

**THE KNOWLEDGE OF LEARNERS WITH HEARING IMPAIRMENT ON THE
TRANSMISSION MODES OF HIV**

by

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30 November 2014

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DECLARATION

I declare that **THE KNOWLEDGE OF LEARNERS WITH HEARING IMPAIRMENT ON THE TRANSMISSION MODES OF HIV** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.



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28 October 2014
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ABSTRACT

Awareness and knowledge of the different transmission modes of Human Immunodeficiency Virus (HIV) serves as a vital component of the efforts to prevent the spread of HIV. This quantitative descriptive cross sectional study was conducted with 99 learners from three public schools for learners with hearing impairment in KwaZulu-Natal (KZN). Data was collected via a self-designed questionnaire and analysed via the Statistical Package for Social Sciences (SPSS).

Recommendations based on the findings of poor levels of knowledge of transmission modes of HIV were made to motivate for greater awareness amongst these vulnerable learners.

Key terms

HIV; modes of transmission of HIV; hearing impairment; learners; knowledge.

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- Smangele Moyane, a librarian at UNISA, who supported and encouraged me

Dedication

I would like to dedicate this dissertation to:

All children with hearing impairment who encounter numerous challenges on a daily basis.

Your strength and courage in overcoming such hurdles should continuously inspire those of us who serve you to offer you the best that we could.

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List of abbreviations

AIDS	Acquired Immune Deficiency Syndrome
DOE	Department of Education
DOH	Department of Health
HIV	Human Immunodeficiency Virus
IDU	Injecting Drug Users
LWHI	Learners with Hearing Impairment
PWD	People with Disability
PLWH	People Living with HIV
PWHI	People with Hearing Impairment
SPPS	Statistical Package for the Social Sciences
WHO	World Health Organization

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- Annexure B Letter requesting permission and approval granted from the Department of Education to conduct research at public schools for the hearing impaired
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Annexure A

Ethical Clearance from the Department of Health Studies, University of
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Annexure B

Letter requesting permission and approval granted from the
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Annexure C

Consent letter

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Alpha co-efficient scores

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Globally approximately 25 million people have died of Acquired Immune Deficiency Syndrome (AIDS), while about 33.4 million live with Human Immunodeficiency Virus (HIV) (Young, Hlavka, Modiba, Gray, Van Rooyen, Richter, Szekeres & Coates 2010:620). These sombre figures reflect the devastating impact of one of the most decimating diseases of modern times. Further, research has shown that persons with hearing loss are among those who have been largely overlooked in global responses to HIV and AIDS (Adeniyi, Oyewumi & Fakolade 2011:6; Groce, Yousafzai & Van der Maas 2007:368; Winningham, Gore-Felton, Galletly, Seal & Thornton 2008:48; Hanass-Hancock 2009:1; Yaw 2011:7). Research amongst learners with hearing impairment in Nigeria has also revealed that even for those with some knowledge of HIV and AIDS, there were wide gaps in the knowledge of the transmission and spread of this all-encompassing disease (Adenuga 2009:5). Similar gaps in knowledge were identified by Mall (2012:iii) in a South African study of parental anxieties regarding HIV risk to their children who present with hearing impairment. Scheier (2009:8) additionally noted that as a result of a breakdown in communication, persons with hearing impairment are less able to access information on HIV and AIDS, which places them at a greater risk of HIV infection as they may unknowingly engage in behaviours which promote, rather than prevent, the transmission of HIV.

Within the South African context, HIV incidence and prevalence is considered amongst the highest in the world (Mall & Swartz 2012:343). These authors also observed that young people recorded the highest rates of HIV incidence. Young people who are on the brink of adulthood and thus likely to engage in sexual initiation and experimentation, are faced with several risk factors such as peer pressure, unprotected sex, alcohol and or drugs usage, multiple sexual partners, sexual coercion or sex for reward (Maluleke 2010:139).

The aforementioned HIV infection risk factors are also applicable to those with hearing impairment, who are not able to access information on the basics of HIV, its transmission and prevention via the usual channels of communication, i.e. auditory or verbal input. In addition, they may not possess the requisite cognitive competency or literacy levels to acquire this information from sources such as the internet or print media (Goldstein, Eckhardt, Joyner-Creamer, Berry, Paradise & Cleland 2010:525). Consequently, people with hearing impairment have been observed to have poorer knowledge of the transmission modes of HIV.

