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# **PROMOTING EXCELLENCE IN TEACHING IN HEALTH EDUCATION THROUGH THE DEVELOPMENT OF PARTNERSHIPS**

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**Abstract**

**Introduction**

The Faculty of Community and Health Sciences (FCHS) reviewed its curricula for 1994, allowing the Primary Health Care (PHC) approach to be the foundation of teaching and learning in health. To institutionalize a PHC approach, the teaching methodology of service-learning which is premised on the development of partnerships, proved useful in realizing the faculty's goal.

**Aim**

The aim of this study was to identify how to ensure that partnerships develop optimally and in a sustainable fashion to promote excellence and relevance in teaching and development of professional skills in FCHS.

**Methods**

A qualitative study was employed using focus groups with the partners in 2 service-learning programmes in FCHS.

**Results**

Key findings included that capacity building programmes for all partners promotes good training and education in health sciences; partners' roles should be clarified and it's imperative that formalized partnership agreements exist to ensure collaboration and enhance teaching.

**Conclusion**

Service-learning serves as an impetus to move higher education in the direction of multi-disciplinarity.

**Key words**

Service-learning, partnerships, health education, qualitative, focus groups, excellence in teaching.

## Introduction

At present South Africa is in an era characterised by transformation. This is reflected in various policies that signify the transformation of South Africa into a democracy and holds numerous implications for the different departments in government, specifically education and health. These departments have to develop initiatives that will facilitate the transformation of South Africa and hence aid change and development. Higher Education Institutions have responded to this through reviewing the teaching methods employed and as they try to increase the relevance of education, institutions have developed opportunities for students to engage in experiential learning methods. This paper focuses on service-learning, an experiential teaching method employed at the University of Western Cape. The Commission on National and Community Service provides the following definition:

“A service-learning program provides educational experience:

a) under which students learn and develop through active participation in thoughtfully organised service experiences that meet actual community needs and that are coordinated in collaboration with school and community;

b) that are integrated into the students' academic curriculum or provides structure time for a student to think, talk, or write

about what the student did and saw during the actual service activity;

c) that provide a student with opportunities to use newly-acquired skills and knowledge in real-life situations in their own communities; and

d) that enhance what is taught in school by extending student learning beyond the classroom and into the community and helps foster the development of a sense of caring for others.” (CNCS, 1993, p.15).

Service-learning therefore provides a unique opportunity for students to become aware of the power of their professional knowledge and the ability to initiate, facilitate, and engage in the process of change and development. This is an empowering experience for young graduates (McHugh Engstrom & Tinto, 1997).

Given this definition, Jacoby (1999, p.22) asserts that no matter where service-learning is located within the institution, service learning programmes benefit tremendously from partnerships. These partnerships have resources available that could make distinctive and significant contributions to the development of quality service-learning programmes. Effective partnerships can be described as “knowledge-based collaborations in which all partners have things to teach each other, things to learn from each other and things

they will learn together” (Holland & Gelmon, 1998). The rationale for developing partnerships is succinctly captured by Kahn (1999, p.14) when she states that “universities on its own can be very isolated, sterile and arrogant places; communities too can be isolated lacking professional and analytical and technical skills BUT together they can be very powerful – capable of igniting and testing new ideas and generating “breakthrough thinking”.

The implications of service-learning as a teaching methodology are significant when true partnerships have been formed between academia, the services sector and the community as it can assist in ensuring that the training of future health professionals is relevant and that they will develop the community-oriented competencies and civic responsibilities to enable them to deal with the rapid and continually changing landscapes in health (Sternas, O’Hare, Lehman & Milligan, 1999 and Hayward & Weber, 2003).

### **Service-learning in the Faculty of Community and Health Sciences at UWC**

In an effort to make service-learning more meaningful to student learning, the Faculty of Community and Health Sciences (FCHS) reviewed its curricula for 1994, allowing the Primary Health Care approach to be the foundation of health and welfare. Two

modules were conducted for a service-learning pilot run in 2003. The general objectives of these modules were:

- “to set the students on the path to become independent, critical and caring health professionals, committed to delivering affordable, accessible, appropriate health care to all in South Africa;
- to introduce students to health and health care as a science;
- to help students position themselves as future health professions in the context of South African history and society and the communities they will serve;
- to introduce students to the concepts of caring and professional ethics;
- to develop in students an understanding and appreciation of the primary health care approach, the value of inter-disciplinarity and team work and the importance of community service; and
- to equip students with a range of academic and professional skills, which will enable them to operate successfully in an academic and professional environment” (University of the Western Cape Student Manual 1998, p.4)

The research that was conducted was aimed at identifying what is required in order to ensure that partnerships develop optimally and in a sustainable fashion in order to promote excellence and relevance in teaching and development of professional skills in the health sciences at UWC.

### **Methodology**

In order to obtain an understanding from the perspective of the partners, a qualitative and descriptive design was ideal to provide rich information from participants' perceptions and experiences within their natural setting (Babbie & Mouton, 2001). This research was exploratory to gain a better insight around the development of partnership and to generate possibilities for future research (Babbie & Mouton, 2001). The rationale for this methodology was also rooted in the attempt to discover valuable, practical and appropriate information regarding the sustainability of partnerships and how this could promote excellence and relevance in service-learning teaching.

### **Population and sampling**

The sample was a purposefully selected group of individuals that could provide information to understand the phenomenon of partnership development. 'Purposive sampling is appropriate to select unique cases that are especially informative' (Neuman, 2006, p.222). This qualitative study is ultimately concerned with information richness and not representativeness (Patton, 1990 in Julie, Daniels & Adonis, 2004). The study population was therefore limited to the partners involved in the two service-learning pilot modules in the Faculty of Community and Health Sciences.

### **Data collection and analysis**

Two focus groups were conducted with each pilot service-learning programme. This method was selected as it provided an opportunity to "observe a large amount of interaction on a topic in a limited period of time" (Babbie & Mouton, 2001, p.292). Eight participants were present in each focus group, which included academics and service representatives from the placement site and community members involved in the programme. A standardised schedule was developed to improve reliability and probing questions were asked where clarification was required.

Two researchers were involved in the focus groups. One of the researchers facilitated the focus group while the other researcher operated the tape recorder and made extensive observations and notes. The tape recordings were transcribed verbatim and member checks were conducted with the group participants in order to verify recorded responses and ensure validity. The observations, notes and member checks were incorporated in order to triangulate the data and enhance the validity of the study. Lincoln and Guba (1985) assert that the issue of validity in qualitative research is inherent in the researcher's proficient use of the procedures of authenticity and trustworthiness.

A thematic analysis was employed where dominant themes were identified. The

limitations of a focus group as a data collection method are recognised, for example the inability to generalise, self-selection biases and so forth, but the data collected are a useful indication of concerns and successes of those who are involved in the partnership and it is envisaged that these will generate possible hypotheses which could be explored in further research studies on this topic. Informed consent of participants was obtained prior to the focus group. The consent form explained purpose and nature of the study, gave assurance of anonymity, confidentiality and the right to withdraw from the study.

### **Results and Discussion**

The results will be discussed under the various themes that were generated.

#### ***Knowledge of partner setting***

Understanding the motivations and constraints of all the partners involved in the programme, including its staff/people, cultures, values, habits and structure, provides a foundation for effective collaboration planning (Wiewel & Lieber, 1998, p.300). This allows for the identification of the diversity of strengths and weaknesses that could influence the strength of the partnership and makes it possible to focus on the strengths and to minimise the weaknesses. Understanding the diversity of the context of each of the different partners is crucial to the sustainability of the partnership as it

prevents misunderstandings and ensures a supportive environment. In both modules it was found that there was not sufficient understanding of each partners context, which hampered the service learning partnership. One of the module teams identified that they had too many representatives from the service partner sector, which made the development of the partnership more difficult because everyone was not equally consulted or informed.

The other partnership experienced similar problems due to multiple representatives who needed to be informed. Thus, partners should be aware of the underlying power relations and politics which might hamper the development of partnerships. The following quotations highlight this:

*I have to liaise with partner A, with partner B, with partner C all different partners and each have their own idea about what should happen and what you should bring. It makes it very, very difficult and I do not have the time to work with Directors and Manager plus the hands-on people. (Academic)*

*Maybe it was my ignorance not knowing how the centre operates and not knowing where the programme is going to fit and with whom it is going to fit and also maybe you are frustrated with me not knowing the demands I have as an academic and the problems I had with academic planning with regard to this thing. (Academic)*

The participants' experience indicates that there is a need for an orientation, when new partnerships are formed. Understanding your partners' context can be facilitated by site visits. It is important for partners to develop a shared philosophy mission, vision, values and outcomes. Partnerships should be based on collaboration with an emphasis on reciprocity and equity, which could be incorporated into partnership agreements.

### **Communication**

The development of trust is important during the partnership building, and well-planned interactions will allow partners to communicate in more meaningful ways. A community partner raised an important factor with regard to the communication in the implementation stage of the module in the ensuing quote:

*Proper planning and the miscommunication – there was not really proper planning because it was just like meetings and then take instructions, what to do and so on.*  
(Community)

The most critical issue for the service providers was poor communication on the part of UWC academics. The services representatives raised this on a number of occasions as demonstrated in the subsequent quotations:

*There was absolutely no communication with me personally at the time, the very first time I heard about it was when they came*

*with Prof. Q to do the presentation and I had no clue about it before then so I went in very negatively and I was not really part of it.*  
(Service representative)

*I think that there are a lot of positives and that there could have even been more positives if there was more communication but there wasn't – but so far it was good.*  
(Service representative)

Communication is an essential and critical aspect and is the foundation of effective and sustainable partnerships. Open, frequent and clear lines of communication guided by mutually agreed rules, can be incorporated into the partnership agreement. This communication process should be infused in all stages of partnership development.

### **Formalisation**

It is crucial that all partners be involved in setting the mission statements and goals and in developing the curriculum as involvement like this enhances a sense of ownership and joint responsibility for decisions. The creation of equal organisations that are involved from the formation of the partnership ensures shared ownership and prevents the notion that members are working for someone else's organisation (El Ansari & Phillips, 2001). Community, service partners and the academics alike pointed to the lack of formalisation of the module, which has a negative impact on the delivery of the module. These quotations illustrate this finding:

*It would be very good if they could add it to their curriculum then its not like pilot programmes so students are not so demotivated, they will be more motivated because they will benefit from it. (Community representative)*

*I think that possibly it's very difficult to do that planning with a pilot project such as this, but to allocate the necessary resources both in terms of people and in terms of money to the project otherwise it is quite a tall order. (Service representative)*

The lack of formalisation in the form of a policy or contract between the partners was linked to the lack of motivation of students and it affected attendance. This is implied in the following quote:

*Students pitch up and then you prepare something, sometimes they don't pitch up and then it's difficult. (Service representative)*

The common issues raised by at least two partners were planning, formalisation of the course, student attendance, logistics and communication. Three of these issues, namely planning, communication and perhaps logistics, can be linked directly to the service-learning partnership itself. The issues of formalisation of the module and student attendance will have to be addressed by the academic partners.

Partnership agreements ensure joint and comprehensive planning and coordination involving all partners. Clarifying roles and responsibilities with regard to teaching, administration and supervision is important. Time management, flexibility and communication can support this process. Regular monitoring, evaluation and feedback will complete the cycle and ensure sustainability of the partnership.

### **Capacity Building**

Capacity building and staff development were identified as crucial for all partners as it promotes necessary training. It was found that if adequate training is provided, then the previous findings would be approached in a positive manner and problems would be minimised. Consequently the partnership could be sustainable and effective. This was evident in the following quotation:

*Something like service-learning as a study – a field of study is really necessary. We need it in society. We must arrange workshops were we can catch up much easier to unlock the barriers that we are experiencing in the community (community)*

Capacity building programmes facilitates equity and reciprocity in partnerships. The sharing of knowledge and resources can lead to a deeper understanding, and respect between partners in order to sustain the partnership



## Conclusion

Service-learning serves as an impetus to move higher education in the direction of multi-disciplinarity. When creating a space for students to reflect on broader community involvement, service-learning gives them a sense of how their actions can matter, and they will respond to this challenge.

Through the development of sustainable partnerships between the academic institution, the services sector and the community, many lives (young and old) will be touched in a positive way and improved by this collaboration.

Continuous monitoring and evaluation of service-learning at UWC will aid in the sustainability of partnerships and will facilitate the development of an exemplar for best practice in partnership development through service-learning.

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# **HIV/AIDS EDUCATION IN SOUTH AFRICA: KNOWLEDGE, ATTITUDES AND BELIEFS OF HIGH SCHOOL LEARNERS IN PAARL AND WELLINGTON.**

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**Abstract**

**Introduction**

In South Africa about 1500 people become HIV infected every day. More than half of these new infections occur in young people. HIV/AIDS programmes have been implemented to combat the disease, but yet the incidences are still on the increase.

**Aim**

The aim of this study was to determine the knowledge, attitudes and beliefs of high school learners about HIV/AIDS in the Paarl and Wellington area.

**Methodology**

This study made use of a quantitative study design, by means of a self-administered questionnaire in order to reflect the knowledge, attitudes and beliefs of high school learners in the Paarl and Wellington areas regarding HIV/AIDS. Convenient sampling was used to obtain a large enough sample size to represent the learner population represented by the high schools in Paarl and Wellington. Data analysis was done using the SPSS version 10.0 to obtain frequencies, means and percentages. Cross-tabulations were done to determine relationships between variables.

**Results**

This study confirms that the learners have basic knowledge regarding HIV/AIDS. The learners make use of this knowledge during some stages of their decision-making but a lack of more in-depth knowledge in certain areas may put them at risk of becoming HIV infected. They might not perceive themselves to be at risk. Their beliefs and attitudes in some instances did afford them the opportunity to make certain safer choices regarding their sexual health.

**Conclusion**

It is evident that the HIV/AIDS education programmes is making an impact to improve the knowledge of the learners. Further research is however needed to find even more effective means to provide learners and the rest of the population with more in-depth knowledge regarding HIV/AIDS.

**Key words**

knowledge, attitude, beliefs, HIV/AIDS, high school learners

## Introduction

The Joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO) reported in 2000 that over a period of 20 years half of the more than 60 million people who had been infected with HIV had become infected between the ages of 15-24 years (UNAIDS and WHO, 2000). Close to five million people were living with HIV/AIDS in South Africa at the end of 2001 (Kenyon, Heywood, Conway and Conway, 2001:162; Dept of Health, 2002). Every day about 1500 people become infected with HIV in South Africa. More than half of these new infections occur in young people (Dickson – Tettech, 2000:396).

From the time they become sexually active adolescents and young adults are at high risk of contracting sexually transmitted diseases, including HIV. Turner, Miller and Moses (1989) stated that adolescence is a period of unpredictable behaviour. Lacking the judgment that comes with experience, adolescents often cannot appreciate the adverse consequences of their actions. The vast majority of the world's young people have no idea how HIV/AIDS are transmitted or how to protect themselves against the disease (United Nations Children Fund (UNICEF), UNAIDS and WHO, July 2002). Misconceptions about HIV/AIDS are widespread among young people and may vary from culture to culture (Eaton and Flisher, 2000). In certain cultures it is believed that HIV is spread by mosquito

bites or witchcraft and that one can be cured of it by having sex with a virgin (Groce, Trasi (2004); Meel (2003). As in the rest of sub-Saharan Africa, the epidemic in South Africa disproportionately affects women. Young women (15–24 years) are four times more likely to be HIV-infected than are young men: in 2005, prevalence among young women was 17% compared with 4.4% among young men (Shisana et al., 2005). In countries where the spread of HIV/AIDS is subsiding or declining, such as Thailand and Uganda, it is primarily because young men and women are being given the knowledge, tools and services to adopt safe behaviours (Phoolcharoen, 1998; Asimwe-Okiror et. al. 1997).

Shisana and Simbayi (2002) reported following the Nelson Mandela / Human Sciences Research Council (HSRC) study of HIV/AIDS – South African National HIV Prevalence, Behavioural Risks and Mass Media Household Survey 2002 that prevention behaviour changes were taking place amongst the South African population due to education about HIV/AIDS. They further stated that since the 1998 Demographic and Health Survey, many more people were practicing safer sex. Most respondents however indicated that they needed more information on matters such as HIV prevention and HIV testing. It is, however, important to note that in this study nearly two-thirds of those who were found to be HIV-positive had not believed they were at risk of HIV infection.

In general most studies indicate that a high level of knowledge about HIV/AIDS transmission and prevention exists (Everatt and Orkin, 1993; Richter, 1996; and Shisana and Simbayi, 2002). However, the studies also report that some areas of knowledge about HIV/AIDS are lacking. This leads to misconceptions and risky behaviour. Information for young people regarding HIV/AIDS is often obtained from television, magazines and pamphlets (Peltzer and Seoka, 2002; and Shisana and Simbayi, 2002). To be able to provide effective education programmes that meet the needs of the different population groups, it has become essential to focus research and intervention on groups with different cultural and educational backgrounds.

Given the HIV infection rate in South Africa, it is obvious that South Africa faces a serious problem if no cure for HIV/AIDS is found or a change in sexual attitudes or behaviours is not fostered. Among the youth and young adults the prevalence is high and it is with this in mind that the South African Government has conducted several education campaigns costing millions of rands to alert South Africa about the seriousness of unprotected sexual activities and to provide the youth with knowledge in order to influence attitudes and beliefs. Schools have embarked on HIV/AIDS education programmes as part of the curriculum. Whether these campaigns have had an effect on the youth can only be

ascertained through determining the knowledge, attitudes and beliefs of the young people. The aim of this study was to determine the knowledge, attitudes and beliefs of high school learners about HIV/AIDS in the Paarl and Wellington area. This article will discuss the methodology used for the study as well as the results. It will provide concluding comments on the findings.

## **Methodology**

### **Research setting**

Paarl and Wellington are two towns in the Western Cape Province that form part of the Drakenstein Municipal Area. The Drakenstein Municipal area has a population of 200 000 (Statistics South Africa, 2001). These two towns account for the majority of the population of 200 000 of this area, of which 14% are aged between 13-18 years (Statistics South Africa, 2001). Four high schools two from each town were selected to participate in this study. Criteria for selection were aimed at providing a large enough sample size to represent the learner population represented by the high schools in Paarl and Wellington.

