JOURNAL OF COMMUNITY AND HEALTH SCIENCES

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

April 2010 Vol. 5 No. 1

Peer-Reviewed

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

Editorial Address

JCHS
Department of Physiotherapy
University of the Western Cape
Private Bag X 17
Bellville
7535
Republic of South Africa
jchs@uwc.ac.za

Editor in Chief

Prof. Dr. Jose Frantz
jfrantz@uwc.ac.za

Technical Editor / Secretariat

Esmerelda Fourie
efourie@uwc.ac.za

Panel of Reviewers

Prof. M. Visser (Psych). School of Social. Sciences, University. of Pretoria.

Dr. J. Sekudu (Social Work and Criminology), School of Social. Sciences. University of Pretoria

Prof. S.S. Terblanche (Social Work). University of the Western Cape.

Ms. H. Bradley (School of Public Health), University of the Western Cape

Dr. R. Stern (School of Public Health). University of the Western Cape

Prof. P. Struthers (Department of Physiotherapy). University of the Western Cape

Prof. N. Myburgh, Director, WHO, Collaboratiing Centre for Oral Health, University of the Western Cape.

Prof. T. Khanyile, School of Nursing University of the Western Cape.

Prof. K J Collins, (Department of Social Work), University of the Western Cape

Prof. J. Phillips, (Department of Physiotherapy). University of the Western Cape

Prof. V. Bozalek, (Social Work Department), University of the Western Cape

Prof D. Wilson, (Nursing), Tennstate University, USA

Dr A. Rhoda, (Physiotherapy Department) University of Western Cape

Prof. E. Kortenbout, (School of Nursing), University of Western Cape

Mr. L. Leach, (Department of Sports Recreation and Exercise Science), University of the Western Cape

Mr. M Rowe, (Department of Physiotherapy), University of the Western Cape

Ms S. Moe, (Department of Physiotherapy), University of Norway

Ms F Daniels, (School of Nursing), University of the Western Cape

Dr B van Wyk, (School of Public Health), University of the Western Cape

Mr H. Pharaoh, (Physiotherapy), UWC

Prof Gert van Hove, (Physiotherapy), Ghent University, Belgium

Ms T. Steyl, (Physiotherapy), UWC

Dr. Mario Smith, (Department of Psychology, UWC)

National Editorial Board

Prof. Dr. J Frantz, (PhD), (Editor) - UWC
Prof. R. Mpofu, (PhD). Dean: CHS - UWC
Prof. A. Travill, (PhD), **HOD-SRES** - UWC
Prof. S. Ridge, Acting Vice Rector - Academic
Prof. T. Khanyile, (PhD), HOD-Nursing - UWC
Prof. V. Bozalek, (Social Work Department), University of the Western Cape
Dr. C. Lombard, (PhD), Biostatistics Unit, MRC
Prof. N. Mtshali, University of KwaZulu Natal
Dr. K. Mostert-Wentzel, University of Pretoria

International Editorial Advisory Board

Dr. H. Diallo, (MD), University of Ouagadougou, Burkina Faso.
Prof. M. Unosson, (Dr. Med. Sc.), Linkoping University, Sweden.
Prof. Dr. J. G. Linn, (PhD), Tennstate University, USA
Prof. D. R. Wilson, (MSN), Tennstate University, USA
Prof. EM Yves Vanden Auweele, Kuleuven, Belgium
Prof. G. Van Hove, Ghent University

Publisher

Faculty of Community and Health Sciences.
University of the Western Cape
Private Bag X 17
Bellville 7535

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
Tel: +27 21 951 3812 / 23 / 24

Copyright

The work in this journal has copyright under the Berne Convention. In terms of the Copyright Act, 1978 (Act N0 98 of 1078), no part of this journal may be reproduced or transmitted in any form or by means of electronic or mechanical recording without permission in writing from the editor.

CONTENTS

Editorial on Blended Learning

Prof. Vivienne Bozalek

The new Strategic Plan on Teaching and Learning at the University of the Western Cape, ratified by the Senate and Council in November 2009 places emphasis both on the infusion of technology into teaching and learning and the promotion of flexible learning. The Strategic plan expresses the intention to use technology to promote student-centered and flexible learning, optimising engagement in order to meet the learning needs of students in the twenty first century in a globalizing world. Blended learning which involves a fusion between face-to-face and online learning provides such an opportunity for flexible learning.

Blended learning transcends the dualisms of using either face-to-face or online learning. Projects at UWC such as the International Association of Digital Publications (IADP) piloted in the Social Work Department and the RipMixLearn/ers initiative funded by the Shuttleworth foundation are examples of innovative blended learning endeavours in the institution. The IADP project gave fourth year Social Work students access to both laptops and e-books in the classroom and in their fieldwork placements, making it possible to mix face-to-face teaching and learning with the use of e-books. Students also used mp3 players to record and upload podcasts for formative assessment of their developing skills in simulated exercises and in the field. They were also able to use this electronic evidence to show their competence against assessment criteria and exit level outcomes, thus providing authentic evidence for assessment purposes.. The Ripmixlearn/ers project involved both students and lecturers in innovative projects using a blend of various electronic tools and face-to-face teaching and learning. Tools such as the freely available open-source calibrated peer assessment was successfully piloted in a large class with Economic and Management Sciences students. Ripmixlearn/er projects also used wikis, podcasts and digital storytelling to augment teaching and learning. Students assisted each other's learning by uploading podcasts and other useful material onto a wiki space available to their classmates. These Ripmixlearn/er initiatives have provided possibilities for students and lecturers to collaboratively explore issues of mutual interest both formally inside the classroom and informally in communities of inquiry. Another project which has been initiated and piloted in the extended curriculum programme is the use of clickers and interactive white boards to augment face-to-face large class teaching. Mobile technology and the use of Mixit to respond to students' queries is another innovation in the EMS extended curriculum programme.

Why engage in blended learning one may ask? The benefits of using blended learning are multiple. Blended learning has the potential to make learning more personalised and engaged. It provides just-in-time learning and provides students, particularly second language speakers, the opportunity to gain repeated access to learning resources, which have been shown to be beneficial for their learning. It is a holistic approach to teaching and learning which includes both intellectual and emotional elements.

In the complexity required for twenty first century education, we as higher educators need to think of ways to capture the imagination of students. We also need to consider shifting the focus of controlling resources and knowledge from teacher to learner in an inquiry focused mode of learning. Blended learning offers the potential to encourage creativity, thus motivating students to learn. It is one means of improving learning in higher education.

Integrity Management in Sport

Prof. Dr. Jeroen Maesschalck,
Institute of Criminology

Prof. Dr. Em. Yves Vanden Auweele,
Faculty of Kinesiology and Rehabilitation Sciences

Corrosponding Author:
Prof. Dr. Em. Yves Vanden Auweele,
Faculty of Kinesiology and Rehabilitation,
K.U.Leuven/Belgium
101, Tervuursevest, B-3001 Leuven,
Belgium
Email: yves.vandenauweele@faber.kuleuven.be

Abstract

This paper proposes integrity management as a strategic reaction to what is perceived as a moral deficit in sports. First, a number of frequently heard counterarguments against integrity management such as "we have no ethical problems in our organization" or "by introducing ethics management our coaches, directors, athletes, etc. will feel attacked" are addressed and subsequently refuted.

The central argument of the paper states that good ethics management should achieve a right balance between two complementary approaches. A rules-based approach includes both specific regulations about what is acceptable behavior and appropriate punishment procedures. A values-based approach includes support for managers, coaches and athletes facing ethical dilemmas. The latter are ambiguous situations where it is not really clear which behavior would be considered ethical.

The paper concludes with recommendations on how to implement the listed instruments so as to ensure that they make a real difference and are not restricted to lofty ambitions on glossy brochures.

Keywords:
Ethics management, Panathlon Declaration, Ethical dilemmas, Code of conduct, Ethical leadership

Integrity Management in Sport[1]

Introduction

Interest in integrity management in sports is growing. This has been fuelled by a number of high-profile scandals about all kinds of (alleged) violations, including fixed games and aggression in European soccer, doping among famous cyclists, child abuse (Brackenridge, 2006; Vanden Auweele, 2008), child trafficking, child labor (Donnelly and Petherick, 2006) and corruption of sport managers (Jennings, 1996; Forster and Pope, 2004). Moreover, issues like these have not only been reported in the mass media, but also in more academic research-oriented literature (e.g. Bertieri, 2000; Bockrath & Franke, 1995; Brackenridge, 2006; Bredemeier & Shields, 1986; Coakley, 1998; David, 1999; Donnelly & Petherick, 2006; Eitzen, 1988; Forster & Pope, 2004; Giulianotti, 2006; Hong, 2006; Jennings, Lenskyi, 2006; Morgan, 2006; Vanden Auweele, 2004).

Whether these scandals reflect a deeper deterioration of integrity within sports or rather a

---

[1] This paper is adapted from earlier work by one of the authors as published in the following paper: Maesschalck, Jeroen, Bertok, Janos (2008), *Towards a sound integrity framework: instruments, processes, structures and conditions for implementation*. Paris: Organization for Economic Cooperation and Development (OECD).
An earlier version of the paper was presented at the World conference on the Panathlon Declaration *"Implementation of ethics in youth sport"* Gent, 6 November 2008. This paper also draws from an earlier French publication: Maesschalck, J., Vanden Auweele, Y. & Maes, M. (2008). *Vers une politique de promotion explicite de l'intégrité dans le sport,* Cinésiologie, nrs 239-240, 60-64.

decreasing tolerance for integrity violations (and thus higher chances for exposure) is not a question for this publication. For our purposes we limit ourselves to the observation that there is at a least a perceived problem that deserves attention and that there are a number of risks for integrity violations in sports that should be managed.

Some sport scientists such as Donnelly & Petherick (2006), Forster & Pope (2004), Morgan (2006) and Parrish & Mc Ardle (2006) are rather pessimistic as to the self-cleansing capacity of the sports sector because, they argue, the sports sector has not been renowned for its self-criticism, nor for accepting criticism rightly directed at it. They also observe that many important changes in sports have been enforced by external pressures (e.g. the Bosman ruling (Parrish & McArdle, 2006).

We take a more optimistic stand towards the possibilities for improvement, taking into consideration the increasing number of analyses & research projects on ethical issues and the growing impact of organizations such as Panathlon International (www.panathlon.net) that have an ethics revival in sport as their core business. An indication of a greater sensitivity for ethical issues in sports is the fact that the 'Declaration on Ethics in Youth Sports', that has been developed by Panathlon, has now been endorsed by 150 international & national sports organizations, universities and public authorities (Vanden Auweele, 2004; Vanden Auweele & Maes, 2006). To our knowledge not any declaration or ethics code in the sports sector has been endorsed on such a large scale.

Although the risk for a gap between the aspirations in the code and reality on the ground remains, the broad endorsement of this code at least suggests that senior officials in the sector are taking the ethics issue seriously. It is on that observation that this contribution builds. The aim of the paper is to move beyond complaints about (perceived) moral deficit of sports, and focus on practical policy interventions that can make a difference on the ground.

We first address the definitional question, i.e. what is integrity; what is integrity management? Second, we deal with a number of common arguments against integrity management that often act as psychological barriers among managers against the introduction of integrity management in their organization. Third, the two goals of integrity management will be elaborated. Finally we list a number of important instruments for integrity management that might be useful in the context of (youth) sports.

Defining integrity and integrity management

The term "integrity" is derived from Latin and literally means not (in) touching (tangere) (Nieuwenburgh 2002). It refers to something or somebody that/who is not contaminated, not damaged. In the context of this chapter "integrity" will refer to the application of generally accepted values and norms in daily practice (van den Heuvel & Huberts 2003: 19). Integrity management then refers to the activities undertaken to stimulate and enforce integrity and prevent integrity violations within a particular organization.

Why integrity management?

There are some typical psychological barriers that seem to block managers from being convinced of the use of integrity management.

Barrier No. 1. "We do not have any significant integrity problems in our organization."

It might of course be possible that there are virtually no integrity violations in an organization, but the question is how the manager can be so sure about the truth of this claim. It is only through an appropriate detection system, as part of a wider integrity management framework, that one can have a reasonable certainty about the prevalence of integrity violations.

Yet, even if there would be no integrity violations, every organization still faces challenging dilemmas: difficult situations where it is not obvious what appropriate behavior would be. From this point of view the question is not whether there are integrity problems and dilemmas, but rather how one develops an appropriate integrity management framework that supports managers and trainers in identifying and resolving such problems and dilemmas. The advantage of this perspective is that it does not represent integrity dilemmas as nuisances that have to be oppressed or ignored, but as challenges that are faced by any organization and to which any organization will have to develop an appropriate response.

Barrier No 2. "Introducing integrity management will only reinforce the lack of trust in our organization and in sports in general."
The assumption here is that there are integrity violations, and the fear is that they will be made public because of the installation of an integrity management framework, which might in turn lead to reduced trust.

The above statement is, in our opinion, highly questionable. It suggests both a very short-sighted vision and a strong underestimation of the public.
First, it is short-sighted because ignoring integrity violations might indeed reduce their actual exposure to become reported scandals in the short run, but it drastically increases the risk that the problems will emerge in a much stronger and damaging form in the future. Integrity violations have a tendency to expand. Tolerating integrity violations in the short run thus strongly increases the chance that there will be more violations in the future.

Second, this statement also indicates low trust in the public's capacity to judge sports. It is fair to believe that the general public and also supporters and fans are capable of distinguishing between an integrity violation that has come to light thanks to a well-functioning integrity management framework on the one hand and a scandal that has exploded because the situation had been neglected for a long time and necessary prevention measures were not taken on the other.

Barrier No 3. "However nice the intentions of integrity management might be, they will never have an impact because experience shows that an implementation deficit is unavoidable."
Although this statement contains a lot of truth, we think the conclusion is wrong.

We should first acknowledge that experience in many contexts shows that integrity management is indeed very sensitive to implementation deficits, the often lofty ambitions are not implemented on the ground. This implementation deficit is indeed problematic for at least two reasons. First, if an instrument is not implemented, it will not have any effect and all the efforts invested in designing the instrument will have been in vain. Second, if organizational members observe that integrity policies are not implemented, they might perceive the integrity management framework as mere window-dressing. Such a perception, might in fact increase cynicism and, through that, even increase integrity violations (Trevino & Weaver 2003).

However, contrary to the above statement, we think that these observations are not reasons to do away with integrity management. Instead, they should motivate to set up an integrity system that really makes a difference on the ground and thus helps to overcome the implementation deficit. The instruments and recommendations in this paper are particularly intended to overcome this implementation deficit.

Barrier No 4 "Volunteers and staff will consider it an insult when I would introduce an integrity management framework in my federation or organization. They will think that I do not trust them."
This barrier seems to be the most grounded one. However, it is in our opinion not convincing enough to conclude that a federation or club should therefore not develop proper integrity management. Integrity management not only has a rules-based, "compliance" dimension, but also a values-based, stimulating "integrity" dimension (see below). If the latter and its concomitant instruments (integrity dilemma training sessions, coaching, ambitious integrity codes, open organizational climate to raise integrity issues, etc.) are sufficiently emphasized, then the message towards the organizational members is one of trust, not of distrust.

In conclusion we want to argue that these objections/barriers are not convincing as reasons for not introducing an integrity management framework. A modern integrity management framework that thoughtfully balances rules-based and values-based approaches can provide an appropriate and positive response to the challenges and concerns mentioned above.

Two approaches to integrity management

This is a fundamental distinction in the literature on integrity management (Lewis 1991; Paine 1994; Maesschalck 2005). The "rules-based" approach to integrity management emphasizes the importance of external controls on the behavior of the members of an organization. It prefers formal and detailed rules and procedures as means to reduce integrity violations and prevent corruption.

The "values-based" approach, on the other hand, focuses on guidance and "internal" control, i.e. control exercised by individual organizational members on themselves. Thus, rather than about controlling, this approach is about supporting and stimulating. This approach therefore aims to stimulate understanding and daily application of values and to improve ethical decision making skills through interactive training sessions, workshops, ambitious codes of values, individual coaching, etc.

A modern integrity management framework aims at both goals: preventing serious integrity violations on the one hand, and promoting integrity through stimulating understanding, commitment and capacity for ethical decision making on the other hand. Consequently, a modern integrity management framework judiciously combines both the rules-based and values-based approaches and ensures the coherent balance of their components within one integrity framework. The rules-based component will then constitute the elementary legal framework and will provide the "teeth" of the system that are inevitable to ensure minimal ethical behavior. The values-based approach will ensure that one is ethically more ambitious than this minimum of simply avoiding integrity violations.

Instruments of integrity management

Risk analysis

In a process of risk analysis one would map sensitive processes in an organization (e.g. hiring and promotion of coaches, decisions to select sponsors, etc.) and sensitive functions (typically staff-members with a responsible role in the sensitive processes or in decision making in general) and identify the points where there is a significant vulnerability for integrity violations. This analysis would then be the basis for recommendations to the organization on how to increase the organization's resilience towards these vulnerabilities, e.g. via function rotation, conflict of interest regulations, regulations about the acceptance of gifts and gratuities, etc.

Although such risk analyses are very useful, it is important to be aware that they have advantages and disadvantages. They provide a clear framework for organizational members and reduce the immediate risks for integrity violations, but their control-bias might also shape the organizational culture in undesirable directions. If the risk-approach is taken too far it might be seen as a sign of distrust by management, thus undermining the organizational members' intrinsic motivation, which might in turn reduce their tendency to behave ethically.

Analysis of ethical dilemmas

There are similarities between a dilemma analysis and a risk analysis but there is an important difference in overall philosophy. Dilemma-analyses tend to have a bias towards the values-based approach to integrity management and that will be reflected in the analysis itself as well as in the recommendations that are drawn from it. Two differences are particularly notable. First, while risk analysis focuses on problematic situations ("risks") that should be reduced, dilemma analysis starts from the assumption that dilemmas are inevitable and that it is not always desirable to avoid dilemmas. Sometimes it is better to accept that there are areas where dilemmas might occur and to trust and support the actors in dealing with them. Secondly, while risk analysis shows some distrust in the organizational members, dilemma analysis tends to be more trustful. The organization should know what the dilemmas are, so as to better support its members in dealing with them.

Consultation of staff and stakeholders

The aim here is to make an inventory of the concerns of and expectations of all stakeholders and use this as an input for the definition of integrity (e.g. in the form of an integrity code). Stakeholders include all actors within the sport organization or with an interest in the sport organization: i.e. the athletes and their parents, the coaches and other technical and administrative staff in the sport organization, the sponsors, supporters, staff of higher-level federations (national and international sport organizations), etc. Their values deserve attention in the organization's code or in other integrity-defining instruments.

Code of conduct or code of ethics

At this point it is useful to refer to the Panathlon Declaration. That document contains a number of important principles and guidelines, but it does not present itself as a real code of conduct for sports federations and clubs. This is more an advantage than a disadvantage, because it provides an excellent opportunity for sports organizations to translate the Panathlon Declaration into a code of conduct that is specific for its own members and that can be used in daily practice. Such a code will probably not only focus on ethics in youth sports, but on all ethical aspects of the organization.

A distinction is often made between a "code of conduct" and a "code of ethics". This distinction usually refers to both the contents of the code and the way in which it is enforced. The "code of conduct" is a typical instrument of a rules-based approach to integrity management. Like that more general approach, it starts from the assumption that people are essentially self-interested and that they will only behave with integrity when this coincides with their self-interest. Hence, a preferably detailed code of conduct will describe as specific and unambiguous as possible which behaviour is expected. Such a code of conduct will also establish strict procedures to enforce the code: systematic monitoring and strict punishment of those who break the rules. A "code of ethics", on the other hand, is rooted in the values-based approach. It focuses on general values, rather than on specific guidelines for behaviour, thus putting more trust in the organisational members' capacities for independent moral reasoning.

As for the choice between the two types of codes, the recommendation is to situate this in the broader question about the balance between the rules-based and the values-based approaches.

Structural measures

This subsection refers to specific measures that add rules or make other changes to the structure of the organization. Conflict of interest policy -- It is important for federations and clubs to be aware of possible situations of conflict of interest and to think of ways to avoid these. One case in point is the situation where a parent of a young athlete would also be involved in the selection of athletes within the same club. It is important to be aware of this risk and take preventive measures to avoid problems (e.g. by ensuring that this parent will never be involved in decision making concerning his/her own child).

Gifts and gratuities policy -- The general principle is that managers, trainers, referees and other actors are expected not to ask for or accept gifts or gratuities from individuals (e.g. parents) or organizations (e.g. sponsors) that may influence their impartiality. Yet, in practice is not always realistic and sometimes even not desirable to strictly prohibit all types of gifts and gratuities. One could imagine situations where a parent would be deeply insulted when he/she offers something of limited value as a token/signal of his/her appreciation for the trainers' efforts. Moreover, by strictly prohibiting such small gifts, one runs the risk of trivializing and even ridiculing integrity management.