In South Africa, Mall and Swartz (2012:765) concurred that the knowledge of HIV transmission by those with hearing impairment was poorer than that of those with normal hearing. Incorrect perceptions such transmission of the virus by hugging or kissing, or that people with HIV needed to be avoided, still persist among those with hearing impairment (De Andrade & Baloyi 2011:310). These misperceptions of the transmission of HIV may be due to their inability to access information correctly and it is this lack of access to information in an accessible medium which could possibly increase their vulnerability to HIV infection. Hence, it may be concluded that insufficient knowledge of responsible sexual behaviour leads to “licentiousness” which could possibly contribute to the spread of sexually transmitted diseases, particularly HIV.

This study in the first instance aims to determine the knowledge of learners with hearing impairment (LWHI) of the different transmission modes of HIV and to propose recommendations to improve possible knowledge gaps in this regard. Prevention starts with knowledge and the success of any prevention strategy is dependent on the dissemination of information to facilitate the empowering of the individual (Adenuga 2009:29). In the second instance this study seeks to empower a potentially vulnerable group of learners by facilitating their acquisition of knowledge of HIV transmission modes.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

Hearing impairment, which is a reduction in hearing sensitivity, is considered disabling by the World Health Organization (WHO), when it exceeds 40 dB HL (Harris, Peer & Fagan 2012:548). There are approximately 278 million people globally who are hearing impaired (Bell 2013:47). Approximately 20% of the South African population has some

form of hearing impairment (De Andrade 2011:120). Despite a relatively high global prevalence of hearing impairment, developing countries especially tend to focus on life threatening medical conditions (rather than hearing impairment), as their highest priority (Thomas 2013:6). In this regard, South Africa, which records one of the highest incidence and prevalence rates of HIV and AIDS in the world, has understandably allocated immense resources towards fighting this scourge (Kharsany, Mlotshwa, Frohlich, Zuma, Samsunder, Abdool Karim & Abdool Karim 2012:5). The United Nations AIDS Global Report (UNAIDS 2012:8) revealed that approximately 34 million people were living with HIV worldwide as at the end of 2011. Of this group South Africa was estimated to host approximately 5.38 million people (Mid-year Population Estimates 2011). South Africa also reports a disability prevalence of approximately 24% (Hanass-Hancock, Regondi & Naidoo 2013:1). This, these authors believe, constitutes a significant number of people, who are currently being excluded from HIV programmes, as these are inaccessible or simply do not include people with disability.

The dearth of knowledge of prevalence data as regards people with disability (PWD) and HIV in South Africa has additionally been highlighted by Hanass-Hancock et al (2013:1), Evans and Atim (2011:1438), as well as Chireshe, Rutondoki and Ojwang (2010:17). Not only is there a paucity of research in the field of disability, but there is even less information available on the inter-relationships between disability and HIV. This deficit of knowledge not only reflects a scarcity of prevalence information, but also indicates a total disregard for this group. Little research on HIV and AIDS issues concerning people with disability, including how they would be targeted for information pertaining to prevention of infection, was also observed by Eide, Schür, Ranchod, Rohleder, Swartz and Schneider (2011:1595). Some researchers are of the opinion that the lack of information on prevalence of HIV within groups of people with disability (PWD) may lead to assumptions that they (PWD) are not at risk of contracting the virus (Chireshe et al 2010:17). Further, there is a misperception of asexuality amongst PWD (Aderemi, Pillay & Esterhuizen 2013:1; Yaw 2011:18). This misperception has perhaps also played a major contributory role in this vulnerable population being side-lined in HIV prevention efforts.

As a result of the misperception of asexuality, Chireshe et al (2010:17) report that the consequent misunderstanding of reduced risk, results in the exclusion of PWD from HIV and AIDS policies and programmes. This is especially true of South Africa where in

2007 the Department of Health had already acknowledged in its National Strategic Plan for HIV and AIDS that it had neglected PWD (De Andrade & Baloyi 2011:308).