### **Research subjects and sample**

The population consisted of 2197 learners. Subjects for the study were adolescents aged between 13-18 years. Consent was obtained from the parents and the participants via a letter requesting parents to express whether they give permission for their child to participate. The participants

were also informed that their participation is voluntary and they are allowed to withdraw at any time. The purpose of the study was explained and confidentiality was assured. Information about HIV/AIDS counselling and testing procedures was made available to all participants.

#### **Research design and survey instrument**

A quantitative cross-sectional descriptive survey was used. A self-administered questionnaire which was adapted from questionnaires used by Uwalaka and Matsua (2002) and Torabi and Yarber (1992) was employed to assess the learners' knowledge, attitudes and beliefs regarding HIV/AIDS.

The section of the questionnaire related to knowledge learners on HIV/AIDS consisted of 11 items requiring them to make a choice between three categories, namely "Yes", "No" and "I do not know". The section assessing the learners' beliefs about HIV/AIDS consisted of four items requiring them to make a choice between responses, namely "Strongly agree", "Agree", "Strongly disagree", "Disagree" and "Undecided".

The section dealing with the attitudes of the learners towards prevention of and attitudes towards people with HIV/AIDS consisted of 15 items requiring the learners to make a choice between responses, namely "Strongly agree", "Agree", "Strongly

disagree", "Disagree" and "Undecided". The learners could thus score a negative, undecided or a positive prevention attitude.

#### **Data analysis**

Knowledge scores were classified according to 3 categories: 1= $\leq$  50% knowledge; 2=50 – 70% and 3= $>$ 70%. The data was coded and captured on a spreadsheet using the Word Excel computer programme and then it was imported into the Statistical Package for Social Sciences (SPSS) version 10.0. Analysis was done to obtain frequencies, means and percentages. Cross-tabulations were done to determine relationships between variables.

#### **Results**

##### **Socio-demographic characteristics**

There were 2197 participants in this study, and 89 questionnaires were excluded due to the questionnaires being incomplete. Thus 2108 questionnaires were completed yielding a response rate of 93%. The respondents' ages ranged from 13-18 years with a mean age of 15.23 years. The male-female representation was 43% and 57% respectively. The majority of the learners were from the town area a ratio of 1:4 (farm:town). Detailed statistics is presented in Table 1 below regarding the demographic data.

**TABLE 1: Demographic Distribution**

Variable	Age (years)	n	%
Age	13	304	14.4
	14	466	22.1
	15	476	22.6
	16	385	18.3
	17	251	11.9
	18	226	10.7
Gender	Male	908	43.0
	Female	1200	57.0
Locality Type	Farm	429	20.4
	Town	1679	79.6
School Grades	8	671	31.8
	9	568	26.9
	10	492	23.3
	11	377	18.0

**Learners` knowledge regarding HIV/AIDS**

Questions asked about HIV prevention and transmission in order to determine learners` knowledge regarding HIV/AIDS yielded the following results as illustrated in figure 1: the majority of the respondents (44%) scored

between 50- 75% while 40% respondents scored above 75%, which reflects good knowledge. Sixteen percent scored less than 50% for this knowledge section, which reflects very poor knowledge.

**Figure 1: Knowledge scores of learners regarding HIV/AIDS**

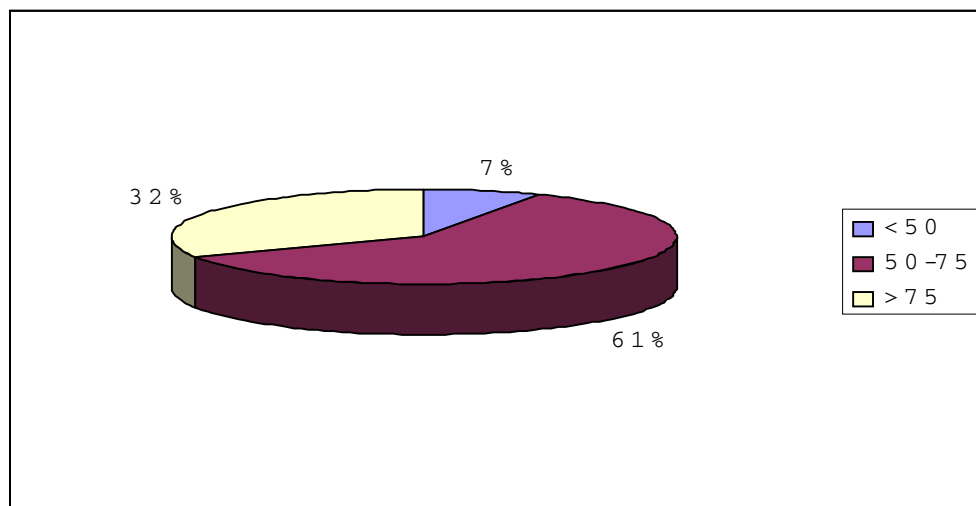
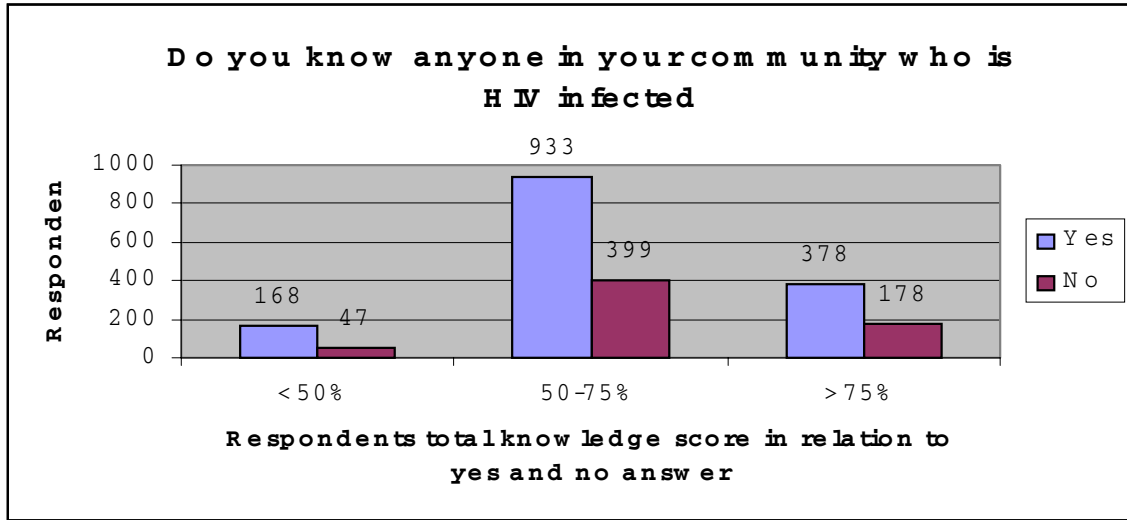


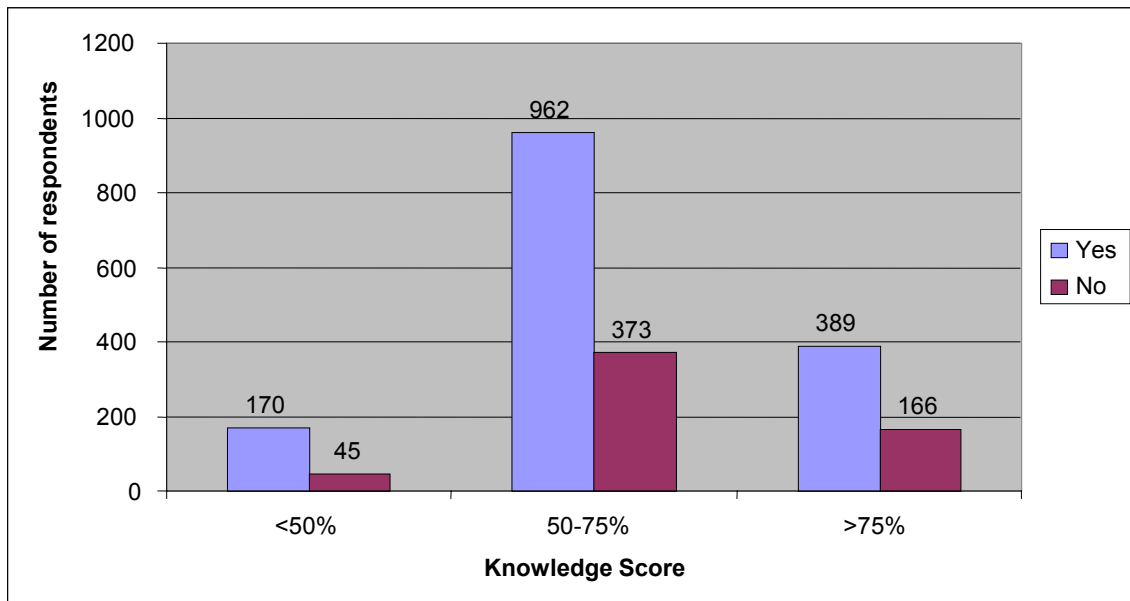
Figure 2 illustrates that 168 of the respondents who scored less than 50% on the knowledge section, knew or had contact with someone who was infected with HIV,

whilst in figure 3 it is shown that 170 of the respondents who scored less than 50% knew someone who had died of AIDS.

**FIGURE 2: Knowledge scores in relation to contact of respondents with persons who were HIV infected (N=2108)**



**Figure 3: Knowledge scores in relation to contact of respondents with persons who had died of aids (N=2108)**

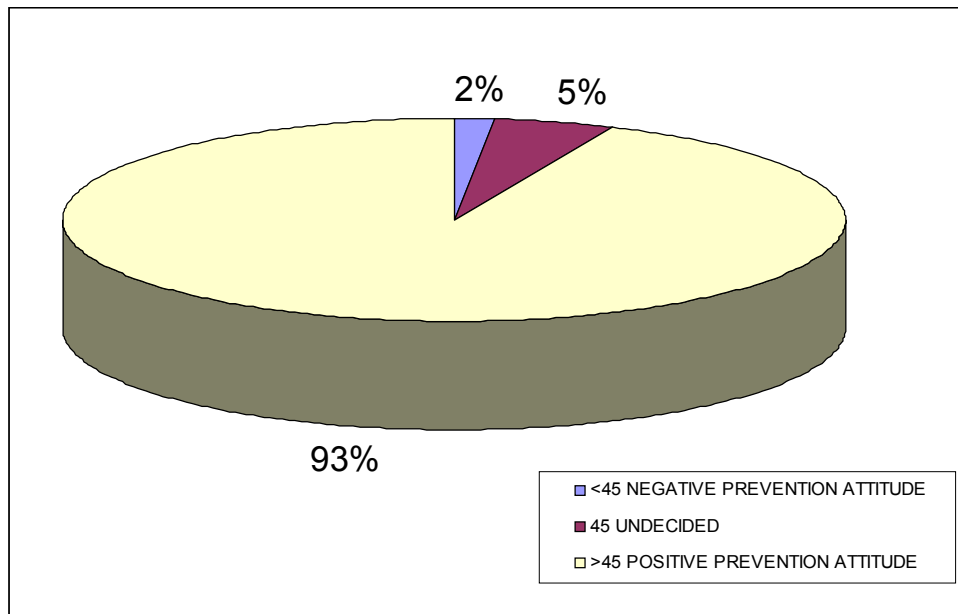


**Learners` beliefs about HIV/AIDS**

To assess the beliefs of respondents with regard to HIV/AIDS, the researcher asked respondents to answer four questions. It is important to note that when respondents were asked whether they felt that taking the proper precautions would reduce their chances of getting HIV/AIDS, only 60% of

the respondents answered positively. In addition, 32% felt that they could already have been exposed to HIV/AIDS and 48% agreed that they might be at risk of contracting HIV/AIDS as a result of present health risk behaviour.

**Figure 4: Prevention attitude scores**



**Learners` attitudes towards HIV/AIDS**

Ninety-three percent of the respondents demonstrated a positive prevention attitude (compare figure 4). There was no significant difference between the knowledge, attitudes and beliefs scores ( $p>0.05$ ;  $df$  105). When investigating individual questions pertaining to knowledge, beliefs and prevention attitudes of the learners, one finds that the more in-depth knowledge regarding HIV/AIDS is lacking. This results in respondents participating in certain risk-

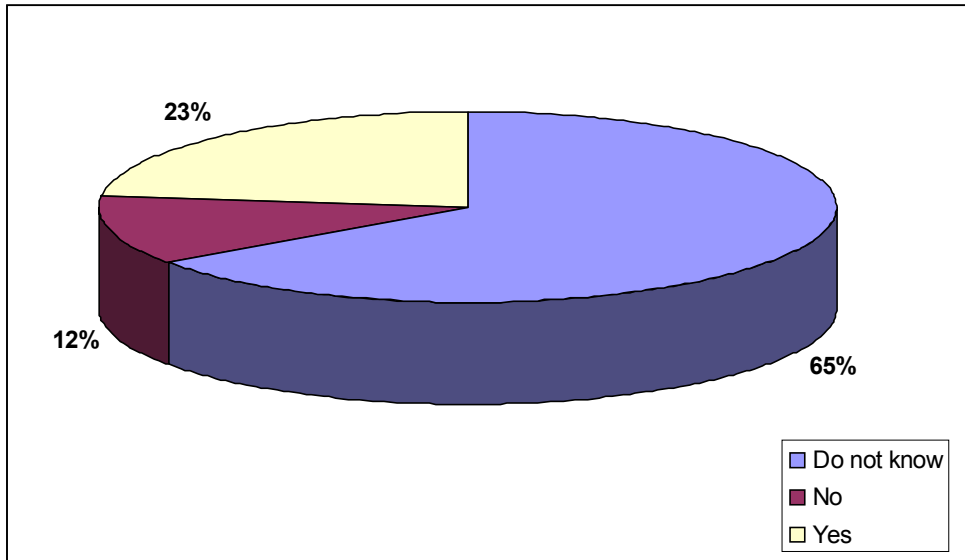
taking behaviours. It is evident in figure 5 that the respondents knew that sexually transmitted diseases increase one's chances of becoming HIV/AIDS infected but only 23% of the respondents referred to in figure 6 knew that gonorrhoea is a sexually transmitted disease. Furthermore, when the respondents were asked whether they felt that taking the proper precautions would reduce their chances of getting HIV/AIDS, only 60% gave a positive response. Respondents have shown that they have



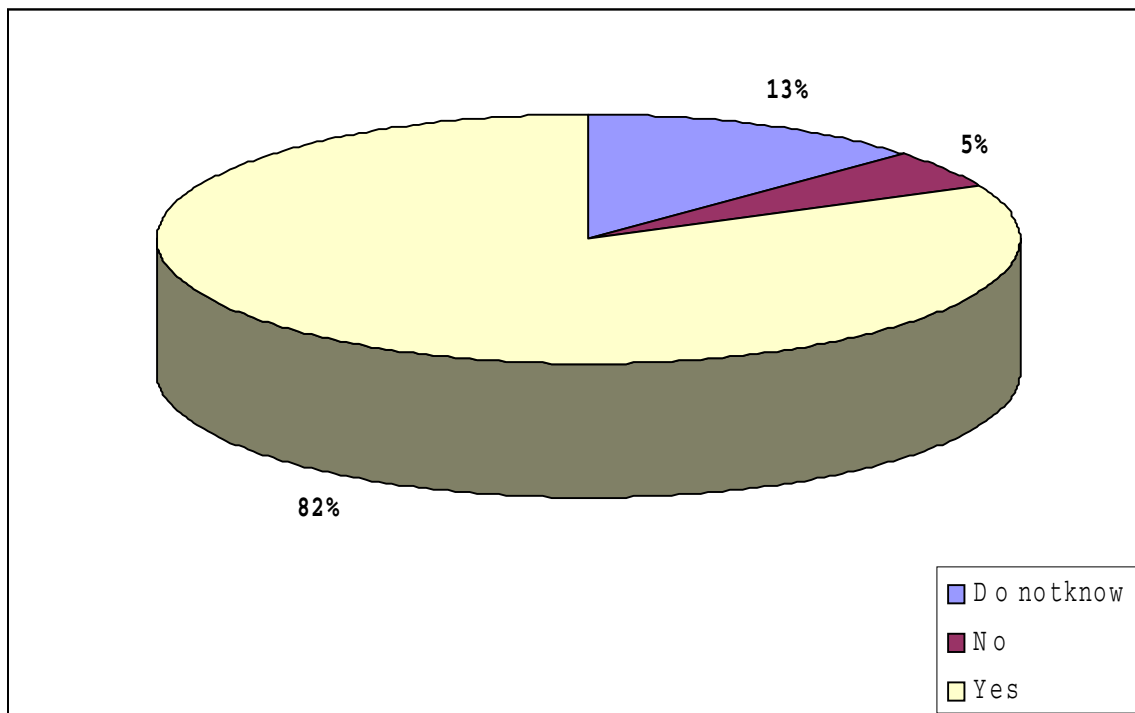
adequate knowledge but it would be worthwhile exploring why 30% of the respondents were still undecided and 25%

agreed that they would dislike the idea of limiting themselves to one sexual partner to prevent infection with HIV.

**Figure 5: Knowledge item 1: Gonorrhoea is a sexually transmitted disease**



**Figure 6: Knowledge item 2: sexually transmitted diseases increases you're chances of becoming HIV-infected**



### **Information mediums regarding HIV/AIDS**

The most common medium through which respondents indicated that they received information on HIV/AIDS was the television (86%), followed by the radio (72.2%) and the schools (69.4%). The statistic of note is that 30% of the respondents indicated that they had not received education or information on HIV/AIDS from their respective schools.

### **Discussion**

Most respondents had a good knowledge about HIV/AIDS, with no significant difference between the gender and age categories. However, when knowledge questions were categorised into areas of transmission and prevention, it became evident that there were gaps in the learners' knowledge regarding HIV/AIDS prevention behaviours. If knowledge about HIV/AIDS is seen as one of the outcomes of HIV/AIDS education programmes then it seems that the interventions do not adequately inform all the learners between the ages of 13-18 years of age as only 16% of the respondents had above the 75% knowledge on HIV/AIDS prevention.

Eaton and Flischer (2000) made similar findings in a review of literature on HIV/AIDS knowledge among South African youth. This review of literature included studies conducted in high schools in the Western Cape. They reported that the areas, in which knowledge was best, corresponded to the basic and most publicised features on AIDS: the fact that the disease is sexually

transmitted and that it is eventually fatal for almost all sufferers. However it was also stated in this review that three areas of mediocre or variable knowledge existed, namely knowledge about the dormant, asymptomatic phase of HIV infection; knowledge about prevention; and AIDS "myths" or misconceptions.

