RESEARCH JOURNAL OF THE FACULTY OF COMMUNITY AND HEALTH SCIENCES OF THE UNIVERSITY OF THE WESTERN CAPE

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JCHS would like to thank **Professor Ratie Mpofu (The Dean – Faculty of Community and Health Sciences)** for financial support without which the publication of this journal would not be possible.

Printers

Printwize
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The Journal of Community and Health Sciences

FOREWORD

EDUCATIONAL DEBATE:

The difference between a scholarly paper, a literature review and a systematic review has been confusing authors and reviewers. This editorial attempts to highlight the differences between the three.

A scholarly paper

A scholarly paper is a review of the literature relating to a specific topic and may also be considered as a commentary if in a shortened version. This type of paper demonstrates the authors ability to highlight a problem accurately and concisely summarise relevant research around the topic and indicate directions for future research. The structure of a scholarly paper has an introductory paragraph with background information and should inform the reader about the problem to be addressed, how and why it will be addressed. There is no research methodology presented as the author is commonly expressing an opinion in most cases.

A literature review

A literature review is an account of what has been published on a topic by accredited scholars and researchers. It aims to review the critical points of current knowledge on a particular topic. The purpose of a literature review is to convey to the reader what knowledge and ideas have been established on a topic and what are the strengths and weaknesses. The narrative literature review are useful educational articles as they allow the reader to be brought up to date regarding the state of research in the field and familiarizes the reader with any contrasting perspectives and viewpoints on the topic (Green, Johnson, Adams, 2001). A narrative review usually has a good methodology describing where information was obtained and the methods used to conduct the review. Although considered the weakest form of evidence, it aims to be informative.

A systematic review

A systematic review is an overview of primary studies that used explicit and reproducible methods. Mulrow (1994) defined a systematic review as "concise summaries of the best available evidence that address sharply defined clinical questions". When writing a systematic review the author uses detailed and rigorous research methods which are described in a step-by-step manner. A systematic review may examine both quantitative and qualitative evidence. The purpose of a systematic review is to identify, appraise, select and synthesize all high quality research evidence relevant to a question identified. Systematic reviews of high-quality randomized controlled trials are crucial to evidence-based medicine. An understanding of systematic reviews and how to implement them in practice is becoming mandatory for all professionals involved in the delivery of health care.

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Prof JM Frantz
Editor

EDITORIAL

Welcome to our first issue of the journal for 2009. The journal is currently in the process of applying for accreditation from the Department of Education, South Africa. With this process underway we would like to encourage all academics and clinicians to accept the challenge of publishing in this journal. Following our last edition which was dedicated to the UWC, VLIR project, we our now open to accept publications from all academic and clinical fields. Research has become an integral part of all academics as well as health care practitioners. Finding effective ways of sharing the valuable work that is being done in the clinical setting is essential. A case report is a form of communicating information to other health care practitioners and academics regarding exceptional cases. The editorial team thus wants to encourage the submission of interesting case reports to the journal.

Prof José Frantz

The JCHS is a peer reviewed journal, published bi-annually. It covers a wide interest in community and health science related topics. The features that make JCHS so unique are:

- *it offers a platform for debate between various disciplines which is essential in helping us to understand and learn from each other.*
- *the editorial team encourage original research but support the publication of scholarly papers and scientific systematic reviews.*
- *it offers a platform for novice researchers to share their research findings.*

The editorial team offers a platform for novice researches to share their research finding and offers "hands on" assistance with academic writing skills.

We thank all the authors for submitting their work for publication and trust that, you, the reader, will find it interesting and gain knowledge from their publications and will want to feel part of the team by submitting your work for publication.

Prof. José Frantz
Editor
Journal of Community and Health Sciences (JCHS)

Knowledge and attitudes regarding the use of social software in a physiotherapy department

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Abstract

Introduction
Institutions of higher learning are under pressure to respond to the changing needs of today's learners and the use of information and communication technology has been at the forefront of that change. Furthermore, the use of social software to enable people to interact with each other in a dynamic way has been identified as one possible solution.

Aim
This survey sought to identify the knowledge and attitudes of South African physiotherapy students towards the use of social software in a physiotherapy department.

Method
The design was a cross-sectional, descriptive survey that took place in a university physiotherapy department in the Western Cape, South Africa. It included 135 students and used a self-developed questionnaire.

Results and discussion
Results showed that these students had only a superficial understanding of social software and that they did not make use of common services. They did however, show an openness to new approaches and a willingness to interact with lecturers outside the traditional classroom setting. A lack of access to appropriate technology was identified as one possible factor for their lack of understanding.

Conclusion
Any attempt to incorporate social software to improve teaching and learning practice into this department would have to be accompanied by significant training and support.

Keywords
social software, physiotherapy education, South Africa, teaching practice

Introduction

"The changes which universities will have to make are so profound that future practice can no longer be based simply on past experience."
Elton, Beaty, Cryer, Goldfarb & McNay (1994)

The emergence of the Internet as a transformative and empowering medium for change has led to advances in many aspects of society, particularly in the field of higher education. The use of information and communication technologies (ICT) in higher education has largely been a response to

student expectations and their ICT-related behaviour in terms of how they access content and interact with each other (Breen, Lindsay & Jenkins, 1994). This places the burden of responsibility for change onto institutions, to ensure that they provide a service that will both satisfy contemporary students and attract new ones. Ageing notions of what it means "to educate" should also be revised, as "today's students are no longer the people our educational system was designed to teach" (Prensky, 2001).

This change in higher education is being brought about by integrating ICT into institutions which, in the past has been seen as a means of teaching more students at a reduced cost (Breen et al., 1994). However, there is evidence to suggest that using ICT merely for the "massification" of education is actually more expensive (Marcus, 2000). An alternative approach is to use emerging technologies like wikis, blogs and podcasts to facilitate a blended approach to education, as they allow free movement between print and oral-based learning paradigms. These tools have collectively come to be known as "social software", named for the collaboration and interactivity they promote. Wikis can be described simply as web pages that can be edited by anyone (Cummings & Barton, 2008), blogs are similar in conception to online diaries that other users can subscribe to (Mason & Rennie, 2008), and podcasts are audio or video files delivered over the network (Salmon & Edirisingha, 2008).

The history of the term "social software" has been controversial, with social scientists arguing convincingly that the use of technology by socialised networks of people has been around for decades and that the current hype is merely a fad (Boyd, 2006). Boyd (2006) goes on to suggest that social software has come to mean more than a collection of technologies, and should also be considered as a social movement that allows people to interact with each other and with content in a dynamic way. It is this conceptualisation of social software that has been the most prolific enabler of change in higher education, as students can now collaborate, share, interact and engage with each other in near real-time, regardless of time or place. The use of social software in education would enhance an oral-based learning paradigm, which would allow students to control their own learning experiences as they engage with content and with each other in new, more meaningful ways (Ferris & Wilder, 2006). However, the mere introduction of technology into the curriculum should not be seen as evidence of "e-learning", as an ICT-enabled curriculum must be accompanied with social and institutional change if it is to be successful (Punie, Cabrera, Bogdanowicz, Zinnbauer & Navajas, 2006). In contrast to this, few scholars have noted a change in the predominantly print-based, post-industrial approach to education, where the control of information is maintained by the few.

The literature has indicated that there are growing calls for further evaluation of the integration of social software into existing undergraduate healthcare curricula (Kamel Boulos, Maramba & Wheeler, 2006), as well as for a change in the current approach to teaching as a result of disruptive technologies and the internet (Brown, 2005; Oblinger & Oblinger, 2005; Barnes, Marateo & Ferris, 2007; Kingsley & Kingsley, 2009). There is a need to understand the student experience of ICT and the behaviours and attitudes that it induces (Breen et al., 1994), as well as to carefully plan implementations in thoughtful and creative ways (Ferris & Wilder, 2006). As a result of these trends in higher education and a need to understand how students are responding to them, this survey sought to identify the knowledge and attitudes regarding the use of social software in a South African physiotherapy department, in order to inform a change in teaching practice.

Method

The study design was a cross-sectional, descriptive survey using quantitative methods, and was conducted in a physiotherapy department at a university in the Western Cape, South Africa in 2008. The survey was conducted at a time when all students were on campus, with no exclusions. The population consisted of all the registered undergraduate students in the physiotherapy department, and the sample included all of the respondents who participated in the survey.

The instrument used was a self-developed questionnaire that made use of closed-ended questions, divided into six short sections. The first two sections gathered demographic information

from the participants. The third section included questions about participants' knowledge and use of some of the more common social software services, including MXit, Wikipedia, Facebook and YouTube. The fourth section was about participants' knowledge of common terminology that was identified from relevant literature. The fifth section gathered information about participants' completion of tasks that might commonly be performed when using social software, based on the author's personal experience. The sixth and final section was about participants' attitudes towards using social software to improve communication and interaction with lecturers in the department. Since the survey was conducted to provide insight towards improving teaching practice, rather than being a scientific study, the instrument was not piloted for reliability or validity.

Questionnaires were distributed to students in a class setting when they were all present. The purpose of the survey was clearly explained to the students by the researcher, who remained present while the students completed the questionnaire, in case they had any questions. Data were collected using the self-administered questionnaire and captured using the OpenOffice.org spreadsheet application. Descriptive statistics were used to obtain means, percentages and frequencies, which are presented in tables.

Ethical Considerations

Permission to conduct the survey was obtained from the head of the physiotherapy department, as well as each class coordinator. Students were informed that their participation was voluntary and that there would be no negative consequences if they chose not to participate. They were also informed that they could withdraw at any stage of the survey. A detailed explanation of the purpose of the survey was provided to each class prior to completing the questionnaire, so that participants were fully informed regarding the process. Confidentiality was assured by not gathering any personally identifiable information and consent was implied by completing and submitting the questionnaire.

Results

One hundred and seventy six questionnaires were distributed to all of the undergraduate physiotherapy students in the department, with a response rate of 77% (N=135). The sample included 102 females (76%) and 31 males (23) , with most respondents (n=96) being between the ages of 18-21 years. Many of them (70%) had internet access at home, although 23% of this group only had a dialup connection, and 29% did not have any connection at all.

Table 1 shows physiotherapy students' knowledge and use of common social software services that were identified from relevant literature.

Table 1: Physiotherapy students' knowledge and use of social software (N=135)

Social software	I use this		I've heard of this		I don't know what this is	
	n	%	n	%	n	%
MXit	114	84	21	16	0	0
Wikipedia	110	81	23	17	2	2
Facebook	106	79	28	21	1	1
Google apps *	96	71	19	14	19	14
YouTube	60	44	60	44	12	9
Flickr	2	2	24	18	106	79
Twitter	0	0	18	13	113	84
Digg	0	0	14	10	114	84
Delicious	0	0	13	10	119	88

* Includes Gmail, Google Docs, Google Reader, etc. Note: Discrepancies in totals are due to missing data.

[1] Discrepancies in totals are a result of missing data.

Table 2 shows physiotherapy students' knowledge of some of the common terms that were identified from relevant literature.

In terms of the common tasks that students might need to perform in order to gain the most benefit from the social software services highlighted in Table 1, the results showed that few respondents had much experience. Only 37% of them reported having edited a Wikipedia article, 19% had installed a web browser extension, 18% had downloaded a podcast and 8% had uploaded a video to YouTube.

Table 2: Physiotherapy students' knowledge of some social software terms (N=135)

	Know what it is		Heard of it		Don't know what this is	
	n	%	n	%	n	%
HTML	74	55	33	24	27	20
Blogs	66	49	44	33	25	19
Podcasting	36	27	31	23	64	47
Open source	31	23	35	26	68	50
Wikis	21	16	28	21	84	62
RSS	8	6	11	8	112	83
Creative Commons	7	5	12	9	114	84

Table 3 shows physiotherapy students' attitudes towards the use of social software to improve communication and interaction within the department.

Eighty two percent (n=111) of respondents reported being happy with the current methods of teaching and learning in the physiotherapy department. Of the 18% (n=24) who were unhappy, almost half (46%) were in their final year of study (n=11), and fewer than 10% (n=2) in their first year. The main areas in which students recommended that changes be made included: documentation and resources, communication, organisation and interaction.