Whilst a cure for this all-encompassing disease continues to elude scientists, the best approach to contain the spread was considered to focus on information about prevention of transmission of the virus (Wood 2008:4). Although knowledge alone does not immediately translate into preventative behaviours, this knowledge is essential for transforming behaviours, as young people cannot begin to engage in protective behaviours if they do not possess the basic required knowledge (Adenuga 2009:29). Hence knowledge is considered the first, most basic tool, in empowering individuals to effect appropriate changes in their behaviour. In support of improved knowledge as a prevention strategy, Wood and Hillman (2008:40) stated that “the theory is that the more education a person has, the less likely they are to contract HIV”.

In reflecting on the lessons that have been learned in the past three decades of HIV prevalence, Winningham et al (2008:51) have concluded that effective prevention efforts must place a specific focus on the psychological, behavioural and social milieu in which transmission occurs. Therefore, adolescence/young adulthood, which is a period marked by emerging sexuality and experimentation, has been identified as one of the critical periods for intervention, especially within the South African context (Mall 2012:iii; Maluleke 2010:139; Petersen, Bhana, Myeza, Alicea, John, Holst, McKay & Collins 2010:970). Unlike adults, whose behaviours might be long established, for adolescents entering adulthood, whose focus is still on establishing their identities, and perhaps includes various levels of risky behaviour, there exists a greater possibility of establishing safe sexual practices (Ndzombane 2012:4). Thus young adults are the most important target population with regards to prevention efforts as they are very vulnerable (Jemmott, Jemmott, O’Leary, Ngwane, Icard, Bellamy, Jones, Landis, Heeren, Tyler & Makiwane 2010:923).

For young adults who are hearing impaired, the issue of vulnerability to HIV infection, is especially pertinent. The communication barriers experienced by these specific individuals may be due to their varying levels of literacy, different degrees of hearing loss, varying backgrounds, as well as differing cognitive and communicative skills (Marx, Soer & Dick 2011:38). These communication barriers effectively limit the hearing impaired persons’ ability to access the mass communication strategies afforded to the

general public. Further, it was found that when hearing impaired persons attend schools where there was little focus on sexuality and HIV education, these learners experienced difficulty in accessing relevant information and were left with poor factual knowledge (Goldstein et al 2010:524). In this regard, the perception that hearing impaired youngsters do not engage in sexual activities, creates an additional detrimental barrier for them to openly discuss their lack of knowledge about sexually transmitted diseases with their parents as well as medical healthcare practitioners (Mall 2012:4; Yaw 2011:ii; Wood 2008:ix). Frequently, the mode of communication in healthcare settings overseas is Sign language, but lack of knowledge/skill or personal discomfort with issues of sexuality or sexually transmitted diseases (from the practitioner) may result in a further widening of the communication gap (Scheier 2009:8). Within the South African context, this situation is doubly exacerbated by the lack of trained Sign Language interpreters as well as possible personal discomfort. Therefore this study seeks to emphasise the plight of learners with hearing impairment, the lack of consideration of their unique communication needs, and the barriers that they experience in accessing information on the different transmission modes of HIV.

A survey in South Africa in 2010 indicated that there were approximately 981 000 persons with hearing impairment (Bell 2013:47). This would indicate a substantial number of people in need of information that is largely inaccessible to them via the usual mass media methods of television, radio or print (Goldstein et al 2010:525). Particularly for young adults who have difficulty with age appropriate literacy levels and or, difficulty hearing and interpreting spoken English, the use of a gestural system of communication is most often the preferred mode of communication (Marx et al 2011:38; Klein 2010:6). That visual representation of HIV educational and information material would be more appropriate for use with persons utilising different communication methods and also those with poor literacy skills, was also suggested by Winningham et al (2008:7). In this regard the use of computers or the internet might be considered a possible solution. However, computers with sufficient memory and processing capacity, are not easily accessible to those with hearing impairment due to possible financial constraints (Winningham et al 2008:7; Groce et al 2007:369). Further, their poor literacy skills result in less ability in accessing information presented to the general population (Marx et al 2011:38).