The results of this study compare well with the literature as respondents scored well on the basic knowledge: 82% of respondents knew that sexually transmitted diseases increase one's chances of becoming HIV infected (figure 6). However, it is alarming that only 23% of the respondents knew that gonorrhoea is a sexually transmitted disease (figure 5). The value of these findings thus lies in the fact that prevention can only occur if the participants perceive that they are at risk of contracting a sexually transmitted disease.

A further concern to note is the fact that 80% of those respondents who scored less than 50% on the knowledge section knew someone in their community who was infected with HIV or who had died of AIDS (figure 2 and 3). It is of the utmost importance that these respondents should have appropriate knowledge on prevention and transmission of HIV/AIDS in order for them to protect themselves from becoming infected if they should participate in health risk behaviours. However we are aware that knowledge does not necessarily translate into positive behaviour.

According to Everatt and Orkin (1993) fewer than half of the South African youth in the 1990s perceived themselves as being at any risk for contracting HIV/AIDS. Blecher, Steinberg, Pick, Hennick and Durcan (1995) found that fewer than 40% of their sample felt any risk from HIV/AIDS, and only 9% perceived a serious risk. In this study it was observed that a high percentage of respondents (48%) were undecided as to whether they might contract HIV/AIDS at some time in their life. A further 32% felt that they might have been exposed to HIV/AIDS already. This suggests a need to target these age groups for HIV/AIDS education more intensely as their responses suggested that they were engaging in practices that put them at risk of contracting HIV/AIDS or that they did not have sufficient knowledge to distinguish what potentially risky health behaviours might be.

The majority of respondents had a positive prevention attitude towards the following issues: whether respondents would avoid sex if there were a small chance that their partner might be infected with HIV and whether respondents would dislike the idea of limiting themselves to one sexual partner to prevent infection with HIV respectively. However it is disconcerting that 17% of the respondents were still undecided and 18% disagreed with the statement that one should avoid sleeping with a partner if there is a small chance that their partner might be infected. Similarly 30.1% of the respondents were undecided and 25.4% agreed that they

would dislike the idea of limiting themselves to one sexual partner. The implications of one HIV positive person having unprotected sex with more than one partner are immeasurable; as such behaviour can have a ripple effect. From these findings it is clear that although overall positive prevention attitude scores can be obtained, the possibility exists that individual issues will elicit findings that need to be addressed.

The study found television to be the medium from which the highest proportion of respondents (86.2%) had received HIV/AIDS education. This was followed by radio (72.2%) and education received at schools (69.4%). It is worth noting that 30% of the respondents in the current study indicated that they did not receive HIV/AIDS education via their school. This is disconcerting in view of the directive from the Western Cape Education Department to schools to render HIV/AIDS education, as part of their sexual life skills education programmes. If HIV/AIDS education was being implemented at schools the majority of learners should receive most of their education at school. As these young people spend a large proportion of their time at school this would be the ideal place in which to improve their knowledge, beliefs and attitudes regarding HIV/AIDS.

### **Conclusion**

This study confirms that the respondents have basic knowledge on HIV/AIDS. It is evident that the respondents make use of

this knowledge at some stages in their decision-making. However, the results have also shown that the lack of more in-depth knowledge in certain areas indicates that the respondents may be more vulnerable to making choices that put them at risk of becoming HIV/AIDS infected, because they do not perceive themselves to be at risk. Their beliefs and attitudes in some instances did afford them the opportunity to make certain safer choices regarding their sexual health. Further research is needed to assist in providing means of improving ongoing and in-depth knowledge which can assist learners in selecting safer sexual practices, which could make the prevention of HIV/AIDS not a choice, but a way of life.

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# **SEXUAL ACTIVITY, KNOWLEDGE ABOUT HIV/AIDS AND WILLINGNESS TO TEST FOR HIV AMONG YOUNG PEOPLE IN BOTSWANA**

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**Abstract**

**Introduction:**

Botswana has an HIV prevalence rate of 38.8 percent, the highest in the world (UNAIDS, 2004). This study identifies factors that explain three important issues in the fight against HIV/AIDS in Botswana. These issues are sexual activity, knowledge about HIV/AIDS, and willingness to test for HIV infection among young people (12-23 years old).

**Method**

The data were collected using a 76 item self-administered questionnaire, which solicited information on demographic and background characteristics of respondents, the extent of their sexual activity, their knowledge about HIV/AIDS, and their willingness to test for HIV infection. The questionnaire was completed by 1294 students from a national sample of 84 educational institutions including (1) community junior secondary schools, (2) senior secondary schools, and (3) rural and urban post-secondary institutions.

**Results**

The study found sexual activity among students to be associated with rural residence, low socio-economic status, and having parents who are unemployed. Further, the findings indicate that family cohesion and the stability of the home environment for children are associated with sexual activity in young people. The study also reported that girls were more willing to test than boys, and students from more privileged backgrounds were more willing to test than those from less privileged households.

**Conclusion**

This analysis concludes that the problems of sexual activity and willingness to test for HIV among youth in Botswana are part of a general problem of poor familial relationships, lack of family cohesion and stability of the home environment for children, and poor psychological development.

**Key words:** knowledge, HIV/AIDS, young people, sexual activity

## **Introduction**

Botswana is one of the countries in sub-Saharan Africa where the global HIV/AIDS epidemic, is a particular challenge. With a small population of about 1.7 million people, Botswana is said to have an HIV prevalence rate of over 38.8 percent, the highest in the world (UNAIDS 2004). By the end of 2002 there were an estimated 330,000 people living with HIV, and as much as 28,000 adults and children had developed AIDS (Botswana Government, 2003). Life expectancy was estimated at only 39 years instead of 72 years, if it were not for AIDS (Stanecki, 2004). The high prevalence rates mean that AIDS-related mortality will cause untold economic hardship, and, Botswana's economic and human development is likely to deteriorate or become reversed (Doehlie & Mashwabi, 2003; Fako & Linn, 2003).

## **Aim of the Study**

This study identifies and documents factors that can explain three important issues in the fight against HIV/AIDS in Botswana. These issues are sexual activity, knowledge about HIV/AIDS and willingness to test for HIV infection among young people. The HIV/AIDS epidemic is a particular challenge among young people between 15 and 24 years who are estimated to contribute at least half or more of all HIV infections (almost 7000 daily) worldwide (UNAIDS, 2004). With young people at the center of the epidemic, it is important to know the factors associated with their sexual activity, their knowledge or

ignorance about HIV/AIDS and their willingness to test for HIV infection.

## **Sexual Activity among Young People**

For a variety of reasons, including peer pressure, childish prestige, avoiding to be laughed at or called names such as "sack" (Seloilwe et al., 2001), adolescent curiosity and experimentation with sex, young people in Botswana engage in a variety of sexual behaviors that put them at risk of HIV infection. These behaviors include frequent change of sexual partners, exchange of sexual partners, exchange of sex for material goods or money, the use of sex to barter for good grades, the use of sex for stress relief, and sex with multiple partners. Various forms of sexual expression are facilitated by freedom from parental supervision, especially when alone without guardians, in scattered family residences, cattle posts and agricultural lands, and away in boarding school or at university.

One of the most important factors that place young people at the center of HIV vulnerability is early sexual debut, which has been reported to be as early as eight (8) years (Rakgoasi and Campbell, 2000), 10 years (Ball, 1996; Seboni, 1993) and 12 years of age (Seloilwe et al, 2001). However, most young people begin sexual intercourse when they are between the ages of 15 and 17 years (Ball, 1996; Rakgoasi & Campbell, 2000; Seboni, 1993). By 19 years of age, 70 percent of the boys and 66

percent of the girls will have initiated sexual intercourse (Botswana Family Welfare Association, 1996). By the end of their first year at the University of Botswana, 76.9 percent of females and 61 percent of males will have established a sexual relationship; and 80.3 percent males and 76.6 percent females have indicated having had penetrative sexual experience (Seloilwe et al., 2001).

### **Knowledge about HIV/AIDS**

Several studies have shown that health related knowledge has power to change people's attitudes and health care behaviors. For example, in Kuwait and Northern Ireland, knowledge of oral and dental health care among students has been associated with visiting a dentist regularly and a decrease in the consumption of foods and drinks containing a lot of sugar (Al-Ansari et al, 2003; Freeman et al, 1993; Kinions et al, 1998). Knowledge of pregnancy risks and knowledge about HIV/AIDS has been associated with consistent use of condoms and a reduction in the number of sexual partners among Zambian adolescents (Magnani, 2000). In Nigeria, a focused health education program among students resulted in an increase in condom use, a reduction in the mean number of sexual partners and increased tolerance for people with HIV and AIDS (Fawole et al, 1999). Knowledge about HIV transmission has been associated with reduced high risk behaviors and practices among urban and rural students from Delhi University (Kuniar et al, 1996). Knowledge about HIV/AIDS is

among the most important tools for fighting the epidemic (Aggleton, 1996; Kiragu, 2001).

### **Willingness to Test for HIV**

Knowledge about HIV/AIDS alone is not enough. Willingness to test for HIV infection and actual testing are the next logical step towards effective interventions and behavior change. But, while much effort has been invested towards improving knowledge about HIV/AIDS among young people (Jackson, 2002; Kiragu, 2001), not as much effort has been spent identifying the class of factors that promote a favorable disposition towards testing for HIV infection or to experiencing actual testing for HIV infection.

In Botswana, voluntary HIV counseling and testing (VCT) plays a key part in HIV related prevention and care. Since year 2000, the government of Botswana and the Center for Disease Control (CDC) have supported the Tebelopele network of VCT centers, which provide immediate, quality, accessible and confidential VCT services for sexually active people between ages 18 and 49 (AVERT.org, 2005). Although testing for HIV infection is an important pre-condition for receiving antiretroviral medication, people seem to be afraid to get tested, and characteristics of those who are not willing to test need to be systematically documented. This study, among other things, identifies and documents



characteristics of those who are willing or not willing to test for HIV infection.

### **Data Collection**

The data were collected using a 76-item self-administered questionnaire, which solicited information on demographic and background characteristics of respondents, the extent of their sexual activity, their knowledge about HIV/AIDS, and their willingness to test for HIV infection. The questionnaire was distributed among students from a national sample of 84 educational institutions comprising of (1) community junior secondary schools (CJSS) that teach the first three levels of secondary school, (2) senior secondary schools that teach the last two years leading to a school-leaving certificate and (3) post-secondary institutions in both urban towns and rural villages. In each selected institution, random samples of students were selected at each level of education.

### **Measurement of Sexual Activity**

Pilot work with students was done to determine the most culturally appropriate and valid way to find out whether students were sexually active or not. After several trial items

were tested for appropriateness, it was decided to measure sexual activity by asking students “which one of the following categories best describes your experience with sexual intercourse?” The following four response categories were provided: (1) very often; (2) sometimes; (3) rarely; and (4) never. During analyses, the categories were collapsed into two by combining the first three categories into a new category reflecting those who were “sexually active” and by labeling the fourth category “never”, as reflecting those who were “not sexually active”.

### **Measurement of Knowledge about HIV/AIDS**

Knowledge about HIV/AIDS was measured using 19 questionnaire items, each of which the respondent was asked to agree or disagree with (see Figure1). Each response was classified into “correct” or “wrong” answers in a manner similar to the scoring of a “true or false” test. Test items were reviewed for their correctness or wrongness by a panel of experts on HIV/AIDS. All items were treated as being of equal weight and level of difficulty.

**Table 1**

<b>Table 1: Questions used to measure knowledge about HIV/AIDS</b>
<ol style="list-style-type: none"> <li>1. AIDS is due to not observing a one-year period of abstinence after being widowed (Boswagadi).</li> <li>2. AIDS is due to having intercourse with a young woman who has miscarried or performed an abortion (Dipadi).</li> <li>3. AIDS is not a new disease.</li> <li>4. AIDS is contagious.</li> <li>5. AIDS is a punishment for immoral behavior.</li> <li>6. AIDS is the fire that is described in the chapter of Revelations.</li> <li>7. AIDS is God's punishment against homosexuals, drug users and prostitutes.</li> <li>8. AIDS is someone else's fault and therefore someone else's problem.</li> <li>9. AIDS is a result of the white community's effort to restrict the black population growth.</li> <li>10. The immigrants from Northern Africa brought HIV/AIDS to Botswana.</li> <li>11. A mosquito can transmit HIV/AIDS from one person to another.</li> <li>12. Some traditional doctors can cure AIDS.</li> <li>13. Nobody can stop AIDS.</li> <li>14. Having sex with a virgin can cure AIDS.</li> <li>15. Until a vaccine or a cure is found, nothing can be done to prevent AIDS.</li> <li>16. Those with AIDS should be avoided.</li> <li>17. Quarantines can manage AIDS because there will be no casual contact.</li> <li>18. Only those who have contracted AIDS through blood transfusion should be given care.</li> <li>19. Having AIDS is a crime that deserves punishment by death.</li> </ol>

**Measurement of Willingness to Test for HIV**

Willingness to test for HIV infection was measured by responses to a questionnaire item that asked the question: "How would you describe your feelings about being tested for HIV infection?" Response categories included:

- (1) *very comfortable about testing for HIV;*
- (2) *somewhat worried about testing for HIV;*
- (3) *very worried about testing for HIV* and (4) *I would never test for HIV infection.*

**Data Analysis**

Response categories for most items were either binary or took the general categorical ordered format: (1) high; (2) medium; (3)

low, or (1) very often; (2) sometimes; (3) rarely; and (4) never. All variables analyzed were categorical or converted into categorical format. This enabled contingency table analysis and Chi-square tests of association and independence to be used to investigate the nature and strength of associations between willingness to test for HIV infection and independent variables.

**Findings**

Table 2 shows the distribution of the sample of 1294 respondents by selected background characteristics. The sample consisted of 54.6 percent female, 56.7 percent from urban areas and 53.9 percent who were sexually active and 65.0 percent

who discussed sex with their families. Most students (63.1 percent) had adequate knowledge about HIV/AIDS, which means that they were able to answer 12 or more out of 19 questions correctly. As many as 674 students (52.7 percent) were willing to test for HIV infection, 606 were not willing to

test and 14 did not respond to the item on willingness to test. Most students led relatively happy lives with only 17.6 percent not happy with life in general, 18.3 percent not happy with life as students, and 17.6 percent receiving virtually no emotional support from their families.

**Table 2: Distribution of Respondents by Selected Characteristics**

	Frequency	Percentage
<b>Gender</b>		
Male	588	45.4
Female	706	54.6
<b>Age - Group of Student</b>		
12-15	283	22.0
16-17	234	18.2
18-19	263	20.4
20-21	269	20.9
22 and Over	238	18.5
<b>Educational Level</b>		
Junior Secondary	552	42.7
Senior Secondary	216	16.7
Junior Tertiary	296	22.9
Senior Tertiary	229	17.7
<b>Sexual Activity</b>		
Sexually Active	691	53.9
Not sexually Active	590	46.1
<b>Type of School Attended</b>		
Private School	193	15.0
Public School	1060	82.9
<b>Type of Primary School Attended</b>		
Private English Medium School	254	19.7
Public or Government School	1035	80.3
<b>Location of Residence</b>		
Urban Area	729	56.7
Rural Area	557	43.3
<b>Class of Residential Area</b>		
High Cost area	217	16.9
Medium Cost Area	730	57.0
Low Cost Area	334	26.1
<b>Common Residence among Parents</b>		
Most of the time	740	57.8
Sometimes	325	25.4
Never	215	16.8

### **Factors Associated with Sexual Activity**

Table 3 shows the distribution of the sample by sexual activity and background variables. The data show that most of those who had or used to have one or more partners were more likely to be sexually active than those who had never had a partner (p-value <0.0001). Males were more likely to be sexually active than females. While 62.2 percent of males were sexually active only 37.8 percent of females were sexually active. Older students were more likely to be sexually active than their younger schoolmates (p < 0.0001). Students in the last two years of secondary education (senior secondary) were more likely to be sexually active than those in the first three years of secondary school (p-value < 0.0001). Similarly, students that had reached the final years of university or equivalent tertiary education (senior tertiary) were more likely to be sexually active than

those in the first two years of tertiary education. There was a significant inverse relationship between the type of job that parents did and sexual activity among respondents. When the type of job parents did was of a lower status the proportion of students who engaged in sexual activity was higher (p = 0.002 for mothers' type of job; p <0.0001 for fathers' type of job). The proportion of students who engaged in sexual activity was highest among students whose parents were unemployed (72.0 percent for unemployed fathers; 57.0 percent for unemployed mothers) and lowest among students whose parents were professionals or executives' (48.6 percent for professional fathers; 47.6 percent for professional mothers). The type of primary school attended was not associated with sexual activity (p = 0.463). Similarly, the type of secondary school attended was not significantly related to sexual activity (p = 0.507).