Separating functions -- Particularly vulnerable tasks (e.g. advising, prescribing and giving nutrition supplements and substances to athletes; selection of athletes for an important international competition; contracting a new sponsor; selection of a city or country to organize an international competition, assessing the side effects and social impact of a mega sport event organization) could be split up in several sub-tasks that will be performed by different staff-members, thus increasing the number of people that would need to be involved if one wants to commit an integrity violation. It is expected that this will increase oversight and control, thus reducing the risk of integrity violations.

Rotating functions -- If staff performs the same vulnerable task for a long time, the risk will increase that they will develop undesirable routines and relations with athletes, parents, sponsors, media, providers or other stakeholders, which might in turn increase the risk for integrity violations. One could therefore consider to rotate those trainers, directors, administrators, referees etc. between different regions, specialties or functions. At the same time, one should also attempt to ensure knowledge management and maintain appropriate capacity in key functions.

Assessing instruments of personnel management

Personnel management contains a number of important tools for integrity management. Any actor responsible for designing an integrity management framework should therefore analyze the different available instruments of the "HR cycle" (hiring, training, promoting, and firing) so as to assess to what extent they support the wider objectives of the integrity management framework. There are many ways to do this and we mention just a few.

In the recruitment process, one could double check the statements made by the candidate in his/her CV (checking references, asking for original degree certificates, etc.). One could also check the candidate's background, particularly looking for previous incidents of relevant misconduct (particularly, child abuse) and for living conditions. One could also probe for moral judgment capacities in the job-interview, e.g. by asking whether the candidate has been confronted with an ethical dilemma and how he/she has dealt with it or by asking how he/she would deal with a hypothetical dilemma that is typical for the job.

Integrity can also be assessed after the hiring process. For example, it could be explicitly formulated as a criterion in the evaluation and the promotion of staff. By doing this, management gives a clear signal that it considers integrity important, thus increasing the chance that staff will consider integrity important and behave accordingly.

Exemplary behavior by management (of local, national and international sport organizations)
Managers are of course absolutely crucial for an integrity management framework to be successful. Through their own behavior, managers give an important message about what is acceptable and what is not acceptable that is at least as important as the official communication.

Integrity Training
Integrity training is probably one of the most often used and advertised instruments of integrity management. As with all integrity management instruments the choice for a particular training type will depend on local circumstances and on the overall balance of rules-based and values-based instruments. Two general recommendations can provide additional help for this choice. First, it is important not to limit integrity training to the introduction of new staff or volunteers. The starting point of a career or a voluntary commitment is of course a very appropriate moment for introducing the new recruits to the organization's expectations in terms of integrity, but this is not sufficient. Laws, rules, codes and expectations from stakeholders change over time and a regular update in training sessions would be useful. This could consist of a regular update-training where the new elements of the normative framework are presented and where the techniques are practiced again. Yet, the follow-up could also be of a more structural nature. One option could be to institutionalize integrity-discussions in daily communication, e.g. by regularly discussing an ethical dilemma in staff meetings and meetings with parents, while using the techniques learned in the training session for this.

Integrating integrity in the regular discourse of the organization
One of the key success-factors for an integrity management framework is the impact it has, the extent to which it stimulates the members of the organization to act with integrity in their day-to-day activities. This subsection focuses on a number of instruments that are particularly effective in achieving this goal.

Announcing the integrity policy and the contents of the code through channels of external communication -- Examples of this include the organization's magazine, website, newsletter, targeted mailing, etc. This is of course a useful tool for ensuring trust among the general public, fans and the organization's stakeholders, but it could also have an important indirect effect upon the integrity of the organizational members themselves. The fact that the public, fans and other external stakeholders (media, sponsors) are now better informed could help to prevent certain types of integrity violations or problems. Stakeholders might now be less likely to bring managers and trainers in difficult situations (e.g. sponsors and media who directly contact athletes, providing gifts and/or putting inappropriate pressure on them) or on the contrary be more critical of organizational members' behavior, because they know what is expected from them.

Regular discussions of ethical dilemmas or other ethical questions and issues in the official internal communication channels of the organization -- Examples of this include the organization's internal magazine, intranet, newsletter, etc.

Institutionalizing regular discussions of ethical issues in staff meetings -- One could agree that, at a regular interval, part of the staff meeting would be devoted to discussions of integrity dilemmas or other integrity-related questions. This would be an excellent way to follow-up on an integrity training and thus to strengthen its impact.

Institutionalizing regular discussions of ethical issues in individual meetings between the manager and his staff -- Many personnel management (particularly in the evaluation cycle) or strategic management (e.g. "management by objectives") systems prescribe some kind of regular planning meeting between the managers or technical directors and their trainers and supporting staff members, where goals and plans for the latter are agreed that might eventually be the basis for the evaluation. Forcing manager and supporting staff to discuss the topic of integrity in these conversations would serve as an excellent vehicle for institutionalizing the integrity discourse.

Coaching and counseling for integrity

This instrument implies the appointment of an actor or a number of actors within or outside the organization whose task it is to provide content-wise support to staff members with ethical concerns. This could take several degrees of institutionalization, ranging from the informal appointment of certain organizational members on the one hand to establishing a formal body, with some independence from the organizational hierarchy that provides written advice to organizational members facing integrity issues on the other.

Whistle-blowing policies

"Whistle-blowing" can be defined as "organization members' disclosure of illegal, immoral, or illegitimate practices under the control of their employers, to parties who may be able to effect action" (Miceli & Near 1985: 525). It is a complex affair. On the one hand is it obvious that managers, trainers, parents, supporting staff or other actors in the sports field, who take the risk of disclosing abuses with as their goal the public interest (e.g. preventing game fixing or bribery) or the prevention from harm (e.g. physical or mental abuse of children in sports clubs), deserve respect. On the other hand is it clear that the act of whistle-blowing usually damages the image of the organization concerned, which might in turn lead to decreasing trust among the public in the organization itself, but often also in sports as a whole (Lenskyi, 2006; Jennings, 1999). Whistle-blowing policies have the aim to maintain the desirable effects of whistle-blowing (the fact that the wrongdoing is reported) while trying to reduce the undesirable effects upon the image of the organization. Such a whistle-blowing policy therefore essentially consists of two components: a system for reporting wrongdoing and a system for the protection of those who make use, in good faith, of these channels.

The very idea of a "whistle-blowing policy" often provokes resistance. It is often associated with big scandals (that were indeed often made public by whistle-blowers) or with "witch-hunts" and paranoia. These concerns are unnecessary, at least on the condition that the whistle-blowing policy is well-developed. Whistle-blowing policies would actually help preventing public scandals. By providing additional reporting channels, they offer employees a way to report the wrongdoing without having to turn to the press or other public reporting channels.

Fair investigation and sanctioning of integrity violations

However important prevention and guidance are, every integrity management framework will need a significant component of enforcement. If the rules are clear for the organizational members and one observes significant transgressions of those rules, then sanctions will be necessary if the integrity management framework wants to maintain its overall legitimacy. The specific investigating and sanctioning mechanisms will differ largely from organization to organization and it is not useful to elaborate them in this context.

We limit ourselves to one important recommendation: ensure that both the procedures and the sanctions are perceived as fair (Trevino & Sims, 1994). The sanction should be consistent with and in proportion to the seriousness of the violation and with the sanctions for other colleagues who committed similar violations.

Conclusion

Our conclusion is that the sports sector should, without being forced, initiate a fundamental self-examination and subsequently elaborate its ambitions into workable (integrity) policies. In doing so, the sector would not only show transparency, accountability and responsibility, but would also be able to put things in perspective, prevent exaggerations and dramatization and suggest procedures that are in proportion to the size and the nature of the problems.

We argued that initiatives like the Panathlon Declaration act as a good starting point, but that they require implementation if they want to have a real impact. The latter is possible by designing an appropriate integrity management framework that not only prevents serious integrity violations in sports but also supports people in the sports world in dealing with complicated ethical dilemmas where it is not immediately clear what appropriate behavior would be. The key challenge will be to avoid the implementation deficit, i.e. the threat that integrity management will not go beyond lofty ambitions.

Reference list

Ball, G. A., Trevino Linda, L., & Sims, H. P. (1994). Just and unjust punishment: influence on subordinate performance and citizenship. Academy of Management Journal, 37(2), 299-322.

Bertieri, C. (Ed.). (2000). Sport, Ethique, Jeunes, la ligne d'ombre du dopage (Sports, Ethics, Youth, the dark line of drug abuse, (Les Cahiers du Panathlon nr. 8), Palermo: Panathlon International.

Bockrath, F., & Franke, E. (1995). Is there any value in sport? International Review for the Sociology of Sport, 30, 283-310.

Brackenridge, C. (2006). Women and children first? Child abuse and child protection in sport. In R. Giulianotti & D. McArdle (Eds.). Sport, Civil Liberties and Human Rights (pp.9-29). London/New York: Routledge.

Bredemeier, B.J. & Shiels, D. L. (1986). Athletic aggression: an issue of contextual morality. Sociology of Sport Journal, 3 (1), 15-28.

Coakley, J. J. (1998). Sport in Society: issues and controversies. New York: Mc Graw Hill.

David, P. (1999). Children's rights and sports: young athletes and competitive sports, exploit and exploitation. The International Journal of Children's Rights, 7, 53-81.

Donnelly, P. & Petherick L. (2006). Worker's Playtime? Child Labour at the Extremes of the Sporting Spectrum. In R. Giulianotti & D. McArdle (Eds.). Sport, Civil Liberties and Human Rights (pp.9-29). London/New York: Routledge.

Cooper, T. L. (1982). The responsible administrator: an approach to ethics for the administrative role. (1st. ed.). Port Washington, New York: Kennikat.

Forster, J., & Pope, K. (2004). The political economy of global sporting organizations. London/New York: Routledge.

Hong, F. (2006). Innocence lost: child athletes in China. In R. Giulianotti & D. McArdle (Eds.). Sport, Civil Liberties and Human Rights (pp.46-62). London/New York: Routledge.

Jennings, A. (1996). The new lord of the rings: Olympic corruption and how to buy golden medals. London: Simon & Shuster.

Karssing, E. (2001). Morele competentie in organisaties (Moral competence in organizations). Assen: Koninklijke Van Gorcum.

Lenskyj, H.J. (2006). The Olympic Industry and Civil Liberties: The Threat to Free Speech and Freedom of Assembly. In R. Giulianotti & D. McArdle (Eds.). Sport, Civil Liberties and Human Rights (pp.78-92). London/New York: Routledge.

Lewis, C. (1991). The ethics challenge in public service. San Fransisco, California: Jossey Bass.

Maesschalck, J. (2005). Approaches to ethics management in the public sector: a proposed extension of the compliance-integrity continuum. Public Integrity, 7(1), 21-41.

Miceli, M. P., & Near, J. P. (1985). Characteristics of organizational climate and perceived wrongdoing associated with whistle-blowing decisions. Personnel Psychology, 38, 525-544.

Morgan, W.J. (2006). Why Sports Morally Matters. London/New York: Routledge.

Nieuwenburgh, P. (2002). Ethiek in het openbaar bestuur (Ethics in the public sector). Amsterdam: Coutinho.

Paine, L. S. (1994). Managing for organizational integrity. Harvard Business Review, (2).

Panathlon International (2004). The Panathlon Declaration on Ethics in Youth Sport. Rapallo (Italy):Panathlon International:

Sinclair, A. (1993). Approaches to organizational culture and ethics. Journal of Business Ethics, 12, 63-73.

Trevino, L. K., Hartman, L. P., & Brown, M. (2000). Moral person and moral manager: how executives develop a reputation for ethical leadership. Journal 42(4), 128-142.

Trevino, L. K., & Weaver, G. R. (2003). Managing ethics in business organizations: social scientific perspectives. Stanford: Stanford University Press.

Vanden Auweele, Y. (Ed.), (2004). Ethics in Youth Sport. Leuven: LannooCampus.

van Luijk, H. (1996). Stapvoets door een dilemma. Opzet en achtergronden van een bewerkingsmodel (At footpace through a dilemma. Purpose and background of a process model . Filosofie in Bedrijf (Philosophy in Business), 22, 33-40.

Visually impaired physiotherapy students' perception of support while studying at a tertiary institution

T. Steyl (MSc)
Department of Physiotherapy

Corresponding Author:
T. Steyl (MSc Physiotherapy)
Department of Physiotherapy
University of the Western Cape
Private Bag X17
Bellville
7535
e-mail: tsteyl@uwc.ac.za

ABSTRACT

Introduction:
Acquiring higher education is a difficult task for most normally sighted individuals. Realizing the importance of the visual system in the learning process, it becomes apparent that visually impaired (VI) students could be challenged in their educational pursuit without the necessary support. Since the inception of the UWC program for VI physiotherapy students in 1996, seven students have successfully completed the course to date.

Aim:
The aim of the study was to explore VI students' perceptions of support during their studies at the Physiotherapy (PT) Department of UWC, South Africa.

Methods:
A qualitative study design was mainly used for this study. The study incorporated purposive sampling. Four (4) pre-determined themes and one (1) emerging theme were identified.

Results:
The responses of the participants to the support given by the PT Department were mainly positive. The role of the mentor for VI students and the Disability Officer proved to be invaluable. VI students in tertiary education might face difficulties unless certain steps are taken to minimise such difficulties.

Conclusion:
By employing some simple techniques when teaching VI students as well as giving them the necessary support during their educational journey, the learning environment can be greatly enhanced. Adoption of such techniques can mean the difference between success and failure for students with disabilities.

Keywords: perception, support, visually impaired students

Introduction

Education is a basic human right and a precious key to self development. For many years, physically disabled people did not have the same educational opportunities as abled people, especially in higher education. Students with disabilities at African universities represent a tiny minority of 1% of the total enrollment (Eagleton, 2008). The majority of these students enrolling at universities have physical or visual impairments. The Individuals with Disabilities Education Act (IDEA) of 1997 defines visual impairment (VI) as "an impairment in vision that, even with correction, adversely affects a child's educational performance" (Eagleton, 2008). The term includes both low vision and blindness. Throughout history, students with VI have been referred to as blind, visually handicapped, visually disabled, partially sighted, partially blind, visually limited, or sight impaired (Jackson, 2005).

There are many primary and secondary schools worldwide which were built for blind and visually impaired children specifically. Contrarily, no tertiary institution of education is built purposively for this category of disabled students (Oduntan, 2004). The lack of appropriate and adequate provision for disabled learners at school level has profoundly affected their access to higher education (Oduntan, 2004). Since the implementation of inclusive education in South Africa, many more disabled students have the opportunity to higher education.

Only some South African universities have written policies regarding disabled students. Although the aim of all universities accommodating disabled students is more or less the same, namely to integrate all students that meet the academic requirements, it differs from each other with regard to the approach to disability and equal opportunities. The "adjusting approach" recognizes the specific needs of disabled students and emphasizes the importance of addressing them, but on the other hand makes restrictions for example 'without restricting or prejudicing the rights of other students'. This approach expects disabled students to adjust or integrate into the mainstream. The "equal opportunities approach" however, emphasizes the need to adjust the environment so that all students have the same opportunities for education. These environmental adjustments include the physical as well as mental environment (attitudes), teaching methods and equipment (UNESCO, 1997).

For many years the South African government has funded the training of visually impaired people in various employment areas overseas (Office of the Deputy President, South Africa, 1997). These endeavours have been very costly. In 1994 after the new democratic dispensation, the Minister of Health, Dr. Dlamini-Zuma, requested each university to assess whether they would be able to train visually impaired students. Since the University of the Western Cape (UWC) has always been responsive to the needs of the community, it accepted the challenge. The Unit for Disabled People was opened on an ad hoc basis in the early 1990's at the University of the Western Cape (UWC). The Physiotherapy Department at the University of the Western Cape (UWC) admitted visually impaired students since 1996. The Department of Labour (DoL) and the South African National Council for the Blind (SANCB) provided funds for the Physiotherapy Department to employ a mentor for its visually impaired students. Support for the visually impaired students therefore came from the mentor and the Unit for Disabled People at UWC. The support included assistance with application to study at the university, application for bursaries, assessing need for specific equipment, enlargement of font size of notes and study materials, audio recording of textbooks and assistance in practical classes.

Since the inception of the UWC programme for visually impaired physiotherapy students in 1996, seven visually impaired students have successfully completed the degree programme to date. As with many initiatives and programmes, there have been limitations and obstacles. Research has emphasized the importance of the evaluation of support needed by students with disabilities, for them to prosper in higher education programmes (Holloway, 2001; Stoden et al., 2001). Therefore, the aim of the study was to explore visually impaired students' perceptions of support during their studies at the Physiotherapy Department of UWC, South Africa.

Method

The study was conducted at the University of the Western Cape (UWC) situated in the Northern Suburbs of the Cape Metropolitan area, in the Republic of South Africa. Among academic institutions UWC has been in the frontline of South Africa's historic change, playing a unique academic role in helping to build a dynamic nation.

A qualitative study design was used for this study. The study incorporated purposive sampling. Therefore all visually impaired students that graduated since the inception of the program in 1996 as well as all visually impaired students currently enrolled for the physiotherapy program at UWC during the time of data collection were invited to participate in the study. All visually impaired students (past and present), except for one person that passed away, agreed to participate in the study. The final sampling frame thus consisted of 7 (seven) participants, namely 6 (six) qualified physiotherapists as well as 1 (one) final year physiotherapy student.

Ethical considerations were taken into account before embarking on this study. Permission to conduct the study was obtained from the UWC Research Grants and Study Leave Committee as well as the Registrar from UWC. All participants were ensured of their anonymity and that all collected information will be kept confidential. The participants had the right to withdraw from the study at any time without any negative consequences. Data was collected by means of a semi-structured interview guide containing open-ended questions regarding barriers and facilitators that the visually impaired students have encountered while completing the physiotherapy programme. Participants were contacted telephonically, the study was explained to each of them and verbal consent to telephonic interviews was granted by each participant. Appointments were made for telephonic interviews to obtain necessary information from the six qualified visually impaired physiotherapists. Their responses were directly noted. The one visually impaired physiotherapy student was interviewed on the UWC campus. To assure trustworthiness of the results, the following steps were taken. Audio-taped data from the student interviewed on campus were transcribed verbatim by an independent person with experience in transcription. A comparison was then made with the notes taken during the interview, to verify accuracy. Member checking were used for the data obtained telephonically.

Results

The study sample consisted of seven (7) participants, namely six (6) males and one (1) female.

Four (4) pre-determined themes were identified, namely departmental support, study materials, departmental mentor for visually impaired students and the Office for Students with Disabilities. One (1) emerging theme was identified, namely recommendations regarding support. The findings will be presented in the five categories as mentioned above.

Pseudonyms will be used for names.

Departmental support

All the participants, except one, agreed that there were sufficient departmental support in the following areas, namely enlargement of font size of test papers, adding extra time to tests and examinations (10 minutes per hour) as well as providing extra support during practical classes. The excerpt below illustrates this:

"They were so good. They helped wherever they could and always went out of their way to be of assistance. Without the department I would've have been lost." (Male, 27)

"During practical classes the lecturer placed my hands on the specific structures that I should feel." (Female, 34)

Although the majority of the participants wassatisfied with the support during practical classes, one participant expressed his dislike.

"Visually impaired students should not have to be models all the time, but should sit in front in practical classes to better grasp the techniques." (Male, 25)

However, lack of support from the department with regards to 1st year registration and with the practical component of the Electrotherapy module was reported. The participants also complained of some lectures' inadequate teaching methods. The lecturers that wrote on the blackboard did not take into account that it is very difficult for the visually impaired students to read from it.

"I received no support from the department during first year registration." (Male, 24)

"My fellow classmates helped me a lot with things like registration and during practical classes. Without them I think I would have been lost." (Male, 24)

"Liesl help me with first year registration, the department was too busy with the other students." (Male, 41)

"..... and writing on the blackboard while lecturing made it difficult for me to keep up with the pace." (Male, 25)

"The department never approached me. I had to tell them when I needed help with anything. Could they not think that registration would be difficult to do?" (Female, 34)

Study material

Study material was considered a major challenge for most of the participants. Most of the participants agreed that the department provided enlarged (font size) notes on time, although not always of good quality. The following quotation illustrates this:

"The department was very good in the sense that notes were most of the time enlarged on time. To receive it electronically was so much better as I could enlarge it on my own computer." (Male, 32)

One participant stated that he received printed notes well in advance. This assisted in making the learning experience a positive one.

"I've received my enlarged notes well in advance, as well as an electronic copy." (Male, 25)

However, one participant stressed that notes from the department was always late, therefore causing problems with his preparation for lectures and tests. "I had a big problem with late notes. This complicated my preparation for lectures and tests." (Male, 27)

The students that enrolled for the physiotherapy programme at first, had to type their own notes from transparencies provided by the lecturers of the service department. Some of the service departments also provided notes of poor quality (incorrect font size, faded ink, poor clarity of pictures) and it was never on time.