An information leaflet that was devised by The Ryan White Program further shows that there is a frequent misperception that American Sign Language and English follow similar patterns of grammar and syntax (US Department of Health and Human Sciences 2008). However, these two language systems have fairly different word order and vocabularies. Hence materials and programmes developed for persons with hearing impairment needs to take cognisance of these facts so as to develop interventions that are more culturally and linguistically appropriate and accepted. The Ryan White Programme also indicates that persons with hearing impairment are more amenable to learning from their peers than from more formal structured processes. This preference for peer-acquired information, might also contribute to the gaps in knowledge about certain aspects of HIV and AIDS, given the communication barriers experienced by persons with hearing impairment (Bat-Chava, Martin & Kosciw 2005:625).

The direct consequence of poor ability to access written information within the context of HIV and Aids prevention is the likelihood of miscommunication of information. Persons with a hearing impairment may have basic knowledge about HIV and AIDS, but less knowledge on specific aspects such as the different modes of transmission (Bat-Chava et al 2005:625; Groce et al 2007:370; Goldstein et al 2010:367). It is suggested that improving the literacy skills of people with disability to levels where they could easily read and understand HIV messages would enhance the inclusion of disability issues into mainstream HIV and AIDS programmes (Chireshe et al 2010:22), in this manner facilitating an improvement in access to information. As concluded by Adeniyi et al (2011:6), the most dire consequence of poor communication, was the continued engagement in high risk sexual behaviours, which in turn contributed to correspondingly high levels of transmission of HIV infection.

In the studies indicated above, it is evident that, LWHI are especially disadvantaged in accessing information on HIV and AIDS as a result of different barriers (communication, socio-economic factors, misconceptions about their sexual activities, and accessibility of information). It should further be noted, that prevention efforts need to place an appropriate focus on improving knowledge as a basis to effecting change. In this regard, researchers have reported that knowledge is a “necessary” but not always “sufficient” factor to effect change (Goldstein et al 2010:524; Aaro, Breivik, Klepp, Kaaya, Onya, Wubs, Helleve & Flisher 2011:213). Thus, the pertinent starting point for an investigation of the hearing impaired learners’ understanding of transmission modes of

the virus, would be; “What do learners with hearing impairment know about the different modes of transmission of HIV?”

1.3 STATEMENT OF THE RESEARCH PROBLEM

Research has shown gaps in the knowledge of transmission modes of HIV by people with hearing impairment (Winningham et al 2008:48; Adeniyi et al 2011:6; Adenuga 2009:29). Reasons that may have contributed to this include the barriers to communication that are experienced by people with a hearing impairment or a total lack of consideration concerning their inclusion in HIV intervention. Given the South African context of a significant number of people with hearing impairment in the country, as well as the high HIV prevalence in the young adult population, it is imperative that intervention efforts consider the needs of this vulnerable population. This study therefore seeks to assess the knowledge that LWHI have of transmission modes, as adolescence is a period marked by emergent sexuality, with sexual intercourse being one of the main routes of HIV transmission (Cabezas, Fornasisni, Dardenne, Bonja & Albert 2013:1). In addition, studies have demonstrated that this is the age group that records the highest incidence of infection within South Africa (De Andrade & Baloyi 2011:308; Taylor, Dlamini, Meyer-Weitz, Sathiparsad, Jinabhai & Esterhuizen 2010:1395; Leonard, Markham, Bui, Shegog & Paul 2010:110; Maluleke 2010:2; Hartell 2012:113).

In support of focussing attention on young adults with hearing impairment, De Andrade and Baloyi (2011:308) noted that although basic knowledge about HIV and AIDS was evident in this group, there were still a number of gaps in their knowledge. For example, these gaps included the misperception of contracting the virus through social contact (such as touching someone who was HIV infected), and considering avoidance of HIV positive people, as an appropriate prevention measure. They also found some confusion about HIV and AIDs with other chronic conditions such as cancer. Their overall conclusion was that these young adults did not fully conceptualise the gravity of the HIV infection and were generally lacking in their knowledge of its different modes of transmission.