**Table 3: Distribution of Respondents by Sexual Activity and Socio-Demographic Variables**

Variable	Sexually Active %	Not Sexually Active %	Chi-sq	Df	p-value
<b>Gender</b>			29.157	1	<0.0001
Male	62.2	47.1			
Female	37.8	52.9			
<b>Age - Group</b>			314.729	4	<0.0001
22+	85.6	14.4			
20-21	76.8	23.2			
18-19	53.9	46.1			
16-17	38.8	61.2			
12-15	18.5	81.5			
<b>Educational Level</b>			258.954	3	<0.0001
Senior Tertiary	85.0	15.0			
Junior Tertiary	76.4	23.6			
Senior Secondary	46.5	53.5			
Junior Secondary	31.9	68.1			
<b>Type of Primary School</b>			0.540	1	0.463
Public/Government School	54.3	45.7			
Private School	51.8	48.2			
<b>Type of Secondary School</b>			1.360	2	0.507
Correspondence, Evening Classes	62.5	37.5			
Public/Government School	53.9	46.1			
Private School	51.6	48.4			
<b>Type of Residential Area</b>			4.278	2	0.118
Low Cost Housing Area	59.1	40.9			
Medium Cost Housing Area	52.4	47.6			
High Cost Housing Area	52.8	47.2			
<b>Urban vs. Rural Residence</b>			27.729	1	<0.0001
Rural	62.3	37.7			
Urban	47.5	52.5			
<b>Mother's Type of Job</b>			16.498	4	0.002
Unemployed	57.0	43.0			
Clerical, Industrial, Informal Sector	56.4	43.6			
Middle Management	55.8	44.2			
Director, Executive, Professional	47.6	52.4			
<b>Father's Type of Job</b>			26.536	4	<0.0001
Unemployed	72.0	28.0			
Clerical, Industrial, Informal Sector	61.7	38.3			
Middle Management	50.9	49.1			
Director, Executive, Professional	48.6	51.4			

Table 4 shows associations between sexual activity and variables that measure aspects of family cohesion, interpersonal relationships and sexual behavior. The data show that attachment to mother had a significant and inverse relationship ( $p = 0.016$ ) with sexual activity. But, attachment to father was not associated ( $p = 0.080$ ) with sexual activity among respondents. When controlling for gender, however, the association between attachment to father and sexual activity was significant for females ( $p = 0.010$ ) but not for males ( $p = 0.951$ ). In other words, girls who were not

emotionally attached to their fathers were more likely to be sexually active than those who were attached to their fathers. On the other hand, boys who were attached to their fathers were not more likely to be sexually active than those who were not attached to their fathers. Attachment to aunts and uncles was associated with sexual activity. The majority of respondents who were not attached to any aunts or uncles (70.7 percent) were sexually active ( $p < 0.0001$ ). The majority of respondents who were not attached to any grandparents (65.9 percent) were sexually active ( $p = 0.001$ ).

**Table 4: Association between sexual activity and independent variable.**

	Chi-sq	Df	p-value
<b>Family Coherence</b>			
Common Residence Among Parents.	3.947	2	0.139
Emotional Support from Family	2.232	2	0.345
Guardian During Primary School	11.046	3	0.011
Guardian During Secondary School	8.297	3	0.040
Attachment to Father	3.070	1	0.080
Attachment to Mother	5.812	1	0.016
Attachment to Aunts and Uncles	26.628	2	<0.0001
Attachment to Grand Parents	13.757	2	0.001
Religiosity of Family	10.026	3	0.018
<b>Interpersonal Relations</b>			
Level of conflict in the family	19.030	3	<0.0001
Disagreement with mother	0.0886	1	0.770
Disagreement with father	2.507	1	0.113
Physical fights with other children	18.522	3	<0.0001
Level of happiness with life in general	15.719	2	<0.0001
Level of satisfaction with life as a student	3.084	2	0.214
Relations with peers	0.251	1	0.616
<b>Sexual Behaviors, Attitudes and Knowledge</b>			
Number of Partners	320.163	1	<0.0001
Discussion of sex with family	35.865	4	<0.0001
Persons with whom sex is discussed	53.828	3	<0.0001
Knowledge about condoms	34.986	1	<0.0001
Knowledge about HIV/AIDS	0.023	1	0.879
Willingness to test for HIV infection	82.89	2	<0.0001

Religiosity of the family also had a significant association with sexual activity ( $p = 0.018$ ). Students who were looked after by religious families were less likely to be sexually active than those who were looked after by families that were not at all religious.

There was a significant relationship ( $p < 0.0001$ ) between the level of conflict in the family and sexual activity among students. Students who came from families that endured some level of conflict were more likely to be sexually active than those from families that enjoyed life without conflict.

### **Factors associated with Knowledge about HIV/AIDS**

Table 5 shows that older students were more likely ( $p = 0.015$ ) to have adequate knowledge about HIV/AIDS than younger students. Students in higher levels of education performed significantly better on a test of knowledge about HIV/AIDS than those in the lower levels ( $p < 0.0001$ ). For example, 71.6 percent of students in senior tertiary education (i.e., the last two years of undergraduate education) answered 12 or more of the 19 questions correctly, compared to 58.0 percent of students in junior secondary schools (i.e., the first three years of high school)

**Table 5: Distribution of Respondents by Adequacy of Knowledge about HIV/AIDS and Background Factors**

Variable	Adequate %	Inadequate %	Chi-Sq	Df	p-value
<b>Gender</b>			0.523	1	0.470
Male	62.1	37.9			
Female	64.0	36.0			
<b>Age – Group</b>			12.319	4	-/15
12-15	56.5	43.5			
16-17	63.2	36.8			
18-19	61.6	38.4			
20-21	70.6	29.4			
22 and over	64.7	35.3			
<b>Educational Level</b>			43.092	3	<0.0001
Junior Secondary	46.0	54.0			
Senior Tertiary	49.5	50.5			
Junior Tertiary	65.9	34.1			
Senior Secondary	64.6	35.4			
<b>Type of Primary School</b>			11.921	1	<0.001
Private School	72.4	27.6			
Public/Government School	60.8	39.2			
<b>Type of Secondary School</b>			7.514	2	0.023
Private English Medium School	65.3	34.7			
Public/Government School	63.8	36.2			
Correspondence, evening Classes	40.6	59.4			
	66.4	33.6	30.096	3	<0.0001
	63.6	36.4			
	59.9	40.1			
<b>Type of Residential Area</b>			0.173	1	0.677
High Cost Housing Area	63.8	36.2			
Medium Cost Housing Area	62.7	37.3			
Low Cost Housing Area	77.3	22.7	42.270	4	<0.0001
<b>Urban vs. Rural Residence</b>					
Urban	71.2	28.8			
Rural	57.8	42.2			
	56.5	43.5			
	47.1	52.9			
<b>Mother's Type of Job</b>			18.561	4	<0.001
Director, Executive, Professional	70.3	29.7			
Middle Management	69.4	30.6			
Clerical, Industrial, Informal Sector	59.1	40.9			
Unemployed	61.8	38.2			
Unknown	56.3	43.7			



Students in private English medium primary schools were more likely ( $p = 0.001$ ) to have adequate knowledge about HIV/AIDS than students in public or government primary schools. Students whose parents had high status jobs were more likely to have adequate knowledge about HIV/AIDS compared to students whose parents had low status jobs ( $p < 0.0001$ ).

Gender had no influence on adequacy of knowledge about HIV/AIDS ( $p = 0.470$ ). There was also no relationship between type of residential area that respondents lived in and adequacy of knowledge about HIV/AIDS ( $p = 0.280$ ). Similarly, there was no relationship between urban-rural residence and adequacy of knowledge about HIV/AIDS ( $p = 0.677$ ).

### **Factors Associated with Willingness to Test for HIV**

Table 6 shows the distribution of respondents by willingness to test for HIV infection and socio-demographic background variables. The results show that girls were more willing to test for HIV infection than boys ( $p = 0.001$ ). In both secondary and tertiary institutions, younger students (12-15 years) were more willing to test for HIV infection than those 16 years and older ( $p < 0.0001$ ). Students who

attended private secondary schools were more willing to test than those who attended public/government schools or correspondence classes ( $p = 0.029$ ). However, type of primary school attended (private or public/government) did not appear to affect willingness to test for HIV ( $p = 0.106$ ).

Students with a higher socio-economic background, as reflected by type of housing and type of jobs parents did, were more willing to test for HIV than students with a lower socio-economic background. For example, 60.4 percent of students who lived in high-cost areas were willing to test compared to 45.6 percent of those who lived in low-cost housing areas.

Similarly, 61.4 percent of those whose mothers had jobs of a high status (and 59.4 percent of those whose fathers had jobs of a high status) were willing to test compared to 47.2 percent and 46.5 percent of those whose mothers and fathers had jobs of a low status, respectively. These differences were significant at the  $\alpha = 0.025$  level. Students whose homes were in towns and cities were more willing to test for HIV than students whose homes were in traditional villages, agricultural lands and cattle posts ( $p = 0.002$ ).

**Table 6: Distribution of Respondents by Willingness to Test for HIV Infection and Socio-Demographic Background Variables**

<b>Variable</b>	<b>Willingness To Test %</b>	<b>Not Willing To Test %</b>	<b>Chi-sq</b>	<b>Df</b>	<b>p-value</b>
<b>Gender</b>			10.903	1	0.001
Male	47.6	52.4			
Female	56.8	43.2			
<b>Age - Group</b>			70.763	4	<0.0001
22+	39.7	60.3			
20-21	39.0	61.0			
18-19	55.2	44.8			
16-17	58.1	41.9			
12-15	69.4	30.6			
<b>Educational Level</b>			65.236	3	<0.0001
Senior Tertiary	37.6	62.5			
Junior Tertiary	41.2	58.8			
Senior Secondary	56.4	43.6			
Junior Secondary	63.9	36.1			
<b>Type of Primary School</b>			2.608	1	0.106
Public/Government School	51.5	48.5			
Private School	57.2	42.8			
<b>Type of Secondary School</b>			7.073	2	0.0297
Correspondence, Evening Classes	53.1	46.9			
Public/Government School					
Private School	51.2	48.8			
<b>Class of Residential Area</b>	61.7	38.3			
Low Cost Housing Area			11.752	2	0.003
Medium Cost Housing Area	45.6	54.4			
High Cost Housing Area	53.3	46.7			
<b>Urban vs. Rural Residence</b>					
Rural	60.4	39.6			
Urban					
<b>Mother's Type of Job</b>			9.950	1	0.002
Unemployed	47.6	52.4			
Clerical, Industrial, Informal Sector	56.5	43.5			
Middle Management	48.9	51.1			
Director, Executive, Professional	47.2	52.8			
<b>Father's Type of Job</b>	54.5	45.5			
Unemployed	61.4	38.6			
Clerical, Industrial, Informal Sector			17.517	4	0.002
Middle Management	42.1	57.9			
Director, Executive, Professional	46.5	53.5			
	57.9	42.1			
	59.4	40.6			

Table 7 shows the association between willingness to test for HIV and several independent variables. Some indicators of family coherence and psychological bonding with members of the family such as common residence among parents, low levels of conflict among family members, attachment to parents and grandparents, emotional support from the family and discussing sex with members of the family were significantly related to willingness to test. The findings

show that students whose parents lived together most of the time were significantly more willing to test ( $p = 0.001$ ) than those whose parents lived together only sometimes or those whose parents never lived together. Students from families that enjoyed low levels of family conflict were more willing to test ( $p < 0.004$ ) than those who came from families that endured high levels of conflict.

**Table 7: Association between willingness to test for HIV infection and independent variables**

	Chi-sq	Df	p-value
<b>(a) Family Coherence &amp; Psychological Bonding</b>			
Marital Status	7.398	2	0.286
Common Residence Among Parents.	13.063	2	0.001
Emotional Support from Family	6.995	3	0.030
Attachment to Father	18.421	1	<0.0001
Attachment to Mother	9.570	2	0.002
Attachment to Aunts and Uncles	4.434	2	0.109
Attachment to Grand Parents	9.510	3	0.009
Religiosity of Family	17.570	3	0.001
Religiosity of Respondent	39.176	5	<0.0001
<b>(b) Interpersonal Relations</b>			
Level of conflict in the family	13.211	3	0.004
Disagreement with mother	0.077	1	0.781
Disagreement with father	0.582	1	0.445
Physical fights with other children	22.307	3	<0.0001
Level of happiness with life in general	30.681	2	<0.0001
Level of satisfaction with life as a student	17.152	2	<0.0001
Relations with peers	6.142	1	0.013
<b>(c) Sexual Behaviors, Attitudes and Knowledge</b>			
Number of Partners	77.269	2	<0.0001
Discussion of sex with family	14.080	3	0.003
Knowledge about condoms	0.465	1	0.495
Knowledge about HIV/AIDS	0.125	1	0.724
Sexual Activity	82.860	1	<0.0001

Students who reported never having had a partner were more willing to test ( $p < 0.0001$ ) than those who reported having a partner. By the same token, 66.6 percent of students who reported not being sexually active were more willing to test compared to 40.9 percent of those who reported being sexually active. However, there was no association between overall knowledge about condoms and willingness to test ( $p = 0.495$ ); between overall knowledge about sexually transmitted diseases (STDs) and willingness to test ( $p = 0.495$ ); and between overall knowledge about HIV/AIDS and willingness to test ( $p = 0.724$ ).

### **Discussion**

The findings of this study are consistent with findings of other studies that have reported factors associated with sexual activity in Botswana (Botswana Family Welfare Association, 1996; Jack, et al, 1999; Social Impact Assessment Policy Corporation, 1993) and in the United States (Carnegie Council, 1995; Hollander, 1996). Widespread evidence shows that sex education combined with life skills development, including a focus on sexually transmitted illnesses (STIs), HIV/AIDS and reproductive health are key strategies for empowering young people to delay the onset of sexual activity and to make their sexual behaviors safer (Jackson, 2002).

The study found sexual activity among students to be associated with rural

residence, low socio-economic family status and having parents who are unemployed. Poverty, low educational aspirations, and lower grades in school have been associated with sexual activity among young people (American Academy of Pediatrics, 1999; Casper, 1990; Lamniers et al, 2000; Tubnian, Windle, & Windle, 1996). Lack of adequate recreational facilities may be responsible for higher proportions of respondents from low socio-economic backgrounds and rural areas being sexually active. High unemployment and poverty among parents has been associated with sexual activity especially among girls who are attracted to working men for financial reasons (Ball, 1996). Low socio-economic status is consistent with limited opportunities and limited access to modern recreational facilities. In these circumstances, sex becomes a readily available and accessible form of entertainment. This is especially true in rural areas where there is no electricity, which underpins and drives many electronic games, movies and other sources of entertainment for young people. Without electricity, there is also considerable literal and metaphorical darkness, which provides a suitable environment for sexual activity.

### **Willingness to Test**

The study found that girls were more willing to test than boys. This is consistent with findings by Bond et al, (2005). In both secondary and tertiary institutions, younger students were more likely to test than older

students. This is consistent with findings by Gage & Ali, (2005). Students in lower educational levels were more willing to test than students in higher levels. This is contrary to findings by Lee et al (2005) and Renzi et al (2004).

Students with a relatively privileged background, as shown by attending private secondary schools, living in high-cost housing areas, and having parents who had jobs of a higher status were more willing to test than those with a less privileged background. This study also found that students from urban areas were more willing to test than those from rural areas.

Although knowledge about HIV has been associated with willingness to test for HIV (Gage & Ali, 2005; Lee et al, 2005), for this sample of young people in Botswana, it was found that knowledge about HIV/AIDS, had no impact on willingness to test. Just as with respect to sexual activity, the study highlights the importance of a coherent family background, psychological bonding among members of the family, a positive socialization environment, social and psychological adjustment outside the family context and a favourable socio-economic background in shaping attitudes of young people regarding testing for HIV.

### **Knowledge about HIV/AIDS**

The study found that students from homes with high levels of conflict were less likely to

have adequate knowledge about HIV/AIDS compared to students who were from homes that enjoyed relatively no conflict. In such homes, there is little or no room for discussion on delicate and sensitive personal subjects. The combination of a turbulent social environment, cultural taboos, absence of parental experience and skills in sex education, ignorance and lack of skill in communicating about sex ensure that sex is not discussed in many families.

Students from families that were “not religious” were more likely to know about HIV/AIDS than students who were from “religious families”. In many religious homes, sex is a taboo subject that is rarely discussed. It has been noted (Itshekeng (2002) that the odds of being aware of HIV/AIDS were significantly reduced among religious household heads compared with household heads that were not religious. As a result of lack of discussion of sex in the household, either due to high levels of conflict or due to high levels of religiosity of the family, many adolescents obtain information about sexual life from their friends, teachers and doctors; as well as from newspapers, magazines, video films, TV and radio.

The study shows that students who lived in urban areas did not know more about HIV/AIDS than those who lived in rural areas. In Botswana, it is difficult to classify many people as urban or rural due to the fact that families live in a constant state of

semi-migration between multiple residences at the home village, agricultural lands, the cattle post and the town (Fako et al, 2003; Zaffiro, 1994). Many people may live, work or study in a town while their minds and hearts are in tribal rural areas with which they socially and psychologically identify. Due to relatively good infrastructure, there is a constant saw-saw of activities between urban and rural areas, and messages about HIV/AIDS are transported between towns and villages with relative ease.

### **Conclusion**

This study concludes that the problems of sexual activity and willingness to test for HIV among adolescents is part of a general problem of poor familial relationships, lack of family cohesion and stability of the home environment for children, and poor psychological development. When young people are ushered into families that are socially problematic, full of conflict, in which effective guardianship of adolescents is not guaranteed, and in which a religious and moral base is weak or does not exist, they tend to become sexually active and unwilling to test for HIV.

The culture of multiple and scattered residences, which has been sustained over recorded history in Botswana, separates members of the family unit. This results in general instability in family life, inadequate child rearing practices and inadequate development and appreciation of cultural

beliefs, moral values, and religious norms that regulate and restrict sexual attitudes and behaviors (Fako and Linn, 2003).

The separation of family members robs many children of the opportunity to have proper parental guardianship and guidance. It also gives young people the opportunity to experiment with sex and to develop and maintain multiple partners and to develop attitudes against testing.

In the era of HIV and AIDS, permissive attitudes towards sex (Cobb, 1998), the tendency toward earlier sexual experience (Kaplan, 1998), a relatively high number of sexual partners among teenagers (Parrillo et al., 1997; Schickedanz et al, 2001) and the tendency for girls to date males who are much older and involved in antisocial behavior (Pawlby et al, 1997) present real challenges. Creating social conditions that would promote and enhance family cohesion and the stability of the home environment for children would go a long way towards ameliorating the situation in Botswana. The family should provide its young members a home base for proper socialization, for the development of a sense of identity, a sense of spiritual connectedness and a sense of psychological belonging, which should help reduce or delay the onset of sexual activity, engender a greater sense of responsibility in conducting relationships and promote willingness to test for HIV.

The study has shown that those at greater risk are less willing to test than those not at risk. This indicates that fear of testing is greater among those who fear being HIV positive, possibly due to fear of stigmatization which was not addressed by this study.

Recent research among heterosexuals across Europe has shown that between 49 percent and 89.3 percent of individuals reporting risk behaviors never sought voluntary testing (Renzi et al, 2004). Future efforts should therefore be geared towards encouraging those not yet at risk to test early so that they can start living positively before becoming sexually active. This might mean lowering the age limit of those who qualify for voluntary counseling and testing.

Education about voluntary counseling and testing should be improved and intensified among sexually active young people, especially those from poorer backgrounds, in rural areas.

