline information regarding the use of out-patient physiotherapy services by older adults at a regional hospital in Canada revealed

that the initial knowledge level regarding their condition was found to be minimal in the majority of patients with a low level of education. It is the researcher's opinion that the higher the level of education in the elderly population, the higher the level of knowledge on various health care services to choose from in their own respective communities. Therefore education plays a vital role in exercising their right to treatment, rehabilitation and health promotion activities and improving quality of life. It is thus important for physiotherapists to target people with lower socio-economic status in order to raise awareness of physiotherapy services among them.

5.5.3 Level of education and knowledge of benefits of physiotherapy

This study revealed a significant association ($p = 0.031$) between the participants' level of education and their knowledge of the benefits of physiotherapy services among the elderly (Table 4.11,p.54). The result show that the majority in the category of "no schooling" believed that they can only benefit from physiotherapy when they are ill as compared to the elderly with "higher educational" levels who perceived that physiotherapy was beneficial even for people who are not ill. This shows that they were aware of the health promoting roles of physiotherapists.

In spite of the evidence that physical activity is beneficial, only 30% of individuals over the age of 65 report exercising regularly worldwide. Regular physical activity can minimize and prevent chronic problems and increase functional ability in the elderly (Allison & Keller, 1997). There is evidence that the elderly can benefit from

physiotherapy services. Latham (2004) documents that age-related loss of muscle strength and mass is a common problem that increases the risk of injury and disability in older people. An appropriate exercise program can improve strength in older people. These benefits of exercise can have a significant effect on an older person's belief in their ability to exercise and willingness to adhere to a program prescribed by physiotherapists.

In support, O'Hagan et al (1994) determined if regular exercise classes, planned and supervised by a physiotherapist, improved physical function in a sample of frail institutionalised elderly. The result showed a statistically significant improvement ($p < 0.05$) in physical function as measured by the "Sit to Stand" time test. The study concluded that regular exercise classes, planned and supervised by a physiotherapist, are safe and improve the physical functioning and daily activity levels of the frail elderly. According to Carter and O'Driscoll (2000) health professionals should develop their role in promoting physical activity. It seems that physiotherapists are appropriately skilled and ideally suited to taking on such activity.

5.5.4 Level of education and physical activity

Although this was not specifically one of the objectives of the study, further exploration of the data revealed a significant association ($p = 0.031$) between the participants' level of education and exercises. The results show a very interesting relationship where the elderly with formal education perceived doing exercise as not being dangerous as compared to those without schooling. The results also indicate that elderly people with

low levels of education show lower participation in physical activity in the Livingstone District.

Bortz (1982) suggests that a proportion of the changes that are commonly attributed to ageing are in reality caused by physical inactivity that can be reversed by exercise. The literature reviewed shows that individuals who have engaged in regular physical activity throughout their lives tend to maintain a higher level of function and experience fewer declines in their functional status. Although exercise is an important factor in promoting long life and good health, it is often ignored (Rikli, 1986). Schohr et al (2004) conducted a study on a population-based sample of 14,399 women and 16,236 men aged 20-93 years in Sweden to examine whether the relationship between established risk factors and mortality differs with socioeconomic status as measured by level of education. The findings of the study revealed that those with the lowest level of education were most frequently heavy smokers, heavy drinkers, physically inactive and obese. Although this study used a bigger population compared to the current study, the level of education is still strongly associated with physical activity.

In contrast, a study by Al-Mahroos and Al-Roomi (2001) on body weight distribution, prevalence and risk factors for overweight and obesity in native adult Bahraini, revealed that overweight and obesity were more prevalent among those with higher levels of education and people with high incomes. The study concluded that the prevalence of obesity among the elderly population increases as the level of education increased. This suggests that people with high levels of education tend to live sedentary lifestyles and eat

unbalanced diets. Thus, according the Bahranian study there is a necessity to develop an action plan for controlling obesity and its metabolic consequences among elderly populations with high levels of education through physical activity.

5.6 SUMMARY

The discussion focused on the major findings of the study. The physical needs and factors influencing the utilization of the physiotherapy services among the elderly in the Livingstone District were discussed. The research problems were answered and the study is summarized in the next chapter.

CHAPTER 6

SUMMARY, CONCLUSION, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

6.1 SUMMARY

The purpose of this study was to determine the physical needs of the elderly with regard to physiotherapy services in the Livingstone district in Zambia. In order to achieve this aim, the study determined; (i) the knowledge of the elderly on the role of physiotherapy in the care of the elderly. (ii) the barriers to utilization of the services. (iii) the prevalent physical problems among the elderly and (iv) it also examined the associations between the participants' level of education, knowledge and utilization of physiotherapy services in the district.

A study of the literature review focused on population aging globally and the associated challenges to health services in the context of the WHO policy recommendations on active and healthy ageing. It also explored studies on the utilization of health services in general.

A cross-sectional study design utilizing a quantitative research method was chosen for the study. The study population was elderly people, both males and females aged 60 years and above recruited from the Livingstone District in Zambia. The sample size of 200 elderly people was chosen using a convenience sampling technique. A structured

questionnaire was used to collect data requesting the participants' knowledge on physiotherapy services, their health status and barriers to utilization of the services. Descriptive and inferential statistics were used to analyze the data.

The results showed that elderly people in the study scored an average of 45% on the knowledge of the role of physiotherapy services. In spite of the low overall score obtained on knowledge, the majority (66%) of the participants were aware of the assistance that physiotherapists can give to people with stroke, fractures and joint pains. They also knew about the referral system in Zambia.