In the studies previously referred to a notable point made is the scarcity of research on HIV and AIDS and disability issues (Evans & Atim 2011:1438; Hanass-Hancock et al

2013:1; Goldstein et al 2010:524; Chireshe et al 2010:17). Hanass-Hancock et al (2013:3) also consider the fact that most of the studies that were conducted, were of a relatively small scale and therefore reflect information that may not be pertinent to a population. This, they stated is sufficient impetus to conduct further research as HIV programmes need to effectively and appropriately integrate disability. This can only be done when targeted interventions, which consider the unique developmental and specific contextual needs of vulnerable groups, are considered (Nkansah-Amankra, Diedhiou, Agbanu, Harrod & Dhawan 2011:731; Li, Jaspán, O'Brien, Rabie, Cotton & Natrass 2010:756). In this regard, the slogan; “Know your Epidemic, Know your response”, is particularly relevant (UNAIDS 2008; Case, Ghys, Gouws, Eaton, Borquez, Stover, Cuchi, Abu-Raddad, Garnett & Hallett 2012:831). Further, ascertaining the knowledge of transmission modes of HIV, amongst a population of persons with hearing impairment that is recognised as vulnerable yet remains under-served is especially pertinent (Klein 2008:357; De Andrade & Baloyi 2011:307; Hartell 2012:113). This is underscored by the fact that for several years KwaZulu-Natal (KZN) has been considered to be the province with the highest prevalence of HIV (Sanpath 2014:5).

1.4 RESEARCH QUESTION

This study seeks to answer the research question: “What knowledge do learners with hearing impairment have of the different modes of transmission of HIV?”

1.5 PURPOSE OF THE STUDY

The purpose of this study was consequently to explore the knowledge gaps as regards the different transmission modes of HIV of LWHI at public schools in KZN, and to enhance their knowledge through proposing recommendations.

1.6 OBJECTIVES OF THE STUDY

The objectives of the study were to

- determine the knowledge gaps of LWHI on the different transmission modes of HIV

- improve knowledge gaps of LWHI on the different transmission modes of HIV through recommendations based on the findings of this study

1.7 SIGNIFICANCE OF THE STUDY

Research has demonstrated not only a paucity of information on the persons with hearing impairments' knowledge of HIV, but a particular dearth of information from Southern Africa. Against this backdrop, and the high prevalence of HIV among the youth, the findings of this study will identify possible gaps in knowledge that LWHI may have about the different modes of transmission of HIV, and possibly generate recommendations to improve their knowledge. This may create an awareness of the need to develop appropriate acceptable and accessible information, education and communication material for persons with a hearing impairment.

As acknowledged by numerous studies cited previously by Adenuga (2009:29) and Goldstein et al (2010:524), having sufficient information or knowledge about the different transmission modes of HIV, is not in itself protective, but it certainly contributes to reducing risk of infection, by promoting safe sexual health behaviours (Swenson, Rizzo, Brown, Vanable, Carey, Valois, DiClemente & Romer 2010:2). Education holds the key as it “reduces the risk of HIV ... through exposure to prevention information and improved understanding of the link between an individuals' sexual behaviour and risk of HIV infection” (Kimani, Ettarh, Ziraba & Yatich 2013:110).

1.8 DEFINITION OF KEY TERMS

1.8.1 Hearing impairment

Hearing impairment is a reduction in hearing sensitivity (*The Oxford Online Dictionary* 2013b). The WHO describes disabling hearing loss as sensitivity that is poorer than 40 dB HL (Harris et al 2012:548). In this study hearing impairment will refer to thresholds that are greater than 40 dB HL. Hence learners with hearing impairment will refer to those learners who present with hearing impairment greater than 40 dB HL, which determines their placement at schools for hearing impairment.

It should be noted that severity or degree of hearing impairment may be classified as being mild, moderate (41-70 dB HL), severe (71-90 dB HL), and profound (>90 dB HL) (Swanepoel & Laurent [s.a.]:[4]). Hence the learners in this study would all have had hearing impairment that would be classified moderate to profound in severity.

1.8.2 HIV and AIDS

“HIV” is an acronym for Human Immunodeficiency Virus, which results in an incurable infection of the body’s immune system. The virus attacks the body’s T cells/CD4 cells and destroys their ability to ward off infections and diseases. “AIDS” or “Acquired Immune Deficiency Syndrome” refers to the most advanced/or end stages of the HIV infection (HIV/AIDS Basics 2014).