Table 3: Attitudes towards the use of social software in the department (N=135)

Question	Yes		No		Maybe	
	N	%	n	%	n	%
Would you be comfortable communicating with a lecturer outside of “normal” class time?	101	75	2	1	32	24
Would you be comfortable knowing that anyone in the world may see part of your work?	51	38	37	27	47	35
Would you be comfortable adding a lecturer as a “friend” in Facebook?	56	41	44	33	35	26
Would you like the opportunity to engage with lecturers in online environments?	74	55	14	10	47	35

Discussion

Fewer than 50% of these respondents had an internet connection capable of making effective use of social software, which is most valuable when the user is constantly connected. This has implications for including social software into the curriculum in this particular physiotherapy department, as it would place more than half of the students at a disadvantage when communicating and engaging with lecturers. This lack of access to technology is a common theme in African studies on the use of ICT in education (Mostert, 2006; Martin, 2007; Lucas, 2008; Rowe, 2008). A move towards the use of social software may need to acknowledge

the practical problems inherent in the process and would require careful planning in order to avoid placing some students at a disadvantage.

It was found that few students (n=2) had any experience with some of the more common social networking services (i.e. Flickr, Twitter, Digg and Delicious) and fewer than 20% of respondents had even heard of them. This would suggest that any attempt to incorporate these services into the department would require a significant amount of training and support. On the other hand, services like MXit and Facebook showed a high level of use (84% and 81% respectively). This may indicate that these respondents are at least comfortable with some components of social software, especially those that enhance the social component, with both MXit and Facebook emphasising communication and sharing. The popularity of Wikipedia is not surprising, with it's increasing prevalence in the search results returned by most search engines.

While 81% of students reported using Wikipedia, only 16% reported knowing what a wiki was. In addition, they did not make the connection that Wikipedia is merely one type of wiki, even though 37% of them reported having made at least one edit on Wikipedia. This demonstrated a clear disconnect between use and understanding of wikis. Ramanau and Geng (2009) have suggested that the use of wikis in education may facilitate small group learning, collaboration and deeper engagement with content. However, they also warn that assumptions about students' familiarity with technology should not be made, and that additional support should be provided for them. In terms of downloading and listening to podcasts, 27% of respondents reported knowing what it was, but only 18% had ever actually done it. While the reason for this was not determined, it may be a result of the fact that more than 50% of this group either did not have an internet connection, or used dialup. This would make it very difficult (and expensive) to download podcasts, as well as reducing the likelihood that these students would come across and explore the possibilities of podcasts. These two examples demonstrate a lack of understanding around social software, as well as highlighting the practical problem of access. These factors should be taken into account if there is to be any move towards the use of social software to change teaching and learning practice in the department.

The current curriculum in this particular physiotherapy department could best be described as "traditional", including classroom based lectures, practical teaching sessions and clinical placements. For the most part this system seems to be working for the students, as 82% of respondents reported being happy with the current system of teaching and learning. Of the 18% who were not satisfied, the main issue was with the form of documentation that they received. They reported a preference for course notes and readers to be in a digital form and to be available for download. While this might save on the cost of printing, it does little to change the practice of teaching and learning. It is still a print-based approach where the student reads and memorises the content that is organised by a person in authority. There is no associated increase in engagement with either the text or with other students, and learning would still be individualised. In contrast, the use of social software would enable a different approach to pedagogy, whereby students can participate in learning activities that are social, distributed and collaborative (Ferris & Wilder, 2006). In addition to digital documentation, a small group of students across all four years (7%) called for improved communication and interaction with lecturers, and suggested that the use of technology might facilitate this approach. This is clearly one area in which students and lecturers might find themselves engaging more deeply, using social software to participate in group conversations. However, it is a concern that only 7% of respondents felt that communication and interaction could be improved.

In general, this cohort showed a willingness to move communication with lecturers outside the boundaries of the classroom and traditional working hours. A high percentage of students (90%) reported that they would, or would consider engaging with lecturers in online environments. This might suggest that the social spaces they inhabit online (79% use Facebook) have prepared

2 Mxit is a cellphone and computer application that allows users to send text and media messages from a cellphone, over the internet for free (Wikipedia entry for MXit, available at http://en.wikipedia.org/wiki/MXit)

them for similar interactions with lecturers as it relates to their studies. Indeed, with 76% of students reporting that they would, or would consider adding a lecturer as a "Friend" on Facebook, they have shown that they are at least open to the idea that "studying" need not always be structured and formalised in the traditional sense. In general, physiotherapy students' attitudes towards the use of social software to communicate with lecturers in online environments as a part of their studies was shown to be positive, with few respondents (10%) indicating an absolute unwillingness to consider it.

Limitations

The results of this survey may not be generalisable to other physiotherapy departments, either locally or internationally. Rowe (2008) found that there are significant differences in the use of ICT between South African physiotherapy departments, and that one cannot make assumptions of a heterogeneous population. Likewise, international literature has shown that European and North American physiotherapy students have a high level of technological sophistication that may not be applicable to African students owing to a lack of access to technology.

Conclusion and Recommendations

It would seem that while there are some aspects of social software that this group were familiar with, their understanding was on a superficial level, and they lacked experience in its use. Therefore, any use of social software in this physiotherapy department would have to be accompanied by significant training and support for students. The training could be performed using a "just in time" approach, to enable students to learn only what they need to know at a particular point in time, rather than to overload them with new information. Computer lab sessions should be organised in order to ensure that students have a good understanding of the social software tools they will be required to use.

In addition, if the advantages of social software in a South African undergraduate physiotherapy curriculum are to be successfully leveraged, there are significant challenges to be overcome. This includes the lack of awareness, understanding and use of social software in general, as well as the practical problem of access. To address this, lecturers should consider introducing small group projects within modules that include some components of social software. This will require additional effort on behalf of the lecturer in order to design appropriate teaching materials, as well as providing students with the necessary support. Projects or assignments that make use of social software should also be given over an extended period of time, in order to acknowledge the lack of access that some students may experience.

It was encouraging to note that this group of students, while generally happy with the method of teaching in the department, showed a willingness to consider alternative forms of communication. Their experience with some of the more common online environments (e.g. MXit, Wikipedia and Facebook) are useful indicators of the tools that might be good starting points if social software is to be used. It is recommended that further research in the field of teaching and learning strategies be conducted in order to better determine which social software tools are most appropriate to be used in physiotherapy undergraduate education.

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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 asses 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-á-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
Gender			
Males	46.2%	23.1%	30.8%
Females	32.4%	13.5%	54.1%
Marital status			
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%
Educational level			
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
Location of residence			
Urban	36.6%	14.6%	48.8%
Rural	40.9%	22.7%	36.4%
Age* category/years			
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
Fear of falling			
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%
Psychological distress			
"more distress"	44.7%	17.0%	38.3%
"less distress"	18.8%	18.8%	62.5%
Substance use			
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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The content of physiotherapy treatment of stroke patients at Community Health Centres in the Western Cape, South Africa

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ABSTRACT

Introduction
Physiotherapy plays an important role in the rehabilitation of stroke patients. The aim of this study was to determine the content of physiotherapy of stroke patients receiving physiotherapy at Community Health Centres in the Western Cape, South Africa.

Methodology
The content of physiotherapy was determined using video recordings. The study sample consisted of a conveniently selected sample of 13 stroke patients. A reliable scoring list was used to define the content of physiotherapy. Descriptive and inferential statistics were computed using SPSS version 16.

Results
The most frequently occurring categories were relearning selective movements, mobilisations and standing and standing balance. The activities of sensory and visual perceptual training and cognition, domestic activities of daily living, leisure and work related activities and miscellaneous techniques were not included in the physiotherapy treatments.

Conclusion
The content of physiotherapy consisted mainly of activities to improve movement patterns and not functional activities such as walking and dressing.

Key words
Stroke, physiotherapy, rehabilitation, content, Community Health Centres.

Introduction

Physiotherapy is an important component of the rehabilitation of stroke patients. In broad terms it can be defined as providing services to individuals and populations to develop, maintain and restore maximum movement (World Conferderation for Physical therapy, 2007). Physiotherapy treatment of stroke patients commonly includes activities to re-educate upper and lower limb function, sensory function, normalise tone, re-educate functional activities such as rolling, re-education of balance in sitting and standing, walking, stair climbing;

electrotherapy techniques, management of pain and oedema, activities to improve aerobic function, neuromuscular stimulation, patient and carer education and provision of orthotics and assistive devices (Ballinger, Ashburn, Low, & Roderick, 1999, Van Peppen et al., 2004).

Although physiotherapists use a variety of techniques, activities or approaches to treat stroke patients, strong evidence is only available for the use of task-orientated exercise training to regain balance and gait, as well as for strengthening of the lower limbs. Insufficient to no evidence is available for the use of traditional neurological treatment approaches (Pollock, Baer, Langhorne, & Pomeray, 2007), upper limb exercises, biofeedback, functional and neuromuscular electrical stimulation to improve dexterity or gait, use of orthotics and assistive devices, to improve functional outcome as well as for physical therapy interventions for reducing hemiplegic shoulder pain and oedema (van Peppen et al., 2004).

Occupational therapy also has been found to play an important role in the rehabilitation of stroke patients (Steuljens, Dekker, Bouter, van de Nes, & Cup, 2003; Walker, Gladman, Lincoln, Siemonsma, & Whiteley, 1999). Although some role overlap have been identified between the two professions (Booth & Hewison, 2002) the two professions are distinct when it comes to the management of stroke patients (De Wit et al., 2006; Ballinger et al., 1999). Activities such as exercises and retraining of balance in sitting and lying as well as re-education of ambulation and transfers are included more in physiotherapy sessions while activities such as re-education of activities of daily living, domestic and leisure activities and retraining of sensory and perceptual and cognition were mainly included in occupational therapy sessions. If viewed within the context of the WHO's International Classification of Functioning Disability and Health (ICF) (WHO,2001), it appears that the activities practiced by physiotherapists are primarily aimed at addressing impairments and activity limitations where as the activities practiced by occupational therapists are more focused on reducing the activity limitations as well as the participation restrictions.

Stroke rehabilitation occurs at various setting, which includes in-patient and out-patient services. In the Western Cape, South Africa, large numbers of stroke patients access out-patient services at Community Health Centres (CHCs) including rehabilitation (Rhoda, 2002). At these centres the rehabilitation of stroke patients consists mainly of physiotherapy. During the time of data collection, of the 20 CHCs providing rehabilitation services, 6 occupational therapists provided services to 16 of the centres while 16 physiotherapists provided services to 20 centres. Although the rehabilitation of stroke patients at the CHCs mainly involves physiotherapy, there is however a lack of information regarding the content and quality of the physiotherapy received by these patients. Information relating to the content of physiotherapy could be used to determine the effects of the therapy on the outcome of the patients which could be used to determine whether the therapy is appropriate or effective (Mardesen, and Greenwood, 2005). The content of physiotherapy therefore has an influence on the outcomes of stroke patients. The aim of study was therefore to determine the content of physiotherapy received by stroke patients accessing CHCs in the Western Cape.

Methods

A convenient sample of 13 first ever stroke patients were recruited from a bigger study which investigated the rehabilitation of stroke patients at CHCs. Video recordings were made of actual live physiotherapy sessions. A reliable (ICC, 0.71-1.00) scoring list developed by, (De Wit et al., 2007) was used to define the content of physiotherapy as provided by the video recordings. The scoring list consisted of 12 categories with 46 mutually exclusive sub-categories. The categories were; 1) mobilisation, 2) selective movements, 3) lying and lying balance, 4) sitting and sitting balance,5) standing and standing balance,6) sensory and visual perception, 7) transfers, 8) ambulatory activities, 9) personal activities of daily living, 10) domestic activities of daily living, 11) leisure and work related activities and 12) miscellaneous. The activity scored was the one being conducted when a sound signal, which went off every 20 seconds was heard. The data was captured and analysed using SPSS version 15 and 16. Descriptive statistics included the median and interquartile ranges. Given the nature of the data and the small number of cases observed, a non-parametric Spearman Rho was computed to determine the relationship between the level of functioning or

impairment as measured by the Rivermead Motor Assessment - Gross Function (RMA-G) and the content of the physiotherapy session, i.e. the occurrence of a specific content category.

Ethical Considerations

Ethical approval to conduct the study was granted by the senate higher degrees committee at the University of the Western Cape. Permission to conduct the study was also requested from the medical superintendent of the Community Health Services Organisation. The aim of the study was explained to the participants and/or their families. The participants were also provided with an information sheet. Written informed consent was obtained from all participants or their families where the participants could not provide consent due to communication problems or cognitive decline. The patients were assured of confidentiality and anonymity and the right to withdraw from the study at any stage.

Results

The results presented includes the characteristics of the participants, the length of the video-recorded treatment session, occurrence of the different categories as well as the relationship between the content of physiotherapy and the level of motor impairment.