"...... but the outside module notes were always late and of poor quality." (Female, 34)

"I can still recall the poor quality of some modules that was not taught in the department. I sometimes received it only in the 2nd or 3rd week of lectures." (Male, 25)

Departmental mentor for visually impaired students

Practical classes, tutorials and clinical work were a daunting experience for the participants. All the participants agreed that they would never have been able to complete the programme without the assistance from the lecturers and the visually impaired departmental mentor (since 1996).

"I would not have been able to do ET (electrotherapy) without the help of the mentor. She really helped with the orientation of the machines." (Male, 25)

"NMS would have been a nightmare without the assistance of the mentor." (Male, 27) (NMS is techniques in neuromusculosceletal conditions)

"The mentor was very good with providing assistance during Anatomy tuts. She was my eyes. She explained things like x-rays and lots of little things that I've missed during class" (Male, 24)

"It would have been impossible to do clinical work without the help of the mentor. She assisted with the patient file and also helped with the documentation of treatment given."
(Male, 32)

The Office for Students with Disabilities

All the participants reiterated the importance of constant communication between the Office for Students with Disabilities and the Physiotherapy Department as well as the moral support from the office's staff. The staff assisted the students with registration, application for bursaries, obtaining the correct assistive equipment, liaising between visually impaired students and service departments, enlargement of examination papers and invigilating the students during their theory examination.

"I could go to Liesl for any help. She was always willing to go the extra mile." (Male, 25)

"Liesl assisted me with first year registration, the department was too busy with the other students." (Male, 41)

Recommendations regarding support

Two participants recommended that the Office for Students with Disabilities should educate all campus staff members that are involved with teaching of visually impaired students, to use methods that suite visually impaired students the best.

"They (lecturers) should not write on the blackboard, they should rather use the data projector." (Female, 34)

"Lecturers should have knowledge of the assistive devices available that would make learning for a VI student easier." (Male, 25)

Discussion

Acquiring higher education is a difficult task for most normally sighted individuals. Realizing the importance of the visual system in the learning process, it becomes apparent that visually impaired students could be challenged in their educational pursuit (Oduntan, 2004). The results from the current study support findings from Oduntan (2004) who argued that visually impaired students in tertiary education might face difficulties unless certain steps are taken to guard against such difficulties. Hall and Tinklin (1998) identified the curriculum, especially the amount of work, as one of the difficulties experienced by visually impaired students at tertiary institutions. Many people expressed doubts that visually impaired students would be able to 'cope' and most believed that it would be impossible for them to survive in mainstream education (Krugler & Andrews, 1996; Atkinson & Hutchinson, 2005). Findings from the current study also showed that without the support from the department, the mentor for visually impaired students and the Office for Students with Disabilities, the students would have been challenged even more in their educational pursuit. However, the graduates from the current study indicate that with support visually impaired students can survive in mainstream education.

The responses of the participants to the support given by the Physiotherapy Department during the completion of the 4-year BSc Physiotherapy programme were mainly positive. Of great importance is the recognition of resource implications if students with disabilities are going to have both the level of support and the equipment that they might need to facilitate their full participation in education (Harrison & Chia, 2003). This is confirmed by all the participants, as they stated that they would not have been able to complete the course without the help of the visually impaired mentor's assistance with enlargements of notes and help with practical classes and tutorials specifically. The results furthermore coincide with recommendations from research by Hall and Tinklin (1998), namely that the VI mentor should assist with any problems arising from departmental as well as non-departmental (service departments) course work. The minority of the participants reported receiving good quality study material. The notes were also seldom received on time. The availability and quality of study material also contributed to the participants' learning experience being positive. Oduntan (2004) and a study done at the Phillips-University Marburg in 2006 also support the view that study material should be of high quality and that visually impaired students should receive their notes electronically and on time.

Support during the transition from secondary to tertiary education has been proven to be invaluable to people with disabilities (Hall and Tinklin, 1998). Transitional activities should place a much greater emphasis on providing effective self-advocacy skills to students with disabilities who are interested in tertiary education (Hall & Tinklin, 1998). The researchers furthermore recommended that prospective students with disabilities should be invited to visit the institution before enrolling, so that their specific needs as well as available support systems could be discussed with them and their parents.

Conclusion

Visually impaired students in tertiary education might face difficulties unless certain steps are taken to guard them against such difficulties. The problems experienced by disabled students in higher education are often ascribed to a lack of necessary assistive devices or equipment. While such facilities may form an important part in supporting the student, limited attention is paid to the teaching and learning process itself.

Recommendations

By employing some simple techniques when teaching visually impaired students as well as giving them the necessary support during their educational journey, the learning environment can be greatly enhanced. Adoption of such techniques can mean the difference between success and failure for students with disabilities. Findings from the study furthermore confirmed that the Office for Students with Disabilities should continuously educate staff involved with disabled students on how to improve their support given to VI students. The Disability Officer should also identify the appropriate technology available and provide training to staff regarding these technologies. This is of great importance as Oduntan (2004) and Holloway (2001) reiterated that staff should be continually trained in order to be better equipped to work with students with disabilities.

Acknowledgements

I would like to thank the following 4th year physiotherapy students for assisting with data collection: B. Bredenhann , P. du Plessis, L. Kalo, C. Maytham and S. Talliard.

REFERENCES

Atkinson, K., & Hutchinson, J.O. (2005). Visually Impaired Physiotherapists: Challenging professional attitudes. International Congress Series, 1282, 908-912.

Counselling and support of the blind and visually impaired students at the Phillips- University, Marburg July 2006. Retrieved May 4, 2009, from www.scips.worc.ac.uk/subjects_and_challenges/physiotherapy/phys_visual. html.

Eagleton, M.B. (2008). Education for Learners with Visual Impairment, EBSCO Research Starters. Retrieved August 29, 2008, from http://ebscoweb.com/thisTopic.php?topicID=1073

Hall, J., & Tinklin, T. (1998). Students First: The Experiences of Disabled Students in Higher Education. Scottish Council for Research in Education (SCRE) Research Report, 85.

Harrison, D., & Chia, S.H. (2003). Promoting diversity in occupational therapy education. British Journal of Occupational Therapy, 66, 185.

Holloway, S. (2001). The Experience of Higher Education from the Perspective of Disabled Students. Disability and Society, 16, 597-615.

Individuals with Disabilities Education Act (IDEA). Amendments of 1997.

Jackson, R.M. (2005). Curriculum access for students with low-incidence disabilities: The promise of Universal Design for Learning. Wakefield MA: National Center in Accessing the General Curriculum. Retrieved June 6, 2009, from http://www.cast.org/publications/ncac/ncac_lowinc.html.

Kugler, P., & Andrews, K. (1996). Graphical Analysis and the Visually Impaired in Undergraduate economics Courses. Journal of Economic Education, 27, 224-228.

Oduntan, A.O. (2004). Rehabilitation of Visually Disabled Students in Institutions of Tertiary Education. The South African Optometrist, 63, 3-9.

Office of the Deputy President, South Africa (1997). White Paper on an integrated national disability strategy. Pretoria: OPD. Retrieved August 13, 2009, from http://www.polity.org.za/govdocs/white_papers/disability1.html.

Stodden, R.A., Whelley, T., Chang, C., & Harding, T. (2001). Current Status of Educational Support Provision to Students with Disabilities in Postsecondary Education. Journal of Vocational Rehabilitation, 16, 189-198.

United Nations Educational, Scientific Cultural Organization (UNESCO) 1997. Disabled Students at Universities in Africa, UNESCO Harare Office, August 1997.

Correlates of Infant and Child Mortality in Ethiopia 2005

Sathiya Susuman (PhD)
Senior Lecturer in Demography

Correspondence Address:
Dr. A. Sathiya Susuman
Senior Lecturer in Demography
Dept. of Statistics
University of the Western Cape
Email: sappunni@uwc.ac.za

Abstract

Introduction
Risk of mortality prevails for children with shorter birth interval since their mothers are likely to have poor health.

Aim
The aim of the study is to determine the indirect estimation of infant and child mortality in Ethiopia.

Methods
The data sources for this study are the 2005 Ethiopian Demographic and Health Survey (EDHS).Cox's model is used to assess the association between childhood mortality, and selected socio-economic and demographic variables.

Results
The study findings show that childhood mortality declined by 35% during the last five years in Ethiopia, infant mortality declined by 21% and under-five mortality declined by 26%. Mortality rates are still high, however, birth interval, breastfeeding and birth order reflect strong mortality decline in many regions. Birth order, mother's age at childbirth, length of pervious and subsequent birth intervals, and mortality of an older sibling all have large effects on infant and child mortality. Among health interventions strongly associated with reduced childhood mortality.

Conclusion
It is thus recommended that further research is needed at regional level as well as national level investigation. As per the study, findings can be used as the basis for a number of policy recommendations.

Key words:
mortality, birth interval, breastfeeding, health intervention, health care

Introduction

Fertility behavior or biological factors (such as mother's age at childbirth, child birth order and previous and following birth intervals) affect infant mortality in developing countries (Hobcraft, McDonald and Rutstein 1985). One study found first born children and the children of higher birth order are known to experience higher mortality than children of birth order two to four (Bicego and Ahmed 1996); (Gribble, 1993). Another study found high risk of mortality prevails for children with shorter birth interval since their mothers are likely to have poor health (Pandey, Choe and Luther 1998; Rustein (2000). A number of studies have shown that prenatal care like the vaccination of pregnant mothers against tetanus can virtually eliminate deaths in early infancy UNICEF (2004). In the same token, proper medical attention at the time of delivery reduces the risk of death from birth injury. Post-natal care in the form of breastfeeding, immunization and appropriate medical treatment in case of illness can reduce the risk of infant and child mortality Ware (1984); Jain (1985); Assefa and Tesfaye (1997); Vinod and Retherford. (1997); Rutstein (2000); Sathiyasusuman (2000) and EDHS 2005.

All these health service utilization factors are known to be significantly correlated with infant and child mortality. According to the United Nations (2006); EDHS (2005) infant and under-five mortality in Ethiopia has continued to decline over the past 25 years with a more pronounced reduction in the last decade. Yet, overall infant and under five mortality rates remain very high: between 1995 and 2000. The Ministry of Health (2004) noticed that the data highlighted that almost one of every ten newborns (97 per 1000) did not survive to celebrate their first birthday, and one of every 6 children (166 per 1000) died before their fifth birthday. In 2006, for the first time since mortality data have been gathered, annual deaths among children under five dipped below 10 million. Nevertheless, the death of millions of children from preventable causes each year is unacceptable. Another study found a child born in developing country is over 13 times more likely to die within the first five years of life than a child born in an industrialized country. The USAID (2007) and United Nations (2008) noticed that Sub-Saharan Africa accounts for about half the deaths of children under five in the developing world. As shown, between 1990 and 2000, the rate of decrease of under-five mortality has only been less than 2 per 1000 live births per year.

The World Bank (1993) mentioned that Ethiopia should, therefore, reduce child mortality by 7.4 per 1000 live births per year between 2003 and 2015 in order to achieve the MDG goal in question. An another government agency Ministry of Health (2004) reported this task would be very challenging given past trends as well as major unmet needs for child survival in Ethiopia. Therefore, in-depth understanding of the levels, trends, differentials and determinants of childhood mortality is crucial in any attempt to attain the goal of reducing infant and child mortality level through proper and sustainable types of intervention. Thus this study aims to determine the indirect estimation of infant and childhood mortality in Ethiopia.

Data and Methodology

The data used for this study was the 2005 Ethiopian Demographic and Health Survey (EDHS). The 2005 EDHS sample was designed to provide estimates for the health and demographic variables. The EDHS 2005 questionnaire collected information on socioeconomic and demographic data, including age, religion, level of education, husband's occupation, and women's working status and current marital status. Reproductive issues such as age at marriage, number of pregnancies, deliveries and miscarriages; history of child death; number of living children, children ever born and sex of surviving children, woman's ideal preference regarding number of children.

Demographic Profile of the Study Sample

With a population of 78 million in 2007 (PRB, 2008), Ethiopia is the second most populous country in Sub-Saharan Africa next to Nigeria. The total fertility rate (TFR) is 5.2 children per woman. Demographic patterns reveal that women in the reproductive age group (15-49 years) constitute 23 % of the total population while 44 % of the population is less than 15 years old. This skewed age structure towards the young indicates the high potential for an accelerated population growth and heavy demand for all types of health services, including interventions for reproductive health. Access to health services remains limited. The health problems of mothers and children are related to fertility and childbirth. The maternal mortality rate of 673 per 100,000 live births and infant mortality rate of 77 per 1,000 live births are among the highest in the world. There is an increasing trend in the incidence of adolescent pregnancy, contributing to more than 30 % of the death toll arising from unsafe abortion (NOP, 2005). Only 28 % of women receive antenatal care and skilled personnel attend only 7 % of births. Postnatal care is extremely low in Ethiopia (CSA, 1995).

Cox's model was used to assess the association between childhood mortality, and selected socio-economic and demographic variables. Cox's regression builds a predictive model for time-to-event data. The model produces a survival function that predicts the probability that the event of interest has occurred at a given time and for given values of the predictor variables. The shape of the survival function and the regression coefficients for the predictors are estimated from observed subjects; the model can then be applied to new cases that have measurements for the predictor variables. Note that information from censored subjects, that is, those that do not experience the event of interest during the time of observation, contributes usefully to the estimation of the model (Cox, 1972).

In the present study, the dependent variable is childhood mortality and the main independent variables are the socio-economic and demographic variables. In order to account for regional differences, we created categorical variables that distinguished each region in Ethiopia. The analyses are both descriptive and multivariate. Based on the bivariate analysis, the model was fitted using the Cox's proportional hazard model.

This article describes Cox's proportional hazard model analysis of infant and different types of child mortality in Ethiopia. The main focus is not the absolute crude death rate, but rather the forces changing the crude death rate over a period of time. This research has tried to find out what the changes are and where Ethiopia stands concerning childhood mortality rates. However, there has been a substantial reduction in infant and child mortality rates in most developing countries in the recent past, child mortality remains a major public health issue in developing countries where it is estimated that over 10 million preventable child deaths occur annually.

Results

A total of 14,645 households were selected, of which 13,928 were occupied. The total number of

Table 1: Mortality differentials by demographic factors, EDHS 2005

Variables	No. of Births	Deaths Per 1000			
		NNM	PNNM	IMR	CMR
Sex of child		*		***	
Male	5027	42	40	79	25
Female	4834	28	15	56	28
Preceding Birth interval				***	***
< 2 years	1728	59	58	113	48
2-3 years	2885	26	33	58	20
3-4 Years	1740	22	26	47	27
4+ Years	1585	17	17	33	12
Duration of Breast Feeding		***		***	***
Never	352	506	127	568	64
< 6 Months	1578	84	153	214	84
6-12 Months	2178	0	38	38	52
More than a year	5569	0	0	0	15
Age at Birth		*		***	
< 20 years	1383	59	49	105	18
20-29 years	5203	32	31	61	28
30-39 years	2755	26	33	58	26
40-49 years	520	44	49	90	37
Size of Child				***	
Small	3058	40	41	79	24
Average	4022	28	27	54	28
Large	2723	34	35	68	24
Birth Order		**		**	*
1	1917	52	39	88	25
2-3	3073	28	31	58	20
4-6	3096	33	31	63	27
7+	1775	30	42	71	37
Multiplicity of Birth				***	
Single	9683	33	33	65	26
Multiple	178	124	109	219	56
Total	9861	35	35	68	26

*** = P< 0.001, ** = P<0.01, * = P<0.05, (***, **, * indicate level of significance at specified level).

households interviewed was 13,721 yielding a household response rate of 99 percent. The relationship between ages of mother at birth associated with childhood mortality is important determinants of childhood mortality.

The study found that age at birth of women less than 20 years, neonatal and infant mortality rates are quite high 59 and 105 respectively (see table 1) but EDHS 2005 shows neonatal mortality among mother's age at birth less than 20 were 57 but infant mortality 106 per 1000 (EDHS, 2005). These findings show more or less similar findings but child mortality in the same age group shows wonderful reduction only 18 per 1000. About 62 per 1000 this may be due to the mortality rates for the 10 years preceding the survey. However, the risk to children born by women over the age of forty express sharply increased (90 per 1000) infant mortality rates. Children from multiple births (twins, triplets, etc) experience much higher mortality than single births. It is a biological factor that plays a major role in the survival of infants.

Differentials in the various mortality rates by selected socio-economic factors are mainly focused on selected socio-economic characteristics in Ethiopia. Cleland and Ginnaken (1988) concluded mother's education is one of the strongest correlates of infant and child mortality because education provides women with decision making power, making them more aware of their children's welfare, and increasing their knowledge about childhood diseases and their ability to understand illness and provide timely treatment. Although one study found out that the effect of mother's education was substantially reduced when controlling for other variables (Bicego, George, Hill and Mahy, 1994). However, this study result shows that child mortality is 11 per 1000 children surviving with women's secondary and above education. As one would expect, mother's education has a stronger negative effect on neonatal and child mortality than on post neonatal mortality (which is strongly affected by biological factors).

A study conducted in Ethiopia identified significant relationship between maternal education and child mortality (Assefa and Mekonnen, 1997). The study findings show that neonatal, post neonatal and infant mortality is quite high in orthodox community when we compare with remaining groups. Other religion shows that child mortality is quite low 16 per 1000 (Mekonnen, 2001). The result in table 2 indicates relatively higher proportion of infant, neonatal and post neonatal mortality for mothers residing in Amhara region. Neonatal, post neonatal and infant mortality risk among women from Amhara region is 53, 43 and 93 percent higher respectively as compared with children born to mothers who were living in Addis. On the other hand, the current study reveals that childhood mortality is higher for women residing in Afar region as compared to women residing in other regions of the country (EDHS, 2005) and neonatal, post neonatal and infant mortality risk for infants born to mothers who were not in union are 26, 31 and 56 percent respectively higher than that of infants born to mothers in union. Similarly, children born to mothers who were not in union have 32 percent higher mortality risk than those children born to mothers who were in union.

Neonatal, post neonatal and infant mortality in the working category mothers having higher than non-working mothers 38, 42 and 78 respectively (see table 2). On the other hand, the current study reveals that childhood mortality is higher for non-working mothers (34, 32 and 65 per 1000) as measure to working mothers. In developing countries, childhood mortality is often thought to be higher in rural areas than urban areas because of differences in standards of living, health conditions and availability of or access to public health facilities and services.

The study reveals that children of mothers residing in rural settings have higher risk of dying during infancy, neonatal, post neonatal and childhood periods as compared to those residing in urban areas. With respect to wealth and mortality, children born to mothers in the middle wealth index are at higher risk of dying (neonatal 46, post neonatal 39, infant 67 and child 30) than children born to mothers in the lowest and highest wealth index during infancy, neonatal and childhood periods (World Bank, 2007b).

Discussion

In the previous part, the bivariate relationship between some background characteristics of women and children on the one hand and infant

Table 2: Mortality differentials by socio-economic factors, EDHS 2005

Variable	No. of Births	Deaths Per 1000			
		NNM	PNNM	IMR	CMR
Religion					
Orthodox	3897	37	35	71	24
Protestant	1776	34	35	68	25
Moslem	3847	33	35	66	30
Other	337	27	28	53	16
Educational Level				**	***
No education	7609	35	38	71	30
Primary	1548	39	25	63	13
Secondary &above	704	23	16	38	11
Region		**		**	*
Tigray	980	28	25	52	18
Afar	574	26	31	56	48
Amhara	1458	53	43	93	31
Oromiya	1938	37	32	68	27
Somali	663	33	38	69	26
Ben-Gumz	698	40	29	67	34
SNNP	1730	34	42	74	28
Gambela	515	23	36	58	12
Harari	514	21	26	47	22
Addis Abeba	380	24	24	47	7
Dire Dawa	411	27	35	61	20
Marital Status					*
Not in Union	641	44	39	81	37
Currently in Union	9220	34	34	67	25
Employment				*	
No	7590	34	32	65	27
Yes	2269	38	42	78	25
Type of place of residence				**	*
Urban	1,358	30	19	49	17
Rural	8,503	35	37	71	28
Wealth index		**		**	**
Poorest	2529	29.26	36.64	64.45	29.06
Poorer	1846	28.71	44.63	71.51	31.01
Middle	1837	46.27	39.28	83.29	32.25
Richer	1672	46.65	31.79	76.56	26.82
Richest	1977	26.30	20.95	46.54	12.74
Total	9861	35	35	68	26

*** = P< 0.001, ** = P<0.01, * = P<0.05, (***, **, * indicate level of significance at specified level).

and child mortality on the other has been assessed. In such type of analysis, there is always lack of estimating the net effect of a particular variable separately, and together as a group on the dependent variable; it is also difficult to know which factor is more important. In this analysis, we estimate the effect of each variable on neonatal, infant and child mortality using hazard models that include just one predictor variable. The objectives of the study can only be achieved by applying Cox's proportional hazard model is applied in order to examine the net effect of each independent variable on infant and childhood mortality by controlling the effects of other variables.