The study has certain limitations. First, the data were based on self-reports, and the interpretation and understanding of each questionnaire item was not established. Second, sexual activity and willingness to test for HIV are delicate private matters that are subject of over-reporting or underreporting depending on perceived social correctness. Further research is required to test conclusions of this study.

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## MEDICAL COVERAGE AT SOCCER SESSIONS

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**Abstract**

**Introduction**

Soccer in Rwanda exposes soccer players to the risk of injury warranting a need for medical coverage at both training and competitive sessions. This study aims to identify the prevalence, period of injury occurrence, and severity of common soccer injuries among the 1st and 2nd division soccer teams in Rwanda.

**Methods**

A cross-sectional retrospective quantitative study design was used. Simple random sampling, clustered within teams, was used to get a sample of this study. During sample selection, the random order was determined using the random number generator in Microsoft Excel®. Data for soccer players was gathered, using a close-ended questionnaire. The data from soccer players were captured and analyzed with the Microsoft Excel package.

**Results**

The study revealed 68.1 % injury prevalence with a significantly high rate of injuries occurring during training ( $p < 0.005$ ). Most of the training injuries were moderate followed by major, minor and severe injuries while most injuries during competition were major-moderate, followed by severe-minor.

**Conclusion**

The prevalence, period of injury occurrence and severity of injuries in Rwanda indeed warrants medical coverage as a first preventive strategy.

**Key Words**

Soccer, prevention, injury prevention, Rwanda

**Introduction**

Soccer, commonly known as football, is one of the most popular team sports in the

world and continues to provide many young people with an opportunity for healthy exercise (Levy and Lohnes, 1996;

McGrath and Ozanne-Smith, 1997; and Mithoefer, Gill, Giza, Mandelbaum, Peterson and Minas, 2002). It is characterized as a vigorous, high intensity, intermittent ball and contact sport (McGrath and Ozanne-Smith, 1997).

The characteristics of soccer, along with the required functional activities, obviously place great demands on the technical and physical skills of the individual player. According to Hawkins and Fuller (1999), soccer is known to be associated with a relatively high injury rate compared to other contact team sports, with the injury rate being around 1000 times higher than for industrial occupations generally regarded as high risk. The overall level of injury to the professional football player has increased tremendously and thus calls for preventative action, based on the results of epidemiological research (Hawkins, Hulse, Wilkinson, Hodson and Gibson, 2001).

The secret of success in sports medicine is to take a broad view of the patient and his or her problem. Sports medicine, as a wide-ranging discipline, is composed by different practitioners. In an isolated rural community, the sports medicine team may consist of a family physician or even only a physiotherapist.

In a fairly populous city, the team may consist of a family physician, sports physician, orthopaedic surgeon, radiologist, physiotherapist/physical

therapist, massage therapist, podiatrist, dietician/nutritionist, psychologist, sports trainer/athletic trainer and other professionals (osteopaths, chiropractors, exercise physiologists, biomechanists, nurses, occupational therapists, orthotists, optometrists, coach and fitness adviser (Brukner and Khan, 2003). The skills of these professionals will fulfil the challenge that sport injury management face. Soccer is one sport area in which such a multidisciplinary team is required.

Many people in Rwanda and the rest of the world now know that professional soccer is a great employer and thus there is an increased level of participation in sporting activities. This could suggest a possible increase in sports-related injuries. Although the level of league and tournament competitions in Rwandan soccer is not higher than that of developed countries the chances of sustaining injuries still exist.

This is due to the fact that some soccer players in Rwanda participate in competition at both national and international level, which expose them to a higher risk of injury. In addition, with the emphasis on World Cup 2010 in Africa, winning is over emphasised and this increases the injury rate. Injuries to players could mean an inability to participate in major competitions making them ineligible for selection for World Cup in 2010.

Although the sport governing bodies such as the International Federation of Football Association (FIFA), the International Olympic Committee (IOC) and the African Football Confederation (CAF) have conducted sport medicine seminars in Rwanda in 1998, 1999 and 2000 respectively, there are still a low number of team medical practitioners. Medical coverage is an essential care delivery within soccer teams.

As soccer is associated with a relatively high injury rate (Yard et al 2008), different types of injuries probably occur and each individual in the medical team will play a crucial role, either in prevention or rehabilitation of soccer injuries.

According to Van Mechelen, Hlobil & Kemper (1992), Van Mechelen (1997), and Hawkins *et al.* (2001) the process of injury prevention can be considered in four stages: firstly, the extent of injury must be identified and described; secondly, the factors and mechanisms that play a part in the occurrence of injuries have to be identified; thirdly, preventive strategies must be implemented based on stages 1 and 2 and finally strategies are evaluated for effectiveness. The present paper focused on the third stage of injury prevention and started with medical coverage as the first issue to face in injury prevention strategies.

## **Subjects and Methodology**

Rwandan male soccer teams are 30 in total with 14 teams from the first and 16 teams from the second divisions, registered in the Rwandese Federation of Football Amateur (FERWAFa) for the 2003 season. A cross-sectional retrospective quantitative design with a simple random sampling, clustered within the teams, was used to target a sample of 300 players from both divisions. The random order determined by using the random number generator in Microsoft Excel®, was used to select ten soccer players from each team and the study ended with 273 soccer players. The close-ended questionnaire adapted from validated ones used in various literature (Jelsma et al., 1997 and Hawkins and Fuller, 1998a) was used to collect data from soccer players. The content of those validated questionnaires included demographic data, injuries sustained, injury dates, injury status, management received, availability of and need for physiotherapy services, preventive programmes and nutritional advice. The data were retrospectively collected over a period of less than one year and in most cases prior to the new soccer season. This allowed for a recall period of 6 months in most cases. The questionnaires for soccer players instructed them to only report the injuries sustained in the previous season. All players were given time to think about or remember injuries sustained during the previous season in

order to produce a realistic result. Permission was obtained from the federations, as well as team officials and guardians of under age players. Written consent was obtained from all the players and confidentiality and anonymity was assured.

### **Reliability and Validity**

The questionnaires were adapted from two validated questionnaires: The first one was used in The Sixth All Africa Games, developed to record physiotherapy data based on those used during the 1994 Commonwealth Games in Victoria, Canada and the World Police and Fire Games held in Melbourne in 1995 (Jelsma *et al.*, 1997). The second one was the one used in the preliminary assessment of professional footballers' awareness of injury prevention strategies (Hawkins and Fuller, 1998a). For validity purposes, all questionnaires for this study were pre-tested during the pilot stage among soccer players not used in the study.

The questionnaires were tested for face validity and no changes needed to be made to the questionnaire. Injuries reported were those sustained in training or competition and requiring medical assistance. Severity of injury data was determined on how many days were missed due to injury.

### **Data Analysis**

Data was captured on an excel spreadsheet. The data-capturing sample was processed in Microsoft Excel®. Both descriptive and inferential statistics were determined in Microsoft Excel®. Descriptive statistics, frequencies, means, standard deviation, maximum and minimum of the variables measured in the questionnaire of soccer players were separately displayed for both the 1<sup>st</sup> and 2<sup>nd</sup> divisions. While the questionnaire contained a high number of ordinal variables, non-parametric statistics (e.g. McNemar test) were used to determine whether differences exist between the groups. Associations between ordinal variables were evaluated by means of the Spearman Rank Correlation at a  $p < 0.05$  and  $p < 0.01$  level.

### **Results**

Of the 300 questionnaires provided for both the 1<sup>st</sup> and 2<sup>nd</sup> division soccer players, 273 questionnaires were answered. These results yielded an overall response rate of 91% (273 players). The demographic data of the players are presented in Table 1 below.

**Table 1: Demographic data of players**

Variable	1 <sup>st</sup> Division (n=137)	2 <sup>nd</sup> Division (n=136)	Overall (N=273)
Age			
Range	17-32 years	15-35 years	15-35 years
Mean	23.6 (3.1)	22.2(3.5)	22.9(3.4)
Experience			
Range	1-16 years	1-5 years	1-16 years
Mean	3.8 (2.6)	1.7 (0.9)	2.8 (2.2)
Playing position			
Defenders	53 (39%)	51 (38%)	104 (38%)
Forwards	39 (28%)	40 (29%)	79 (29%)
Midfielders	34 (25%)	33 (24%)	67 (25%)
Goalkeeper	11 (8%)	12 (9%)	23 (8%)

The prevalence of injuries was calculated from the total number of players in both the 1<sup>st</sup> and the 2<sup>nd</sup> division teams who at least, sustained one or more injuries at any time (of training or competition) from soccer sporting activity.

The overall injury prevalence revealed within the sample of this study was 68.1% (186 players). Injury prevalence during training and competitive sessions, were 52.7% (144 players), and 42.5% (116 players) respectively. The 1<sup>st</sup> division sample showed an injury prevalence of 70.8% (97 players) compared to an injury prevalence of 65.4% (89 players) among 2<sup>nd</sup> division players.

The injuries reported in this study, showed that the number of injuries sustained during training and the number of injuries sustained during competition were significantly related ( $p=0.0017$ ). However,

there was a higher significance ( $p < 0.005$ ) that more injuries occurred during training (144 players) than during competition (116 players).

#### Severity of soccer injuries

Figure 1 shows the severity of the injuries occurring in both training and competitive sessions. The severity of injury was classified under four types of injury according to the time taken to return to the sport activity: minor (2-3 days), moderate (4-7days), major (1-4weeks) and severe (more than 4 weeks). Of all the injuries reported, minor injuries accounted for 23.5% and 12.5% in training and competition respectively. The results of this study revealed that more severe injuries occurred during training than the competitive injuries ( $p < 0.01$ ) when only considering first injuries (Fig 1).

**Figure 1: Type of injuries sustained during training and competition**

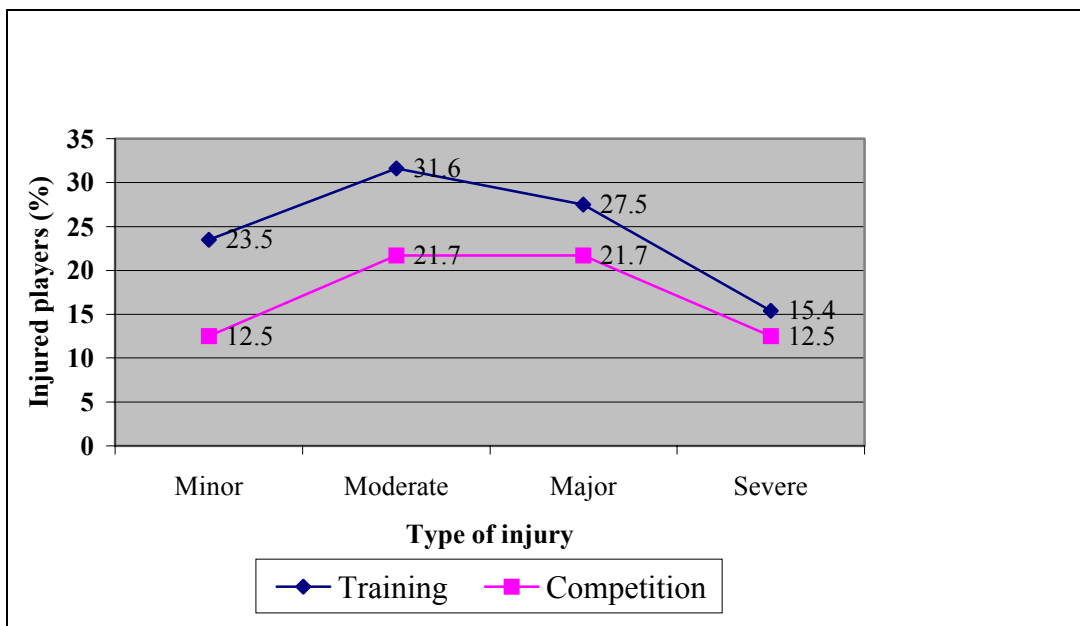


Figure 2 illustrates the given treatments following injuries. Five types of treatment were inclusive within the present study: medical, physiotherapy, traditional, self and none.

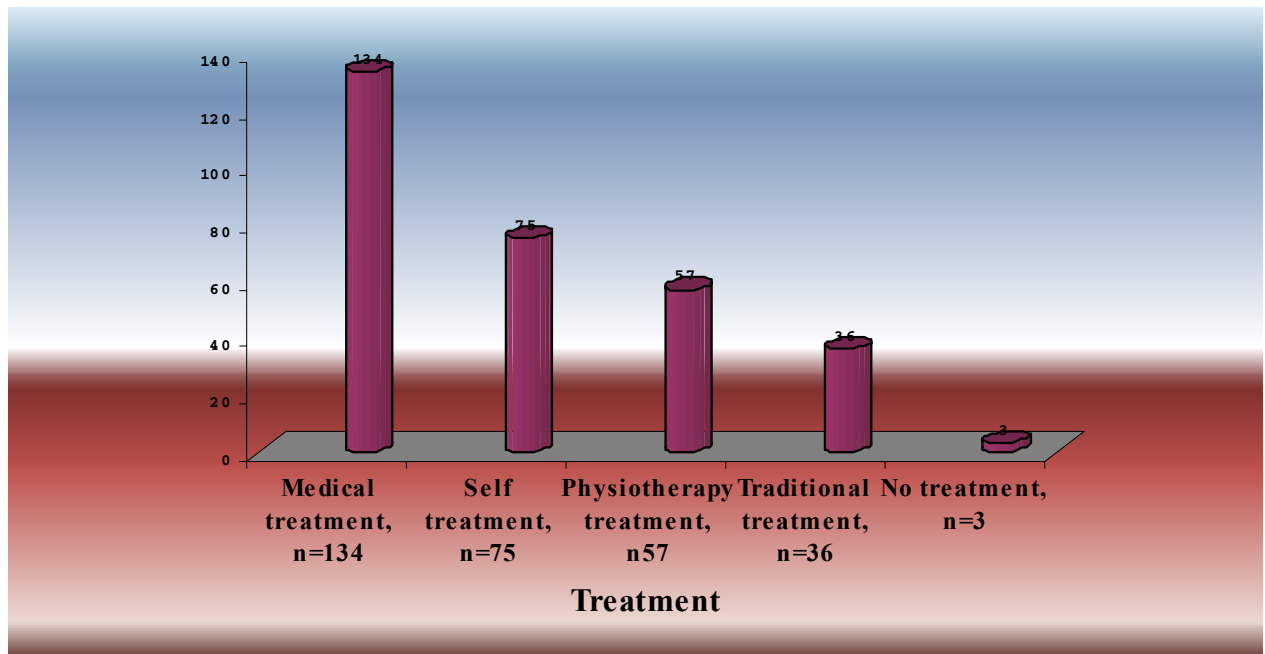
The percentages were calculated in terms of number of players who sustained at least one sporting injury at any time (of training or competitive). Since one or more treatments could be reported, the total

percentages did not equal 100%. Of the 186 injured players, 72% (134 players) got medical treatment, 40.3% (75 players) got self-treatment, 30.7% (57 players) got physiotherapy treatment, 19.4% (36 players) received traditional treatment and 1.6% (3 players) did not benefit at all from any treatment.

Each of the above treatments could be used in conjunction with other treatments.



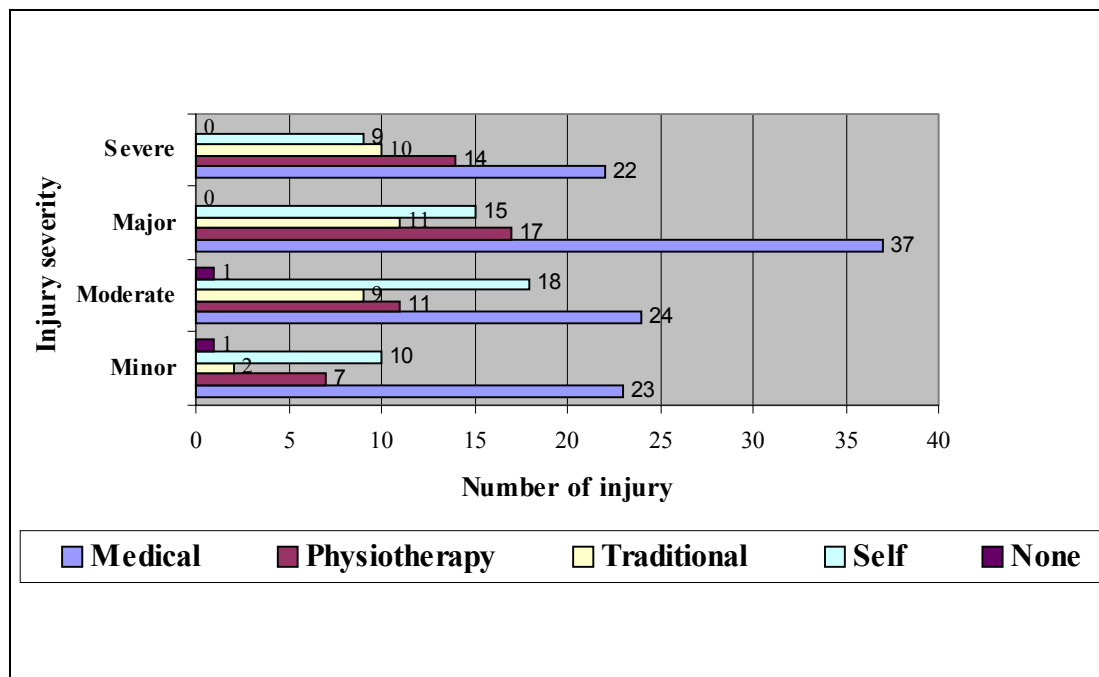
**Figure 2: Treatments obtained following injuries**



After medical treatment, physiotherapy treatment seemed to be the second most commonly used mode of treatment used in many severe and major training and competitive injuries (figure 3). However,

the self-treatment was more commonly used after medical treatment for moderate and minor training and competitive injuries.

Figure 3:



**Discussion**

The response rate of 91% in this study was very high compared to rates reported in previous studies (Hawkins and Fuller, 1998a; Guskiewicz, Weaver, Padua & Garrett, 2000; Junge and Dvorak, 2000; and Woods, Hawkins, Hulse and Hudson, 2002). The results of this study revealed a higher prevalence (68.1%) of soccer injuries than reported in similar studies (Hawkins and Fuller, 1998b; Orchard and Seward, 2002). However, a more recent longitudinal study revealed a prevalence rate of 89% (Yard et al 2008).