Characteristics of The Participants

Table 1 presents the demographic and level of functioning of the participants

Table 1: Characteristics of Participants (n=13)

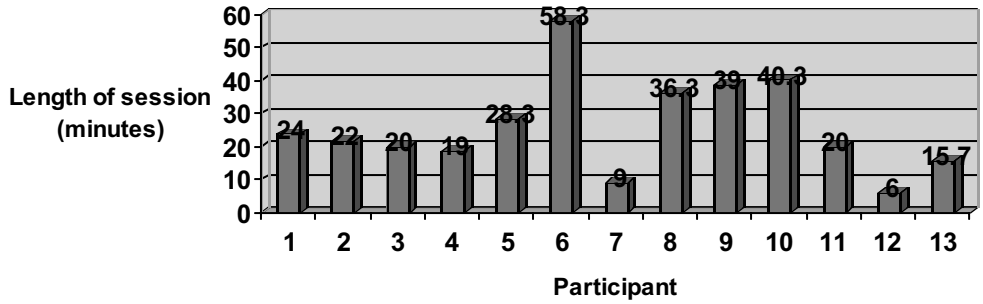
Variable	Participants
Age (years)	
mean	65.5
SD	6.5
Gender (number) (%)	
male	7(53.8)
female	6(46.2)
Side of impairment (number) (%)	
left	7(53.8)
right	6(46.2)
RMA-GF median	**4**
q1-q2	3-10

Key: RMA-G = Rivermead Motor Assessment Gross Function (score range 0-13)

Length of Video-recorded Treatment Sessions

The length of the individual treatment sessions is presented in Figure 1.

Figure 1 Length of video-recorded treatment sessions



The length of physiotherapy treatment sessions ranged from 6 to 58 minutes. The median treatment session time was 22 minutes (q1-q3; 17.35 -37.65). Two of the participants were treated for less than 10 minutes. Overall 13 observations were made.

Occurrence of each of the twelve categories.

The data from all the video-taped treatment sessions were pooled to determine the frequency with which each category occurred. The percentage of time spent per category per treatment session was calculated and expressed in minutes per one hour treatment sessions. The median (q1-q3) occurrence of each category is presented in Table 2.

Table 2: Median occurrence of categories and rank correlation with the level of motor impairment (RMA-G)

Category	Time spent median (q1-q3)	Spearman rank correlation
1. Mobilisation, manual joint mobilisation, stretching, palpation (including pain assessment) passive relaxation and massage	6.67 (2.10-14.70)	(r:-.1.6)
2. Relearning selective movements	10.21 (7.10-22.05)	(r: .01)
3. Lying and lying balance	4.94 (1.75-6.06)	(r: -.62*)
4. Sitting and sitting balance	5.14 (3.04-20.79)	(r:-.09)
5. Standing and standing balance	6.00 (1.00-19.13)	(r:-.01)
6. Sensory and visual perceptual training and cognition	0.00 (0.00-0.00)	N/A
7. Transfers	3.30 (1.63-8.95)	(r:-.70**)
8. Ambulatory exercises	0.91 (0.00-6.88)	(r:.72**)
9. Personal activities of daily living	0.00 (0.00-3.56)	(r:.18)
10. Domestic activities of daily living	0.00 (0.00-0.00)	N/A
11. Leisure and work related activities	0.00 (0.00-0.00)	N/A
12. Miscellaneous techniques	0.00 (0.00-0.00)	N/A

RMA-G: Rivermead motor assessment gross function
N/A: (not applicable)
P<.05:*
P<.01**

The most frequently occurring categories were relearning selective movements (median 10.21 minutes), mobilisations (median 6.67 minutes) and standing and standing balance (median 6 minutes). The least frequently occurring categories were ambulatory exercise (median 0.91 minutes) and personal activities of daily living (median 0.minutes). The activities of sensory and visual perceptual training and cognition, domestic activities of daily living, leisure and work related activities and miscellaneous techniques were not observed during the physiotherapy treatments sessions that were video-taped.

Relationship between content of physiotherapy and level of motor impairment

After pooling the 13 treatment sessions, correlations were computed between the level of functioning or impairment as measured by the RMA-G and the occurrence of a specific content category. Eight content categories that were observed in this sample were correlated with

functional impairment. The findings of the Spearman correlation coefficients are presented in Table 2. A strong, inverse correlation was reported between functional activity or impairment and transfers (r: -.70**) while a strong positive correlation was found between ambulatory activities and functional ability or impairment. This correlation was tested for significance and found to be significantly different from zero at a .01 alpha level. In other words, the more functional a patient was, the less likely it was that transfers would be part of the physiotherapy programme and the more likely ambulatory activities would occur.

A moderate, inverse correlation was reported between functional impairment and lying and lying balance (r: -.62*). This correlation was tested for significance and found to be significantly different from zero at a .05 alpha level. In other words, the more functional a stroke patient was, the less likely lying and lying balance would occur as part of the content of physiotherapy.

Discussion

The content of physiotherapy was determined by video-taping individual physiotherapy sessions which were then analysed using the reliable scoring list. Physiotherapy provided in the CHC's consisted mainly of relearning selective movements, mobilisations and exercises in standing and standing balance. These results were similar to those found in the Collaborative Evaluation of Rehabilitation in Stroke across Europe study (CERISE) (De Wit, et al., 2006). Ambulatory activities were however more frequently recorded in the CERISE study as well as a pilot study conducted by Ballinger et al. (1999) in the United Kingdom (UK). In the pilot study conducted in the UK the authors reported that walking was practiced 22% of the total treatment time (Ballinger et al., 1999). The limited occurrence of the category walking in the present study can be explained by the limited functional level of the participants. The median Rivermead Motor Assessment Gross Motor score of the participants was 4 indicating that the majority of them could not walk independently even with an aid. To walk independently the patient would need a score of at least 6 out of 13 on the Rivermead Motor Assessment Gross Motor Scale.

The activities included in the physiotherapy sessions were also more directed at improving impairments rather than activity or participation as described by the ICF (WHO, 2001). Although this could be linked to the level of functioning of the participants one would expect more interventions which are aimed at improving functional levels (activity), than those which are aimed at improving individual movements (impairment) as task orientated activities have been found to improve outcome post stroke (Van Peppen, Kwakkel, et al., 2004). Activities aimed at addressing activity limitations and participation restrictions are more frequently observed in occupational therapy treatment sessions with stroke patients (De Wit et al., 2005). Stroke patients accessing CHCs for rehabilitation are however less likely to receive occupational therapy than physiotherapy due to the lack of occupational therapists employed at the centres.

The physiotherapy treatment sessions were also much shorter than what is presented in the literature. In the present study the median length of treatment sessions was 22 minutes. In the European study conducted by De Wit et al. (2006) the mean duration of physiotherapy sessions ranged from 33 to 46 minutes for the different centres. Strong evidence exists for a greater intensity of physiotherapy resulting in improved functional outcomes of stroke patients (Teasall et al., 2005). Prolonged treatment sessions would result in an increased intensity of therapy which impacts on outcome. The decreased intensity of therapy could relate to therapists workload. Stroke is but one of the many conditions treated by physiotherapists at the centres.

Conclusion and Recommendations

The content of physiotherapy received by stroke patients attending Community Health Centres in the Western Cape was fairly similar to what was found in other international studies with the exception of ambulatory exercises which were less frequently found in the present study. The content of physiotherapy consisted mainly of activities aimed to improve movement patterns and not at functional activities. The results of the study must however be interpreted with caution due to the small sample size. The researcher would therefore like to recommend that the study be repeated using a larger sample size. It would also be recommended that physiotherapists' working at these centres

include more activities that facilitate improvement at a functional level even if the patients have decreased functional abilities. Strong evidence exist that task orientated approaches result in improved outcomes of stroke patients.

Implications for Practice

Physiotherapists in Community Health Centres should focus their treatment sessions on addressing activity limitations and participation restrictions of stroke clients rather than intense therapy focusing on the impairments of the client.

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PHYSICAL ACTIVITY LEVELS AMONG YOUNG PEOPLE WITH PHYSICAL DISABILITIES IN SELECTED HIGH SCHOOLS IN KENYA AND THEIR PERCEIVED BARRIERS AND FACILITATORS TO PARTICIPATION

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Abstract

Purpose:
To determine the levels of and potential contributing factors to participation in physical activity among young people with physical disabilities attending high school in Kenya.

Methods:
A cross-sectional survey, using a pre-piloted and validated self-administered questionnaire, was carried out in a purposively selected sample of 234 young people with physical disabilities drawn from three inclusive high schools in Kenya. The questionnaire comprising outcome measures for physical activity levels, barriers, and facilitators to physical activity participation was administered to the young people. Data was analyzed using the Statistical Package for Social Sciences (SPSS) and both descriptive and inferential statistics were done.

Results:
Almost half of the children in the sample were inactive. Key barriers to physical activity were found to be: fear avoidance and disability, lack of time and the need to rest. Finding ways to exercise that are enjoyable, as was enjoying and having fun and not being in good health were associated significantly to gender ($p<0.05$). Likewise, age was significantly associated with gaining peer acceptance, as was encouragement from family and having disability ($p<0.05$).

Conclusion:
The results indicate there is a need, for activity counselling and provision of local disability-friendly and/or conducive environments to increase physical activity participation in this sample. All stakeholders should be enlisted in making recommendations and designing physical activity programmes for young people with disabilities in their schools.

Key words:
Barriers, facilitators, physical disabilities, young people, inactivity.

Introduction

Physical inactivity has emerged as a major health risk behaviour that is prevalent among adolescents with physical disabilities (Pan, Frey, Bar-Or & Longmuir, 2005). Researchers have shown that the habit worsens as adolescents approach adulthood (Norman, Schmid, Sallis, Calfas & Patrick, 2005). The behavior of inactivity may be linked to secondary conditions such as overweight and obesity among persons with disabilities (Boyle & Coldero, 2005; Rimmer, Rowland & Yamaki, 2007). Research has also shown that regular physical activity assists in reducing the risk factors for coronary heart disease, type 2 diabetes and hypertension among adolescents (Strong et al 2005). By adulthood, the prevalence of chronic diseases is 2 to 3 times higher among people with disabilities than their normal peers (Kinne, Patrick & Doyle, 2004). The increasing incidence of chronic diseases among those with physical disabilities has increased the social and

economic costs of healthcare and social services in developed countries (McDougal et al, 2004). Reports of studies on risks of physical inactivity among children and adolescents with disabilities are available for developed countries such as USA (Norman et al, 2005; Rimmer et al 2007) and Canada (McDougal et al,2004; Pan et al 2005)] with few on developing countries.

Research has also found that participation of children with physical disabilities in structured school activities was lower than that of their peers without disabilities and less vigorous indicating poor social integration (Law, King, King, Kertoy, Hurley & Rosenbaum, 2006). In addition, a study by Heller, Ying, Rimmer & Marks (2000) highlighted that there are various factors that impede participation which include lack of transport, poor knowledge about exercise facilities, lack of exercise equipment at home, and lack of support from caregivers. Education for all with specific emphasis on inclusive education has been accepted in different national documents in various African countries (Peters, 2004). Within this context it has been suggested that the participation of disabled children in physical activity at schools should be encouraged (Sit, McManus, McKenzieT & Lian, 2007)]. The debate continues regarding the appropriateness of full inclusion but the reality is that more children with disabilities are interacting with mainstream peers. The literature regarding physical activities for children with disabilities in inclusive schools is limited, with no reported studies in Kenya. Therefore, this study aimed at reducing this void by investigating the state of physical inactivity among young people with physical disabilities in Kenya and factors influencing their participation.

Materials and Methods

A cross-sectional study was conducted in selected high schools in Kenya that offer inclusive education to young people with disabilities. The population of people with disabilities in Kenya is estimated at 10% of the total population and 25% of these are school-going children. Approximately 2% of these children are enrolled in educational programmes for children with disabilities and the same number are integrated into regular schools.

Population and Sampling

All high schools offering inclusive education in Kenya were contacted to participate in the study. The three inclusive schools volunteered and together they had a total number of 546 school children. Purposive sampling was used to target all the adolescents with physical disabilities attending the schools offering inclusive education aged between 14 and 21 years of both gender who could read, write, and speak fluent English. All children (n=262) with physical disabilities were contacted and requested to participate in the study voluntarily. Guardians of the children aged below 18 years signed on their behalf in accordance with the requirements of the relevant ethical review boards.

