

## FACTORS ASSOCIATED WITH PHYSICAL ACTIVITY LEVELS AMONG OLDER ADULTS IN SELECTED INSTITUTIONS IN RWANDA

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### ABSTRACT

**Background:**

The size of the elderly population both in numbers and proportions of the whole world is increasing rapidly. The increase in the number of elderly people in the world will exert a big impact on health and social services. It is established that physical activity is one way of limiting age related disabilities.

**Objectives:**

This study aims to assess the levels of physical activity and the factors associated with it among older adults in selected institutions for the elderly in the Southern Province of Rwanda.

**Method:**

A cross-sectional descriptive study was conducted at 2 institutions for older adults in Rwanda. An interview questionnaire with closed-ended questions was used to collect data.

**Results:**

More than one-third of the study sample was categorized as sedentary. Physical activity levels decrease with age. Females reported higher prevalence of physical activity than males.

**Conclusion:**

Older adults should be encouraged to engage in physical activity to gain the physical and mental health benefits associated with it.

**Keywords:**

Older adults, physical activity, Rwanda

### Introduction

The size of the elderly population, both in numbers and proportion of the whole population is increasing rapidly in most parts of the world (World Health Organisation, 2002). Numerous researchers have expressed that population aging would be one of the most important social phenomenon for the next half century (Kaplan, Newsom, McFarland & Lu, 2001). The increase in the number of elderly people in the world will exert a big impact on health and social services (Hill, 1995). This impact is mostly

due to the association between the increase in the number of elderly and the number of individuals at risk of chronic diseases, disability and injuries (Amosun & Reddy, 1997).

Due to improving health care in developing countries, life span tend to increase with some elderly people enjoying relatively good health, but also with a big number suffering from diseases related to old age (Malambo, 2005). According to Booth (2000), chronic diseases of lifestyle accounts

for 50% of all deaths in developing economies and 85% of all deaths in developed economies. Population aging is likely to cause serious societal challenges due to its associated increase in the number of individuals at risk for chronic diseases and injury (Marks, Lambert, Jun, & Song, 2008). From this point of view there is a need for a concentrated effort to improve the life span and quality of life of older adults. A number of studies have shown the ability of increased physical activity to improve psychological well-being, reduce distress and decrease depression (Lim & Taylor, 2005; Kwok-Ho & Rubenstein, 2006; Netz, Wu, Becker & Tenenbaum, 2005).

In Rwanda there is evidence to suggest that as time goes by, the number of elderly people is increasing (Rwanda Census of Population and Housing, 2002 & Rwanda Poverty Reduction Strategy Report, 2005). It is further estimated that by 2025, the population of Rwanda shall have doubled and hence the number of ageing people shall continue to grow (Kagaba, Nsanzabaganwa & Mpyisi, 2003). In 1992, Rwanda in her health care reforms, the main objectives were to provide equitable access to cost-effective quality health care (Sekabaraga, 2001).

The World Health Organisation (2002) stated that the medical costs related to active older people are substantially lower than inactive older people. This organization however recognizes that populations with low incomes and the elderly with disabilities would most likely be inactive. Several studies have investigated factors that may be associated with physical activity participation and levels of physical activity in Rwanda among different age groups (Tumusiime & Frantz, 2006; Kagwiza, Phillips & Struthers 2005; Murenzi, 2001). However little has been done to ascertain the factors associated with physical activity participation among older adults. One study among working adult women with an average age range of 19 to 56 years and a mean age of 30 years showed that physical activity participation decreases with age (Kagwiza et al, 2005). Thus there is need to establish the factors associated with physical activity levels and participation among older adults in Rwanda.

Velkof & Kowal (2007) are of the opinion that using 60 years of age as a demarcation for old age may not be appropriate for sub-Saharan Africa since

more than 80% of countries in this region have a life expectancy at birth of less than 55 years of age. This benchmark age was chosen following extensive literature search on what ought to be the appropriate cut-off point for an "older person" vis-à-vis discussion on chronological, cultural and functional categorization of people as old (WHO, 2002a). The authors were aware that this is in tandem with discussions in gerontological circles to adopt 55 years as the age at which one is commonly categorized as "ageing" especially in Africa. In most of the poor economies, the burden for survival puts people at a great disadvantage than in rich countries, making them to age prematurely. Secondly, in most African traditions the title "older person" is socially dictated by one's role in society. The choice of using the age of 55 years and older as the definition of an older person was therefore taken in order to accommodate these definitional complexities and provides a sample base, which sociologically and chronologically merits the label "older person".