However, there were some misconceptions, namely that physiotherapy services are only offered at the hospital and that they can only benefit from physiotherapy services when they are ill. This implies that the majority of elderly people were not aware of the other roles of physiotherapists, namely health promotion, rehabilitation and prevention. Although, the participants knew that exercise was not dangerous, the majority (62%) did not do any exercise.

The prevalent self-reported physical problems identified were musculoskeletal problems such as back pain, muscle pain, muscle weakness, joint stiffness, joint pains, decreased ability to walk and the need for walking aids. Among the cardiovascular disorders, hypertension was common in the respondents.

The factors influencing their utilization of physiotherapy services were identified as: (i) non-referral to the service, (ii) long distance to the service, (iii) inaccessibility and (iv) unavailability of the service in the communities. The study also revealed a significant association between the participants' level of education, their knowledge of, and utilization of physiotherapy services.

6.2 CONCLUSION

The results obtained from this study is of great importance in the planning for, and educating the elderly about physiotherapy services in the Livingstone District in order to increase their knowledge and use of the service as a resource to improving their health and well-being.

The onset of the most common health problems identified in the study could be delayed and their disabling effects minimized through the combined efforts of health professionals, including physiotherapists in the district. There is a significant indication from this study that physiotherapists in this country should be involved in health promotion activities focusing on the prevention of age-related impairments such as back pain, joint pains and stiffness, falls and hypertension through physical activity programmes.

Furthermore, the barriers to utilization of physiotherapy services by the elderly indicate that the services do not conform to the principles of primary health care in terms of accessibility, affordability, availability, prevention and promotion. Another barrier identified in the study namely, non-referral, implies the need for improving interdisciplinary teamwork. The referral system can only improve if the various health professionals are knowledgeable about the roles of each discipline. Thus, there is a need for physiotherapists to join other professionals and the private sector in developing interdisciplinary health promotion programmes to enhance active and healthy aging in the country through community out-reach and to educate the elderly about the benefits of attending physiotherapy services.

There was a significant association between the participants' level of education and awareness of physiotherapy services in the district. However, their awareness of the service did not show better utilization of it, partly due to the barriers identified.

6.3 RECOMMENDATIONS

Considering that the elderly population is expected to increase in the country and based on the results of this study, the following recommendations are made:

- 6.3.1 There is a need for physiotherapists in the district to develop a campaign on educating communities regarding physiotherapy services in order to promote awareness and to inform elderly people about the benefits of physiotherapy. This

could be done through distributing pamphlets and leaving them in waiting rooms at hospitals, clinics and doctors, and in churches, displaying posters, giving talks on the radio or television. The Physiotherapy Society of Zambia could facilitate such initiatives. Given the small number of qualified physiotherapists in the country, this may impact on the profession's capacity to improve and expand its services in order to meet the needs of elderly people in the country.

6.3.2 Physiotherapists should join other related professionals to develop interdisciplinary health programmes to promote active and healthy aging in the district. This will only be achieved if physiotherapist play a leading role through health promotion and prevention programmes targeting the elderly in the district in order to reduce age related disorders.

6.3.3 There is an urgent need to raise awareness among medical professions by educating the doctors and clinical officers about the role of physiotherapy for the elderly. This will enable doctors to refer the elderly timeously for physiotherapy, not only when they are ill, but for prevention illness and disabilities. This could be done through clinical presentations or Continuing Professional Development (CPD) meetings.

6.3.4 There is need for physiotherapists in the district to sensitize the Ministry of Health through the Provincial Health Office towards establishing a department for rehabilitation to address the issues of elderly. This department could facilitate the

creation of rehabilitation centers that will enhance the delivery of rehabilitation services within the communities. Such centers should be non-residential in order for the elderly to have access and still live independently within the community. The centers will give elderly people opportunities for social interaction among peers through recreational and physical activities.

6.3.5 Physiotherapists should train community health workers with a primary aim of extending the physiotherapy services within the communities. This will address the barriers to utilization of the services, namely that of cost and accessibility. The community health worker could help in identifying common disabilities and needs among older people within communities and to offer adequate solutions or refer them as needed. Physiotherapists and Community Health Workers can also educate the public on the process of ageing, the need for healthy lifestyles and the dangers of physical inactivity.

6.3.6 A similar study with a larger sample should be carried out in other districts for comparisons as these results cannot be generalized since the study was conducted in one district only. Results from comparative studies would serve as a means for collecting baseline data on the health needs of the elderly in the country.

6.3.7 There is an urgent need to retain and improve human development in the health service to avoid shortages in public institutions. This would avail the elderly people an opportunity to utilize the health services.

6.3.8 There is a need to ensure that the undergraduate physiotherapy training curriculum in the country addresses issues on ageing and the role of the physiotherapists. This will reorient the physiotherapists to include the health promotion approach in the elderly.

6.4 LIMITATIONS OF THE STUDY

6.4.1 Reliability of the questionnaire was not established, as the test re-test procedure could not be carried out due to difficulty in following up people for the re-testing of the questionnaire.

6.4.2 The study was done only in one district, a predominantly urban area in Zambia. Therefore, results cannot be generalized for the whole country.

6.4.3 Although the questionnaire provoked the expected responses, it did not specify criteria for exercises in terms of intensity, duration and frequency

6.4.4 The study was restricted to closed-ended responses. However, qualitative research methods would have given deeper insights into the physical needs and experiences of the elderly.

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