Measurement Instruments

A self-administered questionnaire was used to assess: demographic data, physical activity levels, barriers and facilitators to physical activity participation. The physical activity scale for individuals with physical disabilities was used to determine the physical activity levels (Washburn, Zhu, McAuley, Frogley & Figoni, 2002) and other relevant literature was used to determine the barriers (Whiteneck et al, 2004) and facilitators. Participants selected appropriate responses on a 5 point Likert rating scale to determine the barriers and facilitators. All modifications were done with consideration to the Kenyan context where the study was conducted. Although the original questionnaires had been used in different contexts and had excellent test-retest reliability, such as the barriers scale (Whiteneck et al 2004), the implications of modification on this reliability was taken into account. Reliability testing of the questionnaire was done using the test- retest method. A pilot study was therefore conducted to pre-test the research questionnaire in Kenya among fifteen (n=15) young people with physical disabilities, who were not included in the main study. The barriers scale test yielded a moderate reliability (Cronbach's $\propto$ of 0.67 [ICC=0.67]). Reliability of the 25 variables in the facilitators scale was good (Cronbach's $\propto$ of 0.807 [ICC= 0.807]).

Data Analysis

Based on the aim of the study, descriptive statistics for the variables such as levels of physical activity, barriers and facilitators to physical activity participation for the adolescents were calculated. Chi-square test of association was done between independent variables and levels of physical

activity, and between independent variables and variables in the barriers and facilitators scales. The SPSS version 14.0, soft-ware, was used to analyze the data collected from the survey.

Results

Of the 262 adolescents with disabilities contacted, 234 (89%) consented and filled the questionnaires completely. The majority of the adolescents (140) were aged between 14-17 years and 94 were aged 18-21 years. The mean age was 17.09±1.90 years. Of the 234 adolescents, 52 had other health conditions which included poor eyesight (21), epilepsy (5), asthma (2), urinary incontinence (2) and hearing problem (1). Twenty-one of the participants did not specify their problem. Only 154 children reported using special equipment. Of these 89 (69.0%) were males and 65 (62.5%) were females. Table 1 summarises the distribution of physical impairments by gender.

Table 1: Physical impairments by gender in decreasing order (N=234)

Physical Impairment	Males (n=129)	Females (n=105)	Total Frequency (N=234)
Paralysis of limbs	54	34	88 (38%)
Congenital malformations	13	23	36 (15%)
Spinal injuries and deformities	20	13	33 (14%)
Amputated limbs	15	6	21 (9%)
Aquired deformities: contractures	6	5	11 (5%)
Osteogenic problems e.g. brittle bones	4	4	8 (3%)
Muscle dystrophy	1	3	4 (2%)
Stroke and poor health status	0	1	1 (.4%)
Missing	-	-	32 (14%)

Levels of Physical Activity

There was no significant association between gender and the level of physical activity. Of the 234 adolescents, only 52% (121) were active, while 48% (n=113) did not attain the benchmark score. The prevalence of inactivity was higher among the older adolescents (50%) than the younger group (47%). Independent sample t-test showed there was no difference in mean physical activity level between the two age groups (T [df. =232] =1.443, P=.150) and there was no significant association between gender and physical activity levels (p=0.54).

Perceived Barriers and Facilitators to Physical Activity

The most prevalent barriers and facilitators to physical activity perceived by adolescents are presented in Table 2 below. Lack of transport was significantly associated with levels of physical activity (P<0.03). Chi-square test was done to determine the association between independent variables (gender and age) and variables facilitating and barring physical activity. Gender was significantly associated (at 5% level) with finding ways to exercise that are enjoyable (P =0.031) and this was more prevalent amongst the females, as was enjoying and having fun (P= 0.041). Age was significantly associated with gaining peer acceptance (P=0.040) especially among males, as was encouragement from family to be active (P= 0.032). Having an injury or disability was significantly associated (at 5% level) with age-group (P = 0.018), as was health is not good with gender (P = 0.036).

Table 2: Barriers and facilitator to physical activity participation

Barriers to participation		Facilitators to participation	
Fear of getting injured	53%	Maintaining a healthy body	87%
Lack of transport	43%	Enjoying and having fun	84%
Uneven playgrounds	41%	Learning new skills and experience	84%
Current injury or disability	36%	Gaining more self confidence	83%
Lack of time	36%	Making new friends	81%
Don't have the right equipment or clothes	35%	Participation in physical education classes at school	80%
No suitable facilities	34%	Encouragement from family to be active	79%
I need to rest in my spare time	34%	Improving my ability to move without assistance from others	79%
There is no one to do it with	31%	Positive attitude from family	78%
I'm not the sporty type	30%	Having access to suitable facilities	77%

Discussion

Research has consistently shown increasing prevalence of inactivity among young people with or without disabilities, raising public health concern (Packer, Briffa, Downs, Ciccarelli & Passmore, 2006). Evidence has also shown that a high proportion of young people do not attain the recommended levels of physical activity (Jones, 2003). The current study highlights yet again that nearly half of the young people are struggling to meet the basic requirements recommended to be physically active. Similarly using the modified version of the Canada Fitness Survey tool to quantify physical activity research reported that 2 out of 5 children and adolescents with physical disabilities were inactive (Pan et al. 2005). According to available evidence, inactivity among adolescents in transition is associated with being older (Norman et al. 2005).

Although active participation of the disabled is encouraged by World Health Organisation, the study still revealed real barriers preventing participation of the learners. Barriers were linked to personal factors, environmental and social factors. It has been shown that subjects with low self-efficacy have fear of movement/ (re)injury, and catastrophizing and avoid movement (Denison, Asenlof, Sandborgh & Lindberg, 2007). The implication of fear in the adolescents is the potential to often engage in the less intensive activities that have no proven health benefits, and are socially isolating (Blomquist, Brown, Peersen & Presler, 1998; Boyce, 2001; Skar, 2003). The current study showed a significant proportion of young people perceived barriers in transportation, uneven play grounds, having a disability, lack of time, lack of clothes/equipment, need of rest, and to a lesser extent lack of suitable facilities nearby. Similar to the current findings, research has found that children with disabilities experienced barriers from uneven surfaces, unsuitable footwear, time pressure, physical inaccessibility and personal assistants (Mihaylov, Jarvis, Colver & Beresford, 2004). In addition, other studies have also highlighted transportation, facilities and social support as barriers to participation (Heller et al, 2000).

The current study highlights that health professionals need to understand that various factors influence participation in physical activity and, contextual factors such as environmental and personal factors need to be considered when dealing with disabled youth. It has been emphasized in literature that when encouraging physical activity participation among those with disabilities, health professionals need to take into consideration the "impairments, activity limitations and participation restrictions within the context of

person-environmental factors" (WHO, 2001). Additionally, in order to successfully implement or encourage physical activity programs, health professionals need to understand factors that are associated with successful participation (WHO, 2001). There also needs to be efforts directed at implementing community based programmes and even school based programmes that are relevant to specific sectors of the population. Research has highlighted that physiotherapists play a major role in assisting in the integration and encouraging active participation of children with disabilities in mainstream school (Mahon & Cusack, 2002).

Limitations of the Study

One of the limitations was the sampling method which was purposive. The result of such a sample is only limited to the sample surveyed and cannot be representative. Another limitation was the subjective nature of data collection tool which was on self-report only. There was no objective observation or test for performance of physical activity. Lastly, there was a possibility of the young people over-reporting or under-reporting on activities. In addition, this study only focussed on children with physical disabilities as the challenges faced by children with intellectual disabilities may differ and needs to be addressed.

Conclusion

The results show that inactivity affects one out of two adolescents with physical disabilities and a significant proportion experience a variety of barriers to physical activity participation. These highlighted barriers indicate the need for, activity counselling, and provision of local disability-friendly or conducive environments to increase physical activity participation in this sample. Therefore, all stakeholders should be enjoined in recommending and designing physical activity programmes for adolescents with disabilities in their schools.

Implications

The WHO ICF model encourages a focus on activity limitations and participation restrictions, within the individual's particular socio-cultural context, it is the hope that this current study could be used to ensure the inclusion of activities in schools that allow for the full participation of the disabled youth and will address their barriers at an environmental and personal level.

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HIV/AIDS management: The roles of physiotherapy

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Abstract

Background:
HIV/AIDS is a major health problem that has affected many people globally and it is the primary cause of death in Sub-Saharan Africa. Approximately 68% of the global total i.e. 22.5 million people living with HIV/AIDS (PLWHA) are in Sub-Saharan Africa. With antiretroviral therapy, PLWHA now live longer and present with various opportunistic neuro-musculo-skeletal and cardio-pulmonary conditions.

Purpose:
To explore the global, regional and local existing literature concerning knowledge, attitude and roles of physiotherapy in the management of PLWHA.

Method:
A retrospective search of articles published between January 1990 and March 2008. Outcome measures:
Documented information concerning physiotherapy management of PLWHA, including physiotherapists' knowledge and attitudes, based on inclusion criteria.

Results:
The search yielded 17 reviews of good or reasonable quality. Physiotherapy rehabilitation can address impairment and activity limitation. There is some evidence that aerobic training with a progressive exercise component is effective in improving the cardio-vascular system, distribution of adipose tissue and on quality of life. There is evidence that ice or dry-towel massage has a positive effect on neuropathic pain. Evidence from case studies suggests that joint mobilization, soft tissue mobilization, stretching, and the use of micro-current, pressure garments and orthotics may be effective. There was no evidence of the effect of other physiotherapy roles mentioned including chest physiotherapy, counseling and health education.

Conclusion:
There is some evidence that exercise is safe and beneficial to PLWHA. Further studies are needed to determine if other physiotherapy techniques are effective for treating PLWHA.

Key words:
Physiotherapy management, HIV/AIDS, physiotherapy challenges, conditions related to physiotherapy, physiotherapy treatment techniques, therapeutic exercises

Introduction

HIV/AIDS is a leading cause of deaths globally and remains the primary cause of death in Africa (UNAIDS, 2007). In 2007, 33.2 million people were estimated to be living with HIV, 2.5 million people became newly infected and 2.1 million people died of AIDS (UNAIDS & WHO, 2007). The African region remains the most severely affected region globally and it was estimated that there was 1.7 million new HIV infections in sub-Saharan Africa in 2007. An estimated 22.5 million people living with HIV, or 68% of the global total, are in sub-Saharan Africa (UNAIDS & WHO, 2007).

As a result of medical advancement, many people living with HIV infection in developed countries are living longer since the introduction of antiretroviral drugs (Worthington, Myers, O'Brien, Nixon, Cockerill, & Bereket, 2008). With these changes the needs of people living with HIV/AIDS (PLWHA) have changed and their rehabilitation needs have increased and have become more complex (Worthington et al. 2008). PLWHA face a variety of health-related consequences and the adverse effects of associated treatment. According to Worthington et al. (2008) and Anandan, Braveman, Kielhofner and Forsyth (2006), both asymptomatic and symptomatic PLWHA experience higher levels of perceived physical disability compared to the general population. In the study by Anandan et al (2006) 80% of PLWHA surveyed, experienced one impairment (such as pain or weakness), activity limitation (such as inability to walk), or participation restriction (such as inability to work) attributed to their HIV status. As HIV infection now increasingly presents as a chronic disease, there is a potential increase in the prevalence and impact of disability (WHO, 2001; Anandan, et al, 2006). Consequently the rehabilitation of PLWHA needs to include the management of impairment, activity limitations and participation restrictions.

According to Uys (2003), managing PLWHA and the related impairments requires a continuum of care for the individual and the family. In addition, a variety of medical staff play a role in the management and prevention of HIV/AIDS. Due to the presumed dangers of HIV infection during patient care, medical staff may experience stress when caring for PLWHA. Additionally, it has been emphasized that adequate knowledge and a positive attitude is critical when caring for PLWHA (Gatsi, Amosun and Mhlanga, 1994; Johnson and Sim 1998). Adequate knowledge is an important means of reducing stress and can result in better care and improved information being given to the general public (Hall & Shisana, 2003; Horsman & Sheeran, 1995; WHO, 2005).

A large body of knowledge exists on the medical management of HIV/AIDS but the role of rehabilitation workers in the management of HIV/AIDS is not always clearly defined. Different skills and competencies may be needed by rehabilitation workers when managing PLWHA. Health professionals including physiotherapists must have adequate knowledge about HIV/AIDS and the appropriate techniques available to treat PLWHA.