### Methods

The study was a cross sectional, descriptive quantitative study. The study population consisted of all older adults aged 55 years and above living in two residential homes for the elderly in the Southern Province of Rwanda. Out of the seven districts in the Southern Province of Rwanda, three have residential institutions for older adults. To make sure that older adults from both urban and rural settings were included, one district from each was selected to participate in the study. At the time of the study, the two residential homes accommodated 61 and 57 older adults respectively. Purposive sampling was used to select participants for the study. All residents, males and females aged 55 years and above, not mentally ill, without auditory or/and speech problems and no any acute medical condition, at the time of the data gathering were invited to participate in the study. A total of 63 participants met the inclusion criteria for the study. Ethical clearance was obtained from the Senate Research and Study Grant Committee of the University of the Western Cape and permission from the National Ethical Committee in the Ministry of Health Republic of Rwanda. Furthermore written permission was also obtained from residential homes management. The interview-questionnaires were administered to participants individually by the

researcher. At the beginning of each session the purpose of the study was clearly explained by the researcher to the participants. Signed, informed consent was obtained from all the participants and an information sheet provided, explaining their right of voluntary participation, confidentiality and withdrawal as entrenched in a standard research procedure.

Data was collected by means of a structured interview-questionnaire consisting of 4 different sections. The first section measured requested for information regarding demographic variables such as age, gender, marital status and educational levels. These demographic variables were included as previous studies have found that factors such as age (King et al., 2004), gender (Marcus et al., 2000), marital status (Kaplan et al., 2001) and educational attainment (Droomers, Schrijvers, Van de Mheen & Mackenbach, 1998) are associated with physical activity among the elderly. The second section of the questionnaire assessed the participants' fear of falling. Literature has shown that an association exists between older adults' fear of falling and decreased levels of physical activity (Lim & Taylor, 2004). The "Modified Falls Efficacy scale" was used to measure this (Tinetti, Richman & Powel, 1990). Hill et al (1996) indicated that the Modified Falls efficacy scale is a reliable and valid measure of fall self-efficacy among older adults. This scale consisted of 14 items to determine how confident participants feel in performing a range of activities on a scale of 0 (not confident at all) to 10 (completely confident). A low average score indicated lack of confidence in performing activities and high scores indicated complete confidence in performing activities. If a participant stopped any activity purely due to any physical problem he/she was asked to leave the item blank. If the participant is not involved in any given ADL for other reasons, he/she was requested to rate it the way he/she perceives would rate if he/she had to do the activity today. Average scores were calculated and categorized as "not confident", "fairly confident" and "completely confident".

The Generalised Distress Scale (GDS) was used to measure psychological distress (Kaplan et al., 2001). Participants were asked how often during the past month; they experienced some feelings which would include among others "so sad nothing

could cheer you up", "nervous", restless or fidgety and "restless". Participants could respond with: "all the time", "most of the time", "some of the time", "a little of the time", and "none of the time". A score of six or less were considered as "less distressed" and score of more than six as "more distressed". The GDS as a measure of depressive and anxiety symptomatology has been found to be reliable in a sample of people aged 65 years and above with a cronbach's alpha of 0.79 (Kaplan et al., 2001).

Weekly frequency and duration of several physical activities typically done by older adults was collected using the "Community Health activities Model Program for Seniors" ("CHAMPS") physical activity questionnaire (Kaplan et al., 2001). The participants were asked questions related to physical activities such as walking, running, exercises, cleaning, etc. Participants were requested to report on a typical week during the four weeks preceding the study. Furthermore, participants had to indicate the number of hours of participation if they participated in requested activities. The CHAMPS questionnaire has been found to be valid and reliable for older adults and appropriate for use in a variety of cultures and settings for physical activity promotion programs (Stewart & King, 1997). Other activities requested to report on included visiting friends or family, attending meetings or church activities.

The instrument was translated from English into Kinyarwanda (local language spoken by all nationals) by a professional translator. Further to ensure validity, the instrument was then back-translated into English by an independent translator. The translated questionnaire was checked for clarity and understanding of the questions by older adults in the pilot study.

Data was numerically coded and captured in the Statistical Package for Social Sciences (SPSS) version 15.0. Descriptive statistics was employed to summarize the demographic data of the study sample. The demographic data was presented using frequency tables and was expressed as percentages, means and standard deviations. Inferential statistical analysis was done to determine the association between socio-demographic factors, psycho-social factors, and physical activity among older adults. Chi-square

tests were used to test for significance. Alpha level was set at 0.05.

**Results**

Sixty- three (63) residents in the institutions for the elderly met the inclusion criteria and all of them (100%) consented to participate in the study. The mean age of the participants was 71 years (SD = 9.82; range = 55-101 years) and more than half (58.7%) of the participants were females. Furthermore the majority of the participants were widowed (58.7%) and reported alcohol consumption (60.3 %). The majority (98.4 %) of the participants were single, i.e. either never married, divorced or widowed. Almost two-thirds (65.1 %) of the study sample were from the urban areas.