The definition of injury and injury prevalence adopted in this study was different from those used in some other studies and could contribute to the wide range of injury prevalence between

studies. In this study, injury was defined as an incident occurring during a training session or a match and causing a soccer player to miss the following session(s) (Hawkins and Fuller, 1999; Orchard, 2001), and the injury prevalence was calculated from the total number of players, in both the first and the second divisions, who sustained one or more soccer injury at any time (during training or competition).

These definitions limited the comparability of this study with many similar studies because the other studies included the issue of seeking medical attention in injury definition (Frantz, Amosun & Weitz., 1999 and Woods et al., 2002) as well as the issue of 1000 playing hours in calculating injury prevalence (Morgan and Oberlander, 2001; Rahnama, Reilly &

Lees., 2002, Merron, Selfe, Swire and Christer, 2006; and Yard et al 2008). The issues of injury and injury prevalence definitions could not be ruled out due to the nature of this study.

The study also found that more injuries occurred during training than during competition. Similar findings have been reported in a previous study (Heidt et al., 2000). In contrast Chomiak et al. (2000).

The authors in a previous study also agree that the limited training attendance of team medical practitioners may lead to the underestimation of minor injuries causing players to miss one or two training sessions (Arnason et al., 2004). However, more recent literature indicates that the incidence of injury for competition games is higher than during training (Merron et al 2006). Arnason et al (2004) stated in their study that, only physical therapists were present before, during and after matches and that, very few teams had a team physician present during matches or training sessions.

In Rwanda therefore, despite there only being a few of them, if medical practitioners are absent during training sessions, injuries occurring in their absence may be missed and delayed treatment may lead to unnecessary complications and possible permanent damage.

The definition of injury severity adapted in this study was the same as the one used in other studies (Hawkins and Fuller, 1999; Hawkins et al., 2001 and Woods et al., 2002). The injury was classified as slight/minor, moderate, major and severe/serious depending on the length of time needed for recovery. The time for recovery is two to three days for slight/minor, four to seven days for moderate, one to four weeks for major, and more than four weeks for severe/serious injuries.

The study revealed that the soccer injuries were more moderate and major rather than minor and severe which was contrary to what had been found in other studies (Hawkins et al., 2001; Rahnama. et al., 2002 and Merron et al 2006). Due to lack of complete rehabilitation and early return to sport activity, a minor injury can be followed by a major injury, with a number of these being of the same type and location (Woods et al., 2002).

The severity, which is more prominent in training than in competition, could occur due to unsafe playing surfaces, lack of appropriate training equipment as well as negligence of some pre- and post-soccer sporting activities, which probably play a big role in injury occurrence during training sessions in Rwanda.

The study revealed that physiotherapy treatment was considered secondly after medical treatment in most major and severe injuries sustained in both training

and competitive sessions. Although, self-treatment seemed secondary too, in most moderate and minor training as well as injuries sustained during competition, its use and benefit are still critical. First of all, even if the treatment is so-called self-treatment, the researcher believes that medical or physiotherapy means could have been used. Secondly, where there is no medical practitioner, self-treatment might be the only way the injured players could help themselves.

However, some other factors such as financial standards, ignorance and lack of information could have played a role in choosing self-treatment in moderate and minor injury treatment. In addition, some players neglected minor injuries as they were sometimes considered as part of the game.

### **Limitations of the Study**

Comparison to similar studies is difficult due to the nature and adopted definitions of injury and injury prevalence. The soccer players' questionnaire did not assess the playing hours and exposure time, hence limited the current study to express prevalence and incidence as they are expressed in other studies.

### **Conclusion**

This study highlights the high prevalence and most common injuries in soccer in Rwanda and thus emphasises the need for medical coverage at both training and competition sessions. If World Cup 2010 is

to become a reality for Rwanda, emphasis on injury prevention is essential. As a start medical coverage of soccer teams must be regarded as a priority when highlighting strategies for injury prevention.

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## **TOWARDS INTERDISCIPLINARY PRACTICE: A SHARED COMMUNITY-BASED PRACTICE EXPERIENCE**

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**Abstract**

**Introduction**

Service-learning is an educational approach that allows for a structured learning experience for students, combining community service with preparation and reflection. Through service learning, students not only provide community service but also learn about the context in which the service is provided.

**Methods**

Shared Community-Based Practice (SCBP) is a pioneering service-learning initiative of the University of the Western Cape (UWC) for all health and welfare disciplines located within a community setting. It is unique in the sense that it affords students from discipline-specific domains, an opportunity to practice interdisciplinary in a structured and coordinated manner. SCBP was designed to meet discipline-specific, multidisciplinary and personal goals through the development and implementation of an intervention care plan. Four centres in Nyanga and Mitchell's Plain were targeted for placement of students in the Community and Health Sciences Faculty at UWC. Focus group discussions were held with the centres personnel and the needs of the centres were identified. Interventions were designed based on these needs.

**Results**

The main themes identified included the need for training, awareness and lack of resources. Implementation of the projects had its challenges but students were able to overcome them.

**Conclusion**

Shared community based practice is an initiative that can be used effectively in communities in an interdisciplinary manner.

**Key words**

Shared Community Based Practice, Service learning, Students, Interdisciplinary

## **Introduction**

Service-learning is an educational approach that allows for a structured learning experience that combines community service with preparation and reflection. It is a community-based model of service delivery described as a collaborative model with the intention to shift cultures of general practice from simple referral models to stronger models of collaboration (Keleher, 2006).

Through service learning, students not only provide community service but also learn about the context in which the service is provided. According to Eyer & Giles, (1999), learning occurs through a cycle of action and reflection as students work with others through a process of applying what they are learning to community problems and, at the same time, reflecting upon their experience as they seek to achieve real objectives for the community and deeper understanding and skills for themselves. The connection between the service and students' academic course work, and their role as professionals and citizens is enhanced through community based programmes.

## **Shared Community Based Practice**

Shared Community-Based Practice (SCBP) is a pioneering service-learning initiative at the University of the Western Cape (UWC) for all health and welfare disciplines located within a community setting. It is unique in the sense that it

affords students from discipline-specific domains, an opportunity to practice interdisciplinary in a structured and coordinated manner. Shared practice includes academic staff, students from various disciplines, the community and clients.

The programme involved the collaboration between the Physiotherapy (PT) students of the Faculty of Community and Health Sciences, the service providers, disadvantaged communities and other related agencies in Mitchells Plain and Nyanga. The focus for intervention areas selected reflected the unique health and social care needs including geographic and cultural barriers; inadequate coverage, and limited availability of services.

## **Rationale for SCBP**

The main rationale for this programme came from three primary sources as stated by Waggie (2004). The first source was from the Higher Education Directive; (White paper 3: Transformation of higher education, 1997) which emphasized, "Responsiveness to economic and social developmental needs, interdisciplinary programmes, structured collaboration between higher education institutions and civil society and services, promote community linkages and partnerships." The second source was the Department of Health Directives: Strategic priorities for the National Health System 2004-2009

(Andrews & Pillay, 2004), namely: “Promote healthy lifestyles, contribute toward human dignity by improving quality of care, Improve management of communicable diseases and non-communicable illness, Strengthen primary health care and Partner with communities in health care decisions.” The final source came from the mission statement of the Faculty of Community and Health Sciences at the University of the Western Cape (UWC): “Practice based on Primary Health Care (PHC) approach which includes preventive, promotive, curative and rehabilitative health care, demonstrate critical thinking, reflection, & problem-solving, spearhead innovation in interdisciplinary education/practice, embrace a personal ethic of social responsibility and service, work in interdisciplinary teams, ensure care that balances individual, professional, & societal needs and focus on wellness and provide culturally sensitive care.”

### **Content Outcome**

The module was designed to meet discipline-specific, multidisciplinary and personal goals through the development and implementation of an intervention care plan. By doing so, students were expected to develop a deeper understanding of their roles as individual health professionals and within the interdisciplinary team in addressing the needs of the clients in the communities.

The students had to achieve four aims for the module by the end of the programme. These included: (i) demonstrating in depth knowledge and skills when working with communities in a community setting, (ii) demonstrating a comprehensive depth of knowledge about the role and responsibilities of other role-players that contribute to multidisciplinary practice, (iii) demonstrating in depth knowledge of basic concepts such as patho-physiology, epidemiology, legislation relevant to service provision through independent literature research using the internet, and library for the relevant information and (iv) demonstrating the skills needed to practise in a community setting through development and implementation of a comprehensive intervention strategy in an independent discipline-specific and collaborative manner.

### **Community Intervention Sites**

“The University of the Western Cape Community Rehabilitation Project (UWC CRP) is an outreach project based in Mitchells Plain and Nyanga. The Occupational Therapy (OT) Department was previously responsible for the management of the project. However, as part of a decision made by the Faculty Board in 2006, the UWC CRP is now supported by the School of Public Health. This change in management allowed the UWC CRP to open their doors to other disciplines/departments within the Faculty of Community and Health Sciences



(FCHS) so that service provision would adopt a more holistic and interprofessional approach.

The focus of the UWC CRP is to re-integrate people with disabilities back into society, equip students from the FCHS with practical experience and to allow them to develop clinical skills within a Community Based Rehabilitative (CBR) framework. The UWC CRP also assists with placement, supervision, monitoring and evaluation of students to ensure that they meet with the faculty's standard of practice and criteria for in service training" (Hull, 2006). In 2007, only forty-nine, third year PT students were placed at the UWC CRP in Mitchells Plain and Nyanga.

### **Community Placement**

Although only one discipline was involved, the vision for this module was that students from two or more disciplines practicing in the various projects at a specific community come together once a week from 14h00-16h00 for the duration seven weeks of their community block. The students were divided into 8 groups. Each group had an average of six students and learning was facilitated by academic and site facilitators.

The Project managers at the UWC CRP identified various needs beforehand in both Mitchells Plain and Nyanga. These needs included: training for Community Rehabilitation Workers (CRWs) and

caregivers, awareness of physiotherapy and services offered by the UWC CRP and resources. On the students first visit to the community, each group had to discuss these needs with the relevant role-players and together agree on one intervention strategy for the focus of their projects. The students spent the remaining six weeks planning, implementing, evaluating and presenting their projects.

### **Intervention**

Following the needs assessment, students carried out three projects at Masincedane special educare home, Ilinge Labantwana educare centre, Joy educare centre and UWC CRP. The students conducted focus group discussions to identify needs for the centres. These focus groups included the managers of the centres, CRWs and caregivers. Student interventions were grouped into three themes and are discussed below.

### **Theme 1: Training**

During the first visit to these centres it was observed that children were improperly positioned and there was a general lack of stimulation. At Masincedane special educare home and Ilinge Labantwana educare centre, seven CRWs and caregivers were trained on how to take care of children with Cerebral Palsy (C.P.). At the end of the sessions, it was observed that the caregivers handling techniques had improved. Posters were

made and booklets on how to manage CP children were disseminated.

Beaconvale Frail Care centre: The management staff were concerned about smoking, hygienic conditions, lack of physical activity, poor back care of staff and mobility of bed-ridden clients. These concerns were addressed in the form of workshops for clients and staff. Clients were educated on the dangers of smoking, the importance of personal hygiene and engagement in activities of daily living. Staff was educated on back care exercises with a practical component and demonstrations of passive movements for bed-ridden clients. Booklets were developed and supplied to the centre for ongoing learning for clients and staff.

UWC CRP works hand in hand with rehabilitation workers and home-based carers based in Mitchells' Plain and Nyanga. These workers care for people with different disabilities and is sometimes challenging. The students identified the following needs for training that would assist them in doing their jobs more easily such as: broadening knowledge about stroke, education about precautions that need to be taken into consideration when treating patients with disabilities, knowledge about spinal cord injuries (safety precautions and treatment) and back care education when handling clients with different disabilities. Students developed booklets and DVDs, which were made available to the workers for ongoing education. Participants were offered

certificates of attendance at the end of the training.

### **Theme 2: Awareness**

UWC CRP: A mini survey was conducted to assess the knowledge of Mitchells' plain community about physiotherapy services. It was found that there was a need to advertise PT services. An awareness campaign was conducted at the Promenade shopping mall in Mitchells Plain. Students explained to individuals what PT was, its benefits and services available in the community. In addition students handed out pamphlets with information related to PT. The students demonstrated a few pain relieve techniques on volunteers who presented with muscular pain.

### **Theme 3: Resources**

The two educare special centres in Nyanga (Ilinge Labantwana and Masincedane) and one educare centre in Mitchells Plain (Joy Educare Centre) had common needs regarding shortage of resources within their centres. Students sourced for toys, clothing, carpets, blankets, furniture and bedding from different organisations and developed funding proposals.

### **Challenges**

Challenges to the implementation of the projects included the following: Unequal participation of students in the projects.

Non-involvement of other health science disciplines, limited the intended impact in service-provision.

Transport for supervisors to visit all the sites was insufficient.

The time was not enough for students to do need assessments, plan, implement and evaluate an intervention in a comprehensive way.

There were only few supervisors for the eight projects.

Lack of funding restricted/limited resources development and supply.

### **Summary/Conclusion**

All the projects that were conducted in the identified areas were successful. All the aims and objectives of this module were met successfully, besides the absence of other health science disciplines. Students managed to complete and presented reports to stakeholders at the end of the placement. The communities of Mitchells Plain and Nyanga benefited from this programme, through resources acquired, training of CRWs and caregivers and increased awareness about PT.

Community health services heavily rely on a broad spectrum of professions and service providers, knowledge, skill, experience and creativity. Health professions should not contribute their expertise in relative isolation from one another. Shared community based practice has presented both an opportunity and a pressure to incorporate interprofessional learning and teaching

within qualifying health science programmes in the Faculty of Community and Health Sciences in service provision.

This model of shared care can be applied to integrating other specialized services into communities. The programme gave direction to the need for interprofessional practice to be incorporated in student placements. Interprofessional practice allows the opportunity for comprehensive care, genuine consultation and collaboration, and offers great benefits for clients in the community.

A strategic approach to health care in the community is more than the aggregate of individual activities within a practice setting. According to Doyle and Thomas (1996), it implies a shared practice view of priorities to improving the health of the practice population. It is argued that while there are clear educational gains from a more systematic development of shared practice learning and that these would apply to a range of professions connected to each other, the complexity of organisational arrangements may serve to render such developments impractical (Torkington, Lymbery, Millward, Murfin & Richell, 2003).

### **Recommendations**

Other disciplines in the CHS faculty should be involved in the programme to provide more comprehensive services in the communities. Transportation of students in the field must be made available to ease their mobility. Organizations should be

contacted and support including finances sought. Timetables of student placement should be synchronized to allow shared practice. Facilitators for shared practice must be trained to regularly meet students and facilitate the learning process.

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# **EFFECTS OF STRENGTH-TRAINING TRIALS FOR CHILDREN AND ADOLESCENTS WITH SPASTIC CEREBRAL PALSY: A SYSTEMATIC REVIEW**

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**Abstract**

**Objective**

To evaluate the effects of strength-training on lower limb muscles and motor activity among children and adolescents with spastic Cerebral Palsy.

**Methods**

A comprehensive search of full text published studies in English was performed. Electronic databases were searched with no limit for year of publication. Terms used included: exercise, children, youth, disability, treatment, strength training, spastic cerebral palsy, muscle strength, training program, therapeutic exercise, gait training, and physical function. Reference lists of retrieved articles were also examined to identify additional studies. To be included, studies had to be: randomised controlled trials evaluating strength training outcomes on children and adolescents with spastic CP. Those with intellectual disability were excluded. Evaluation for quality: Trials were rated for methodological quality using the PEDro scale independently by the 2 researchers.

**Results**

Of 4 selected trials, 1 an abstract was excluded, 3 full articles were included. Trials methodological quality ranged from 6 to 8 on PEDro scale. Two studies reported significant muscle strength changes following strength training, with effect sizes ranging from  $d$  equal to 1.17 to 1.78 and another reported improved gait and perceived body image.

**Conclusion**

Trials demonstrate that strength-training improves strength of targeted muscle and motor functioning. More rigorous trials on larger samples should evaluate the impact of specificity in strength-training and cost-effectiveness of programs.

**Key words**

strength-training, spastic Cerebral Palsy, strength training, therapeutic exercise, gait training.

## Introduction

Cerebral palsy (CP) is described as a chronic neurological disorder arising from a lesion on immature brain that manifests itself as, poor motor activity and postural control (Dodd, Taylor, Diane & Damiano, 2002). In view of the new paradigm shift to evidence-based practice, physiotherapists and other rehabilitation service providers want to know about the current evidence, to improve their problem-solving skills and accountability to children and adolescents with CP and their caregivers in delivering cost-efficient rehabilitation services. One such evidence should be on the effects of strength-training interventions focused at improving muscle strength, and physical functioning, such as mobility, of children with spastic CP (Mulligan, Abbot, Clayton, McKegg & Rae, 2004).

Strength-training interventions in the hospitals, community, or at school, vary in terms of their outcomes as they may either focus on strengthening a specific muscle group that is weak or general cardio-respiratory fitness. Such interventions may also be individualised strength-training programmes (ISTP) or group activities.

The result of this variability of strength training programming coupled with the rising cost of healthcare may continue to deny accessibility of interventions and opportunities, to those with disabilities, specifically children and adolescents with spastic CP. This situation promotes the

likelihood for children with spastic CP and have mobility related problems, to become susceptible to risk for, hypertension, diabetes, overweight, obesity, pressure sores, underdevelopment, declining mental health status and delay development of physical and social skills needed for independent living (Carmona, 2005). Blomquist et al. (1998) observed that children and adolescents with disabilities also become isolated from peers, meeting places and social activities due to mobility incapacity. These problems are not likely to decrease as long as, no effective intervention is available, that aim to increase physical functioning, and minimise mobility disability in individuals with disabilities (Rimmer, 1999).

Several recent empirical studies (Mulligan, et al, 2004; Eagleton, Iams, McDowell, Morrison & Evans, 2004; Blundell, Shepherd, Dean & Adams, 2003; Damiano & Abel, 1998; MacPhail & Kramer, 1995), investigated the effects of strength-training on gait parameters and energy expenditure and distances walked by children with spastic CP. In addition, only 1 review on the effectiveness of strength-training programs for people with cerebral palsy has been published, which showed strength-training could increase strength and may be improve motor activity in people with CP without causing harm (Dodd et al., 2002). However, Dodd et al. (2002) acknowledged in their review to have evaluated the results of 8 empirical

studies, 1 review and 1 randomised controlled trial, all of low methodological quality. Therefore, systematic reviews literature on strength-training interventions to improve strength and movement capability of children and adolescents with CP is lacking.