Physiotherapy is a branch of science which offers a service to people to maintain and restore maximum movement and functional ability throughout the life span (WCPT, 2003). Within the medical team, physiotherapy play important roles in reducing pain and restoring (or maintaining) optimal physical function of patients. In addition, physiotherapy also utilizes non pharmacological treatment modalities, including manual therapies, electro-physical agents, thermotherapy, hydrotherapy and graded exercises (Jose & Balan, 2002; Fransen, 2004; Miller, 2007). Physiotherapists can be involved in the management of PLWHA who have opportunistic infections or other complications (WHO, 2001; Gale, 2003; Worthington, Myers, O'Brien, Nixon, Cockerill & Bereket, 2005). According to Voors (2000), based on the ethical principles of beneficence, non-maleficence and justice, physiotherapists do not have the right to refuse to treat PLWHA. Thus, as the health care is not value free, the role of therapists is not to judge but to treat according to the patients' needs rather than merit.

Findings from a few studies done to investigate the role of physiotherapists in the management of PLWHA and associated conditions show positive effects especially in decreasing signs and symptoms and improving functional limitations, and quality of life (Gale, 2003; Myezwa, Stewart, Mbambo & Nesara, 2007; Galantino, Marchese, Ness & Gilchrist, 2005). Van Rie, Mupuala and Dow (2008), reported that HIV/AIDS in children definitely

impacted on their neuromotor development thus indicating a need for physiotherapy intervention. In addition, the study by Lang (1993) highlights that PLWHA have problems that can be managed by physiotherapy and those patients who have been discharged from hospital will benefit from home visits by physiotherapists thus highlighting the need for community physiotherapy.

As patients are experiencing acute and chronic symptoms, it is evident that physiotherapists have a role to play in the acute hospital setting as well as in community rehabilitation settings. Hughes, Jelsma, Maclean, Darder and Tinise (2004, p. 375) concluded that "therapists need to re-examine and redefine their roles" in the management of PLWHA especially in poorly resourced regions with a high prevalence of HIV/AIDS.

This systematic literature review aims to determine, firstly, the knowledge and attitude of physiotherapists towards managing PLWHA, and, secondly, the roles of physiotherapy in the management of PLWHA and the conditions associated with HIV/AIDS. The review will primarily aim to consolidate information in the existing literature about physiotherapy management of PLWHA.

Methodology

This review investigated publications that evaluated or discussed the knowledge and the attitudes of physiotherapists towards managing PLWHA and the effect of treatment provided by physiotherapists. It is based on information obtained from the following electronic databases for the period from January 1990 to March 2008: Medline, CINAHIL, Science Direct, Google Scholar, Health Source Nursing Academic Edition, PEDro, Cochrane, British Library Direct, EMBASE and Aidsonline. Published abstracts and proceedings from major international and national HIV/AIDS conferences were retrieved and reviewed.

The key words and the search terms used to develop the search strategy for each of these databases included: knowledge, attitude, physiotherapy management, HIV/AIDS, physiotherapy challenges, conditions related to physiotherapy, physiotherapy treatment modalities, physical therapy modalities, aerobic exercises, therapeutic exercises, physical therapy management and rehabilitation. The electronic searches were supplemented by checking the reference lists of any relevant identified articles. Potentially relevant articles were retrieved for full text assessment when the title and abstract did not provide sufficient information to include or exclude in the review. The quality of the articles included in the review was assessed using different scales. Final scoring of the articles was done by two independent reviewers.

The Reader Critical Appraisal Method (Mac Auley, Mc Crum & Brown, 1998) is a scale which can be used to score an article with any study design. In this case, it was used to score the cross-sectional survey studies. The score ranged from 1-25 points, the higher the score the better the quality of the article. A "good quality" article scored between 17-25 points, a "moderate quality" article scored between 9-16 points and a "poor quality" article scored between 1-8 points. The articles that scored from 1-8 were excluded from the review.

The Centre for Evidence-Based Social Services Critical Thinking Tool (Guyatt, Sackett & Cook, 1994) was used for scoring the randomized control trials (RCTs), qualitative studies and quasi-experimental studies. The scale was comprised of 13 questions to assess the methodological quality of RCTs by use of criteria such as randomization, blinding, dropouts and follow ups, number of participants or sample and results. The score ranged from 1-13 points. Articles were only included in the final study if they were deemed to be of "good quality" (8-13 points) and "reasonable quality" (5-7 points). Those with 1-4 points were considered to be of poor quality and were excluded. The same tool was used for the scoring of qualitative studies.

The Critical Appraisal Skills Programme (CASP) (Oxman, Cook & Guyatt, 1994) was used to score the systematic review papers. This tool was comprised of 10 questions, thus the scores ranged from 1-10 points. The articles were considered of "good quality" (8-10 points) and "reasonable quality" (5-7 points). Those articles scored between 1-4 points were considered of poor quality and were excluded from the review.

The Critical Appraisal Skills Programme (CASP) (Public Health Resourse Unit England, 2006) was used in the scoring of case control studies. The tool has 11 questions making a total number of 11 points. The articles were considered of "good quality" (8-11 points) and "reasonable quality" (5-7 points). Those with 1-4 points were considered of poor quality and were excluded from the review.

Results

The initial search strategy of articles yielded 1855 articles. After the application of inclusion and exclusion criteria, 21 English language articles published between 1990 to March 2008 were selected. Four of these articles were subsequently left out because of poor quality or not being specific to the topic (i.e. physiotherapy and HIV/AIDS). Thus 17 articles from different study designs remained for review: six cross-sectional surveys, two randomized control trials, one qualitative study, three systematic reviews, four case studies and one quasi experimental study. These articles and the scores allocated to each article are presented in Table 1.

Discussion

The findings of the articles identified for this review relate to the roles of the physiotherapists, their knowledge and attitudes, training of physiotherapists, and service provision by physiotherapists related to PLWHA.

Roles of the physiotherapists

Worthington et al., (2008) describes the role of physiotherapy as being to address impairment and activity limitation with 46% of rehabilitation workers in their study indicating that their profession was very important in the rehabilitation of PLWHA. The findings of a qualitative study (Worthington et al., 2005) with 13 key informants, including PLWHA, indicated that concepts of rehabilitation that used a goal-oriented and client centred process had the potential to have an impact on a range of life domains. This has led to the development in Canada of the HIV rehabilitation framework.

The role of physiotherapy that appeared most frequently in the studies is the provision of exercise therapy. Three systematic reviews related to exercise for PLWHA were included. Malita, Karelis, Toma, Rabasa-Lhoret (2005) reviewed 11 studies investigating the relationship between exercise training and body composition and the patterns of body fat distribution. Aerobic training led to a reduction in total body fat and visceral fat, but the results of resistance training were inconclusive. They concluded that a combination of aerobic training and resisted exercise was more effective in the reduction of body fat and increasing lean body mass in HIV than in exercise alone and recommended a combination of aerobic and resistance training to be prescribed alongside medication. Taylor, Dodd, Shields and Bruder (2007) reviewed 38 studies, including 3 systematic reviews, and concluded that, although therapeutic exercise does benefit people across a broad physiotherapy practice, there was limited evidence that strength training leads to an increase in body weight in adults with HIV and that there was limited evidence that aerobic exercise leads to reduced HIV related symptoms. O'Brian, Nixon, Glazier, & Tinan (2004) reviewed seven studies concluding that progressive resisted exercise (PRE) is safe and may be beneficial to PLWHA. They recommended that further studies, conducted at various stages of the illness, are necessary.

A randomized controlled trial on adult men with HIV, by Fillipas, Oldmeadow, Bailey, & Cherry (2006) in Australia, comparing a supervised aerobic and resistance exercise programme with an unsupervised walking programme, found that the exercise group experienced a significant improvement in self-efficacy ($p<0.001$), cardiovascular fitness using the Kasch Pulse Recovery Test ($p<0.001$), and in two out of 11 dimensions using the QOL Medical Outcomes HIV Health Survey (p, 0.05). Likewise, Mutimura, Stewart, Crowther, Yarasheski and Cade (2008), in a randomized control trial conducted in Rwanda, found exercise improved quality of life of adult men and women with HIV related to psychological, independence and social domains, compared to a control group. Cardiovascular fitness also improved. The researchers recommended that exercise training be included in the routine management of people receiving HAART, to improve adherence to the medications.

A case study by Miller (2007) reports on the use of a 12 week hospital based exercise programme with two girls with HIV aged 10 and 17 years. The

outcome indicated that progressive resisted exercise with an aerobic component improved muscle strength and reduced adipose tissue. These improvements were sustained or improved over the following six months with a home programme. A case study by Harris-Love and Shrader (2004) found that therapeutic exercise, in combination with compression bandaging and pressure garments, reduced the swelling and pain in an adult male with HIV with lymphodoema. They also found that gait training with the use of orthotic sandals improved mobility in a second adult male with HIV.

Other roles of physiotherapists reported in the studies identified include chest physiotherapy, counseling and health education (Useh, Akimpelu & Makinde, 2003). A study by Ownby (2006) investigated the effect of massage on neuropathic pain and quality of sleep among PLWHA with each person serving as his or her own control. Ice massage and dry towel massage both led to a reduction in neuropathic pain, with no significant difference between the two methods. There was no significant association with sleep quality.

Gale (2003) reports on a case study of two patients with AIDS related peripheral neuropathy concluding that the use of joint mobilization, soft tissue mobilization, stretching and the use of micro-current were effective in the relief of pain, improved function and quality of life.

Knowledge and attitudes of physiotherapists

Several studies report on the knowledge and attitudes of physiotherapists as these may impact on their roles as service providers. Amongst student and qualified physiotherapists, level of knowledge has been positively associated with knowingly treating PLWHA (Worthington et al., 2008; Useh et al., 2003). However, it has been found that level of knowledge varies, with physiotherapists sometimes overestimating their knowledge (Puckree, 2002).

Although some physiotherapists indicate their knowledge is adequate (Gatsi et al., 1994), rehabilitation professionals in Canada, including physiotherapists, have indicated the need for more information on policy, treatment medications, the episodic course of HIV, HIV pathogenesis and HIV epidemiology (Worthinton et al., 2008). In the study by Puckree (2004) the majority of student senior physiotherapists did not know they could contract HIV from a used hyperdermic needle and did not know of mother-to-child transmission of HIV.

Attitudes towards PLWHA vary. Gatsi (1994) reports that 100% of physiotherapists in Zimbabwe indicated that they would treat PLWHA, but that only 74.8% would agree to give this person hydrotherapy. Fear is a factor for many physiotherapists working in countries where HIV prevalence is very high. Gatsi (1994) found that 54.6% of physiotherapists in Zimbabwe were afraid of becoming infected while treating PLWHA. Similarly Puckree (2002) found that 62% of physiotherapists (of a South African sample) were not completely at ease in treating PLWHA. In Canada where HIV prevalence is lower, 61% of rehabilitation workers indicated that they had never knowingly served a PLWHA (Worthington et al., 2008). Of these, 27% said they were unwilling and 46% unsure about whether they would treat PLWHA. In the study by Johnson and Sim (1998), where the majority of student physiotherapists demonstrated a moderately positive attitude towards PLWHA, 14% had moderately negative attitudes. Likewise, Puckree (2004) indicates that 33% of student physiotherapists reported negative attitudes.

The correlation between knowledge and attitude is inconclusive with Johnson and Sim (1998) reporting a significant relationship between high level of knowledge and positive attitude but Gatsi (1994) indicating that level of knowledge was not correlated with attitude. Nevertheless Gatsi (1994) concludes that improved knowledge is important to provide effective treatment, while Johnson and Sim (1998) conclude that poor knowledge and negative attitude would have a negative impact on the standard of care of the patient.

Training to improve the knowledge of student and graduate physiotherapists is reported on in several studies (Puckree, 2002; Useh et al., 2003; Worthington et al., 2008). Changes in curricula at undergraduate level is recommended (Puckree, 2004), though there is recognition that the curricula and the focus on HIV will vary according to area and prevalence of HIV (Useh et al., 2003). While some recommend that specialized training is

necessary for rehabilitation professionals providing rehabilitation services to PLWHA, others recognize the service needs the same skills as for other chronic or acute conditions (Worthington et al., 2008).

Service provision by physiotherapists

Barriers related to service delivery were identified in several studies. Worthington et al., (2005, 2008) indicate that these include waiting lists, underfunding, stigma, fear of health care providers, and a lack of services in the rural areas. Myezwa et al. (2007) found very poor referral to physiotherapy. At one large hospital in South Africa, 98% of patients, with conditions that can be treated by physiotherapy, were not referred to physiotherapy.

Conclusion

The role of physiotherapists in the provision of exercise therapy has been investigated in a number of studies and several systematic reviews, however, the conclusions vary. Aerobic exercise appears to reduce body fat, improve cardiovascular fitness and improve quality of life. Although exercise therapy has been found to be beneficial generally in physiotherapy practice, it is not certain that resisted exercises, although safe, will have beneficial effects among PLWHA. Other techniques have not been investigated in the same depth and further studies are needed. Training to improve the knowledge of HIV of students and graduates may not directly affect attitudes but will be important for providing an effective service.