However, an analysis of 2005 shows a slight decline in the neonatal mortality levels in the country. This decline may be attributed to better quality of the EDHS 2005 data as compared to 2000 EDHS. The study findings clearly showed preceding birth interval 2-3 years is 2.7 times more neonatal mortality than those women who have birth interval less than 2 years which is statistically highly significant (see table 3). Another important determinant is duration of breastfeeding whose women gave less than six months duration of breastfeed 5.3 times higher than no breastfeeding. Those women gave multiplicity of birth which is 2.3 times higher neonatal mortality than single birth women. Therefore, preceding birth

Table 3: Proportional hazard model of relative effects of predictor variables on neonatal mortality, EDHS 2005

Selected Variables	B	Exp(B)	95.0% CI for Exp(B)	
			Lower	Upper
Sex of Child				
Male@				
Female	0.140	1.15	0.868	1.522
Multiplicity of Birth				
Single@				
Multiple	0.847	2.33***	1.418	3.836
Size of Child				
Small@				
Average	0.126	1.13	0.790	1.630
Large	0.179	1.19	0.846	1.690
Preceding Birth Interval				
< 2 years@				
2-3 years	0.989	2.69***	1.634	4.427
3-4 Years	0.376	1.45	0.883	2.401
4+ Years	0.168	1.18	0.685	2.044
Duration of Breast Feeding				
Never@				
< 6 Months	1.663	5.27***	3.957	7.037
Age at Birth				
< 20@				
20-29	0.510	1.67	0.970	2.860
30-39	0.009	1.01	0.694	1.467
40-49	0.014	1.01	0.598	1.719
Birth Order				
2@				
3-4	-0.037	0.96	0.632	1.469
5+	0.158	1.17	0.747	1.837

*** = P< 0.001, ** = P<0.01, * = P<0.05, (***, **, * indicate level of significance at specified level @

interval, duration of breastfeeding and multiplicity of birth became important neonatal mortality factors than other variables.

Reference category

Another relative effect of predictor variable is infant mortality. Infant mortality is clearly visible in women who are given less than two years preceding birth interval from first birth to second or second to third. Results show that 2-3 years interval has 3.5 times more infant mortality than 3-4 years and above 4 years birth interval as statistically highly significant (see table 4).

Preceding birth interval shows that women who gave 3-4 years between births are 1.8 times more infant mortality than reference category. Duration of breastfeeding for those women who have less than six months breastfeeding and those who have given 6-12 months breastfeeding shows 3.1 times

Table 4: Proportional hazard model of relative effects of predictor variables on infant mortality, EDHS 2005

Selected Variables			95.0% CI for Exp(B)	
	B	Exp(B)	Lower	Upper
Place of Delivery				
Home@				
Health Institution	0.005	0..93	0.586	1.723
Preceding Birth Interval				
< 2 years@				
2-3 years	1.240	3.45***	2.455	4.863
3-4 Years	0.598	1.82***	1.295	2.554
4+ Years	0.398	1.49*	1.029	2.154
Duration of Breast Feeding				
Never@				
< 6 Months	2.949	3.08***	2.953	4.085
6-12 Months	1.954	2.05***	1.319	3.354
Sex of Child				
Male@				
Female	0.245	1.28**	1.054	1.547
Employment				
No@				
Yes	0.384	1.47*	1.181	1.826
Multiplicity of Birth				
Single@				
Multiple	1.059	2.88***	1.986	4.186
Age at Birth				
< 20@				
20-29	0.741	2.01***	1.453	3.028
30-39	-0.053	0.949	0.739	1.218
40-49	0.104	1.110	0.768	1.605
Birth Order				
2@				
3-4	0.155	1.168	0.872	1.563
5+	0.397	1.49**	1.086	2.039
Place of Residence				
Rural@				
Urban	0.228	1.26	0.773	2.039

*** = P< 0.001, ** = P<0.01, * = P<0.05, (***, **, * indicate level of significance at specified level

more infant mortality and highly significant probability <0.0.001 than reference category. Therefore, preceding birth interval and duration of feeding is an important determinant of the infant mortality.

Births with preceding birth interval of 2-3 years after the previous birth have also a higher risk (82 percent) of mortality compared to the reference category. Births with preceding birth interval of 3 to 4 years after the previous birth have also a higher risk (49 percent) of mortality compared to the reference category. In general being born within a very short birth interval (less than 2 years) is associated with a very high mortality risk. Generally, first born children fare worse than children of birth orders 2-3, after which mortality increases as birth order increases. The exception to this pattern occurs for child mortality. The interval from one birth to the next can also have a dramatic effect on the child's survival chances. For instance, the risk of dying for births of higher order (> 4) is nearly 50 percent higher than that of 2nd order births. This might be due to the fact that high-order births are born into families that already have a number of young children who compete for resources and parental care, and most of higher order births have mothers who are physically depleted. Such children are more likely than others to suffer from high mortality risks such as low birth weight.

Duration of breastfeeding showed a very large (>12 months) and statistically highly significant (P<0.001) effect 2.24 times higher on survival of infants (see table 5). For instance, infants who were less than 6 months breastfed had 4.9 times higher mortality risk than infants who were breastfed for 6-12 months or more months. Previous table 10 discussed about maternal age at birth the effect of maternal age at birth shows that infants born to mothers aged 20-39 years experience a lower mortality risk 2 times as compared to infants born to mothers aged less than 20 and = 40 years.

For instance, infant mortality for children of mothers less than 20 years at the time of birth of their child is two times higher than that for infants whose mothers were 20-29 years at the time they gave birth. Mortality risk among infants born to mothers 30-39 years is, however, almost the same as

Table 5: Proportional hazard model of relative effects of predictor variables on child mortality, EDHS 2005

Selected Variables	B	Exp(B)	95.0% CI for Exp(B) Lower	Upper
Assistance of Delivery				
Traditional@				
Professional	-0.248	0.78	0.296	2.058
Preceding Birth Interval				
Less than 2 years@				
2-3 years	1.526	4.60***	2.441	8.677
3-4 Years	0.618	1.85	0.968	3.555
4+ Years	0.918	2.50***	1.289	4.863
Duration of Breast Feeding				
Never@				
< 6 Months	1.581	4.86***	2.210	10.697
6-12 Months	0.043	1.04	0.574	1.899
>12 Months	0.807	2.24***	1.546	3.250
Place of residence				
Rural@				
Urban	0.261	1.3	0.513	3.283
Marital Status				
Currently in Union@				
Not currently in Union	0.585	1.8	0.930	3.466
Educational Level				
No education@				
Primary	0.547	1.73	0.462	6.464
Secondary and Above	-0.325	0.72	0.173	3.020

*** P< 0.001, ** P<0.01, * P<0.05, (***, **, * indicate level of significance at specified level, @ Reference category infants born to mothers aged 20-29. Infant mortality for children of mothers 40-49 years at the time of birth of their child is 11 percent higher than that for infants whose mothers were 20-29 years at the time they gave birth.

The study findings also indicate that mortality risk for multiple births is more than twice higher than singletons. The higher risk among multiple births might be due to biological factors such as low birth weight and complications at delivery. Results indicate that mortality risk for children born less than 2 years after the previous birth is four times higher than that of the reference category (<2 years). Births with preceding birth interval of 3-4 years after the previous birth have also a higher risk (twice) of mortality compared to the reference category during childhood period. In general being born within a very short birth interval is associated with a very high mortality risk during childhood period. These findings are also consistent with other research and highlight the importance of birth spacing as a means of reducing child mortality. Children who were never breastfed and breastfed for short period of time have a higher mortality risk than infants who were breastfed longer period of time. For instance, children who were never breastfed had four times higher mortality risk than the reference category (Breastfed for more than a year).

Similarly, children who were breastfed for 6-12 months also have higher (twice) mortality risk than the reference category. Analysis of determinants in neonatal mortality overlaps with the infant mortality. As presented in the previous tables, most of the variables were explained in the determinants of childhood mortality. All aforementioned factors are identified throughout the nation.

Conclusions

The results of the study show that fertility behavior and the quality of maternal and child health care accessible to mothers and children correlate with childhood mortality. As estimated by the hazard model, the findings are consistent with the EDHS reports. Rural residence, mother's illiteracy, household's lack of access to a flush or pit toilet, and drinking water are associated with high infant and child mortality when each variable was examined separately at a time. In other words, all of these variables have strong effects on infant and child mortality. An examination of hazard models effects of socioeconomic characteristics on infant and child mortality leads to three general observations. First, all the variables have strong and statistically significant effects on mortality. Second, the effects of most socioeconomic characteristics are smallest during the neonatal period and largest during childhood. There are some exceptions, for example, religion and access to a flush or pit toilets have stronger effects on neonatal mortality than on post neonatal or child mortality. The third general observation is that effects of socioeconomic characteristics tend to be stronger in nation with high levels of mortality. This study also shows that the most important factors influencing infant and child mortality in Ethiopia are demographic in nature. The demographic factors identified in this study include birth order, maternal age at birth, multiplicity of birth, duration of breast feeding, birth interval, which are similar to those documented in many settings throughout Africa and other developing countries.

Policy Recommendations

As per the study, findings can be used as the basis for a number of policy recommendations. Encourage and promote women in the country to exclusively breastfeed their babies for longer period of time, as the results of this study indicated that lengthening birth interval could reduce both infant and childhood mortality. Availing contraceptive supplies and ensuring access to them will also help to lengthen the pace of child bearing and hence lower mortality risk of children in the country. Promotion of breastfeeding will have a great effect especially in areas where there is inadequate access to clean water supply and waste disposal facilities, as breastfeeding is found to be one of the most important variable that determine infant and childhood mortality. Efforts have to be made to improve family planning programs that may play a significant role in both fertility and mortality reduction, as higher order births are found to have a strong association with infant mortality and the presence of higher order birth is an indicator of high parity.

Effective education that discourage teenage child bearing and early marriage should be given to women, in order to curb the high mortality of children born to very young mothers in the region. Pulse polio immunization program is good for the health of children. Spacing births at least 2 years apart can reduce infant mortality. High risk fertility behavior should be avoided: infant and children have a greater probability of dying if they are born to mothers who are too young or too old, or if they are of high birth order. Multiple risk fertility behaviors (birth interval, birth order, breastfeeding and size of the child so on) those are associated with conceiving a child with high probability of dying. So, improving access to maternal and child health care should be given a key role in measuring Ethiopian children's well being and survival.

References

Assefa Hailemariam., Mekonnen Tesfaye (1997). Determinants of infant and early childhood mortality in a small urban community of Ethiopia: a hazard model analysis. Ethiopian Medical Journal, 11(3), 189-200.

Bicego, George, Hill, K., Mahy, M. (1994). "Trends, Age Patterns and Determinants of Early Childhood Mortality in Kenya". Marco International Inc., Maryland.

Bicego, G., Ahmad, O. B. (1996). Infant and Child Mortality, Demographic and Health Survey, Comparative Studies, 20 ORC Macro, Maryland.

Central Statistical Authority. (1995). The 1995 Fertility survey of urban Addis Ababa, Central Statistical Authority, Addis Ababa.

Cleland, J. G., Ginneken, J.K.V. (1988).Maternal education and child survival in developing countries. The search for pathways of influence, Social Science and Medicine 27 (12), 1357-1368.

Cox, D.R. (1972). Regression Models and Life Tables, Journal of the Royal Statistical Society 34 (2): 381-402.

Ethiopia Demographic and Health Survey 2005. (2006). Central Statistical Agency, ORC Macro. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Agency and ORC Macro.

Gribble, J.N. (1993). Birth Intervals, Gestational Age, and Low birth Weight: Are the Relationships Confounded? Population Studies 47(1): 133-146.

Hobcraft, J.N; Mcdonald, J.W and Rutstein, S.O. (1984). Socio-economic Factors in Infant and Child Mortality: A Cross Sectional Comparison, Population Studies, Vol. 38 (2), pp: 193-223.

Jain, A.K. (1985). Determinant of Regional Variations in Infant in Rural India, Population Studies, Vol. 39: pp: 407-424.

Mekonnen, Heins., Valente. (2001). "Infant and child mortality in urban Ethiopia" In-Depth Analysis from the 1994 Population and Housing Census of Ethiopia. Addis Ababa.

Ministry of Health. (2004). "National Strategy for Child Survival in Ethiopia" unpublished memo.

Mishra, Vinod., Robert Retherford. (1997). "Cooking Smoking Increases the Risk of Acute Respiratory Infection in Children", National Family Health Survey Bulletin, No. 8 International Institute for Population Sciences, Mumbai and East-West Center Program on Population.

National Office of Population (2005) "Population Census", Addis Ababa, Ethiopia

Pandey, A, Choe., M.K,Luther. N. (1998). Infant and child Mortality in India, National Family Health Survey Subject Reports No 11.

Population Reference Bureau (2008) "World Data Sheet", Washington DC.

Rutstein, S.O. (2000). Factors Associated with Trends in Infant and Child Mortality in Developing Countries during the 1990s", Bulletin of World Health Organization, 78 (10): 1256-1270

Sathiyasusuman, A. (2000). Index of Gender Preference, Contraceptive Practice and Fertility: A Multivariate Analysis. Paper Presented in Indian Association for the Study of Population, Millennium Conference at New Delhi.

United Nations. (2006). World Population Prospects: The 2006 Revision. New York, NY: United Nations Population Division.

UNICEF and WHO, (2004). Low birth weight: Country, Regional and global estimates, New York

USAID. (2007). Trends in Demographic and Health survey in Ethiopia

United Nations. (2008). The Millennium Development Goals Report 2008, published by the United Nations Department of Economic and Social Affairs (DESA), August

WARE, H. (1984). Effect of Maternal Education, Women's Role and Child Care on Child Mortality, Population Development Review, 10, Supplement Copy: 198 (191-221)

World Bank. (1993). World Development Report 1993: Investing in Health. Oxford University Press: New York, NY.

World Bank. (2007). Urban Labor Markets in Ethiopia: Challenges and Prospects, Poverty Reduction and Economic Management Unit, Africa Region, Report No. 38665-ET, Washington DC: World Bank, 2 vol. 2007b.

Process of physiotherapy services of stroke patients treated at Ruhengeri Hospital in Rwanda: A four-year document review

Gerard Urimubenshi, Msc.
Muhoza Sector, Musanze District, Rwanda.

Anthea Rhoda, (PhD)
Physiotherapy Department, University of the Western Cape, South Africa

Correspondence Author:
Gerard Urimubenshi,
Muhoza Sector,
Musanze District,
P.O. Box 57
Ruhengeri, Rwanda.
E-mail: gerardus77u@yahoo.fr

ABSTRACT

Background:
Physiotherapy plays a major role in the rehabilitation of patients with stroke. The process of physiotherapy management could influence the patient outcomes.

Aim:
This study aimed to describe the process of physiotherapy for patients with stroke treated at Ruhengeri Hospital in Rwanda, as documented in patients' folders.

Method:
A quantitative retrospective design was used to review the medical records of stroke patients admitted to Ruhengeri Hospital from January 1st, 2005 up to December 31st, 2008.

Results:
Two hundred and four patients with stroke were treated at Ruhengeri Hospital within the 4-year period, but only 139 patients (68%) were included in the analysis of the findings. The mean age of the study population was 56.3 years, and 53.2% were females compared to 46.8% males. Out of the 139 patients, only 55 (39.6%) received physiotherapy, and the majority (76.3%) started to receive physiotherapy within one week of their admission. The mean number of physiotherapy sessions for the patients was found to be four.

Conclusion:
Less than half of the patients with stroke admitted to Ruhengeri Hospital in Rwanda received physiotherapy. Of those who received physiotherapy the frequency is low. There is therefore a need for physiotherapists working at this hospital to review their management of patients with stroke in an attempt to provide an increased frequency of treatment to more patients.

Key Words:
Physiotherapy; Stroke patients; Ruhengeri Hospital; Rwanda.

INTRODUCTION

Physiotherapy plays a major role in the rehabilitation of patients with stroke (Wiles, Ashburn, Payne, & Murphy, 2004). The stroke-related disability has been shown to benefit from physiotherapy, and patients themselves tend to have high expectations of the extent of recovery they can achieve through physiotherapy (Wiles et al., 2004). A study conducted in Belgium and Switzerland showed that physiotherapy accounted for 77% and 70% of the therapeutic activity time for stroke patients in those countries respectively (De Weerdt et al., 2000). Many factors are known to influence the outcome of patients post stroke. One of these factors is the process of stroke care (Weir, Sandercock, Lewis, Signorini, & Warlow, 2001).

The frequency, duration and content of treatment sessions are factors that are described as part of the process of rehabilitation (Hoening, Horner, Duncan, Clipp, & Hamilton, 1999), which is part of a package of care. When investigating the process of physiotherapy the number, duration and content of treatment sessions could be determined.

Studies which investigated the process of physiotherapy were mainly conducted in developed countries. A study conducted by Beech, Ratcliffe, Tilling and Wolfe (1996) which analysed the use of physiotherapy, occupational therapy and speech therapy services showed that the percentage of those who received physiotherapy varied between 44% to 90%. Another study conducted in the United States by Jette et al. (2005) which investigated the physiotherapy provided to patients with stroke in inpatient rehabilitation facilities showed that the mean length of stay in the rehabilitation setting was 18.7 days (SD = 10.3, range = 1-75). Patients received physical therapy, on average, 13.6 days (SD = 7.8, range = 1-54) during an episode of care. The average number of physiotherapy sessions per day was 1.5 (SD = 0.3, range = 1-3), and the average time for each session was 38.1 minutes (SD = 17.1, range = 5-360).

There is a lack of resources available for the rehabilitation of patients with stroke in sub-Saharan African countries (Kengne & Anderson, 2006). As a result of this studies conducted in these countries reported a lower frequency and intensity of physiotherapy provided to patients with stroke when compared to results from studies conducted in developed countries. A study done in Abidjan in Ivory Cost showed that the mean frequency of stroke rehabilitation was three times a week, which is the average of one session per two days (Datié, Nandjui, Manou, Alloh, & Boni, 2006). Rhoda, Mpofu and DeWeerdt (2009) reported that the majority of patients with stroke receiving rehabilitation at Community Health Centres in the Western Cape, South Africa, received a total of between 1-5 treatment sessions with the median number of total therapy time being between 1.83 (0.83-3.9) hours.

There is however a lack of information regarding the physiotherapy services provided to stroke patients in other African countries. The authors therefore undertook a study to describe the process of physiotherapy provided to stroke patients at Ruhengeri Hospital in Rwanda. The aim of the study was to determine the percentage of hospitalized stroke patients who received physiotherapy; the time of commencement of physiotherapy since admission; the duration of physiotherapy; and the total number of physiotherapy sessions received by each patient. This information is important as it could assist in the advocacy for services that are effective and appropriate.

METHOD

Setting

The study was conducted at the Ruhengeri Hospital, a district hospital, located in Musanze District, in the Northern Province of Rwanda. The Musanze District is an area which is mainly rural, and where at least 91% of the population is engaged in agriculture (Musanze District, 2009). This district is the most mountainous district in Rwanda (Karabayinga, 2009). The Ruhengeri Hospital has a capacity of 409 beds serving about 400,000 people who reside mainly in the Musanze District. The Physiotherapy department at the Ruhengeri Hospital manages about 40 outpatients per day in addition to hospitalized patients from surgery, maternity, intensive care, internal medicine, and pediatrics departments.

Design

A quantitative retrospective approach was used to collect information regarding the process of physiotherapy for patients with stroke treated at Ruhengeri Hospital.

Sample

Medical records of stroke patients admitted to Ruhengeri Hospital between January 1st, 2005 and December 31st, 2008 were reviewed to collect information related to demographic characteristics and the process of physiotherapy.

Instrument

The data gathering instrument was developed by the researchers to capture the data. The instrument was based on the study objectives, the literature (Kaplan, 2005; Pollack & Disler, 2002; Stuifbergen, 1995; Vestling, Tufvesson, & Iwarsson, 2003), and the researchers' experiences. After the draft of the data gathering instrument was compiled, it was subjected to peer review, by colleagues knowledgeable in the field of stroke rehabilitation, to test content validity (Domoholdt, 2000). The recommended corrections and additions made by the experts were made to the data gathering instrument. In demographic data section, the suggestion was to use the code "99" (Banks, 1998) in cases where the desired data was "missing" from the records, rather than leaving the response fields blank. A question "has the patient received physiotherapy after admission" was included in the instrument. Then if the answer was "Yes", the following items regarding the time of commencement of physiotherapy since admission, the duration of physiotherapy and the total number of physiotherapy sessions were recorded. If the answer was "No", the following items were skipped and filled in by the data abstractor with the code "88" for "Not applicable" (Banks, 1998).

The final data gathering instrument comprised the following items: participant's demographic characteristics, stroke onset-admission interval, whether the participant received or did not receive physiotherapy, time of commencement of physiotherapy since admission, duration of physiotherapy and total number of physiotherapy sessions.

To test the inter-rater reliability of the data gathering instrument, 15 patients' records were reviewed by the researcher. The same 15 records were reviewed by a research assistant separately. Cohen's kappa (k) measure was then used to determine the inter-rater reliability coefficient. The inter-rater reliability coefficient was found to be excellent (0.90) (Law, 2002).