### **Methods**

The aim of this paper is to systematically review the current evidence to identify the effects of strength-training programmes in lower limb muscles and motor activity among children and adolescents with spastic CP.

### **Literature search strategy**

A search of electronic databases (PEDro, Cochrane, EBSCOhost, Proquest, PubMed MEDLINE, Gateway, Health Technology Assessment, CINAHL, TRIP African Healthline, Science direct, Info-Trac, GALE Academic OneFile) was performed. No limit was assigned for year of publication. Combinations of the following terms were used in all databases: exercise, trials, children, youth, disability, treatment, strength training, spastic cerebral palsy, muscle strength, training program, therapeutic exercise, physical treatment, gait training, and physical function. A manual search was also done by examining references lists of all retrieved articles to identify additional relevant studies.

The initial search yielded titles and abstracts, which were then reviewed by the 2 reviewers for: sample population (children or adolescents with spastic CP), study design (randomly assigned to intervention), type of intervention (strengthening exercise program or progressive resistance exercise program) and outcome (improved motor functions, muscle strength and energy expenditure) review criteria. 36 selected articles were retrieved in full and where not available they were purchased through the inter-library loan.

**Selection criteria:** All randomised controlled trials (RCTs) evaluating strength training interventions outcomes on children equal or above 5 years and adolescents below 21 years with spastic CP were included. RCTs whose sample had participants with intellectual disability were excluded. Only studies available in full text and written in English were included. Because of the paucity of published literature in this sample; studies that used exercise as an intervention to improve gait and physical functioning were also included. Studies that met the inclusion criteria are summarized in the Table 2.

### **Data Extraction**

The methodological quality of the included studies was rated using the PEDro scale criteria independently by the 2 researchers. The two reviewers extracted

data from the studies that met the inclusion criteria using a standardised extraction form.

### Data Analysis

The PEDro scale criteria used in this review for methodological rigor has 11 criteria for evaluating randomised control trials (Table 1).

**Table 1: Critical appraisal tool**

<ol style="list-style-type: none"><li>1. Specified eligibility criteria</li><li>2. Randomly allocated participants</li><li>3. Concealed allocation</li><li>4. Participants prognostic similarity at baseline</li><li>5. Participant blinding</li><li>6. Therapist blinding</li><li>7. Assessor blinding</li><li>8. &gt;85% follow-up for at least 1 key outcome</li><li>9. Intention-to-treat analysis</li><li>10. Between group statistical comparison for at least one key outcome</li><li>11. Point estimates and measures of variability for at least one key outcome</li></ol>
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All studies were independently assessed by the two reviewers. Disagreement between the two reviewers' final PEDro scores was resolved by consensus. The PEDro scale primarily measures internal validity and criteria 2 through 11 were used to provide the final scores according to PEDro guidelines for clinical trials (PEDro, 2007). According to Maher, Sherrington, Herbert, Moseley and Elkins (2003) and, Bhogal, Teasell, Foley and Speechley (2005) the PEDro scale has fair to moderate reliability, validity and is extensively applied to rate the methodological quality of physiotherapy clinical trials.

### Results

The initial search in the electronic databases and the manual perusal of reference lists identified 36 studies. Of the 36, only four were RCTs; one was an abstract (McCubbin & Shasby, 1985) and attempts to retrieve the full article failed, three full text articles reported results of RCTs.

Table 2 summarizes the PEDro scores of the three RCTs (Liao, Liu, Liu, & Lin, 2007; Unger, Faure & Frieg, 2006; Dodd, Taylor & Graham, 2003) that were included in this systematic review. The total scores ranged from 6 to 8 out of 10 on the PEDro scale. The study by Dodd et al. (2003), investigating the effects of strength



training programs, achieved a total score of 8/10, that by Unger et al. (2006) achieved a score of 7/10 and the study by Liao et al. (2007) investigating the effectiveness of loaded sit-to-stand

resistance exercise achieved a score of 6/10. Therefore, all three trials are of moderate to high methodological quality. A total of 72 children and adolescents (5 to 18 years old) were recruited in the 3 trials.

**Table 2: Summary of methodological quality of included RCTs**

Study	PEDro Criterion											Total
	1	2	3	4	5	6	7	8	9	10	11	
Liao et al (2007)	√	√	√	√	X	X	√	X	X	√	√	6
Unger 2006	√	√	√	√	X	√	√	X	X	√	√	7
Dodd et al 2003	√	√	√	√	√	X	√	√	X	√	√	8

PEDro indicators 1-11 as reflected in Table 1

At least 2 trials (Liao et al., 2007; Unger et al., 2006) had a low compliance for two criteria that have been shown to raise bias in clinical trials (blinding of participants and therapists, adequacy of follow-up (see Table 3). All included trials reported participant withdrawals for various reasons that included fear of infection with severe respiratory syndrome, surgery or sports.

Participant dropout from each trial were as follows: Unger et al. (2006) 6 participants, 3 in control group and 3 in experimental group; Dodd et al. (2003) 1 participant in control group; Liao et al. (2007) 4 participants, 2 in control group and 2 in experimental group. According to Liao et al. (2007), children who dropped out were similar at baseline between both groups but demographically different (older, taller, and heavier) from those who completed.

With regards to demographic data, Dodd et al., (2003) reported that children in the experimental group had more physical disability compared to the control group ( $P=.07$ ) but were similar at baseline for demographic data and key outcome areas. Unger et al., (2006) on the other hand reported that demographic characteristics of the control group significantly differed from the experimental group ( $P=.02$ ) including the distribution of impairments ( $P=.03$ ). Important to note is that some of the participants in the experimental group had hemiplegic CP and others had diplegic CP.

All the 3 trials blinded assessors at baseline and at end of interventions. Two trials indicated it used experienced therapists, 1 in pediatric assessment and 1 in movement disorders, while the other, (Unger 2006) did not state assessor's experience. Table 3 illustrates summary of

intervention designs, outcomes assessed and results for all the trials. It also indicates the settings, the samples of participants and the duration of each trial.

### **Muscle Strength**

Dodd et al (2003) using lower limb strengthening exercises and the study by Liao et al (2007) using loaded sit-to-stand (STS) exercises to increase lower limb muscle strength, found significant differences [ $F_{[1, 19]}= 4.58, P=.046$  and  $F_{1,17}=17.7, P=.001$  respectively) between the experimental and the control groups. This is demonstrated by the large calculated effect size  $d$  equal to 1.78 (95% CI, 0.68-2.73) for STS (Liao et al., 2007) after a strengthening programme of 6 weeks. However, Dodd et al. (2003) reported the effect size to be low in their trial. An effect size of  $d > 1.2$  is reported elsewhere as effective for increasing muscle strength (Dodd et al., 2003).

### **Motor activity**

Liao et al. (2007) and Dodd et al.(2003) used the Gross Motor Function Measure (GMFM) as an outcome measure while Unger et al. (2006) used a 3-dimensional gait analysis and gait questionnaire. Liao et al. (2007) found a significant difference in the GMFM goal dimensions D and E scores ( $F_{1,17}=4.81, P=.02$ ) between participants in the experimental group and the control group at end of the intervention. Similarly, Dodd et al. (2003) found a trend towards improvement in the

experimental group GMFM dimension E measurements compared to those of the control group at the end of 6 weeks intervention.

Dimension D and E of the GMFM relates to motor activities like jumping, walking, running, and hopping (Liao et al., 2007; Dodd et al.,2003). Liao et al (2007) found a marginal effect size  $d$  equal to 1.17 [95% CI, 0.68-2.73] for the GMFM score, while it was low in the trial by Dodd et al., 2003. Using a 3-dimensional gait analysis, Unger et al. (2006) found outcomes of crouch gait differed significantly for the experimental group from the control group ( $P=.05$ ). This is reflected in the improved crouch gait in the experimental group. Unger et al. (2006) and Liao et al. (2007) also evaluated gait parameters: both found no significant change in gait speed had occurred at the end of their strength training programs. No trial reported adverse effects such as reduced physical functioning or joint range of motion.

### **Energy expenditure**

Only 1 trial, Liao et al. (2007) measured the Physiological Cost Index (PCI) as an outcome. Their analysis yielded a moderate effect size  $d$  equal to 1.34 (95% CI, .32-2.25) of PCI at the end of the intervention, reflecting a beneficial reduction in energy expenditure after loaded STS strength training program among the participants.

**Perception of body image and competence**

Only 1 trial, Unger et al. (2006) investigated perception. Perception of body image scores of experimental group

differed significantly from the control group ( $P=.01$ ), but there was no change in perception of competence between groups.

**Table 2. Summary of interventions design features**

Study	Setting	Sample	Design	Outcome assessed	Intervention	Duration	Results
Liao et al., 2007	Children's homes	20 Children (5 to 12 years old) with spastic diplegia CP	RCT	GMFM outcomes at baseline and at 6 weeks. Gait speed, -1-RM load STS exercise -Isometric strength Knee extensor - Physiological cost index	Loaded STS exercise 3 times a week Vs regular Physical Therapy: passive range of motion exercises, positioning, balance, functional and neuro-developmental training	6 weeks	GMFM goal dimension scores ( $F_{1,17}=4.81, P=.02^*$ ), effect size of 1.17 (95% CI, 0.68-2.73.)  -1-RM STS( $F_{1,17}=17.7, P=.001^*$ ) effect size of 1.78 (95% CI, 0.68-2.73) and  -PCI ( $F_{1,17}=8.04, P=.005^*$ ) effect size of 1.34 (95% CI, .32-2.25). Follow-up = 80% - No significant difference in gait speed , and isometric knee extensor strength between the groups
Unger et al., 2006	School for children with special needs	31 spastic CP learners (13-18years old). 21 in intervention group, and -10 in control group	RCT	-Gait analysis, and - gait parameters and perceptions of body image and functional competence	I.D. circuit format strength training program (exercises for upper & lower limb & Trunk)	8 weeks	- measures of crouch gait differed significantly for the experimental group from the control group ( $P=.05$ ) -Perception of body image scores of experimental group differed significantly from the control group ( $P=.01$ ). -Follow-up = 83.78%  -No change for stride length, velocity and frequency (cadence). -No significant difference in perception of competence between both groups
Dodd et al., 2003	A hospital	21 children and adolescents (8-18 years old) with spastic diplegia CP	RCT	Strength Dimension D & E of the GMFM timed stair test at own pace - -strength of ankle plantar flexors - knee extensors - hip extensors	Strengthening exercise 3 times week (targeted for -ankle plantar-flexor, Knee extensor -hip extensors)	6 weeks	-At 6 weeks experimental group LL strength significantly differed from that of controls ( $F_{1, 19}= 4.58, P=.046$ ), & at 18 months ( $F_{1,16}=6.25, P=.041$ ). -at 6 weeks experimental group GMFM dimension E measurements showed a trend of improvement (standing, running, jumping, and faster stair climbing ) compared to those of the control group.  -No significant interaction effect for individual muscle groups -21 completed baseline and six-week testing. 1 left due to surgery. Follow-up = 95.23%

- Significance was calculated at 5% level [ $P<.05$ ] in each study. Abbreviations: CP: Cerebral Palsy, GMFM: Gross Motor Function Measure, RM: Repetition Maximum, STS: Sit-To-Stand, RCT: Randomised Controlled Trial, PCI: Physiological Cost Index, I.D: Individually Designed, LL: Lower limb.

## Discussion

The purpose of this systematic review was to determine the effectiveness of strength training on lower limb function of children and adolescents with cerebral palsy. One systematic review (Dodd et al., 2003) has found that strength-training could improve physical functioning in people with cerebral palsy without causing any adverse effects.

Empirical studies (Eagleton et al., 2004; Blundell et al., 2003; Damiano & Abel, 1998; MacPhail & Kramer, 1995) have shown that strength-training improves functional outcomes (gait speed, muscle strength and physical functioning) and gait cadence (Damiano & Abel, 1998). However, very few trials have adequately assessed their effects, on muscle and motor activity outcomes, in children and adolescents with spastic CP.

Among the trials included in this systematic review, 1 trial (Liao et al., 2007) estimated that the strength effect sizes were significantly different between groups at the end of the strength training program, and of sufficient threshold to increase muscle strength. However, Dodd et al. (2003) found this were low in their trial.

There is reason to suspect bias in the results in the former trial given the fact that it had not controlled three key confounding factors (scored 1/3 for blinding, and 20% dropout) compared to the latter (Dodd et

al., 2003), that had less than 5% dropout rate and scored 2 out of 3 on blinding. Other than this methodological bias, the results apparently indicate a standardised STS (90° hips flexion, 105° knee flexion and 15° ankles dorsiflexion) outlined by Liao et al. (2007) may yield more effectiveness than squatting and stairs climbing (Dodd et al., 2003) in increasing lower limb muscle strength.

This finding may have clinical implications on the specificity of applied treatment techniques, intended for higher client outcomes, and improving accountability of therapist to clients and other stakeholders. From the perspective of this review, another major limitation of the trial by Liao et al. (2007) was the failure to standardize the frequency of intervention for all participants entered in the trial and the enthusiasm caregivers.

A significant finding is the effect of increases of muscle strength which appears to improve motor efficiency. This is reflected in changes on GMFM goal dimensions analysis (Liao et al., 2007; Dodd et al., 2003). Motor efficiency sustainability in spastic CP children is a controversial area of knowledge among clinical therapists.

This finding may be clinically relevant. However, the trials are too small to allow interpretation of their results. The use of diverse tools to assess clinical outcomes

may have some implication of transferability of the trial results to clinical settings. The study by Unger et al (2006) used a 3-D gait analysis video recording system which may only be available in specialised research laboratory settings, meaning this test may be difficult to replicate in a clinical setting compared to the other 2 trials which assessed gait using the GMFM goal dimensions. A major criticism of all the trials is that none assessed the cost of their trial relative to clinical practice. In the era of decreasing healthcare funding from states, any new research must address the issue of costs of interventions, stating the cost-effectiveness.

The selection of outcome measures in all trials (Liao et al., 2007; Unger et al., 2006; Dodd et al., 2003) is questionable, as all the studies disregarded the notion of specificity of their training. In all cases the selected outcomes do not directly relate to the interventions and may never have changed following such interventions. For example: Liao et al. (2007) used loaded STS for lower limb strengthening, yet measured gait speed, and energy expenditure as outcomes; Dodd et al. (2003) used exercises targeted at improving strength of extensors of hips and knees and ankle plantar-flexors, but measured for change in motor activities like walking cadence, running and jumping. Similarly, Unger et al. (2006) applied a combination of resistances, to the upper and lower limbs to promote

muscle strength, but measured gait (length, velocity and cadence) and perceptions of body image and functional competence as outcomes. Basic strength training exercises focused on strengthening specific postural muscle groups especially in the lower limbs may not necessarily increase gross motor functioning measured as outcomes in these studies. Specific task-oriented activity training may have been more appropriate, were it integrated in trials to facilitate integration of strength, with balance and coordination components, that normalize dynamic movements.

This systematic review advances three reasons as the basis to question the statistical analysis used in the 3 trials as follows:(1) the fact that 2 trials had inadequate follow-up; (2) it was acknowledged by Unger et al. (2006) and Dodd et al. (2003) that participants were allowed to participate in sports and other forms of physiotherapy rehabilitation during the intervention period, yet this were not analysed as covariates; and (3) social contact between the experimental group and the control group might have occurred in all the trials, either at the laboratory during assessments, school or in the community. If this happened no full-proof treatment controls could have been achieved. Thus, no-true control, could have introduced bias in these trials. Finally, none of them explicitly used intention-to-treat analysis. This could have improved the interpretability of the results.

## Conclusion

In conclusion, the trials reviewed were of moderate-to-high methodological quality. Although they had design flaws, such as, using very small samples, which limit the interpretation of their results, missed to demonstrate that strength-training improves strength of targeted muscle and motor functioning. More rigorous trials on larger samples should evaluate the impact of specificity in strength-training on muscle and motor activity as well as cost-effectiveness of programs.

## Implications for practice

Available evidence is insufficient to support the use of strength-training programs for specific muscle groups, in the rehabilitation of children and adolescents with CP.

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# Memory Repression in Adult Survivors of Childhood Sexual Abuse

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## Abstract

### Introduction

The terrible reality of childhood sexual abuse cannot be forgotten in the debates over the validity and processes of traumatic memory. Sexual abuse profoundly influences the whole being of the victim.

### Aim

The purpose of this paper is to explore processes and outcomes of not remembering childhood sexual abuse.

### Conclusion

It is relevant to holistic nursing, how childhood sexual abuse and the victim's coping processes affect long-term biopsychosocial health. Recovered memories are part of the healing process. "Putting away" traumatic childhood memories of sexual abuse, whether voluntarily or unconsciously, has a logical purpose that can be seen from classic psychoanalytic, cognitive, and holistic theories.

### Key words

sexual abuse, memory, adults

## Introduction

Freud presented *The Aetiology of Hysteria* in 1896, and brought forth the scientific discussion of adult survivors of childhood sexual abuse (Gay, 1989). It historically was common practice to blame the victim when abuse was discussed at all (Bolen, 2001). Freud's seduction theory laid the groundwork for belief that the child was precociously seeking the sexual experience, even though a year later he retracted the theory (Freyd, 1997).

Paradigms shifted very slowly. In the 1970s the National Center on Child Abuse and Neglect

was established and comprehensive research began (Bolen, 2001). The feminist movement challenged the sociocultural context. A new freedom of speech grew out of the Vietnam War; secrets were brought out of the dark. The victim was no longer held culpable. The empirical research in childhood sexual abuse was diverted in the 1990s with emerging controversies about false memories induced by counselor suggestion (Bolen, 2001). It is not within the scope of this paper to address the abundant literature available on the controversies about false memories. The influence of controversy on

sociocultural thought and the victim nonetheless does need consideration.

The American Psychological Association (2003) reports that most people who were sexually abused as children remember the episodes. The victim may not understand the abuse or may not report or discuss the experience. The memory may only hold fragments of the experience. Most victims choose to keep the secret from others, and choose to not think about the secret themselves (APA, 2003). Total repression with recovered memory years later is rare.