When a persons’ CD4 count drops below 500 cells/mm³, they are considered eligible for treatment with antiretroviral medication (ARVs) (HIV and AIDS Treatment and Care 2015:[1]). The WHO guidelines also indicate that treatment may be commenced immediately, and regardless of CD4 count, for those who are pregnant, breastfeeding, have active TB, or are below the age of 5 years (HIV and AIDS Treatment and Care 2015:[1]).

1.8.3 Disability

The World Health Organization’s (WHO) (2011:[1]) definition of disability is an all-encompassing term to refer to impairments, activity limitations, and participation restrictions. In the generally accepted previous focus on the Medical Model of health status, an impairment of function was considered to lead to a disability. With the current use of the International Classification of Function, a more holistic view of those presenting with disability, is adopted (Danermark, Cieza, Gangé, Gimigliano, Granberg, Hickson, Kramer, Mcpherson, Möller, Russo, Strömgren, Stucki & Swanepoel 2010:257). The inter-relatedness of a reduced skill or ability as regards a persons’ interaction with their environment/society, provides a better understanding of their limitations. In this regard, the limitations experienced by LWHL in accessing information will be highlighted in the chapters that follow.

1.8.4 Modes of transmission of HIV

Modes of transmission of HIV refer to the different ways/methods in which HIV is transmitted/spread. HIV is transmitted by sexual activity, needle exchange, contact with body fluids or from mother to child, with the most common modes being sexual contact and needle exchange (Cabezas et al 2013:1). Various myths such as transmission via casual contacts such as hugging; dry kissing; hand shaking, the sharing of linen or crockery with an infected person, or the air-borne routes of coughing/sneezing, still persist (Kutnetzsova 2011:[1]). Such beliefs need to be corrected in order to ensure accurate knowledge. Both the modes of transmission and of non-transmission are further discussed in the literature review.

1.8.5 Learners

Learning is a process that is defined as acquiring or gaining skill or knowledge (*Merriam-Webster Online Dictionary* 2013). Thus, a “learner” would be considered as someone within the school environment who engages in learning to further their knowledge and or skill. For the purposes of this study, learners refer to young adults, aged 18 years, or older. (Special needs learners, such as those with hearing impairment, are accommodated at schools until the age of 21.)

1.8.6 Knowledge

The Oxford Online Dictionary (2013a) defines “knowledge” as the information and/or skills that are obtained through experience and or education. This study sought to explore the knowledge of the different transmission modes of HIV of learners with hearing impairment.

Operational definitions

“Knowledge of LWHI” refers to these learners understanding of different modes of transmission of HIV.

“Satisfactory knowledge”. The hearing impaired learners will answer more than 80% of knowledge questions correctly.

“Unsatisfactory knowledge”: The hearing impaired learners will answer less than 70% of knowledge questions correctly.

1.9 RESEARCH DESIGN AND METHODOLOGY

Research design refers to the format that the researcher has used in order to plan the study. In view of the fact that the researcher was interested in exploring the knowledge that learners with hearing impairment have of the different transmission modes of HIV, she employed a descriptive, cross sectional quantitative design.

1.9.1 Quantitative research

Quantitative research is concerned with investigations that allow for precise measurement (Polit & Beck 2012a:739). The researcher sought to identify knowledge and gaps in knowledge of modes of transmission of LWHI across three public schools in KZN. Hence she opted for a quantitative design. The use of a questionnaire to gauge the learners' knowledge assisted her with quantifying large amounts of data.

1.9.2 Descriptive research

Descriptive research is essentially describing a phenomenon of interest (Sekaran & Bougie 2009:105). The researcher proposed describing current knowledge of modes of transmission of HIV of LWHI. That she is simply describing, and therefore not influencing their knowledge in any way, renders this research strategy most suited to the study.

1.9.3 Cross-sectional research

The cross-sectional survey method facilitates the collection of large amounts of data in a standardised manner that is economical and efficient (Borg 2009:361). In this study data were collected at a single point in time. This method was considered applicable to this study as it allows for the collection of large amounts of data, and it also provides for the collection of information relating to the health care needs of this population.

1.9.4 Study setting

The study setting refers to the actual site of data collection. The researcher approached three public schools for LWHI within the greater Durban area, to participate in the study. Following their declining to participate, the researcher then contacted other schools within the province. Thus the study was then conducted at three schools for LWHI outside the greater Durban area. More detail is provided in Chapter 3.