Procedure

The study commenced after permission was obtained from the necessary authorities. Medical records containing the diagnosis of stroke confirmed by a medical doctor were sorted from the central records department at the Ruhengeri Hospital. Consequently, information relating to the participants' demographic characteristics and the process of physiotherapy data required was extracted from the records.

The stroke onset-admission interval was calculated as the difference between the date of stroke onset and the date of admission. It was noted the patient had received physiotherapy if there was evidence of a recording of physiotherapy treatment received as recorded by a physiotherapist in the patient's folder. The time of commencement of physiotherapy after admission was calculated as the difference between the date of the first physiotherapy session and the date of admission. The duration of physiotherapy was calculated as the difference between the dates of the first and the last physiotherapy sessions. The total number of physiotherapy sessions per individual was determined by counting all the physiotherapy sessions received during the length of hospital stay as recorded in the patient's folder.

Ethical Considerations

Permission to conduct this study was obtained from the National Ethics Committee of Rwanda, the Mayor of Musanze District, and the Director of Ruhengeri Hospital. Permission was also provided by the Senate Research Grants and Study Leave Committee at the University of the Western Cape.

RESULTS

A total of 204 stroke patients were admitted and managed at Ruhengeri Hospital between January 1st, 2005 and December 31st, 2008. The final study sample however, only consisted of 139 participants (68%) as 65 patients were excluded due to the stroke being associated with other hypotheses like seizures, encephalitis, hepatic encephalopathy, cardiac failure or brain tumor, or due to missing and incomplete data. The items that were investigated and will be presented include the demographic characteristics of the stroke patients, the stroke onset-admission interval, the percentage of the patients who received physiotherapy, time of commencement of physiotherapy since admission, duration of physiotherapy and total number of physiotherapy sessions.

Demographic characteristics of the stroke patients

The demographic data captured which are illustrated in Table 1 were age, gender, marital status and occupation distribution among the stroke patients.

Table 1: Age group, gender, marital status and occupation of the stroke patients (n = 139)

Variable	Characteristics	Frequency	%
Age group	15-24	5	3.6
	25-34	11	7.9
	35-44	21	15.1
	45-54	27	19.4
	55-64	25	18.0
	65-74	27	19.4
	75 ≥	23	16.5
Gender	Females	74	53.2
	Males	65	46.8
Marital Status	Single	8	5.8
	Married	73	52.5
	Living Together	8	5.8
	Separated	3	2.2
	Divorced	1	0.7
	Widowed	46	33.1
Occupation	Cultivator	87	62.6
	Commerce	10	7.2
	Driver	5	3.6
	Teacher	5	3.6
	Student	5	3.6
	Other occupation	15	10.8
	No occupation	12	8.6

The majority (53.2%) of the stroke patients were females. The mean age of the sample was 56.3 years (SD = 17.265) with ages ranging between 17 and 92 years. The majority (64%) of the patients were 64 years old or younger. It was also noticed that 26.6% of all the subjects were younger than 45 years. Only 36% of the patients were at pensionable age: 65 years and above. More than half of the patients (52.5%) were married while 46 (33.1%) were widowed. The majority of the patients (62.6%) were cultivators at the time they suffered the stroke while 12 (8.6%) had no occupation as an income generating activity. Included in category "other occupation" were 3 carpenters, and the remaining 12 were accountant, artist, cleaner, manager, nurse, painter, pastor, policeman, school director, secretary, soldier and tailor.

Stroke onset-admission interval

The stroke patients were admitted to the hospital between the same day of stroke onset and one hundred eighty days after stroke onset (mean = 6.8 days after stroke onset, SD = 18.348). Approximately forty-five percent of the patients were admitted two days or more after getting stroke. Figure 1 presents the time between stroke onset and admission

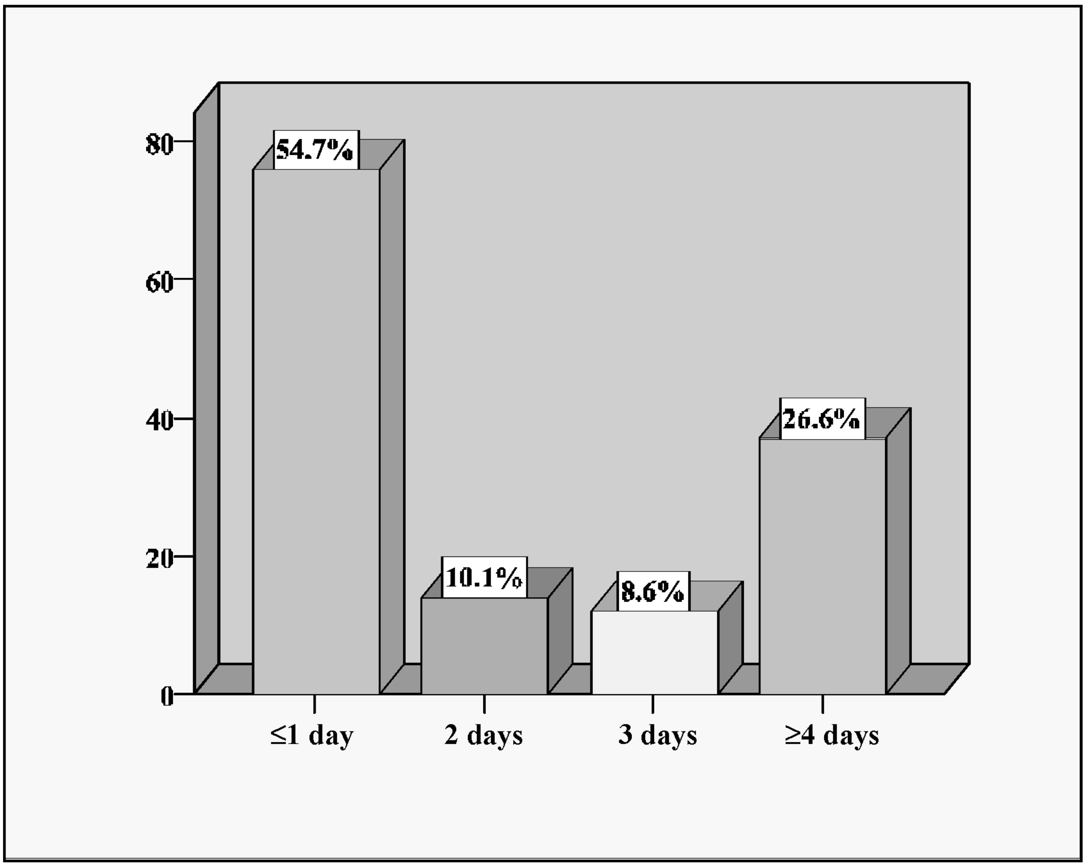

Figure 1: Percentages of stroke patients according to stroke onset-admission interval (n = 139)

Percentage of stroke patients who received physiotherapy

Figure 2 presents the percentage of stroke patients who received physiotherapy during their hospital stay.

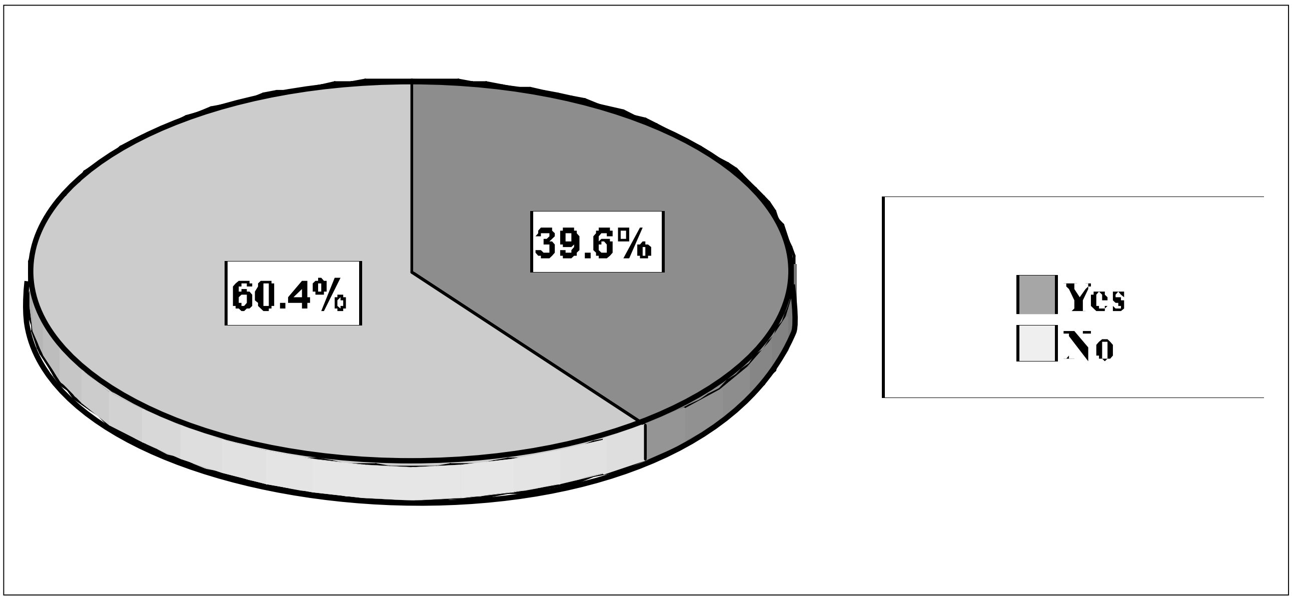

Figure 2: Percentage of stroke patients who received physiotherapy (n = 139)

Out of 139 stroke patients, only 55 (39.6%) received physiotherapy. Therefore, only those 55 were considered in data analysis related to physiotherapy with regard to time of commencement of physiotherapy since admission, duration of physiotherapy and total number of physiotherapy sessions (n = 55).

Time of commencement of physiotherapy since admission (n = 55)

Table 2 illustrates the interval between the date of admission and the date of commencement of physiotherapy

Table 2: Interval between the date of admission and the date of commencement of physiotherapy (n = 55)

Time (in days)	Frequency	%
0 - 3	18	32.7
4 - 7	24	43.6
8 - 11	6	10.9
≥12	7	12.7
Total	55	100.0

Among the stroke patients who had physiotherapy, the majority (76.3%) started to receive the physiotherapy within one week of their admission.

Duration of physiotherapy (n = 55)

Table 3 presents the period between the first and the last treatment session.

Table 3: Duration of physiotherapy among the stroke patients (n = 55)

Duration (in days)	Frequency	%
≤ 4	27	49.0
5 - 9	14	25.5
≥10	14	25.5
Total	55	100

The stroke patients received physiotherapy within the period of between one and ninety days, with a mean of 7.6 days (SD = 12.273 days). Out of the fifty-five patients, only twenty-eight (51%) had physiotherapy for more than four days.

Total number of physiotherapy sessions (n = 55)

Table 4 illustrates the number of physiotherapy sessions the stroke patients received.

Table 4: Number of physiotherapy sessions (n = 55)

Number of physiotherapy sessions	Frequency	%
1 - 2	25	45.5
3 - 4	18	32.7
5 - 6	5	9.1
≥7	7	12.7
Total	55	100

The total number of physiotherapy sessions for a stroke patient varied between one and twenty-four, with a mean of 3.7 sessions (SD = 3.827). The majority of the stroke patients (78.2%) had less than five physiotherapy sessions.

DISCUSSION

The results revealed that only 39.6% of the stroke patients received physiotherapy during their hospital stay. This percentage is lower than what was found (44% to 90%) in a similar study conducted by Beech et al. (1996) who investigated the percentage of stroke patients admitted to 22 hospitals in seven European states who received physiotherapy. The proportion found in the present study is very low considering the literature which states that stroke results in a range of disabilities which have been shown to benefit from physiotherapy (Wiles et al., 2004). In developed countries such as Belgium and Switzerland, physiotherapy comprises an important and a relatively large component of the rehabilitation of stroke clients (Jette et al., 2005).

In a study conducted by Pound, Bury, Gompertz and Ebrahim (1994) which explored the views of survivors of stroke about benefits of physiotherapy, physiotherapy was appreciated for the following reasons. Firstly, it was believed to bring about functional improvement. Secondly, in the context of stroke the exercise component was valued because it was perceived to "keep you moving, keep you going, and keep you busy." Exercise programmes at home were also valued for the structure they gave to each day. Thirdly, physiotherapists were a source of advice and information, and fourthly, they were a source of faith and hope (Pound et al., 1994). Those who did not receive physiotherapy are more prone to need more assistance in activities of daily living (ADLs), develop further complications such as joint or muscular problems, and they would miss advice and information provided by the physiotherapists. The study findings predict a higher prevalence of long-term post-stroke disability even in those with acute mild to moderate disability as the majority of the participants (60.4%) do not have a chance to benefit from physiotherapy (Physiotherapy Association of British Columbia, 2007).

The majority (76.3%) of those who had physiotherapy started to receive the physiotherapy within one week of their admission. The stroke patients are also admitted within one week post stroke onset. Studies have indicated that the sooner rehabilitation is started post-stroke the better the functional outcomes will be (Rosenberg & Popelka, 2000; Jacob, 2009). A controlled trial conducted by Musicco, Emberti, Nappi and Caltagirone (2003) which recruited 1716 stroke patients found that patients who initiated the rehabilitation early (within seven days after stroke) had better long-term outcomes than those who initiated the rehabilitation after more than one month or from 15 to 30 days after the acute stroke event. This seems to be related to the fact that in the acute phase the brain is primed for recovery creating an ideal opportunity for therapeutic input (Teasall, Bitensky, Salter, Nestor, & Bayon, 2005).
The mean duration of physiotherapy was 7.6 days. Such a short duration of physiotherapy during the hospital stay should be supplemented by a long-term follow-up post-discharge as physiotherapy continues to show positive results even beyond six months post stroke (Kwakkel, Kollen, & Lindeman, 2004).

While the duration of physiotherapy was 7.6 days, the average number of physiotherapy sessions for the stroke patients was found to be four (4 sessions for 7.6 days), which is the frequency of one session for two days. The result was similar to three sessions per week found in Ivory Cost by Datié et al. (2006).

The result was however very low when compared to the average number of three sessions per two days found in the United States (Jette et al., 2005).

The European Stroke Initiative recommended at least three to four physiotherapy sessions per day for better outcome (Hacke, Kaste, Skyhoj, Orgogozo, & Bogousslavsky, 2000). The frequency at which the study population is treated by the physiotherapists could result in poor outcome as greater frequency of physiotherapy results in better functional outcomes (Teasall & Kalra, 2005). Results of a meta-analysis conducted by Kwakkel et al. (2004), showed that when intensive exercise therapy is provided to stroke patients at least 16 hours more than what is provided on average within the first 6 months, a small but favourable effect on ADLs and walking speed would result. The meta-analysis also showed improvements in instrumental activities of daily living although only supported by 9 out of 31 studies (Kwakkel et al., 2004).

CONCLUSION

The results of the study revealed that the provision of physiotherapy services for the current study population is lower than suggested by the literature. The implication of these results is that there is a need for efforts in designing early and intensive physiotherapy interventions for stroke patients treated at Ruhengeri Hospital which could result in improved patient outcomes.

REFERENCES

Banks, N. J. (1998). Designing medical record abstraction forms. International Journal for Quality in Health Care, 10(2), 163-167.

Beech, R., Ratcliffe, M., Tilling, K., & Wolfe, C. (1996). Hospital Services for Stroke Care. A European Perspective. Stroke, 27(11), 1958-1964.

Datié, A. M., Nandjui, B., Manou, B., Alloh, D., & Boni, E. (2006). Rehabilitation of stroke patients in Abidjan (Côte d'Ivoire). International journal of stroke, 1(1), 19.

De Weerdt, W., Selz, B., Nuyens, G., Staes, F., Swinnen, D., van de Winckel, A., et al. (2000). Time use of stroke patients in an intensive rehabilitation unit: a comparison between a Belgian and a Swiss setting. Disability and Rehabilitation, 22(4), 181-186.

Domoholdt, E. (2000). Physical Therapy Research: Principles and Applications (2nd ed.). Philadelphia: WB Saunders Publishers.

Hacke, W., Kaste, M., Skyhoj, O. T., Orgogozo, J. M., & Bogousslavsky, J. (2000). European Stroke Initiative (EUSI). Recommendations for Stroke Management. The European stroke initiative writing committee. European Journal of Neurology, 7(6), 607-623.

Hoenig, H., Horner, R. D., Duncan, P. W., Clipp, E., & Hamilton, B. (1999). New horizons in stroke rehabilitation research. Journal of Rehabilitation Research and Development, 36(1), 19-31.

Jacob, G. (2009). Stroke. Retrieved July 6, 2009, from http://www.holisticonline.com/Remedies/Heart/stroke_symptoms.htm

Jette, D. U., Latham, N. K., Smout, R. J., Gassaway, J., Slavin, M. D., & Horn, S. D. (2005). Physical Therapy Interventions for Patients with Stroke in Inpatient Rehabilitation Facilities. Physical Therapy, 85(3), 238-248.

Joint Technical Mission. (2007). Report on mission to Rwanda. Retrieved August 23, 2009, from http://www.unhabitat.org/downloads/docs/5981_34020_mission%20report%20rwanda%20-%2010%20dec%2007.pdf

Kaplan, R. J. (2005). Physical Medicine and Rehabilitation Review (2nd ed.). London: McGraw Hill Medical Publishing.

Karabayinga, P. C. (2009). Musanze District. Retrieved July 24, 2009, from http://www.musanze.gov.rw/index.php?option=com_content&view=category&layout=blog&id=34&Itemid=27&lang=en

Kengne, A. P., & Anderson, C. S. (2006). The neglected burden of stroke in Sub-Saharan Africa. International Journal of Stroke, 1(4), 180-190.

Kwakkel, G., Kollen, B., & Lindeman, E. (2004). Understanding the pattern of functional recovery after stroke: facts and theories. Restorative Neurology and Neuroscience, 22(3-5), 281-299.

Law, M. (2002). Evidence-Based Rehabilitation: A Guide to Practice. New Jersey, United States of America: SLACK Incorporated.

Musanze District. (2009). Agriculture. Retrieved July 24, 2009, from http://www.musanze.gov.rw/index.php?option=com_content&view=category&layout=blog&id=56&Itemid=73&lang=en

Musicco, M., Emberti, L., Nappi, G., & Caltagirone, C. (2003). Early and long-term outcome of rehabilitation in stroke patients: The role of patient characteristics, time of initiation, and duration of interventions. Archives of Physical Medicine and Rehabilitation, 84(4), 551-558.

Physiotherapy Association of British Columbia. (2007). Early exercise intervention key for stroke rehabilitation -Physiotherapists can help. Briefings for Physicians, 3(2), 1-2.

Pollack, M. R. P., & Disler, P. B. (2002). Rehabilitation of patients after stroke. The Medical Journal of Australia, 177(8), 444-448.

Pound, P., Bury, M., Gompertz, P., & Ebrahim, S. (1994). Views of survivors of stroke on benefits of physiotherapy. Quality in Health Care, 3(2), 69-74.

Rhoda, A., Mpofu, R., & DeWeerdt, W. (2009). The rehabilitation of stroke patients at community health centres in the Western Cape. South African Journal of Physiotherapy, 65(3), 1-6.

Rosenberg, C. H., & Popelka, G. M. (2000). Post-stroke rehabilitation: A review of the guidelines for patient management. Geriatrics, 55(9), 75-81.

Stuifbergen, A. (1995). Health promoting behaviors and quality of life among individuals with multiple sclerosis. Scholarly Inquiry for Nursing Practise, 9(1), 31-50.

Teasall, R., Bitensky, J., Salter, K., Nestor, A., & Bayon, A. (2005). The role of timing and intensity of rehabilitation therapies. Topics in Stroke Rehabilitation, 12(3), 46-57.

Teasall, R., & Kalra, L. (2005). What's new in stroke rehabilitation: back to basics. Stroke, 36(2), 215-217.

Vestling, M., Tufvesson, B., & Iwarsson, S. (2003). Indicators for return to work after stroke and the importance of work for subjective well-being and life satisfaction. Journal of Rehabilitation Medicine, 35(3), 127-131.

Weir, N. U., Sandercock, P. A. G., Lewis, S. C., Signorini, D. F., & Warlow, C. P. (2001). Variations between countries in outcome after stroke in the International Stroke Trial (IST). Stroke, 32(6), 1370-1377.

Wiles, R., Ashburn, A., Payne, S., & Murphy, C. (2004). Discharge from physiotherapy following stroke: the management of disappointment. Social Science and Medicine, 59(6), 1263-1273.