### **Definitions**

**Suppression.** Suppression is a conscious, voluntary process identified in psychoanalysis as a defense mechanism to exclude unacceptable thoughts and desires (Reber & Reber, 2001).

**Repression.** A construct of psychoanalytical theory, repression is an involuntary defense mechanism where hurtful events are stored in memory but not accessible to consciousness (Mayer, 1995).

**Dissociation.** Dissociation describes the process where memories are separated from conscious thought (Reber & Reber, 2001). This is a potentially reversible amnesia where stressful traumatic memories are blocked from recall. The amnesia is too extensive to be similar to normal forgetting (Butler & Spiegel, 1997). Dissociation is directly linked to self-deception (Gregory, 1998).

**Childhood Sexual Abuse:** A sexual encounter with a child under the age of consent is childhood sexual abuse. Sexual abuse takes

many forms that include explicit sexual talk, exhibiting, sexual fondling, lack of privacy to bathe or undress, masturbation, and sexual intercourse.

### **Childhood Sexual Abuse Prevalence**

Studies conducted in 19 countries have reported prevalence rates for sexual abuse ranging from 7% to 34% among girls, and from 3% to 29% among boys (WHO, 1999). Sexual abuse of a child has begun as early as infancy, with the average age of onset ranging from 6 to 10 years old (Briere & Runtz, 1988; Jehu, 1988). Child abuse is found in all societies and ordinarily is a highly guarded secret wherever it takes place (WHO, 1997). Most cases of abuse and neglect go unreported. Statistics are not reflective of actual incidence (Hopper, 1998).

Feelings of shame coupled with a lack of physical evidence of abuse commonly accompany secrecy in the aftermath of abuse. Defenses formed in moments of childhood trauma are deeply rooted because they were connected to survival (Bratton, 1999). These coping mechanisms were functional at the time of the incident, but are harmful when continued into adulthood.

### **Long-term effects of childhood sexual abuse**

Survivors of sexual abuse frequently have a legacy of both psychological and physical problems throughout life. The range of potential adverse adult outcomes is extensive. Child sexual abuse presents as a risk factor for a wide range of subsequent problems (Mullen, &

Fleming, 1996). There appears to be no unique pattern to these long-term effects.

A history of childhood sexual abuse has been linked to fear, anxiety, depression, insomnia, obesity, headaches, aggression, anger, hostility, poor self-esteem, substance abuse, suicide attempts, and sexual dysfunction (Bridgeland, Duane, & Stewart, 2001; Cornman, 1997; Hall, 1999; Hall, 2000; Knisely, Barker, Ingeroll, & Dawson, 2000; Roberts, 1996; WHO, 1997). There is a strong incidence of long-term psychological problems for survivors of childhood sexual abuse (Abrahamson, 1998; Creedy, Nizette, & Henderson, 1998; WHO, 1997). Adults who had experienced childhood sexual abuse were twice as likely to suffer mental health disorders and have a higher incidence of depression and lower self-esteem (Zlotnick, Mattia, & Zimmerman, 2001). Survivors showed a higher discrepancy between their perceived present self and the ideal self, indicating that survivors did not feel they were functioning at ideal level (Freshwater, Leach, & Aldridge, 2001). A strong and stable correlation was found between childhood abuse and attempted suicide (Bridgeland et al., 2001).

There are higher rates of eating disorders in those who have experienced childhood sexual abuse (Romans, Gendall, Martin, & Mullen, 2001). Alexander et al. (1998) found that 57% of fibromyalgia patients reported a history of sexual abuse. Patients treated for chronic intractable back pain had a significantly higher history of childhood sexual abuse (Pecukonis, 1996). The incidence of childhood sexual abuse is elevated

among women with irritable bowel syndrome (Heitkemper et al., 2001).

Survivors cannot be stereotyped. Some transcend the experience and become outspoken advocates for societal change (Steed, 1995). Others adopt risky life styles such as prostitution, promiscuity, and substance abuse (Hall, 2000). Recovery is possible (Steed, 1995). Transcendence through the experience involves telling the secret and being supported. The therapeutic process is about opening to and remembering the truth, understanding the imprint of childhood sexual trauma, and discovering meaning in the experience (Parse, 1998; Steed, 1995).

## **The Processes of Remembering or Not Remembering**

### ***Memory***

The brain has an innate, genetically programmed capacity to learn. Memory is a synaptic result of life experiences and learning. Memory is an abstract reconstruction of events based on the way they were perceived, stored, and recovered, not as they actually occurred. The processes of memory have been broken into four stages: encoding, storage, retrieval, and recounting.

***Encoding.*** Encoding is the process of transferring short-term memory to long-term memory. The encoding can be automatic, as with most episodic and semantic information, or it can be effortful, such as when memorizing a list of terms (Plotnik, 2002).

***Storage.*** Storage refers to the organization of memories in the brain. There are two general

types of long-term memory, declarative and procedural. Declarative (explicit) memories concern facts and events. They typically consist of both semantic and episodic elements. Procedural (implicit) memory, in contrast, concerns mostly motor skills, some cognitive elements, and conditioned emotional memory. Procedural memories direct behavior and action (LeDoux, 2002). The distinction between procedural and declarative memory is relevant because they have been shown to involve different brain systems. The hippocampus, parahippocampus, and limbic system are all involved in explicit memories (LeDoux, 2002).

**Retrieval.** Retrieval is the process of transferring long term memory back into short-term memory where it can be recalled and recognized (Plotnik, 2002). Several things potentially can interfere with the retrieval process, including interference from other memories, ineffective retrieval cues, organic damage, and deliberate desire not to remember. The controversy about false memories being induced is relevant in this process as well as the next process, recounting.

**Recounting.** Recounting is the retelling of the experience. Assembling memories into a narrative is closely associated with autobiographical reasoning, which consists of the interpretation and evaluation of memories (Singer & Bluck, 2001). These narrative and autobiographical aspects of memory alter the way memories are processed, and are a central focus of the therapeutic environment. Memories can be changed by the environment in which they are recounted such as suggestion of a therapist (American Psychiatric Association,

2000). All of the processes involved in memory are subject to the holistic influence of developmental stage, prior learning, emotional state, and sensory data at the time of the event, post-memory questioning, and description.

### **Traumatic memory**

The moment of trauma brings forth a sense of helplessness. The event “overwhelm(s) the ordinary systems of care that give people a sense of control, connection, and meaning” (Herman, 1997, p. 33). The secret of childhood sexual abuse evokes shame and further repression of the trauma (Fredrickson, 1992). Family members deny or keep the secret. Traumatic memories lack a verbal narrative, lack context and are encoded instead as images and emotional sensations.

Perceptual and environmental factors play an important role in memory organization. Ferry, Roozendaal, and McGaugh (1999) first reported that hormonal and neurotransmitter levels in the amygdala during an episode greatly influence the consolidation of memories of the episode. The inference is that a stressful event will be encoded more forcefully, and may be recalled differently. LeDoux (2002) reports that moderate emotional arousal strengthens memory encoding, but highly stressful experiences impair encoding.

High levels of stress cause the sympathetic nervous system to begin a cascade of hormonal response. Cortisol blood levels rise. Cortisol binds with and disrupts the hippocampus, impairing explicit memory function (Kim, Lee,

Han, & Packard, 2001). This study examined the role of the amygdala in modulating the effects of stress on the hippocampus of rats. Experimental lesions on the amygdala were used to block the effect of stress, though hormonal cascades including cortisol continued. Stressed animals showed impaired long-term memory (Kim et al., 2001). The amygdala modulates stress effects on the hippocampus and influences memory. Alternative processes and motivations for forgetting are possible and probable. There are likely many ways to remember or forget.

### **Forgetting**

All memories are vulnerable to distortion, decay, and complete loss. "Forgetting usually occurs imperceptibly with the passing of time" (Schacter, 2001, p. 1724). Can the trauma of sexual abuse be so profound that the experience is forgotten? There is logic in the use of amnesia. The stress and anxiety are great. Freyd (1997) wrote that the blockage is "a natural and inevitable reaction to childhood sexual abuse" (p. 4). Memory suppression not only reduces the anxiety of reality, but not *always* being conscious of the abuse, if the abuser is a caregiver, may be necessary for survival. After the abuse, "forgetting" occurs on an explicit declarative level, but the episodes are still known on an implicit, procedural level. These memories may surface as learned behaviors of distrust or poor self-perception (Freyd, 1997).

The experimental study of repression of traumatic memory is ethically difficult. Researchers, however, have been able to

identify the ability to *willingly* forget. Anderson and Green (2001) found that voluntary suppression impaired later memory; though manipulating the memory of a word list is not comparable to the traumatic experience of childhood sexual abuse. This study does not address whether memory repression is an involuntary defense mechanism or an example of self-deception. Mechanisms are available in the brain to "prevent unwanted declarative memories from entering awareness" (p. 366). The research can be applied to repressed memories of adult survivors of childhood sexual abuse. Victims who want to forget the experience encounter triggers that bring back the unwanted memory. The victims can deliberately prevent awareness of the triggers. The practice of forgetting reinforces suppression of memory (Anderson & Green, 2001).

### **Repression, Dissociation, and Suppression**

Fredrickson (1992) describes the repression as a multifaceted event influenced by predisposing factors, profoundly shaped by the event, and reinforced by the social network of the family. Predisposing factors such as the age at the time of the trauma will influence memory-encoding ability. Very young victims may not have the recall ability or thought processes to process the event with any order. Childhood amnesia is the common term that refers to the "lack of episodic memory of childhood. Perhaps procedural memory can exist for early childhood, even when declarative memory does not" (Freyd, 1996, p. 120). Pain, shock, sexual sensation, rage, and shame bombard the internal and external senses. The rush of hormones from the

sympathetic nervous system influences encoding. Dissociation numbs the horror.

The reaction of the family to the event further reinforces repression. If the child had been traumatized in a motor vehicle accident, the incident would be part of the normal family discussions, offering indirect support to the victim and allowing integration of the experience into their self. The family involved in childhood sexual abuse uses denial mechanisms and prevents the victim from talking about the experience and incorporating the event into who they are. The combination of the complex cognitive avoidance mechanisms and social prohibitions against talking about the events may "further undermine encoding, storage, and/or retrieval of these memories" (Butler & Spiegel, 1997, p. 16).

Some of the more persistent forms of childhood sexual abuse can lead to severe types of dissociative disorders such as multiple personality disorder (Nichols, 1992). Briere's self-trauma model suggests that these defense mechanisms serve an important function, that of "reducing the internal impact of trauma to the point that it eventually can be accommodated by existing self-capacities" (Briere, 1996, p. 141). Dissociation reduces the stress by decreasing awareness of the experience. The child is numbed to the pain. The trauma is encapsulated; therefore, the child does not continue to integrate the experience cognitively with the ongoing development of the self. Some adult survivors split those experiences into multiple personalities (Nichols, 1992). The

continual use of dissociation prevents future opportunities to learn to tolerate painful life experiences without avoidance (Briere, 1996; Nichols, 1992).

The sexually abused child understandably uses suppression in an attempt to get through the overwhelming traumatic experience. The dissociation provides a perceptual numbing, called upon to decrease anxiety by decreasing awareness of the traumatic event (Briere, 1996). Continued use of dissociation, however, would reduce opportunities to learn how to tolerate stress without avoidance. Coping mechanisms needed to survive the experience are over-practiced and become maladaptive (Bratton, 1999).

The experience of childhood sexual abuse alters attachment and trust dynamics, affects developmental stages, and distorts the perception of self (Briere, 1996). Self-trauma theory hypothesizes that there is failure of internal ability to integrate the experience into the self. This trauma in turn triggers the intrusive symptoms of Post-Traumatic Stress Disorder. The trigger may be an unconscious response to a stimulus relating back to the original abuse trauma.

### **Post-traumatic Stress Disorder**

Symptoms of anxiety, dissociation, and avoidance behavior characterize posttraumatic stress disorder (PTSD). Studies have drawn parallels between Vietnam veterans diagnosed with PTSD and survivors of childhood sexual

abuse. Developmental disorders include loss of attachment, reduced self-esteem, and fewer interpersonal relationships (WHO, 1997).

Dissociation correlates with posttraumatic symptom severity in adulthood (Johnson, Pike, & Chard, 2001). Female childhood sexual abuse survivors (n=89) aged 18 to 56 years participated in a Southeastern United States Center for Traumatic Research study. A method of structured interviews with standardized measures collected data of current PTSD, depression, dissociation, and abuse characteristics. Researchers found that traumatic dissociation was significantly related to PTSD, depression, and dissociation symptom severity in adulthood. If a woman dissociates during childhood sexual abuse she becomes unable to integrate and process the experience. Another relevant finding in this research was that abuse characteristics did not predict the severity of symptoms in adulthood, but correlated to dissociation severity during the abuse (Johnson, Pike, & Chard, 2001).

### **False Memories**

Memories are subject to change. The 1990s brought forth a considerable controversy concerning the validity of repression (Loftus, 1993; Loftus, 1994; Pope 1998). Memories recovered in therapy were sometimes found to be false and subsequent accusations ruined lives. The American Psychological Association concluded that it was possible to recover memories and it was possible to construct convincing false memories (APA, 1998). There are other possible tragic consequences of the

debate over false and true recovered memories. There may be disbelief when genuine sexual abuse is revealed. The fear of not being believed because of the public controversy may stop a victim from sharing their story. The American Psychological Association and the American Psychiatric Association released a joint statement that cautioned against the possibility of discrediting patients traumatized by abuse, because of public confusion over false or true memories (American Psychiatric Association, 2000).

### **Remembering Again**

The molester imposes a conspiracy of silence on the child, with threats or promises. Secrecy is the cornerstone of childhood sexual abuse and influences the child's ability to develop normally into a healthy adult. The incest secret molds the core of the victim's identity (Briere, 1996). It is difficult for a child to keep a secret. A "secret wants telling, that is its power" (Poston & Lison, 1989, p. 76). This secret carries and it is easier to put the experience "away" where the victim is not reminded of the trauma. Sexual abuse puts the victim at risk for memory repression. "Memory repression thrives in shame, secrecy, and shock" (Fredrickson, 1992, p. 23).

Stressful events in the adult survivor's life can trigger flashbacks, nightmares, and other symptoms of PTSD. These memories are intrusive. "The traumatic moment becomes encoded in an abnormal form of memory, which breaks spontaneously into consciousness" (Herman, 1997, p. 37). Memories are more easily retrieved from storage "when the emotional state at the time of the memory

formation matches the state at the time of retrieval” (LeDoux, 2002, p. 222). The amygdala activation during the similar emotional state organizes, stores, and retrieves implicit memory. According to Briere, this re-experiencing “is an inborn, self-healing activity” (1996, p.144). The psyche attempts to deal with the trauma by exposing the conscious mind to fragments of the past events. This incremental exposure allows a “gradual accommodation of cognitively unacceptable material” (Briere, 1996, p.144). Nightmares, recovered memories, and intrusive flashbacks, while distressing, provide a pathway to healing. These symptoms represent “the mind’s automatic attempt to desensitize and integrate affectively laden material by repeatedly exposing itself to small, moderately distressing fragments of an otherwise overwhelming trauma” (Briere, 1996, p.144).

### **Theoretical Perspectives of Memory Suppression**

**Psychoanalytic Theory.** In the psychoanalytic / psychodynamic model, repression of traumatic memories functions as a defense mechanism against anxiety (Gay, 1989). The ego is protected from threatening thoughts and memories at the unconscious level. The suppression of sexual content such as rape or sexual abuse may displace and generalize to sexuality in general, creating a host of associations (Hall, 1954). This condition will create a combination of repression proper, which is the repression of a conscious thought or episode, and primal repression, which is the repression of drives such as sexuality (Freud, 1915).

Problems occur when the unconscious content of the mind is in conflict with the conscious. A general psychoanalytic approach to the problem would include intentionally searching for and exploring the repressed memories in order to bring the causal relations into consciousness where they can be identified for what they are (James & Gilliland, 2003). Once the repressed content has been exposed to consciousness, the repression and displacement lose their power to interfere with other psychic processes.

**Cognitive Theory.** From a cognitive perspective, the repression or forgetting has a similar function as the psychodynamic model – protection of the ego. The cognitive mechanism, however, differs from Freudian theories. Cloitre, Cancienne, Brodsky, Dulit, and Perry (1996) report that the subject may be selectively forgetting and remembering experiences at the conscious level. This happens because of attention being focused elsewhere, causing interference with the normal memory processing of the episode. A cognitive approach to the problem will necessarily focus on the survivor’s perceptions and attitudes toward the abuse (James & Gilliland, 2003). If a survivor’s concept of the experience can be changed, then the behaviors influenced by the episode(s) will change. The focus, in contrast to psychoanalysis, will remain on present attitudes, rather than past phenomena. The experience is explored only in the context of its influence on the present.

**Holistic Approach.** This existential, phenomenological, humanistic approach



contends that strength, transcendence, and growth come from finding meaning, even if the experience is perceived as negative. The therapist's role is to illuminate discovery of relevant personal meaning and guide the client to uncovering the authentic self. The therapist is genuine, wholly present, non-directing, and practices from the belief that the client has not only the responsibility but also the wisdom to make their life choices. Past events are acknowledged, but the focus is on creating an interpersonal helping relationship in the here-and-now. A genuine, trusting, unconditionally positive relationship will provide the framework for the patient to process the trauma, and to grow beyond it. A holistic nurse would say, "the abuse should never have happened, and I am sorry that it did. How are you different because you were abused? How did the abuse change you? How are you *better*, even though this very wrong thing happened to you?"

The holistic nurse will understand that the physical, psychological, and social manifestations outlined and common to adult survivors are the body's way of remembering the abuse. This somatic reflection of memory suppression reinforces the theory that all life experiences influence cell chemistry and register memory in cell tissue (Pert, 1999). Somatic symptoms develop from the continual emotional stress influencing physical health. Treating the symptoms of various disorders may provide some relief, but remembering, discussing the abuse, and integrating the experience into self-concept will allow true healing.

## Conclusion

Many questions about traumatic memory and remembering childhood sexual abuse remain. What *is* known is that sexual abuse profoundly changes lives. Future research may answer some questions, but in the meantime, therapists are ethically obliged to serve those who report memories of childhood sexual abuse. Nurses must take a leading role in education of the public and professionals, and prevention of childhood sexual abuse.

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