1.9.5 Study population

The study population refers to an entire group or individuals who possess or share a common trait (Polit & Beck 2012a:738). The target population refers to those individuals possessing a key trait, such as LWHI. The accessible population refers to those individuals who possess the characteristic or trait of interest to the researcher, and who are accessible to the researcher, i.e. are available to participate. This study focuses on LWHI, who are 18 years and older, and are learners at public schools in KZN.

1.9.6 Sample and sampling

A sample refers to a group of people or objects that possess a phenomenon of interest to the researcher. The process whereby a researcher selects subjects to participate in a study is referred to as sampling (Polit & Beck 2012a:275). A convenience sampling approach, which utilises all accessible respondents, was used. This was considered applicable as the researcher sought subjects who could be found within an accessible distance due to time and budget constraints. Hence the researcher initially approached the 3 schools for LWHI that were closest to her. When these schools declined participation, the researcher then approached another group of schools that she could travel to timeously. All learners at the latter 3 schools, who met the inclusion criteria of the study, were included in the sample.

1.9.7 Sample size

The researcher initially anticipated having approximately 300 participating learners at the 3 selected schools, based on preliminary discussions held telephonically with the principals (February 2014). However, as a result of factors such as the learners not

having turned 18 at the time of data collection, or their lacking the cognitive competencies to participate, only 99 learners were actually recruited across the schools.

As a result of limited research in the field of disability and hearing impairment in particular, the researcher did not have access to information or statistics regarding the prevalence of hearing impairment in the identified/targeted age group in KZN (Manager: Disability and Rehabilitation Programme. Personal communication, 24 February 2014. Pietermaritzburg). This limited the ability to calculate an appropriate sample size, and the researcher therefore proceeded to include all accessible respondents in the study. More detail is provided in Chapter 3.

1.9.8 Data collection

Polit and Beck (2012a:725) noted that data collection involves the gathering of information on the research problem. In quantitative studies, data is collected via a predetermined process such as interviews and or observations or the use of questionnaires. In this study, the information was collected via the use of a self-designed questionnaire. This comprised sections on demographic information, sources through which the learners had obtained information on HIV and its transmission modes, their knowledge of the actual transmission modes, as well as their preferred sources of information. The questionnaire is discussed in greater detail in Chapter 3.

A joint sitting of the learners, together with the researcher and a Sign Language Interpreter, occurred at each school. The study's aims, purposes and objectives, as well as giving informed consent were discussed with learners before data collection. Learners were then presented with the questionnaires after they had provided consent. Discussions on any possible misinterpretations of the items, i.e. questions and clarifications, occurred. Learners filled in the questionnaires and posted them into a box, at the end of the room.

Data collection occurred from March to April 2014 at the 3 different schools. More detail on this is furnished in Chapter 3.

1.10 VALIDITY AND RELIABILITY

Validity and reliability are related to issues concerning the instruments' applicability in testing that which it is designed to measure, and its replicability. Hence the researcher's supervisor, a statistician and field experts in HIV and Sign Language, were consulted to ensure that the instrument was applicable to the context of this study. The researcher used field experts in Education and Sign Language to ensure that the questionnaire was on the level of and understandable to the learners with hearing impairment.

The Cronbachs' Alpha co-efficient was calculated to determine the internal consistency of items on the questionnaire. Issues of validity and reliability are discussed in detail in Chapter 3.

1.11 DATA ANALYSIS

Statistical Package for Social Sciences (SPSS) software was used to analyse the data. Data analysis involves the organisation of the data and thereafter the application of statistical procedures to test hypotheses (Polit & Beck 2012a:725). Descriptive and inferential statistics were used. Descriptive statistics allow the researcher to describe and summarise the data, whilst inferential statistics enable one to draw conclusions about the study population (Polit & Beck 2012a:725). The researcher was thus able to identify patterns/trends in the responses obtained by considering the frequencies, means and variability of responses. Thereafter, she attempted to provide interpretations of these in view of the literature review that was conducted. More detail will be supplied in Chapter 3.