FACTORS INFLUENCING PHYSICAL ACTIVITY PARTICIPATION AMONG SCHOOL GOING CHILDREN

Tamara Figaji (M.Sc)
Department of Physiotherapy

Prof. Julie Phillips (PhD)
Department of Physiotherapy, Head of Department

Corresponding Author:
Tamara Figaji (MSc Physiotherapy)
Department of Physiotherapy
University of the Western Cape
Private Bag X17
Bellville
South Africa
e-mail: tfigaji@uwc.ac.za

Abstract

Background
Although the health benefits of physical activity have been proven, many children and adolescents still do not meet the recommended guidelines for sufficient physical activity. The purpose of this investigation was thus to examine the levels of PA, and learners perception of support for PA from teachers, family and friends at an independent school in the Western Cape. Furthermore, the investigation aimed to examine the influence of social support on physical activity.

Method
A cross-sectional design using quantitative methods was used in this study, which included 100 learners in the senior phase of the school (i.e. grades 5 to 7). The data was obtained with a self administered questionnaire. The data was analyzed with the Statistical Package for the Social Sciences (SPSS) version 16.0. The Chi-square test was used to explore associations between nominal and numerical data. The T-test was used to determine statistical significance between groups (independent t-test) and within groups (paired sample t-test)

Results
Overall the sample responded positively when asked about support for physical activity from teachers. Furthermore, the study sample had a positive perception of both physical education (PE) and physical activity (PA) enjoyment. Boys participated in vigorous physical activity significantly more regularly than girls.

Conclusion
As children are spending a considerable time at school, teachers, friends and parents should be encouraged to be supportive of their participation in physical activity.

Key Words
Physical activity, social support, children, adolescents and patterns of participation.

Introduction

During the last decade, physical inactivity among school-going children has reached epidemic proportions on a global level (Bauer, Nelson, Boutelle & Neumark-Sztainer, 2008; Rukavina & Li 2007; Phillips, 2006b). Some researchers have cautioned that physical inactivity in children and adolescents will continue into adulthood (Tergerson & King, 2002). The consequences of physical inactivity include obesity, coronary heart diseases, diabetes mellitus, hypertension, and a wide range of other chronic diseases of lifestyle that have put physical inactivity on the public health agenda for the last few decades (Katzmarzyk, Gledhil & Shephard, 2000; Lacar Soto & Riley, 2000).

Although the health benefits of physical activity (PA) have been proven, many children still do not meet the current guidelines for sufficient physical activity (Kahn, et al., 2008). The Centers for Disease Control and Prevention (CDC) in the United States (US) has guidelines which state that adolescents and children should accumulate at least 60 minutes of moderate physical activity on most, if not all the days of the week (Butcher, Sallis, Mayer & Woodruff, 2008). Physical activity levels among children and adolescents have indeed been proven to be low in most parts of the world. Various researchers have highlighted the fact that regular physical activity levels are low in the USA (Trost, Pate, Saunders, Ward, Dowda & Felton, 1997), Sweden (Sollerhed & Ejlertsson, 2006), Britain (Lowther, Mutrie, Loughlan & McFarlana, 1999) and Saudi Arabia (Hazzaa, 2002).

Physical inactivity as a major factor for childhood obesity has also been found to be true in Africa (World Health Organisation, 2003). The picture of low PA levels in developed countries has been shown to be no different than in developing countries (Phillips, 2006a; Phillips, 2006b). Over a decade ago Noakes and Lambert (1995) warned that the levels of habitual PA among urbanised South Africans were no better than those obtained in similarly urbanised populations in other countries.

There are however various factors that influence physical inactivity in children, including self-efficacy and social support. A study by Simons-Morton et al. (1997) confirmed that there is a relationship between children's self efficacy to PA and participation in PA. Factors influencing PA levels such as social support, particularly peer and family support, and increased physical activity enjoyment is well documented in the literature (Grieser, Neumar-Sztainer, Saksvig, Jung-Lee, Felton & Kubik, 2006). Research has also indicated that children and adolescents need their parents' and teachers' support and encouragement to enable them to participate in PA and other healthy behaviours (O'Dea, 2003).

Children spend approximately 6 hours per day for nearly 40 weeks of the year at school. Thus, a number of researchers are in agreement that schools seem to be a logical setting for the promotion of PA (Bauman et al., 2002; US Department of Health and Human Services, 2000). Furthermore, Haerens, Bourdeaudhuij, Maes, Cardon and Deforche (2007) argued that schools provide opportunities to promote PA through health or physical education classes. The purpose of this investigation was thus to examine the levels of PA, and learners perception of support for PA from teachers, family and friends and the influence of this support on physical activity.

Methods

A quantitative approach using a cross-sectional design was used in this study. The study was carried out at an urban independent Catholic school in the Metropole North Education Management and Development Centre (EMDC) of the Western Cape Education Department. It is situated in a middle- to upper-income residential area. The population of the study included all the learners in the senior phase of the school (i.e. grades 5 to 7). A final number of 100 learners consented and had parental consent to participate in the study. The data was obtained with a self administered questionnaire, which consisted of 5 sections. The first section of the questionnaire requested demographic information such as gender, age, head of the household and number of siblings in the house.

The second to fourth sections assessed perceived support from teachers, family and friends regarding PA; and physical education and PA enjoyment. The scales used to assess this were taken from the Physical Education Program Improvement and Self-study (NASPE, 1998). The scales included 6 items on a 5-point Likert-type scale ranging from 1 (disagree a lot) to 5 (agree a lot). All these scales have been shown to be reliable for the children and adolescent group (Birnbaum et al; 2005).

The fifth section assessed the levels of PA using the Modifiable Adolescent Physical Activity Questionnaire (MAPAQ). Learners were requested to indicate how many days during the week preceding the study they had participated in vigorous and moderate activities for at least 20 minutes. Participation in team sports during the past 12 months was also requested. Respondents were also asked to indicate the number of hours they watched television, and played computer games. The MAPAQ was deemed reliable and valid for this age group with Kappas ranging from 0.54 to 0.87 (Aaron, Kriska, Cauley, Metz & LaPorte, 1995).

Permission and ethical clearance was obtained from the Senate Research Grants and Study Leave Committee and the Senate Higher Degrees Committee of the University of the Western Cape, as well as the school principal. In addition, permission was then sought from the parents and learners involved. The research instrument was administered by the researcher to the learners with parental consent. The data was collected by the researcher and a trained research assistant in the second semester of the 2008 academic year.

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 16.0. Descriptive statistics were employed to summarize the demographic data, which is presented using frequency tables and expressed as percentages, means and standard deviations. The Chi-square test was used to explore associations between nominal and numerical data. The T-test was used to determine statistical significance between groups (independent t-test) and within groups (paired sample t-test) with Alpha level set at $p<0.05$. Prevalence tables were used to illustrate categorical data.

Results

Six classes enrolled for the 2008 academic year were conveniently selected to participate in the study. Of these, one hundred had signed consent and parental consent indicating a response rate of 64.1%. The study sample consisted of 50% male and 50% female learners.

Factors affecting PA were measured in the school environment. Overall the sample responded positively when asked about support for physical activity from teachers. In this item the mean score was lower than the midpoint (neutral) indicating a more positive perception of support from teachers. The sample indicated a negative perception of support for physical activity from boys (mean=7.74) and a positive perception of support for physical activity from girls (mean=3.24). Furthermore the study sample had a positive perception of both physical education (PE) and physical activity (PA) enjoyment. In these items the mean score was higher for PE enjoyment and lower for PA enjoyment than the mean scores as illustrated in Table 1.

The results in Table 2 indicate that boys (3.61) participated in vigorous physical activity (VPA) on significantly more days than girls (2.72) per week. No significant difference between girls and boys for moderate physical activity (MPA) were found.

Discussion

Physical inactivity has become a major public health concern contributing to the non-communicable epidemic. This study highlights that school going learners are not meeting the required amount of physical activity to gain health benefits. The study sample reported participation in vigorous and moderate physical activity for fewer than half (3.5 days) of the week while guidelines are clearly stating vigorous or moderate PA on at least five days per week to be beneficial. This is of great concern as studies have shown that levels of PA tend to decline with age (Khan et al, 2008) and the mean age of this sample was 11.54 years. To add to this dilemma, studies have shown that that the decline in PA appeared to be the greatest between the ages of 13 and 18 (Khan et al, 2008).

The boys in this study reported significantly more days of vigorous activity than girls. A number of studies have demonstrated similar gender differences in PA (Kahn et al, 2008). Researchers worldwide have expressed concern regarding adolescent girls not meeting the recommended amount of physical activity, and other studies have also shown the decline of physical activity by age to be more profound for girls (Caspersen, Periera & Curran, 2000; Sallis, Prochaska & Taylor, 2000). The findings of this study highlight these concerns and have implications for physical activity intervention programs. These interventions need to pay special attention to the reasons for the lower levels of physical activity among girls.

Table 1. Learners perceived social support for physical activity

Scale	Boys	Girls
Perceived School Climate for PA		
Support from teachers*#	5.28 (1.84)	4.38 (1.35)
1. In my school, PE teachers act like they think it is more important for boys to be physically active than girls		
2. In my school, most other teachers act like they think it is more important for boys to be physically active than girls		
Support from boys*	7.33(2.55)	8.15 (2.87)
1. In my school, boys make rude comments around girls who are being physically active		
2. In my school, being physically active around boys makes me uncomfortable		
3. In my school, boys stare too much at girls who are being physically active		
Support from other girls*	3.3 (1.10)	3.18 (0.91)
In my school, most girls think it is important to be physically active		
PE enjoyment#	4.77 (0.55)	4.26 (1.17)
1. I enjoy PE		
PA enjoyment*	11.69 (4.63)	11.78 (4.48)
When I am active . . .		
1. I feel bored		
2. I dislike it		
3. It's no fun at all		
4. It makes me depressed		
5. It frustrates me		
6. It's not at all interesting		
7. I feel as though I would rather be doing something else		
Social support (friends)#	11.10 (3.06)	8.22 (3.07)
During a typical week, how often . . .		
1. Do your friends encourage you to do physical activities or play sports?		
2. Do your friends do physical activity or play sports with you?		
3. Do your friends tell you that you are doing well at physical activities or sports?		
Social support (family)#	16.83(4.37)	14.02 (4.34)
During a typical week, how often has a member of your household (eg, your father,mother, brother, sister, grandparent, or other relative) . . .		
1. Encouraged you to do physical activities or play sports?		
2. Done a physical activity or played sports with you?		
3. Provided transportation to a place where you can do physical activities or play sports?		
4. Watched you participate in physical activities or sports?		
5. Told you that you are doing well in physical activities or sports?		

*Items were reversed scored so that a higher score corresponds with a more positive perception.
#Indicates significance

Table 2: Physical activity participation by gender (Mean number of sessions per week, SD)

Variable	Boys (n=50)	Girls (n=50)
VPA*	3.61(1.95)	2.72 (1.58)
MPA	3.29 (2.11)	3.00 (2.03)
Team sport per year	2.65 (1.56)	2.08 (1.20)

*indicates significance

Overall, the mean number of sessions of vigorous physical activity increased with the frequency of family and friends social support. All bivariate correlations between the family and friends social support variables and vigorous physical activity were positive and statistically significant ($p<0.01$) as highlighted in table 3.

Table 3: Bivariate correlations of family and friends social support variables with days moderate and vigorous activity

Variable	Vigorous PA	Moderate PA
Family Participation[a]	0.397**	0.257*
Family Encouragement[b]	0.398**	0.203*
Friend Participation[a]	0.308**	0.286**
Friend Encouragment[b]	0.380**	0.145
Family Transportation[c]	0.296**	0.249*

a Family/Friend participation: frequency that family or friends did physical activities with student during typical week based on 5-point scale from never to everyday.

b Family/Friend encouragement : frequency that family or friends encourage students to be physically active during typical week based on 5-point scale from never to everyday.

c Family transportation: frequency that family provided transportation to where they can participate in physical activity in a typical week based on 5-point scale from never to everyday.

* $p<0.05$, **$p<0.01$

Perceived support for PA examined in the study included support for PA within the school environment (i.e. from teachers, boys and girls), enjoyment of PA and PE, and social support for PA. Boys perceived significantly higher levels of support from parents, friends and family, and higher levels of PE enjoyment than girls. This perception of additional support could be a reason for the higher levels of physical activity among boys than girls, as research has indicated that individual, parental and environmental factors do play a role in adolescent physical activity levels. Furthermore, research has also indicated that children's peers influence their choice to participate in physical activity. Hoehpa et al. (2006) identified this in their study among high school girls and found that "peers exhibiting a reciprocal friendship demonstrated a stronger correlation in activity behaviors compared to students in non-reciprocal friendships".

Other researchers have also highlighted the importance of parental involvement in the promotion of physical activity for their children (Terguson & King, 2002). These authors further highlighted that parents must be made aware of their children's levels of physical activity to be supportive in their children's desire to be physically active. Khan et al. (2008) alerted to the fact that parental modeling through their attitudes towards and their beliefs about PA and encouragement to be physically active will influence children's levels of physical activity. Special attention thus needs to be paid to the perceived lack of support from parents for girls to participate in physical activity.

Adkins et al. (2004) study found that regardless of the type of support provided, girls who had high levels of support from at least one parent were more likely to report being highly physically active.

This is in agreement with the findings of the present study that found a positive correlation between support from family for physical activity and the levels of both moderate and vigorous levels of physical activity.

Conclusion

As children are spending a lot of their time at school, teachers and friends should be encouraged to be supportive of their physical activity. This support for physical activity should also be followed through by parents and special attention needs to be paid to girls.

References

Aaron, D.J., Kriska, A.M., Dearwater, S.R., Calley, J.A., Metz, K.F. & LaPorte, R.E. (1995). Reproducibility and validity of an epidemiologic questionnaire to assess past year physical activity in adolescents. American Journal of Epidemiology, 142: 191-201.

Al-Hazzaa, H.M. (2002). Physical activity, fitness and fatness among Saudi children and adolescents. Implications for cardiovascular health. Saudi Medical Journal, 23: 144-150

Bauer, K.W., Nelson, M.C., Boutelle, K.N and Neumark-Sztainer D. (2008). Parental influences on adolescents' physical activity and sedentary behavior:longitudical findings from Project EAT-II. Iinternational Journal of Behavioral Nutrition and Physical Activtiy 5:12

Bauman, A., Bellew, B., Vita, P., Brown, W. & Owen, N. (2002). Getting Australia Active: Towards better practice for the promotion of physical activity, Melbourne: National Public Health Partnership.

Birnbaum AS, Evenson KR, Motl RW et al. (2005) Scale development for perceived school climate for girls' physical activity. American Journal of Health Behavior 29(3): 250-257

Butcher, K., Sallis, J.F., Mayer, J.A. & Woodruff, S. (2008). Correlates of physical activity guideline compliance for adolescents in 100 U.S. Cities. Journal of Adolescent Health, 42: 360-368.

Caspersen, C.J., Pereira, M.A., Curran, K.M. (2000), Changes in physical activity patterns in the United States by sex and cross-sectional age. Medicine and Science in Sports and Exercise, 32:1601-1609.

Grieser, M., Vu, M.B., Bedimo-Rung, A.L., Neumark-Sztainer, D., Moody, J and Young, D.R et al. (2006). Physical activity, attitudes, preferences, and practices in African American, Hispanic, and Caucasian girls. Health Education & Behavior, 33:40-51

Hohepa, M., Schofield, G. & Kolt, G.S. (2006). Physical activity: What do high school students think? Journal of Adolescent Health, 39: 328-336.

Kahn, J.A., Huang, B., Gillman, M.W., Field, A.E., Austin, B., Colditz, G.A. & Frazier, L. (2008). Patterns and determinants of physical activity in US adolescents. Journal of Adolescent Health, 369-377.

Katzmarzyk, P., Gledhill, N. & Shephard, R.J. (2000). The economic burden of physical inactivity in Canada. Canadian Medical Association Journal, 163: 1435-1440.

Lacar, E., Soto, X. & Riley, W. (2000). Adolescent obesity in a low-income Mexican American District in South Texas. Archives of Pediatrics and Adolescent Medicine, 154: 837-840.

Lowther, M., Mutrie, N., Loughlan, C. & McFarlane, C. (1999). Development of a Scottish physical activity questionnaire: a tool for use in physical activity interventions. British Journal of Sports Medicine, 33: 244-249.

Noakes T and Lambert E(1995). Chapter 6: Exercise. Medical Research Council Technical Report.

O'Dea, J.A. (2003). Why do kids eat healthful food? Perceived benefits of and barriers to healthful eating and physical activity among children and adolescents. The Journal of the American Dietetic Association, 103: 497-501.

Phillips, J.S. (2006a). Concerns about physical inactivity among adolescents in the Strand, South Africa. Journal of Community and Health Science, 1: 39-46.

Phillips, J.S. (2006b). Health risk behaviours among black adolescent females in the Strand: A mixed-methods investigation. Unpublished PhD thesis. University of the Western Cape.

Sallis, J.F, Prochaska, J.J and Taylor, W.C. (2000). A review of correlates of physical activity of children and adolescents. Medicine Science Sports Science 32:963-975

Simons-Morton, B.G., McKenzie, T.J., Stone, E., Mitchell, P., Osganian, V., Strikmiller, P.K., Ehlinger, S., Cribb, P. & Nader, P.R. (1997). Physical activity in multiethnic population of third graders in four states. American Journal of Public Health, 87: 45-50.

Sollerhed, A.C. & Ejlertsson, G. (2008). Physical benefits of expanded physical education in primary school: findings from a 3-year intervention study in Sweden. Scandinavian Journal of Medicine & Science in Sports, 18: 102-107.

Terguson, J.L. & King, K.A. (2002). Do perceived cues, benefits, and barriers to physical activity difference between male and female adolescents? Journal of School Health, 72: 374-380.

US Department of Health and Human Services. (2000). Healthy People 2010, 2nd edition, Washington, D.C: US Department of Health and Human Services

World Health Organisation (2003). WHO global strategy on diet, physical activity and health: African regional consultantion meeting report. Harare, Zimbabwe, 18-20 March 2003

RELATIONSHIP BETWEEN OBJECTIVE AND SUBJECTIVE QUALITY OF LIFE MEASURES

Caleb Ademola, GBIRI. MSc
Neurophysiotherapy Department of Physiotherapy

Aderonke O. AKINPELU. PhD
Department of Physiotherapy

Correspondence Author:
C.A. Gbiri MSc
Department of Physiotherapy,
College of Medicine, University of Ibadan,
Ibadan, Nigeria.
Email: calebgbiri@yahoo.com

Abstract

Introduction
Arguments exist on the agreement between objective and subjective QoL construct measures. This study determined the relationship between the objective and subjective QoL constructs and the socio-demographic correlates of QoL.

Methods
Data was collected using the fifth edition of the Comprehensive QoL (Adult) questionnaire from 10 tertiary health institutions located in 8 cities in Nigeria. The study involved 191 (71 patients and 120 apparently healthy) participants. Data was analyzed using Spearman's Correlation Coefficient, Kruskal-Wallis, Mann-Whitney-U test and McNemar's test.

Results
Participants were aged 59.9±11.5 with objective and subjective QoL scores of 71.2±9.2 and 49.2±12.1. There was no significant correlation between objective and subjective QoL scores ($p>0.05$). None of age, gender, occupational status, marital status or educational attainment had any significant effect ($p>0.05$) on QoL.

Conclusion
It was concluded that no significant relationship exists between subjective and objective QoL measures. Therefore, each axis should be considered to reflect the true state of individual QoL.

Key words
Subjective quality of life, Objective quality of life, Life satisfaction.

Introduction

Quality of life is an individual's perception of his or her position in life taken in the context of the culture and value systems in which he/she lives in relation to his/her goals, expectations, standards and concerns (WHO Group, 1999). It has also been defined as the possibility for an individual to take control of the outcomes of his/her life (Dissart & Deller, 2000) and as the subjective perception of satisfaction or happiness with life in domains of importance to the individual (Bowling, 1995; Leidy et al, 1999).

The quality of life construct has a complex composition, so there is neither an agreed definition nor a standard form of measurement. It is a concept that is often misunderstood and misapplied (Claussen, 2004). Not only do different disciplines define it differently, but the issue of cross-cultural measurement also affects a stable and lasting definition (Claussen, 2004). Therefore, there is no single definition of the quality of life that has become a standard. This could be due to the fact that there is no external criterion of the quality of life against which measures could be tested (Hunt, 1997). Different settings adopt the term quality of life for different purposes, each of them using different kinds of assessment (Pais-Ribeiro, 2004). This problem is due to the fact that the quality of an individual's life is bound up with so many dynamic and complex interactions and idiosyncratic personal values that the notion of an average quality of life may not make much sense (Hunt, 1997). Romney, Brown and Fry (1994) offer explanations for this which includes that the psychological processes relevant to experience of quality of life can be described and interpreted through many conceptual filters and languages; the concept of quality of life is degree value laden; that the concept embodies the understanding of human growth and development processes, the average life span of individuals within communities, and the extent to which these psychological processes are influenced by environmental factors and individual value systems.