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An analysis in terms of author, objective of the study, sampling technique, size and the setting where the study was conducted, study design, findings of the specific studies and their scores are presented in Table 1.

Table 1: Summary of articles selected for review

Reference	Objective	Design	Setting &sample attribute	Major findings	Score
Gatsi et al., (1994)	Assessing the attitudes and behaviour of physiotherapists working with PLWHA	Cross-sectional survey	Convenient sample of 119 rehabilitation personnel in Zimbabwe, ages not specified	Physiotherapists working in countries where HIV prevalence is very high like Zimbabwe, were afraid of becoming infected while treating PLWHA	23/25
Johnson and Sim, (1998)	Describe the knowledge and attitude of physiotherapy and occupational therapy students in relation to HIV and AIDS.	Cross-sectional survey	Convenient sample of 246 physiotherapy and occupational therapy students in UK, ages not specified	Good knowledge correlated with positive attitude.	22/25
Puckree et al., (2002)	Determine knowledge and attitude of physiotherapy learners concerning HIV/AIDS	Cross-sectional survey	Convenient sample of 114 physiotherapists in South Africa, ages not specified	Level of knowledge varies, with physiotherapists sometimes overestimating their knowledge	16/25
Puckree et al., (2004)	Determine the attitudes of student physiotherapists towards PLWHA	Cross-sectional survey	Convenient sample of senior 289 physiotherapy students in South Africa, aged up to 25 years	Knowledge varied with some important gaps	22/25
Useh et al., (2003)	Compare the level of knowledge, roles and attitudes of physiotherapists to PLWHA	Cross-sectional survey	Convenient sample of 207 physiotherapists in Zimbabwe and Nigeria, ages not specified	Good level of knowledge correlated with positive attitudes. Physiotherapist's roles include: chest physiotherapy, counseling and health education, exercise	22/25
Worthington et al, (2008)	Describe the role of physiotherapy and importance of rehabilitation professionals' practices, knowledge and training for PLWHA	Cross-sectional survey	Random sample of 2105 rehabilitation team members in Canada, ages not specified	Good level of knowledge correlated with positive attitudes. Rehabilitation by physiotherapist to address impairment and activity limitation.	21/25
Fillipas et al, (2006)	Effects of a supervised aerobic and resistance exercise programme in improving self-efficacy for PLWHA	Randomized control trial	Random sample of 40 adult male PLWHA aged 18 & above in Australia	There is a significant improvement in self-efficacy with supervised aerobic and resistance exercise programme to PLWHA	11/13
Mutimura et al, (2008)	Determine effects of exercise on quality of life of adult men and women with HIV	Randomized control trial	Random sample of 40 PLWHA in Rwanda, ages not specified	Exercise helps to improve cardiovascular fitness and self-esteem	12/13

Worthington et al, (2005)	Describe the concept of rehabilitation and its impact on QOL of PLWHA	Qualitative study	Interviews with 13 rehabilitation workers and PLWHA in Canada, ages not specified	Rehabilitation that uses a goal-oriented and client centred process has an impact on life domains	9/10
O'Brien et al, (2004)	Determine the effects of progressive resisted exercise on PLWHA	Systematic review	Review of 7 studies	Progressive resisted exercise is safe and may be beneficial to PLWHA	8.5/10
Malita et al, (2005)	Determine the effects of exercise training on body composition and body fat distribution	Systematic review	Review of 11 studies	A combination of aerobic training and resisted exercise was effective in the reduction of body fat and increasing lean body mass in PLWHA	9/10
Taylor et al, (2007)	Determine the effects of strength training in reducing HIV related symptoms for PLWHA	Systematic review	Review of 38 studies	There is limited evidence that strength training leads to an increase in body weight for PLWHA or aerobic exercise leads to reduced HIV related symptoms	9.5/10
Gale, (2003)	Describe the effect of physiotherapy interventions on AIDS related peripheral neuropathy	Case study	Convenient sample of two male patients aged 37 & 52 years in USA	The use of joint mobilization, soft tissue mobilization, stretching and the use of microcurrent were effective in the relief of pain, improved function and quality of life of PLWHA with peripheral neuropathy	9/11
Harris-Love et al, (2004)	Describe the effect of physiotherapy in the treatment of HIV-associated Kaposi's sarcoma	Case study	Convenient sample of two male patients aged 36 & 39 years in USA	Therapeutic exercise, in combination with compression bandaging and pressure garments, helps to reduce swelling and pain in an adult male with HIV with lymphodoem**a.** Gait training and orthotic devices improved mobility	9/11
Myezwa et al, (2007)	Describe how and when physiotherapy is involved in the management of PLWHA	Retrospective study	Convenient sample of 732 records of PLWHA aged 15-72 years in South Africa	A very large proportion of patients who could benefit from physiotherapy were not referred to physiotherapy	10.5/11
Miller, (2007)	Describe the effect of a 12 week hospital based exercise programme on muscle strength and adipose tissue	Case study	Convenient sample of two girls aged 10 and 17 years in USA	Progressive resisted exercise with an aerobic component helps to improve muscle strength and reduce adipose tissue	9.5/11
Ownby, (2006)	Determine the effect of massage on neuropathic pain and sleep quality	Quasi experimental	Convenient sample of 34 adult PLWHA recovering from substance abuse aged 21-51years	Ice and dry towel massage decreases neuropathic pain but is not associated with sleep quality	8.5/13

OBESITY IN CHILDREN: A CASE FOR TENNESSEE

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Abstract

Obesity is a chronic condition that affects personal health, morbidity and mortality rates, psychological wellness, and health care costs. There has been a worldwide increase of obesity in children. More than half of adults in the United States are overweight and the incidence of obesity in adolescents has almost tripled in the past 30 years. Obesity has a complex and multi-factorial etiology and a significant economic impact. Obesity predisposes children to cardiovascular disease, Type 2 diabetes, depression, and numerous other conditions. Adult-onset diabetes was renamed to Type 2 diabetes to accommodate the escalating rate of diagnosis in obese children. Thus intervention strategies are indicated and the primary prevention interventions for Tennessee include standardization of data collection, breastfeeding promotion, improved physical activity infrastructure, and education / marketing programmes.

Key words:
obesity, children, Tennessee

Introduction

Obesity is considered a chronic disease that predisposes the individual to a myriad of health disorders. The etiology of obesity is complex and multi-factorial. Body weight is influenced by culture, society, availability and quality of food, the endocrine system, genetic factors, psychological and behavioral components, education level, physical activity, and economic status. The purpose of this paper is to explore the factors influencing obesity in children of Tennessee. For the purposes of this article the following definitions related to obesity will be used: Body Mass Index (BMI) is a number calculated from a person's weight and height. The term BMI is used to describe body weight adjusted for height and is the standard for measuring obesity for adults in the United States. BMI provides a reliable indicator of body fatness for most people and is used to screen for weight categories that may lead to health problems. Although, BMI correlates with the amount of body fat, BMI does not directly measure body fat. For children and teens, BMI is age- and sex-specific and is often referred to as BMI-for-age. BMI is used as a screening tool to identify possible weight problems for children. CDC and the American Academy of Pediatrics (AAP) recommend the use of BMI to screen for overweight children beginning at 2 years old (CDC, 2007).

Overweight. The term overweight is excess adipose tissue that predisposes an individual to disease. Overweight and obese are often used interchangeably in the literature. A BMI of 25 to 29.9 is considered overweight by the American Obesity Association (2008) and children over the 85th percentile are considered overweight (CDC, 2007).

Obesity. Obesity is the excessive accumulation of adipose tissue to an extent that health is impaired. Obesity in adults is defined as a BMI over 30 by the American Obesity Association (AOA, 2008), and any BMI over 25 by other organizations (Kaiser, 2005). Although the term obesity is avoided for children, Pietrobelli et al. (1998) consider children and adolescents above the 95th percentile obese.

Prevalence Rates of Obesity

The World Health Organization's (WHO) latest projections indicated that globally in 2005, approximately 1.6 billion adults (age 15+) were

overweight, at least 400 million adults were obese, and at least 20 million children under the age of 5 years were overweight. WHO further projects that by 2015, approximately 2.3 billion adults will be overweight and more than 700 million will be obese (2005). Methods that define and measure obesity vary from country to country, but there is a significant trend of increased incidence of obesity in children worldwide (Burniat, Cole, Lissau, & Poskitt, 2002). To date more than 12.5 million or 17.1% children and adolescents, ages 2 to 19 years, are overweight. As they grow older, overweight children and adolescents are more likely to have risk factors associated with cardiovascular disease such as high blood pressure, high cholesterol, and Type 2 diabetes (USDHHS, 2008).

Obesity statistics differ by ethnic group, gender, age, and socioeconomic status. Fifty-nine percent of Caucasian and 68 percent of black adults in Tennessee are obese reflecting an upward nationwide trend (Kaiser, 2005). The prevalence of overweight in Mexican-American and non-Hispanic black girls was higher than among non-Hispanic white girls. Among boys, the prevalence of overweight was significantly higher among Mexican Americans than among either non-Hispanic black or white boys. Among adults, similar differences existed. Approximately 30% of non-Hispanic white adults were obese, and 45.0% of non-Hispanic black adults and 36.8% of Mexican American adults were obese. There were significant differences by age. Adolescents were more likely to be overweight than younger children, and older adults were more likely to be obese than younger adults. The only exception was among adults 80 years and over who were no different than adults 20-39 years of age. Between 1999 and 2004, there was a significant increase in the prevalence of overweight among girls (13.8% in 1999 to 16.0% in 2004). Similarly, among boys, the prevalence increased significantly from 14.0% in 1999 to 18.2% in 2004. The prevalence of obesity among men also increased significantly from 27.5% to 31.1%. There was no change in obesity among women (33.4% in 1999 to 33.2% in 2004) (CDC, 2007).

Caucasian children are less likely to be obese as they go up the socioeconomic scale. There is a similar tendency in ethnic children, but obesity is still more prevalent than in white children (Gordon-Larsen, Adair, & Popkin, 2003). Poor adolescents are twice as likely to be obese as those from middle- or high-income households. African American and Mexican children are becoming obese at a faster rate than Caucasian children (ODPHP, 2001). Low socioeconomic status and lack of parental education are significantly correlated to childhood obesity (Mustillo et al., 2003).

Etiology of Obesity

There are many possible causes of the increased obesity rates. It is difficult to single out one factor, but it is known that age, race, socioeconomic levels, parent behavior, educational levels, geographical location, and gender all are significant. Obesity has a complex multi-variable etiology but is essentially a preventable disease. The principle causes of the problem have been identified as sedentary lifestyle coupled with a high-fat, high-calorie diet (WHO, 2005).

The choice to breast or bottle-feed has a direct influence on the development of eating habits. Breastfed babies eat to satisfy their needs and the mother is not tempted to "finish off the bottle" but rather stops when the baby stops. The bottle-feeding mother assumes more active control of when feedings stop and may overfeed the baby. The baby may not learn to self-regulate appetite and satiety. The risk of obesity in adolescence is lower for babies who were breastfed 6 months or longer (Mayer-Davis, et al., 2006).

Epidemiological research has indicated that fat intake in early life increases the risk for obesity and concurrent associated diseases in adulthood (Klesges, & Klesges, 1995). Overweight children become overweight adults (Fierro, 2002). Children of obese parents have a higher risk for obesity (Klesges & Klesges, 1995). Parents provide the food and demonstrate the norms of eating including variety, portion amount, patterns, frequency of food intake, and dieting behaviors (Thompson & Smolak, 2001).

Eating out is no longer an occasional indulgence. Low-nutrient, calorie-dense food becomes a fast, convenient, and inexpensive option for busy working parents. Guthrie, Lin, and Frazao (2002) in a twenty year longitudinal study found that

Americans are eating almost half of their meals outside the home, are eating more calories in fat, and are receiving less fiber, calcium, and iron. The trend to eat out is not expected to decrease. Adolescents in grades seven through ten seldom order milk when eating out (National Dairy Council, 2003).

American children consume less calcium rich dairy products. There is a significant gap between recommended daily intake and actual consumption (National Dairy Council, 2003). Calcium from dairy sources is an appropriate nutrient-dense choice, especially when low fat products are chosen. Increased intake of calcium is associated with reduced body fat and less weight gain over time (Carruth & Skinner, 2001). Consumption of soft drinks and sweetened fruit drinks has increased. These nutrient-deficient high-calorie fluids have replaced milk for many American children. The change in beverage habits has coincided with the trend for obesity suggesting at least a contributory relationship (Ludwig, Peterson, & Gortmaker, 2001).