To establish the levels of physical activity, the guidelines of the American College of Sports Medicine and American Heart Association (ACSM

& AHA) were used. The ACSM and AHA recommend that older adults should engage in physical activity at least five or more times a week at moderate or vigorous intensity for 30 minutes, to be classified as physically active (ACSM Position Stand, 2000). Those who were engaging in physical activity three to four times a week at moderate intensity were classified as being insufficiently active and those who were engaging in physical activity on two or less occasions during the week were classified as sedentary. Over one-third (38.1%) of the sample was classified as sedentary (mean age = 75.08) and 44.4% as physically active (mean age = 76.36). The association of socio-demographic factors with physical activity is illustrated in Table 1. A significantly higher prevalence of participants in the below 65 years (62.5 %) and 66 - 75 years categories (50.0 %) were considered physically active than those above 75 years (13.3 %) (p< 0.05).

**Table 1: Association of socio-demographic factors with physical activity (N=63)**

Variable	Sedentary	Insufficiently physically active	Physically active
<b>Gender</b>			
Males	46.2%	23.1%	30.8%
Females	32.4%	13.5%	54.1%
<b>Marital status</b>			
Married	100%	0	0
Divorced	35.3%	5.9%	58.8%
Widowed	37.8%	24.3%	37.8%
Never married	37.8%	12.5%	50.0%
<b>Educational level</b>			
Never attended	40.5%	10.8%	48.6%
Primary	29.2%	29.2%	41.7%
3 years of secondary	100%	0	0
6 years of secondary	100%	0	0
<b>Location of residence</b>			
Urban	36.6%	14.6%	48.8%
Rural	40.9%	22.7%	36.4%
<b>Age* category/years</b>			
Below 65	25.0%	12.5%	62.5%
66-75	37.5%	12.5%	50.0%
Above 75	53.3%	33.3%	13.3%

\* Indicates significance at P= 0.05 level of significance

The association of other factors with physical activity was also examined. These factors included fear of falling, psychological distress and substance use. The association between these factors and the levels of physical activity are summarized in Table 2.

**Table 2. Association of selected factors with physical activity (n=63)**

Variable	Sedentary	Insufficiently physically active	Physically active
<b>Fear of falling</b>			
not confident	52.4%	23.8%	23.8%
fairly confident	50.0%	20.0%	30.0%
confident	24.1%	13.8%	62.1%
completely confident	33.3%	0	66.7%
<b>Psychological distress</b>			
"more distress"	44.7%	17.0%	38.3%
"less distress"	18.8%	18.8%	62.5%
<b>Substance use</b>			
alcohol use*			
yes	23.7%	21.0%	55.3%
no	60%	12%	28 %
smoking			
yes	0	0	100%
no	39.4%	18%	42.6%

\* Indicates significance at P= 0.05 level of significance

**Discussion**

This study highlights the importance of various factors that influence physical activity among older adults in Rwanda. The decrease of physical activity with increasing age was expected and is consistent with other published studies (Moriarty, Kobau, Zack & Zahran, 2005; Armstrong, Bauman & Davies, 2000). The findings in relation to higher reported rates of physical activity among females compared to males are unexpected and new in the African context. It also differs from most of the other studies on physical activity done among older adults that show that males are more active than females (Eyler et al., 2002; Stone, Strikwerda-Brown & Gregg, 2002). These discrepancies could possibly be explained by the fact that the current study was carried out in an institutional setting where residents are restricted from moving out of the boundary of the residence and the work done at the residence is typical domestic work which in the Rwanda context is done by women.

Studies have shown that older adults who are frequently involved in brisk walking, jogging and

other brisk exercise were less likely to report depressive symptoms (Lim & Taylor, 2005; Kwok-Ho & Rubenstein, 2006). This was shown to be true for the current study too as participants who were categorized as "less distressed" reported higher levels of physical activity than those categorized as "more distressed". Although one could not conclude on the cause effect relationship in the current study, as it did not investigate cause-effect relationships, literature has suggested that physical activity could be seen as protective for both prevalent and incident depressive symptoms in older adults (Kaplan, et al., 2001; Strawbridge, Deleger, Roberts & Kaplan, 2000). Kaplan et al. (2001) further suggest that recognition and treatment of older adults with depression might possibly lead to increased physical activity in this age group.

Although not a significant association, participants that did not fear of falling reported higher levels of physical activity than those afraid of falling. Various researchers have also stated that fear of falling is more prevalent among older adults living in institutions than community dwelling older adults

(Lim & Taylor, 2005; Flint, 2003). However physical activity participation is one of the strategies used to prevent fear of falling among the elderly population. Furthermore, activity restriction is in itself a risk factor for falls because it can lead to muscle atrophy, de-conditioning and poor balance. Older adults afraid of falling in developed countries reported higher levels of physical activity than those in the current study (Newson & Kemp, 2007). This could possibly be explained by the increased likelihood of the presence of adapted physical environments in developed countries to assist older adults to carry out their activities without the risk of falling. Some of these adaptations that could significantly improve the situation in Rwanda include bars alongside corridors at institutions for the elderly.

### Conclusion

Although research has highlighted the benefits of physical activity for the physical and mental health of older adults, a considerable number of older adults do not engage in physical activity. It is therefore of utmost importance that all professionals interacting with older adults offer them advice on the benefits of adopting a physically active lifestyle.

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