The theoretical definitions of the related concepts of happiness, well-being, the 'good life', and the quality of life arouse much conceptual confusion and preoccupy a wide range of disciplines (Veenhoven, 1991; Argyle et al., 1995; Bowling, 1995, Bowling & Windsor, 2001). Generally, the only point of agreement among theorists and researchers is that the quality of life is a multi-dimensional construct comprising both objective and subjective factors (Cummins, 1996). It has been suggested (Allison, Locker & Feine, 1997) that the quality of life is best interpreted as a dynamic construct, because personal priorities and satisfactions in life vary as a result of changes of both objective and subjective factors. Furthermore, people's personal frames of reference vary among people in response to a combination of their current experiences and the salience of previous experiences.

Despite the difficulty in defining and measuring quality of life, the importance of the effort is obvious, given that the findings from quality of life research are directly relevant to the fundamental concern of societies and individuals (Wolfensbergar, 1994; Diener & Suh, 1997; Claussen 2004). However, during the last two decades, two main scientific approaches have been used in defining quality of life. These are the objective or social indicators, and the measurement of subjective well being (Diener & Suh, 1997). Objective quality of life is achieved through measurements that reflect people's objective circumstances in a given cultural or geographical unit (Diener & Suh, 1997). Objective indicators can be relatively easy to define and quantify without relying on individual perceptions (Diener & Suh, 1997). The measurement focuses on modifiable aspects of life such as the degree to which basic needs are met, and the degree of social attainment (Shalock et al, 2002).

Subjective quality of life has been defined as the perception of satisfaction or happiness with life in domains of importance to the individual (Leidy, Revicki & Geneste, 1999). It recognizes individuals' own internal judgments of well-being, rather than what policy makers, academia or others consider important and captures experiences that are important to the individuals (Diener & Suh, 1997). Subjective measures tend to correspond more closely to people's value systems than objective measures do (Claussen, 2004). However, a major weakness of subjective measurement is that it may not fully reflect the objective quality of community life in a location or population (Diener & Suh, 1997). Individuals may report having a high life quality even if they are in poor health or live in absolute poverty, which may be due in large part to individual's temperament and personal relationship (Claussen, 2004). Most social indicators are indirect measures of how people feel about their life conditions, whereas subjective measures provide important additional information that can enhance and validate the data provided by objective indicators (Claussen, 2004). Subjective measures also tend to correspond more closely to people's value system than objective measures do (Claussen, 2004).

In comparing the objective and subjective quality of life, it has been said that quality of life is the difference between a person's expectations (objective quality of life) and actual experience (subjective quality of life). Authors (Wolfensbergar 1994; Cummins, 1997; Shalock et al, 2002; Claussen 2004) have argued that the objective quality of life may not reflect an individual's perception as it only measures the societal norms and values. Diener and Suh (1997) also opined that objective measures only measure those attributes that researchers and academia considered important and not the mind of an individual.

Therefore there is need to find if there is any significant relationship between the objective and subjective quality of life measures. This study therefore determined the relationship between the objective and subjective quality of life constructs and the socio-demographic correlates of quality of life.

Method

The instruments for this study was administered to 202 participants (102 males and 100 females) who were workers (127) and patients (75) in 10 tertiary health institutions located in 8 major cities in southwestern Nigeria. They were selected among the patients of various clinics and staff of the health institutions using simple random sampling technique. They were all proficient in English. Ethical approval was obtained from the joint committee of the University of Ibadan and the University College Hospital, Ibadan, Nigeria (UI/UCH) Institutional Review Committee before embarking on the study. Informed consent was also obtained from each participant. This was attached as an introduction page to each of the questionnaires. The population was chosen to give room for assessment of heterogeneous set of population (apparently healthy and ill) to allow for generalization of the results obtained.

The quality of life of the participants was assessed using the fifth edition of the Comprehensive Quality of Life adult (COMQOL-A5) questionnaire (English version). This instrument was chosen for its ability to measure quality of life in two perspectives: societal referenced rating (objective quality of life) and self referenced rating (subjective quality of life). The questionnaire has two axes: objective and subjective. The objective axis asks for some factual information about life relative to the environment (section a). The subjective axis is a product of two sections [importance (section b) and satisfaction (section c)]. Section 'b' asks how important some issues of life are to the subject, while section 'c' asks about his/her satisfaction to those issues (Cummins 1997). Each of the sections has seven domains in each of the axis, which are Material, Health, Productivity, Intimacy, Safety, Community, and Emotion. It consists of one additional domain (spiritual) in the subjective axis (sections b and c). However, the spiritual domain has only been utilized as an additional domain within the Australian and Nigerian populations (Cummins 1997; Akinpelu & Gbiri 2009).The measurement of the objective quality of life domain is achieved by obtaining an aggregate score items in each domain. The measurement of each subjective quality of life domain is achieved by a satisfaction score of that domain which is weighted by the importance of the domain for the individual (Cummins 1997). The full administration of the scale yields two measures of life quality that are quite separate from one another. This instrument has been used in different countries (Akinpelu & Gbiri, 2009) with satisfied psychometric properties (Cummins, 1997).

The socio-demographic details (gender, age, occupational status, highest educational status and marital status) of the participants were obtained with another instrument attached to the COMQOL-A5. The questionnaires were distributed and the completed ones received in enclosed envelops through the intermediaries who were staff of the health institutions. Kruskal-Wallis was used to compare the quality of life across each of age group, occupational status, educational qualification and marital status. Mann-Whitney U tests was used to test gender influence on quality of life while McNemar's test was used to compare the objective and subjective quality of life of the participants.

Results

Out of 202 responses, 191 (97 males and 94 females) were valid (94.5% return rate) comprising 120 apparently healthy and 71 ill individuals. Their age ranged between 28 years and 94 years with a mean age of 59.9±11.5. Their mean total subjective and total objective quality of life scores were 71.2±9.2 and 49.2±12.1 respectively. Most of the participants (102) were married while 53 were still single with 54 between 40-49 years and 37 between 30-39 years (Table 1). More than a quarter (59) of the participants had postgraduate education while 72 had university education with 73 being professionals and 59 skilled workers (Table 1). None of age, gender, occupational status, marital status or educational attainment had any significant effect ($p > 0.05$) on quality of life ratings (Table 1).

There was no significant relationship ($p > 0.05$) between the total objective and the total subjective quality of life scores (Table 2). In each of the domains of the objective axis there was no significant relationship ($p > 0.05$) with those of their

Table 1: Comparison of the Quality of Life (QoL) of Participants across age groups, gender, educational qualification, marital status and occupational status.

Variable	Total Objective QoL				Total Subjective QoL			
	Mean	SD	Kw-Value	p-value	Mean	SD	Kw-Value	p-value
Age Group (Years)								
< 30 (n=26)	35.4	21.1	2.6	0.5	62.2	10.2	6.2	0.1
30 – 39 (n=37)	36.6	20.7			66.2	14.3		
40 – 49 (n=45)	36.3	20.2			66.3	15.3		
50-59 (n=35)	41.7	5.2			68.5	10.1		
60-69 (n=32)	42.6	8.3			69.5	7.6		
>70 (n=16)	46.5	4.6			72.4	8.1		
Occupational Status								
Professional (n=73)	35.4	23.1	2.5	0.5	62.2	13.1	6.1	0.1
Skilled (n=59)	42.0	5.2			67.3	9.1		
Semi-skilled (n=39)	42.3	5.3			68.5	11.6		
Non-skilled (n=21)	46.6	9.6			71.3	3.1		
Educational Attainment								
Post Graduate (n=59)	36.8	20.1	2.2	0.6	63.2	12.1	6.4	0.2
University (n=72)	43.5	5.4			68.1	10.1		
Tertiary (Non-University (n=34)	41.7	5.2			67.8	12.1		
Secondary (n=16)	45.8	9.8			72.1		3.3	
Primary (n=10)	47.5	9.6			73.4	13.1		
Marital Status								
Single (n=53)	36.4	20.1	2.5	0.5	64.2	10.1		
Married (n=102)	43.1	6.2			68.3		8.1	
Separated (n=18)	43.4	5.3			66.5	12.6		
Widowed (n=19)	47.7	8.6			70.3		4.1	

$p<0.05p$

Table 2: Correlation between the Objective and Subjective Quality Of Life (QoL) Scores of Participants.

DOMAIN	OBJECTIVE QoL		SUBJECTIVE QoL		
	Mean	SD	Mean	SD	p-VALUE
MATERIAL	41.2	19.7	72.0	17.4	0.32
HEALTH	38.9	18.2	50.4	27.1	0.41
PRODUCTION	38.23	16.3	68.5	17.0	0.54
INTIMACY	70.52	22.0	71.9	19.6	0.44
SAFETY	68.7	13.4	69.8	19.9	0.33
COMMUNITY	26.1	19.2	58.0	20.2	0.43
EMOTION	19.8	13.4	67.0	23.3	0.52
TOTAL QoL	42.0	12.9	67.8	10.6	0.14

Table 3: Comparison of Subjective Quality of Life (QoL) Scores between Stroke Survivors and Apparently Healthy Individuals.

Domain	Females		Males		U-Value	Z-Score	p-Value
	Mean	SD	Mean	SD			
Material	72.0	16.4	74.1	8.2	675.5	-1.61	0.11
Health	80.4	24.1	85.8	11.8	712.5	-1.80	0.12
Productivity	68.5	16.0	70.3	12.1	2634.0	-1.79	0.10
Intimacy	71.9	12.2	74.7	7.3	314.0	-1.69	0.09
Safety	69.7	16.9	70.6	12.6	175.5	-1.51	0.13
Community	61.0	10.2	65.7	14.7	157.5	-1.70	0.11
Emotion	67.7	19.3	69.7	8.9	555.0	-1.65	0.11
Spiritual	77.3	13.6	76.9	11.4	435.0	-1.53	0.08
Total QoL	72.8	11.6	74.2	7.4	156.0	-1.73	0.11

corresponding domain of the subjective axis (Table 2). The participants' total axis and domain specific scores in the subjective axis were significantly higher than their scores in the objective axis ($p < 0.05$). Gender has no significant influence on quality of life rating (Table 3).

Discussion

In this study no significant correlation between the objective and subjective quality of life rating was found and revealed that one may rate himself/herself high in quality of life spectrum despite living a lower life quality relative to his/her environment. This finding corroborates that of previous authors that an individual's own perception of quality of life (subjective well-being), may differ from the societal expectation (objective measure or social indicator) (Astrom, et al, 1993; Duncan, et al, 1997; Angeleri et al, 1993; Kwa et al, 1996; Sacco, 1997; Wyller et al, 1998), who have reported This may however be culturally dependent as quality of life of an individual depends external factors such as culture, environment and belief system (WHO Group, 1999). In Nigeria, people may decline negative confession about themselves for reasons varying from religion belief to expectation and myth (Akinpelu & Gbiri, 2009). Studies have shown that religiously (spiritual) inclined people may continue to confess positive even when things are not favourable (Akinpelu & Gbiri 2009). This may have informed the difference in the objective and subjective quality of life ratings.

The result of this study may have showed that people's feelings cannot be judged by external factors which the objective quality of life measures. It also showed that people's perception might not reveal the true state of the individual. This finding corroborates previous reports by Wilk (1999) who concluded that quality of life cannot be measured from external factors because it is all about individual experience. It also supports the summation of Diener and Suh (1997) that objective quality may not be reflective of people's experience of well being; therefore, it should be assessed separately from subjective quality of life. The result of this study also may infer that a person may be living in an affluent community and still be expressing an experience of abject poverty. Likewise, a person may express high quality of life despite living in stinking poverty.

Subjective measurement has been said to focus on the key aspects of life that can be improved upon such as the degree to which basic needs are met, and the degree of materials and social attainment (Schalock et al, 2002). This can only be deduced if researchers and policy makers recognize the importance of subjective assessment in their measurements and planning. It is therefore important for researchers to recognize individuals own internal judgment of life rather than making an inaccurate conclusion of life experienced through societal num-referenced measures (objective quality of life). Researchers, professionals and clinicians involved in rehabilitation of patients/clients and policy makers should see the need to hear from the person directly involved during their assessment or measurement of life experiences. It may be very interesting to know how an individual lived within a community. This may afford researchers and clinicians the opportunity to set patient/client oriented goals during rehabilitation programme planning. It may also help policy makers to provide programme that are suitable for the end users.

That the participants had significantly lower total quality of life scores in the objective than in the subjective axes shows that there is no objectivity in objective indicators as it is based on the subjective opinion of those observers or researchers and not on the life experience of an individual in a given setting. Therefore it is an individual that knows how he/she feels and reserves the absolute right to express it. This has been previously noted (Carr, 2001; Claussen, 2004). Quality of life may be difficult to judge externally or in reference to the society as the objective measures do. This finding is in agreement with previously published studies (Cummins, 1997; Allison et al, 1997; Wyller et al, 1998; Daltroy et al, 1999; Ahmed, 2004; Akinpelu and Gbiri, 2009) that concluded people scored higher in subjective quality of life. That none of age, gender, occupational status, marital status or educational attainment had any significant effect on quality of life ratings shows that quality rating is an individualized perception. This has been previously reported (Cummins, 1997; Allison et al, 1997; Wyller et al, 1998; Akinpelu & Gbiri, 2009). This shows that there is no inference in quality of life, however it can be projected.

Conclusion

This study has been able to substantiate that there is no relationship between objective and subjective quality of life ratings. Hence, they measure different aspects of life of an individual. Quality rating is an individualized perception and is not affected by socio-demographic factors.

References

Ahmed, S., Mayo, N. E., Wood-Dauphinee, S., Hanley, J. A. & Cohen, S. R. (2004). Response shift influenced estimates of change in health-related quality of life post-stroke. Journal of Clinical Epidemiology, 57: 561-570.

Akinpelu, A. O. & Gbiri, C. A. (2009). Quality of life of Stroke Survivors and Apparently Healthy Individuals in South-western Nigeria. Physiotherapy Theory and Practice. 25(1): 14-20.

Allison, P. J., Locker, D. & Feine, J. S. (1995). Quality of life: A dynamic construct. Social Science and Medicine, 45: 221-330.

Argyle, M., Martin, M. & Lu, L. (1995). 'Testing for stress and happiness: role of social

and cognitive factors', in Spielberger, C. D. & Sarason, I.G. (Eds.), Stress and Emotion, Washington DC, Taylor and Francis.

Bowling , A. (1995). Measuring disease. A Review of Disease Specific Quality of Life Measurement Scales, pp. 1-16, Buckingham, Open University Press.

Bowling, A. & Windsor, J. (2001). Towards the good life: Apopulation survey of dimensions of quality of life, Journal of Happiness Studies, 2: 55-81.

Carr, A. J. & Higginson, I. J. (2001). Measuring quality of life: Are quality of life measures patient centred? British Medical Journal, 322: 1357-1360.

Claussen, C. (2004). Using quality of life measures for program evaluation: A review of literature. Rehabilitation on Review. 15(1): 1-5

Leidy NK, Revicki DA & Geneste B. Recommendation for evaluating the validity of quality of life claims for labelling and promotion. Value Health 1999; 2: 113-27.

Meeberg GA. Quality of life: a concept analysis. Journal of Advanced Nursing, 1993; 18: 32-38.

Musschenga AW. The relation between concepts of Quality -of-Life , health and happiness. The Journal of Medicine and Philosophy, 1997; 22: 11-28.

Niemi ML, Laaksonen R, Kotila M & Waltimo O. Quality of life 4 years after Stroke. Stroke 1988; 19: 1101-1107.

Pais-Ribeiro JL. Quality of life is a primary end-point in clinical settings. Clinical Nutrition, 2004; 23: 121-130.

Romney DM, Brown RI & Fry PS. Improving the quality of life: prescriptions for changes. Social Indicators Research 1994; 33, 237-272.

Rothman, M. (2000). Recommendations on health-related quality of life research to support labeling and promotional claims in United States. Quality of Life Research, 2000; 9: 887-900.

Shalock RL, Brown I, Brown R, Cummins RA, Felce D, Matikka L, Keith KD & Parmenter T. Concept utilization, measurement and application of quality of life for persons with intellectual disabilities, Report of an international part of experts. Mental Retardation 2002; 40 (6): 457-470.

Smith KW, Avis NE & Assmann SF. Distinguishing between quality of life and health status in quality of life research: a meta-analysis. Quality of Life Research, 1999; 8: 447-459.

Tschuschke, V. Hertenstein, B. Arnold, R. Bunjes, D. Denzinger, R. & Kaechele,

Veenhoven , R. (1999). The four qualities of life, Ordering Concepts and Measure of Good Life. Journal of Happiness Studies, 1999; 1: 1-39.

WHO Group. Introduction, administration, scoring and generic version of the assessment Programme on Mental Health .1999; www. who.int/mentalhealth /media/ en/ 76.pdf (10 /11/2004.2604hr).

Wiebe, S., Guyatt, G., Weaver, B.,Matijevic, S.and Sidwell, C. (2003). Comparative responsiveness of generic and specific quality-of-life instruments. Journal of Clinical Epidemiology, 56, 52-60.

Wilk R. Quality of life and the anthropological perspective. Feminist Economics 1999; 5(2): 91-93.

Wolfensbergar W. Let's hang up 'quality of life' as a hopeless term. In D Goode (Ed), Quality of life for persons with Developmental Disabilities. International perspectives and issues. Cambridge, MA Brookline Books. 1994; pp 285 - 321.

Wyller TB, Holmen J, Laake P & Laake K. Correlates of subjective well-being in stroke patients. Stroke 1998; 29: 363-367.

Zack, M. M., Moriarty, D. G., Stroup, D. F., Ford, E. S. & Mokdad, A. H. (2004)

SEXUAL ABUSE VICTIM EMPOWERMENT PROGRAMME: AN ARCHIVAL STUDY ASSESSING THE RELATIONSHIP BETWEEN ADAPTIVE FUNCTIONING AND SEVERITY OF INTELLECTUAL DISABILITY IN A GROUP OF INTELLECTUALLY DISABLED VICTIMS OF SEXUAL ABUSE.

Dr. Mario R. Smith (Ph.D)
Department of Psychology

Corresponding Author:
Dr. Mario R. Smith
Dept of Psychology,
University of the Western Cape
Email: mrsmith@uwc.ac.za

Abstract

Introduction

The nosology and the criteria for intellectual disability (mental retardation) have been commonly accepted to include significantly sub average general intellectual functioning (having an IQ of 70 or less) and impairment in adaptive functioning manifested before the age of 18 years. The assessment of intellectual functioning as the primary criterion has been well-documented with the use of individual scales reporting good psychometric properties. However, adaptive functioning has mostly been assessed via clinical interviewing, observation and collateral interviews with significant others. Adaptive capabilities within the intellectually disabled have received less attention. The Vinelands maturity scale, an objective measure of adaptive functioning, has been used widely with good effect in diagnosis. The interaction between the severity of intellectual disability and adaptive functioning has been described for the purposes of categorization. However, attempts at providing empirical support for the differential profile have been lacking.

Methods

This article reports on an archival study that aimed to examine the relationship between severity of intellectual disability and adaptive behavior. This study used verbatim protocols that formed part of a psycho-legal assessment in the SAVE programme assisting intellectually disabled victims of sexual abuse. Significant differences in adaptive functioning domains among groups of mild, moderate and severely intellectually disabled participants were tested for empirically.

Results

Null findings were reported for all domains, except socialization, based on chronological age. However, significant differences were reported on all domains when using adaptive functioning scores based on test-age equivalents. In short, chronological age is not useful as a criterion when assessing adaptive functioning relative to the level of intellectual disability. A differential capability profile relative to the level of intellectual disability was empirically supported using test-age equivalents.

Conclusion

The empirical evidence here can be useful to augment the findings of IQ testing, that can be flawed and subject to extraneous variables, when determining whether a diagnosis of intellectual disability is indicated.

Key words

Intellectual disability, mental retardation, adaptive functioning, sexual abuse, archival research, socialization skills, activities of daily living, communication skills.

Introduction

Research into intellectual disability has primarily focused on diagnosis (APA, 2000); adaptive functioning (Markusic, 2010); associated vulnerabilities (Morano, 2001); Sexuality (Isler, Tas, Beytut, Conk, 2009), sexual abuse (Balogh,Breyerton, Whibley, Berney, Graham, Worseley & Firth, 2001); sexual abuse intervention (Drew, Logan & Hardman,1990); Psycho-legal aspects (Ahlgrim-Delzell & Dudley, 2001); and Institutionalization (Hersen, McGonicle & Lubetsky ,1989). A systematic deconstruction of adaptive functioning and its differentiated profile across severity of intellectual disability and the implications thereof for clinical practice has been lacking. This article reports on an archival study that aimed to examine the relationship between severity of intellectual disability and adaptive behavior. A further aim was to provide empirical support for a differential profile in adaptive functioning based on test scores and equivalent test ages

The diagnosis of Mental Retardation, according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (APA, 2000), is defined as "significantly subaverage general intellectual functioning (having an IQ of 70 or less) resulting in, or associated with, concurrent impairment in adaptive functioning and manifested during the developmental period before the age of 18." Mental retardation is generally assessed by a combination of formal intelligence tests and observation of adaptive functioning (Burack, Hodapp & Zigler, 1998). The nosology and the criteria for this diagnosis has been commonly accepted, however the use of the term, "Mental Retardation" is a contentious issue since it is felt to be derogatory and framed within a deficit model. . Some of the terms used colloquially include, but are not limited to, cognitive deficit, cognitive handicap and intellectual disability. For the purposes of this document the term intellectual disability will be used to denote the diagnosis of Mental Retardation according to the DSM-IV-TR criteria.