The nation faces a complex challenge in addressing recent trends in children's health and eating habits. To address these trends, in 2001, the U.S. Surgeon General issued a call to action to prevent and decrease overweight and obesity among all Americans, especially children. In this statement, schools were identified as one of the key settings for public health strategies to address these issues. The National School Lunch and School Breakfast Programs provide millions of children with nutritious meals each school day. The United States Department of Agriculture's (USDA) Food and Nutrition Service (FNS) administers these programs at the federal level, and FNS subsidizes the meals served through these programs in local schools as long as the meals meet certain nutritional guidelines. In the last decade, these nutritional guidelines were amended to require schools to serve meals that adhere to the Dietary Guidelines for Americans, which limit total and saturated fat and provide specific minimum levels of vitamins and nutrients. Despite these efforts to improve the nutritional quality of meals offered through the school meal programs, other foods not provided through these programs are often available to children at school through a la carte lines in the cafeteria where individual foods and beverages can be purchased, snack shops, school stores, vending machines, and other venues (GAO, 2004).

Seventy five percent of Tennessee elementary schools have vending machines; the numbers for high schools are higher (Tarr, 2003). The control of what is in the vending machines, where they are placed, and when they are available to students is the jurisdiction of the school administration. School meals must meet minimum nutrition standards, but foods sold in vending machines, usually adjacent to the cafeteria, are not regulated by the USDA. The revenues from vending machines are used to assist with under-funded academic programs. High-calorie low-nutrient foods in vending machines compete with school meals and impair the effectiveness of the nutrition program (USDA, 2001).

The types of fats and sugars in the American diet have changed. Palm oil is an inexpensive stable fat that does not easily go rancid, but has taste and chemical properties similar to animal fat. Palm oil, however, is a highly saturated fat, making it less healthy than vegetable oils and even some animal fats (Edam, 2002). The choice to use palm oil (especially commercial use for prepared foods) over other low in saturated fat vegetable oils enhanced U.S. trade with Malaysia (Critser, 2003). Saturated fats predispose individuals to coronary artery disease and cardiovascular disorders. Oxidized palm oil increases plasma lipid levels and damages the tissue of the kidneys, lungs, heart and liver (Ebong, Owu, & Isong, 1999).

The 1970's saw an increase in the use of High Fructose Corn Syrup (HFCS) as an inexpensive domestic-produced sweetener for cola products and other high calorie snack foods (USDA, 2003). HFCS is six times sweeter than the sucrose in sugar cane. Corn is easy to grow in the United States, and its planting was heavily promoted by the U.S. Department of Agriculture to take advantage of the HFCS demand (Critser, 2003). Fructose, however, metabolizes differently than sucrose or dextrose. Fructose goes straight to the liver without breaking down. This impairs liver function and significantly contributes to obesity, insulin resistance, Type 2 diabetes, and high

triglyceride levels (Bantle, Raatz, Thomas, & Georgopoulos, 2000).

American children are less physically active. Children tend to ride the bus or are driven to school by parents (Fierro, 2002). Increased television watching keeps them sedentary while sophisticated marketing strategies tempt even more high-calorie consumption. Video games have replaced playing outside. There is a lack of safe, supervised playgrounds. Twenty five percent of adolescents never participate in any vigorous physical activity. Physical education classes are not offered to all students in Tennessee and frequently offered for only a six-week block in the school semester. There is no federal standard for physical education. State and local boards of education decide, based on budgets, the extent of physical education curriculum and standards in schools. Tennessee has no statute that mandates physical education in schools (National Conference of State Legislatures, 2006).

Health Risks of Obesity

Obesity contributes to preventable disease and death and reduces the quality of life (ODPHP, 2000). Obesity contributes to metabolic syndrome, cardiovascular disease, diabetes, pulmonary disease, and various psychological disorders. Endocrinologists are reporting children as young as five years old diagnosed with Type 2 diabetes, high cholesterol, coronary artery disease, and hypertension (Diabetes Week, 2003).

Cardiovascular disease. Diets high in fat lead to hyperlipidemia. High levels of lipids in blood (including cholesterol, triglycerides, low density lipoproteins) lead to cardiovascular diseases such as arteriosclerosis, hypertension, and stroke. Van horn et al. (2003) found obese children with juvenile hypertension to have increased platelet aggregation, which contributes to further hypertension and vascular damage. Obese children have higher blood cholesterol levels that predispose them to arteriosclerosis. Abnormal platelet coagulation further predisposes obese children to thrombus, stroke, and other life threatening conditions. Obese adolescents have higher levels of triglycerides. Incidence of hypertension in obese adolescents is nine times that of the normal weight cohort (CDC, 2007).

Diabetes. The incidence of type 2 diabetes in children and adolescents is a public health epidemic and has increased concurrently with obesity (Aye & Levitsky, 2003). There has been a 1,000% increase in the number of children with type 2 diabetes in the past five years (Fierro, 2002). Two to four percent of all diabetes reported in children before 1992 was type 2 diabetes. This percentage rose to 16% by 1994 (USDA, 2001). Type 2 diabetes currently comprises as much as 45% of the total population of diabetic children and adolescents (Aye & Levitsky, 2003). Obesity complicates treatment for Type 2 diabetes by impairing insulin and glucose management, and by interfering with therapeutic medications (AOA, 2008). Prepubertal obese children show evidence of hyperinsulinemia and insulin resistance, and benefit from weight loss before the onset of puberty (Galli-Tsinopoulou, Karamouzis, & Nousia-Arvanitakis, 2003).

Pulmonary disease. Obese inner-city children with asthma use bronchodilators and other asthma medication more than non-obese children. While the connection between asthma and obesity needs further research, obese children have more wheezing symptomology and emergency room visits (Belamarich et al., 2000). Reduction in pulmonary function, including reduced functional residual capacity, diffusion, and static lung volume, is correlated to obesity in children (Li et al., 2003). Obese children are more likely to suffer breathing interference during sleep. Sleep apnea and snoring reduce oxygen levels, can lead to ventricular hypertrophy of the heart, and at the very least impairs the sleep cycle (CDC, 2007).

Other problems of obesity. Nonalcoholic steatohepatitis, a fatty degeneration of the liver, was previously a rare disorder most commonly found in obese diabetic women over forty years of age. Steatohepatitis, treatable only by liver transplant, is being found in obese children. Obesity, hyperinsulinemia, and glucose intolerance contribute to the development of this expensive and life threatening disease (CDC, 2007).

Immune response, specifically proinflammatory cytokine interleukin-6, is exaggerated in obese children aged 8 to 16 years, which induces a low-grade systemic inflammatory response that can

lead to immune system exhaustion (Visser, Bouter, McQuillian, Werner, & Harris, 2001). Those who are obese have reduced ability to respond to invading pathogens (CDC, 2007). Orthopedic problems of the lower legs and feet are common in obese children. Metabolic syndrome, caused by obesity, improper nutrition, and reduced physical activity, involves insulin resistance and cardiovascular arteriosclerosis. Incidence of metabolic syndrome in obese adolescents is estimated to be as high as 30 percent (Blackburn & Bevis, 2002).

Psychosocial Issues. There are widespread psychological complications of obesity that include emotional, social, and self-esteem issues. Obese children are often teased and are unable to keep up with their peers. They cannot participate in sports, and live in anticipatory fear of ostracism. Severely obese children have a lowered health-related quality of life than normal weight children, and are comparable to children who have been diagnosed with cancer (Schwimmer, Burwinkle, & Varni, 2003). Obesity is a risk factor for the development of bulimia and other eating disorders. Depression, hyperkinesias, anxiety, conduct disorder, ADHD, substance abuse, and oppositional defiant disorder have been associated with obesity in children, even though causality has not been established. (Mustillo et al., 2003).

Economic impact of obesity

Obesity costs exceed the cost of tobacco use. Tennessee has the 9th highest level of adult obesity in the nation at 25%, the 2nd highest overweight high school student level at 15.2 %, and the 31st overweight level for low-income children ages 2-5 at 11.3%. The state spent an estimated $315 per person in 2003 on medical-costs related to obesity, which was the 6th highest amount in the nation. Nearly 119 million American adults, 65% of the population, are currently overweight or obese. The direct and indirect costs of obesity in America are more than $117 billion per year. A study conducted by Trust for Americas Health (TFAH) concluded that America does not have the aggressive, coordinated national and state strategies needed to address the crisis, compounding the epidemic (TFAH, 2008).

Interventions

The complex etiology of childhood obesity suggests multi-approach intervention strategies. It is difficult to lose weight; the process is more complicated in children who need the nutrients for current growth. Treatment is expensive, must be individually tailored for each child, involve the entire family, and is not effective in many populations. The rebound of adiposity is significant; a cure is not possible. Primary prevention is the appropriate approach once modifiable determinants of obesity are identified (Klesges & Klesges, 1995). Tables 1-5 focus on interventions including support, encouragement, diet, and physical activity that should be incorporated to combat the epidemic of obesity in children in Tennessee (WIN, 2008).

Table 1: Encourage Healthy Eating Habits

- Buy and serve more fruits and vegetables (fresh, frozen, canned, or dried). Let your child choose them at the store.
- Buy fewer soft drinks and high-fat or high-calorie snack foods like chips, cookies, and candy. These snacks may be OK once in a while, but always keep healthy snack foods on hand. Offer the healthy snacks more often at snack times
- Make sure your child eats breakfast every day. Breakfast may provide your child with the energy he or she needs to listen and learn in school. Skipping breakfast can leave your child hungry, tired, and looking for less healthy foods later in the day.
- Eat fast food less often. When you do visit a fast food restaurant, encourage your family to choose the healthier options, such as salads with low-fat dressing or small sandwiches without cheese or mayonnaise.
- Offer your child water or low-fat milk more often than fruit juice. Low-fat milk and milk products are important for your child's development. One hundred percent fruit juice is a healthy choice but is high in calories.
- Limit the amount of saturated and trans fats in your family's diet. Instead, obtain most of your fats from sources such as fish, vegetable oils, nuts, and seeds.

- Plan healthy meals and eat together as a family. Eating together at meal times helps children learn to enjoy a variety of foods.
- Do not get discouraged if your child will not eat a new food the first time it is served. Some kids will need to have a new food served to them 10 times or more before they will eat it.
- Try not to use food as a reward when encouraging kids to eat. Promising dessert to a child for eating vegetables, for example, sends the message that vegetables are less valuable than dessert. Kids learn to dislike foods they think are less valuable.
- Start with small servings and let your child ask for more if he or she is still hungry. It is up to you to provide your child with healthy meals and snacks, but your child should be allowed to choose how much food he or she will eat.
- Be aware that some high-fat or high-sugar foods and beverages may be strongly marketed to kids. Usually these products are associated with cartoon characters, offer free toys, and come in bright packages. Talk with your child about the importance of fruits, vegetables, whole grains, and other healthy foods-even if these foods are not often advertised on TV or in stores.

Weight-control Information Network (WIN). (2008).

Table 2: Encourage Daily Physical Activity

Like adults, kids need daily physical activity. Here are some ways to help your child move every day:

- Set a good example. If your child sees that you are physically active and that you have fun doing it, he or she is more likely to be active throughout life.
- Encourage your child to join a sports team or class, such as soccer, dance, basketball, or gymnastics at school or at your local community or recreation center.
- Be sensitive to your child's needs. If your child feels uncomfortable participating in activities like sports, help him or her find physical activities that are fun and not embarrassing, such as playing tag with friends or siblings, jumping rope, or dancing to his or her favorite music.
- Be active together as a family. Assign active chores such as making the beds, washing the car, or vacuuming. Plan active outings such as a trip to the zoo, a family bike ride, or a walk through a local park.

A pre-adolescent child's body is not ready for adult-style physical activity. Do not encourage your child to participate in activities such as long jogs, using an exercise bike or treadmill, or lifting heavy weights. FUN physical activities that kids choose to do on their own are often best.

Kids need about 60 minutes of physical activity a day, but this does not have to happen all at once. Several short 10- or even 5-minute periods of activity throughout the day are just as good. If your children are not used to being active, encourage them to start with what they can do and build up to 60 minutes a day.

Weight-control Information Network (WIN). (2008).

Table 3: Discourage Inactive Pastimes

- Set limits on the amount of time your family spends watching TV, playing video games, and being on the computer.
- Help your child find FUN things to do besides watching TV, like acting out favorite books or stories, or doing a family art project. Your child may find that creative play is more interesting than TV. · Encourage your child to get up and move during commercials and discourage snacking when the TV is on.

Weight-control Information Network (WIN). (2008).

Table 4: Be a Positive Role Model

- Children are good learners and they often mimic what they see. Choose healthy foods and active pastimes for yourself. Your children will learn to follow healthy habits that last a lifetime.

Weight-control Information Network (WIN). (2008).

Table 5: Be Supportive

- Tell your child that he or she is loved, special, and important. Children's feelings about themselves are often based on how they think their parents feel about them.
- Accept your child at any weight. Children are more likely to accept and feel good about themselves when their parents accept them.
- Listen to your child's concerns about his or her weight. Overweight children probably know better than anyone else that they have a weight problem. They need support, understanding, and encouragement from parents.

Conclusion

It is evident from the review that obesity is a challenge for children in Tennessee. The costs of childhood obesity go beyond the dollars spent to diagnose or treat obesity and its related sequelae. The quality of life, prejudices to be endured, and related self-esteem issues for 15% of American children force childhood obesity to the attention of the community and Tennessee is not excluded. Weight loss is never easy, change of lifestyle and behavior are difficult. Weight loss in children is complex and cannot interfere with nutrient requirements for growth. Primary prevention interventions at an epidemiological level need funding, accurate data collection of prevalence rates, and implementation and evaluation of programs. Reversing this epidemic will require increased education and awareness of those who make decisions on behalf of American children and application of psychological behavior change principles for prevention. It is important to note that although this paper focuses on the case of Tennessee, these problems are not unique to this community.

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THE ROOT CAUSE FOR THE EXCLUSION OF OLDER PERSONS FROM PARTICIPATION IN DEVELOPMENTAL ACTIVITIES IN THE SOCIETY-AFRICAN PERSPECTIVE

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Abstract

This paper review the literature regarding the barriers to participation of older persons in the African society. Studies have shown that older persons are vulnerable and thus do not participate in most development programmes in society to improve their livelihoods. Research has further shown that there are factors that could be hindering their participation in society. This paper attempts to highlight some of the barriers that hinder participation of older persons in the African communities. The authors conclude that the barriers to effective participation of older persons in society include the state of older people's personal health, poverty and the negative and limiting community attitudes, laws and practices. Pensions, social grants and allowances are among the means through which the elderly cope. However not all older persons have access to pensions as the majority did not work in government. Furthermore, most countries in Africa except for a few such as Mauritius, Namibia, Mozambique, South Africa, Botswana and Lesotho have not considered giving their senior citizens social grants to improve on their livelihoods.

Key words: elderly, [articipation, Africa

Introduction

According to the World Health Organization (2002), the proportion of people aged 60 and above is the fastest growing age group worldwide. The organization further stated that by 2025 there will be an approximate total of 1.2 billion people over the age of 60 and by 2025 the number will be increased to 2 billion. Of these 80% of people over the age of 60 will be living in developing countries which are not adequately prepared to meet the challenges associated with ageing. The International Population Report stated that Sub-Saharan Africa is the region with the least well understood aging trends (Velkoff, Kowal, 2007). The report further states that the sheer number of older people in Sub-Saharan Africa is growing faster than in the developed world, and this increase occurs in spite of the excess mortality due to HIV/AIDS experienced by many of these countries.

Elderly people have been classified as being vulnerable by virtue of their age and the chronic illnesses which they generally experience (Silva-Smith, Theune & Spaid, 2007; Clausen, Sandberg, Ingstad & Hjortdahl, 2000). These illness which includes hypertension, diabetes, cancer, visual and hearing impairments, rheumatism, muscular pains, asthma, crippling arthritis, HIV/AIDS and nutritional problems renders them less productive and hinders their participation in most activities of life. According to Alun (2003), being vulnerable means lack of exposure and defenselessness or lack of means to cope with life. It entails being physically weak, economically impoverished, socially dependent, humiliated or psychologically harmed. By virtue of their vulnerability, the elderly people are marginalized and excluded from the majority of the development programs. In addition to this, the elderly in rural areas receive less attention than those in the urban areas. However, according to Alun (2003), development is continuously taking

place, but it is uncertain if the needs of the elderly are being addressed with these changes. Thus the question that arises is: What are the barriers that hinder the elderly from participating in the societies? This paper attempts to highlight some of the identified barriers that affect their participation.

Barriers to Participation of the Elderly in the Society
Research has highlighted a number of barriers in most African countries that elderly people encounter not only in their pursuit of health and life conditions that they need so as to be in a position to participate but also in their efforts to actually participate in society as effectively as desired (Kalasa, 2004; Diane & Aldwin, 2003; Develeux, Lwanga-Ntale & Sabates-Wheeler, 2002; Frisk, 2000; Llyod-Sherlock, 2000a). Some of these countries include Uganda, Kenya, Tanzania, Ethopia, Ghana and many others (Help Age International, 2007). These barriers are described and discussed as constraints, age prejudices, problems, challenges, and limitations to the active life of older people (Strawbridge, Wallhagen & Cohen, 2002). These barriers tend to occur at a personal, economic, household and community level (N'nyapule, 2003; MacIntyre, 1977).

Personal factors
Barriers at an individual or personal level are the limitations that hinder the elderly from maintaining the health conditions needed to participate in society as effectively as desired (Diane & Aldwin 2003). These occur as impediments to older persons' desired physical fitness, access to healthcare, economic capacity, food security and nutrition, and housing and accommodation. According to Deeg and Bath (2003), barriers to physical fitness include body weaknesses, chronic illnesses, and inadequate feeding. The elderly who suffer from chronic illnesses, severe disability, impairment of the nervous system, and other forms of physical frailty tend to find it difficult to engage in physical exercises and thus reaching optimal levels of physical fitness (Krulwich, 2006; Paola, 2003; Hanahan & Weinberg, 2000; Harper, 1988).

Furthermore, the barriers encountered by the elderly in their efforts to maintain their state of health required to participate effectively in society have been due to reasons such as poverty, illiteracy and lack of health information (Kanyamurwa, 2008; Kanyemibwa, 2007; HelpAge International, 2001; McGarry, 1996; Coe, 1985). These barriers prevent the elderly from seeking medical treatment, psychological therapy and other forms of curative services needed to sustain themselves in good health (Najjumba-Mulindwa, 2004) so as to participate in society as effectively as desired.

Other barriers to older people's efforts to seek the needed healthcare include: lagging behind or rigidity to utilization of modern medical technology (Zappala, 2003). Other researchers also reported on limited information/lack of awareness, stigma, bureaucratic complexities in the delivery of healthcare, lack of health insurance, traditional beliefs attitudes against modern medical treatment, lack of transportation facilities such as hospital ambulances or personally owned bicycles, motor cycles, vehicles, and age-related discrimination as barriers to participation into programs (McGarry, 1996; Warlick, 1982). These observations indicate that older people meet various limitations in their efforts to seek healthcare needed to maintain their good health to enable to effectively participate in society. These observations are however made in the general context, suggesting that they are encountered by all the elderly in almost all African countries.

Economic Factors
Additionally, the barriers to the economic capacity required by older people to participate effectively in society have been identified as poverty caused by being disengaged from active earning activities and responsibilities and roles; poor retirement packages; failure of governments to pay them their pension; lack of assets and income-generating projects; and lack of special grant and allowances schemes for the elderly, especially in the majority of the African countries (Bird & Shinyekwa, 2005; Alun, 2003). The only countries that are acknowledged to provide social grants to the elderly are South Africa, Namibia, Botswana, Lesotho, Mozambique and Mauritius. Kenya is piloting its project of providing social grants but it has not yet been mainstreamed into the government's programmes.

Poverty has been singled out as an all encompassing and very undesirable economic condition because it is synonymous with being

economically so distressed that a person cannot meet even the basic needs of life (Krieger, Chen & Ebel, 2008). It is so worse a condition that it renders its victims unable to maintain the health conditions desired to participate in society in an effective manner (HelpAge International, 2005). In fact, Lwanga-Ntale (2003) described poverty very succinctly when he called it another state of illness. According to N'nyapule (2003), poverty is a significant condition that prevents the ability to attain certain minimum standards measured in terms of basic consumption needs or the income that is required to satisfy these needs. Faced with poverty, one cannot even satisfy basic needs, such as food and shelter. N'nyapule (2003) observes further that it infiltrates deeper than just lack of financial income to include lack of choices and opportunities, and of assets and endowments. As a barrier, poverty is so comprehensive that it also includes factors such as lack of basic education and lack of access to public and private resources.

N'nyapule (2003) went on to point out that poverty goes beyond the lack of physical necessities, income and material assets. It can also express itself in form of physical weakness, isolation, powerlessness and low self-esteem, especially in old age. Poverty can also mean failure to access free health care and to claim entitlements due to lack of information or appropriate structures. This scholar concluded with sadness that unfortunately, older people are typically the poorest members of the society and live far below the poverty line. N'nyapule (2003) made these observations basing on the Tanzanian experience.

Studies that cover barriers to people's food security and nutrition indicate that these barriers are the limitations to production of adequate food and include: lack of land; soil infertility; drought; seasonal floods; armed conflict; utilization of poor farming technologies; poverty that implies lack of income needed to buy food; frailty leading to weakening labour needed to grow crops or to rear livestock; and the threat of urbanization that has led to rural urban migration of youthful grandchildren (Abraham & Pia, 2000; Apt, 1999; Kanyamurwa, 2008a, 2008b; Sissel, 2003; Williams, 1999). These studies cite these limitations as general constraints to food security and desired nutrition in African countries.

Literature also indicates that the barriers to the housing and accommodation of people include; poor and weak housing structures that appear to be at the verge of collapsing; inadequate accommodation space, poor and inadequate beddings, poor environmental health; congestion of housing units, which then develop into slum-like conditions; and lack of land on which to build houses (Apt & Greico, 1994; Bond, 1990; United Nations, 1979).

Household Barriers

The barriers at a household level are the constraints that prevent older persons from playing their household roles and responsibilities as desired (Kanyamurwa, 2008a). They include economic inability (poverty), unemployment, large numbers of household members, inadequate accommodation space, death of supportive spouses, and limited food supply (Alun, 2003). Others include: long distances to health centres, high cost of living, adverse effects of HIV/AIDS, failure of government to pay pension in time, and inadequate or lack of agricultural land caused by displacement resulting from armed conflict (Najjumba-Mulindwa, 2004)

Community level barriers

Barriers that elderly people tend to witness at a community level are problems that tend to emanate from the community and prevent them from active and effective participation in society. Research indicates that these barriers include: social discrimination and segregation expressed in terms of ignoring older persons as people who have outlived their usefulness; lack of respect; minimization by adults and youthful community members (Dixon & Rollins, 2003; Najjumba-Mulindwa, 2004). Older people face barriers to accessing basic health and sanitation facilities, and are often denied appropriate education and information as well as access to bank loans and credit schemes because they are perceived as risks that are not worthy to entrust with funds (Taylor, 2006). This is because they are regarded as people whose age provides minimum or no hope for using the money optimally and profitably and pay back in time (Ibid). Commercial bank laws restrict credit to the young people arguing that these have all the time to manage borrowed money more carefully

and profitably while the older persons do not have such time. Pensions, social grants and allowances were found to be among the means through which the elderly can use to cope with life but not all older persons can access pension because majority of them did not work in government (Lwanga-Ntale & Kimberley, 2003).

Conclusion

The fore-cited barriers have however, been condemned as unfair forms of violation of the human rights of older persons (Murray, 2000). The World Health Organization (1996) declared that ageing is part and parcel of development. Healthy older persons are not a spent force but partners in development since they are a resource for their families, their communities and the economy. In any case, it has already been observed that the role of older persons in development is critical not only in developing countries in Africa but also in developed countries such as Spain where older people play the role of caring for the dependent and sick individuals (of all ages) is mostly done by older people (particularly older women) (Durán & Fundación, 2002). The HelpAge International (2007) summarized the barriers that confront the elderly from their respective communities as negative social attitudes, poverty, wars and conflict, and discriminatory laws and practices.

Generally, literature indicates that the barriers to the effective participation of the elderly in society are made of not only the state of older people's personal health itself but also poverty and negative and limiting community attitudes, laws and practices. Literature however, paints a picture that all the older persons are confronted with the same barriers irrespective of the countries and settings in which they live, which may not be always the case especially for countries such South Africa, Mauritius, Lesotho and Botswana among others that have put good policies in place. Further research is therefore needed to establish whether older persons face the same barriers or not and also clearly specify those encountered in different settings of society.

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Acknowledgement:

This review is submitted as part of my PhD which is currently under way.