According to the DSM-IV-TR, individuals are classified according to the severity of their intellectual impairment as indicated by the intelligence measure (IQ) obtained on intelligence test(s) as either mild (IQ 50-70), moderate (IQ 35-55), severe (IQ 20-40) or profound (IQ below 20) (American Psychiatric Association, 2000). Below follows a brief outline of the adaptive functioning capabilities (abilities required to function in everyday life) relative to the severity of intellectual disability.

Mild intellectual disability is the most common category including approximately 85% of individuals diagnosed with intellectual impairment who are considered "educable" (Brantley, 1988; Morano, 2001). These individuals mostly appear as normal and identification of their disability only becomes apparent during the early school years. Research has found that the environment can both positively and negatively affect a child's mental development and that mild intellectual disability is more prevalent among lower socioeconomic groups (Morano, 2001). It is further reported that children with mild [intellectual disability] typically develop social and communication skills later in the preschool years, perhaps with modest delays in expressive language. Those diagnosed with mild intellectual disability are able to be educated up to the 6th-grade level and with vocational training may be able to work and live in the community with minimal supervision. According to Morano (2001) this means that they are most likely to be exposed to compromising situations regarding sexual activity, including sexual consent, assault and abuse.

Individuals who are diagnosed to be moderately intellectually disabled comprise approximately 10% of the intellectually impaired population. They often have additional handicaps but with special help are trainable and can acquire a limited number of basic competency and self-help skills (Brantley, 1988). They are expected to gain some measure of independent functioning but will still require some form of supervision. Lemeshow (1982) asserted that individuals with moderate intellectual disability are more adaptively impaired. With regard to socialization skills, people with moderate intellectual disability have difficulties in recognizing social conventions, such as appropriate dress or humour. They are also not expected to marry and manage a family but with training will be able to participate cooperatively in their own family life and in the events of their immediate environments.

Those who are profoundly or severely intellectually disabled comprise approximately 3% of all intellectually impaired individuals with the majority of them requiring lifelong supervised care (Brantley, 1988). The severely intellectually impaired may function at adaptive levels expected of normal peers of approximately one-third their age and their socialization may involve teaching cooperation skills and daily skills training (Lemeshow, 1982). Sadock and Sadock (2003) concurred stating that people with severe intellectual disability have poor adaptive skills The profoundly intellectually disabled group constitutes the "totally dependent" group, requiring constant supervisory care in order to function and survive, however self-care and communication skills can be expected to increase slightly toward minimal levels of functional independence (Lemeshow, 1982).

The differential profile in adaptive functioning relative to the severity of intellectual disability outlined above has been accepted, though empirical support for it has been lacking. This has had direct bearing on the extent to which individuals with intellectual disability have had recourse to assistance in forensic cases of sexual abuse. Below is a brief description of an intervention programme that attempts to assist in this regard and that formed the setting for data collection.

CAPE MENTAL HEALTH AND THE SEXUAL ABUSE VICTIM EMPOWERMENT PROGRAMME (SAVE):

In the past, perpetrators of sexual abuse against intellectually impaired individuals often managed to avoid prosecution due to the perception that their victims would not be able to testify against them, or that they would not be believed by the authorities (Pillay & Sargent, 2000). Seventeen years ago, the Cape Mental Health Society of the Western Cape launched The Sexual Abuse Victim Empowerment (SAVE) programme to deal with a handful of cases involving victims with intellectual disability who needed to appear in court. Today the psychologists see between seven and nine new victims a month who are referred by the Department of Justice for psychological assessment of their level of functioning and their ability to testify as a witness. These cases are particularly difficult cases for the courts to resolve as the majority of adult victims have the mental age of a small child and the victim, court and police need to be properly prepared to ensure justice is done.

SAVE is the only project of its kind in South Africa and is so effective that there is an eight-month waiting list of victims needing assessment before their cases can go to court. The SAVE programme assesses whether victims would be able to assist competently in their court proceedings as reliable witnesses. In this way, the likelihood of favourable outcomes or verdicts is increased and plaintiffs with intellectual disability are given an opportunity to make their voices heard.

The psychological evaluation in the psycho-legal programme assesses the following areas: level of intellectual functioning, adaptive functioning, sexual knowledge including the ability to consent to sex, and competence as a witness. The level of intellectual functioning is assessed using a South African scale, the Individual Scale for General Scholastic Aptitude (ISGSA). Competence as a witness and sexual knowledge are assessed using a structured clinical interview.

Adaptive functioning is defined as the extent to which individuals cope with the demands of everyday life and is assessed using the Vinelands Adaptive Behaviour Scales (Markusic, 2010). This scale is a revision of the Vinelands Maturity Scale. Bolte and Poustka (2002) reported that this scale assesses personal and social sufficiency from birth to adulthood. It does not require direct administration and can be completed by a third party who is familiar with the testee's abilities. The scale measures four domains of which three are important in the SAVE assessment namely, Socialization, Daily living skills and Communication (De Bildt, Kraijer, Sytema & Minderaa, 2005).

Methodology

Research questions: The present study attempted to answer the following questions:

1. Are there significant differences between complainants with varying levels of intellectual disability in adaptive functioning in terms of
    - Overall level of adaptive functioning (as measured by the Vinelands)
    - Communication skills
    - Daily living skills
    - Socialization skills
2. Are there significant differences between complainants with varying levels of intellectual disability in adaptive functioning in terms of

- Communication skills age equivalent
- Daily living skills age equivalent
- Socialization skills age equivalent

Research design

The present study incorporated an archival survey design. The study was restricted in terms of access to complainants registered with CMH. After numerous meetings with the staff it was concluded that due to the fact that the population under study is a triply vulnerable population, as the complainants have (1) mental retardation; (2) have been sexually abused; and (3) may have another psychiatric diagnosis, the researcher will not be allowed access to the complainants themselves, but rather have access to the complainant's case files and the staff members working at CMH.

Sample & Data collection procedure: The participants were victims of sexual abuse with intellectual disability who registered with the SAVE programme during 2006 and 2008. The participants had closed folders and provided an advanced directive for their verbatim protocols to be used if its application resulted in the benefit of persons from the same category. They were drawn from a population of indigent complainants living in the Cape Town community and have the following characteristics:

- According to the ISGSA, had been diagnosed with a level of intellectual functioning below 70 (i.e. intellectually disabled)
- Had been abused sexually

The sampling frame was comprised of the register of closed cases seen in the SAVE programme during 2006 to 2008. From this sampling frame cases were selected following systematic random sampling during which every third case was selected until a sample of 250 cases have been reached. Verbatim responses on protocols were rescored by two independent researchers with considerable experience in assessing intellectual functioning in an attempt to reduce variability. In addition, ten percent of the cured data was checked for accuracy.

Instrument

A code sheet was used for capturing demographic variables and other variables relevant to the study from the closed case files selected and kept at CMH. For the purpose of this study, the case files housed at CMH contained details of each individual complainant, as well as their personal case material for trial. The following information was gleamed from case files: 1) demographics, 2)ISGSA protocol for the assessment of intellectual functioning and 3) protocol of the Vinelands maturity scale for the assessment of adaptive functioning.

Data analysis

Descriptive statistics (frequency distributions) was used to summarize the demographics of the sample. Analysis of variance (ANOVA) was used to empirically test the hypothesized significant differences between the varying levels of cognitive deficit in terms of adaptive functioning.

Ethical considerations: The ethical requirements for non-therapeutic research were fulfilled in that 1) the research pertained directly or indirectly to the mental illness or mental defect from which the participant suffered. 2) An advance directive has been obtained from all users of the service to consent to the use of protocols, e.g. in the proposed research, for the greater good of the individual or collective agenda. 3) The guardian of the archived record has commissioned the proposed research thereby granting access to the protocols. 4) Research significantly benefits persons of the same category as the participant and 5) The same scientific results cannot be obtained by other methods, or by research on persons who do not belong to this category (Frankfort-Nachmias & Nachmias,1992).

Results & Descution

Demographics: The final sample was comprised of 235 (94%) women and 15 (6%) men whose chronological ages ranged from 8 -60 years at the time of reporting. The frequency distribution was as follows: 8-11a (3.5%), 12-22a (68.2%), 23-31 (19.6%) and 32-60 (9.1%).

Table 1 below summarizes the results from the ANOVA using the following variables: overall adaptive functioning, communication skills, daily living skills, and socialization skills, as measured by the Vinelands Adaptive Behaviour Scale.

From Table 1 it becomes evident that there were no significant differences found in adaptive functioning in terms of communication skills (F=.996, p=.413), daily living skills (F=.749, p=.561) and overall adaptive functioning (F=1.644, p=.168) between the varying levels of intellectual disability. These null findings do not support the hypothesized differences between groups of intellectually disabled

Table 1 Differences in Adaptive functioning between sexual abuse victims with Mild intellectual disability (n = 103), Moderate intellectual disability (n =93) and Severe intellectual disability (n = 54).

Variable and Source	SS	MS	F	Sig
Communication skills domain				
Between groups	3.12	.78	.996	.413
Within groups	94.08	.78		
Daily Living skills domain				
Between groups	5.21	1.30	.749	.561
Within groups	208.79	1.74		
Socialization skills domain				
Between groups	20.08	5.02	3.758	.006**
Within groups	160.28	1.34		
Overall Adaptive Functioning				
Between groups	5.64	1.41	1.644	1.68
Within groups	102.10	.858		

**p<.01

From the results it becomes evident that a significant difference in adaptive functioning was found in terms of socialization skills between the varying levels of intellectual disability stipulated in the research question (F=3.758, p<.01). The significant differences in Socialization manifested as follows: Participants with higher degrees of intellectual disability had increasingly less adaptive socialization skills. Participants with mild intellectual disability were more adept in the social realm than participants diagnosed with moderate intellectual disability. The latter in turn were significantly more adept in their mastery of social skills than participants diagnosed with severe intellectual disability.

The findings indicate a significant difference in the social skills domain of adaptive functioning between the levels of intellectual disability. The diagnosis of intellectual disability is defined as significantly subaverage general intellectual functioning resulting in or associated with impairment in adaptive functioning (APA, 200). Thus impairments in adaptive functioning is a prerequisite for the diagnosis of intellectual disability. The findings illustrate the differential skills level in the social domain for people with intellectual disability.

The significantly varying degree in this domain is supported by the extant literature. Bolte et al (2002) pointed out that in the social domain children with mild [intellectual disability] typically develop social and communication skills later in the preschool years, perhaps with modest delays in expressive language. These authors emphasized that development in the social is delayed and modest rather than gross and absent in children with mild intellectual disability. De Bildt et al (2005) asserted that individuals with moderate intellectual disability are more adaptively impaired. With regard to socialization skills, people with moderate intellectual disability have difficulties in recognizing social conventions, such as appropriate dress or humour.

Sadock and Sadock (2003) stated that people with severe intellectual disability have poor adaptive skills. Communication skills are largely handicapped for persons with severe intellectual disability as they tend to communicate in three word phrases. This affects the socialization skills of people with severe intellectual disability as they can understand speech, but have considerable difficulty expressing themselves. People with severe intellectual disability are unable to live independently in the community; they do need to live in a group home or with their families so as to provide them with assistance in care in all domains. The theorized differences postulated by De Bildt et al (2005), Bolte et al (2002), and Sadock and Sadock (2003) in overall adaptive functioning, specifically in the communication and daily skills

Table 2 Differences in Adaptive functioning age equivalents between sexual abuse victims with Mild intellectual disability (n = 103), Moderate intellectual disability (n =93) and Severe intellectual disability (n = 54).

Variable and Source	SS	MS	F	Sig
Communication skills domain				
Between groups	219.99	55.00	41.430	.000**
Within groups	155.32	1.33		
Daily Living skills domain				
Between groups	328.70	82.18	19.348	.000**
Within groups	492.68	4.25		
Socialization skills domain				
Between groups	137.61	34.40	19.41	.000**
Within groups	207.38	1.77		

**p<.01

From the above table it becomes evident that there were significant differences (p<.000) found in adaptive functioning age equivalents between complainants with mild, moderate, severe, borderline mild to moderate and borderline moderate to serve intellectual disability in terms of communication skills (F=41.430); daily living (F=19.348) and socialization (F=19.410). The specific results are discussed below:

The findings indicate a significant difference in the age equivalents for the communication skills domain of adaptive functioning between the levels of intellectual disability, Participants with higher degrees of intellectual disability had increasingly lower age equivalents for communication skills. Participants diagnosed with mild intellectual disability had a significantly higher age equivalents than those diagnosed with severe intellectual disability. The latter in turn had a significantly higher age equivalent in communication skills than participants diagnosed with severe intellectual disability.

The findings indicate a significant difference in the age equivalents for the daily living skills domain between the levels of intellectual disability. Participants diagnosed with mild intellectual disability had a significantly higher age equivalent in daily living skills than those diagnosed with moderate intellectual disability. The latter in turn had a significantly higher age equivalent in daily living skills than those diagnosed with severe intellectual disability.

The findings indicate a significant difference in the age equivalents for the socialization skills domain between the levels of intellectual disability. Participants diagnosed with mild intellectual disability had a significantly higher age equivalent in socialization skills than those diagnosed with moderate intellectual disability. The latter in turn had a significantly higher age equivalent in socialization skills than those diagnosed with severe intellectual disability.

domains were not empirically supported. The null findings here might be a function of the age distribution across severity of intellectual disability. A limitation of the study is that the records selected randomly did not control for age in a cross-tabulated way. Future studies would benefit from employing a stratified approach to sampling if it were to control for age. The scores obtained on the skills in the various domains of adaptive functioning are based on chronological age and are considered less useful clinically than test age equivalents for these domains. Table 2 summarizes the results of ANOVA for differences in test age equivalents postulated in the second research question.

The findings indicate a significant difference in the age equivalents for the daily living skills domain between the levels of intellectual disability. Participants diagnosed with mild intellectual disability had a significantly higher age equivalent in daily living skills than those diagnosed with moderate intellectual disability. The latter in turn had a significantly higher age equivalent in daily living skills than those diagnosed with severe intellectual disability.

The findings indicate a significant difference in the age equivalents for the socialization skills domain between the levels of intellectual disability. Participants diagnosed with mild intellectual disability had a significantly higher age equivalent in socialization skills than those diagnosed with moderate intellectual disability. The latter in turn had a significantly higher age equivalent in socialization skills than those diagnosed with severe intellectual disability.

The findings indicated a decrease in age equivalents for all adaptive functioning domains with a corresponding increase in the extent of intellectual disability. As mentioned before, De Bildt et al (2005), Bolte et al (2002), and Sadock and Sadock (2003) asserted that there are significant differences in all domains of adaptive functioning. The findings reported here empirically supported the theorized differences in adaptive functioning as a function of the level of intellectual disability. Thus as a group, people with mild intellectual disability will have higher age equivalents for adaptive functioning compared to people with moderate and severe intellectual disability. Similarly, individuals with moderate cognitive, as a group, will have lower age equivalents for adaptive functioning than individuals with mild intellectual disability, but higher age equivalents than individuals with severe intellectual disability. Individuals with severe intellectual disability will have lower age equivalents for adaptive functioning compared to individuals with mild and moderate intellectual disability.

Conclusion

In short, the study explored adaptive functioning as one the criteria for the diagnosis of intellectual disability. The diagnostic manual stipulates a deficit in adaptive functioning as one of the criteria and implicitly suggests that adaptive functioning would have an inverse relationship with the level of intellectual disability. The categorization of the level of intellectual disability provides a brief description of the deficits and skills in adaptive functioning per level of intellectual disability. However, the differential profile provided in the categorization of intellectual disability tends to be more descriptive and summative rather than an empirical statement of a differential profile. The findings of this study illustrate empirically the theorized differences in adaptive functioning and provide useful insights into the importance of age equivalents when working with this population for the specific purposes of determining a differential profile of adaptive functioning. The empirical evidence here can be useful to augment the findings of IQ testing, that can be flawed and subject to extraneous variables, when determining whether a diagnosis of intellectual disability is indicated.

Limatation of the study

The study was restricted to using complainants registered with CMH. Thus findings can only be generalized to the population of sexually abused individuals with intellectual disability. A further limitation as that case files did not consistently contain information regarding ethnicity and socio-economic status which limited the extent to which the researcher could verify that the client base of the SAVE project was in fact from an indigent group. The distribution of participants was not equal across the various groups which might have impacted the robustness of the significance or hypothesis testing.

A further limitation was the use of archival data from a sexually abused population. This might have limited the sampling frame so that the researcher have selected from a reduced sampling frame. This would ultimately weaken the robustness of hypothesis testing. However, finding significance despite this limitation is encouraging support for the hypotheses tested.

The sample included a large range for ages of the participants which might have been a confounding variable in the hypothesis testing. However, the primary criterion for inclusion was the diagnosis of intellectual disability which made age secondary. Further the study aimed to differentiate between chronological age and developmental age/ test age equivalents since chronological age has been a confounder in the treatment of people with intellectual disability. Misappraisals about capabilities occur based on erroneous assumptions based on chronological age. Thus controlling for chronological age would have short-circuited the evaluation of age parameters as a potential confounding variable.

Recommendation for the future study

Future studies might benefit from controlling for chronological age by employing a stratified approach to sampling. This will enable a more robust testing of the potential confounding role played by chronological age. In addition, future studies might seek to use live cases drawn from a wider population excluding sexual abuse victims.

**Special acknowledgement to the Cape Mental Health Society, Western Cape for their generous access to the archive and inspiring psycho-legal interventions with intellectually disabled victims of sexual abuse.*

References

America Psychiatric Association (2000). Diagnostic and statistical manual of mental disorders fourth edition, text revision. Arlington: American Psychiatric Association.

Ahlgrim-Delzell, L., & Dudley, J.R. (2001). Confirmed, unconfirmed, and false allegations of abuse made by adults with mental retardation who are members of a class action lawsuit. Child Abuse and Neglect, 25(8), 1121-1132.

Balogh, R., Bretherton, K., Whibley, S., Berney, T., Graham, S., Richold, P., Worsely, C., & Firth, H. (2001). Sexual abuse in children and adolescents with intellectual disability. Journal of intellectual Disability Research, 45(3), 194-201.

Bolte, S. & Poutska, F. (2002). The relationship between General Cognitive level and Adaptive Behaviour domains in Individuals with Autism with and without co-morbid Mental retardation. Child Psychiatry and Human Development, 33(2), 165-172.

Brantley, D. (1988). Understanding mental retardation - a guide for social workers. Illinois: Charles C Thomas Publisher.

Burack, J.A., Hodapp, R.M., & Zigler, E. (1998). Handbook of mental retardation and development. United States of America: Cambridge University Press.

De Bildt , A., Kraijer, D., Sytema, S. & Minderaa, R. (2005). The Psychometric properties of the Vineland Adaptive Behaviour Scales in Children and Adolescents with Mental Retardation. Journal of Autism and Developmental Disorders, 55(1)

Drew, C.J., Logan, D.R., Hardman, M.L. (1990). Mental retardation: A life cycle approach (4th edition). Singapore: Merrill.

Frankfort-Nachmias, C. & Nachmias, D. (1992). Research Methods in the Social Sciences (4th Ed). NY: St. Martin's Press

Furey, E.M. (1994). Sexual abuse of adults with mental retardation: who and where. Mental retardation, 32, 173-180.

Hersen, M., McGonigle, J.J., & Lubetsky, M.J. (1989). Abuse and neglect in psychiatrically hospitalized multihandicapped children. Child Abuse and neglect, 13(3), 335-343.

Isler, A., Tas, F., Beytut D., Conk, Z. (2009). Sexuality in Adolescents with intellectual disabilities. Turkey: Springer Science and Business Media.

Lemeshow, S. (1982). The handbook of clinical types in mental retardation. USA: Allyn and Bacon Inc.

Markusic, M. (2010). The Vineland Adaptive Behaviour Scale and Special Needs Students. Retrieved February 16, 2010 from http://www.brightbulb.com/education/special/articles/13506.aspx?p=2#ixzz0ipM4qfsY

Morano, J.P. (2001). Sexual abuse of the mentally retarded patient: medical and legal analysis for the primary care physician. Primary Care Companion Journal of Clinical Psychiatry 2001;3:126-135).

Pillay, A.L., & Sargent, C. (2000). Psycho-legal issues affecting rape survivors with mental retardation. South African Journal of psychology, 30(3), 426-438.

Sadock, B.J., & Sadock, V.A. (2003). Synopsis of psychiatry: Behavioural sciences/clinical psychiatry (9th ed.). United States of America: Lippincott Williams & Wilkins.

JOURNAL OF COMMUNITY AND HEALTH SCIENCES

ISSN NUMBER—1990-9403

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

April 2010 Vol. 5 No. 1