1.12 LIMITATIONS OF THE STUDY

One of the possible confounding variables to consider is that the learners, who hail from different health districts, would have had different exposures to health messages. This would have been dependent on whether or not HIV had recorded high incidence and prevalence levels in their districts. This would have resulted in their being bombarded with information from different resources. Urban areas are often rich in resources such as clinics, NGOs and so forth, as compared to the rural areas (Wen, Wang, Zhao, Yao,

Ye & Jiang 2011:540). LWHI who also have concomitant deficits in other modalities or abilities are also more likely to have attained varying abilities or levels of knowledge.

A possible limitation of voluntary participation may be a small sample size. In this regard although the Department of Education had given consent for the participation of all schools for learners with special needs in the province, the direct liaison persons who are the Principals at the institutions were the decision-making personnel. Hence their authority in whether or not learners were allowed to participate in the study also restricted access to a larger number of learners.

The lack of prevalence data of both HIV and hearing impairment in the targeted age category also resulted in the sample size being limited. More detail is provided in Chapter 5.

1.13 ETHICAL CONSIDERATIONS

The researcher first obtained ethical clearance from the Higher Degrees Committee of the Department of Health Studies, University of South Africa (HSHOC/266/2013, refer to Annexure A). This was followed by letters to request and obtain permission for data collection from the Department of Education (DOE) (refer to Annexure B) and Department of Health (DOH) (refer to Annexure B). This was especially crucial to ensure that the said bodies had no objections to this study being conducted.

Informed consent which is further discussed in Chapter 3, was then obtained from the learners to ensure that their participation did not impinge on their dignity or rights to decline participation.

1.14 OUTLINE OF THE STUDY

The study comprises the following chapters:

Chapter 1: Orientation to the study

Chapter 2: Literature review

Chapter 3: Research design and methodology

Chapter 4: Analysis, presentation and description of the research findings

Chapter 5: Findings, conclusion and recommendations and limitations

1.15 CONCLUSION

This chapter provided an overview to the study that was conducted at three public schools for LWHI in KZN. It includes an introduction, background to the research problem, research problem; objectives; and a discussion of significance, research design and methodology, as well as ethical considerations. The findings and recommendations based on these are discussed in the chapters that follow.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

According to Sekaran and Bougie (2009:38), a literature review is conducted to assist the researcher in identifying pertinent issues related to the research problem. This helps him or her to identify related studies that have been conducted so as to ensure that relevant, appropriate research is being conducted to add to the body of knowledge. It streamlines research efforts in the sense that unnecessary repetition is avoided.

A literature review is conducted by previewing all related books, journals and articles. The researcher employed the search engines of EBSCOHOST, Academic Search Premier, Sabinet African Repository, ProQuest, SAGE, and Biomed Central, as well as the UNISA ETD. The search was facilitated by typing in key words such as HIV, transmission modes, hearing impairment, adolescence/young adults, and knowledge. The search engines produced approximately 1 000 hits, efforts by the researcher to streamline the information were facilitated by her indicating specific timeframes, e.g. no articles older than 5 years were considered for inclusion. Further, attempts to filter the information obtained so as to focus on a particular age group, i.e. learners who were 18 years and older, as well as considering issues pertaining to South Africa specifically, resulted in the researcher using approximately 200 sources to focus on pertinent issues.

To review the information from the different sources, the researcher initially focused on general information pertaining to HIV, i.e. first evidence and diagnosis of the virus and resultant disease globally and nationally. Thereafter she concentrated on the different transmission modes of HIV, and the prevention of infection. Given the topic of the study, information pertaining to people with hearing impairments, and their knowledge of the different transmission modes, as well as information related to the age group of concern, also formed part of the focus in the literature reviewed.

In 2011, as noted, approximately 5.38 million people in South Africa were found to be HIV positive, making it the leading country in HIV incidence globally (Mid-year Population Estimates 2011:2). Further, it was also observed that about 50% of all new infections have been noted in youth and young adults (Gray 2009:1). Research has proven that this age group, 15-49 years, is especially vulnerable to HIV infection as a result of its member's diminished perception of susceptibility, emerging sexuality and transition into adulthood (Tarkang 2009:168; Li et al 2010:751; Gatta 2011:9). The physical, mental and emotional difficulties associated with transitioning into adulthood may be further exacerbated by a sensory deficit, such as hearing impairment. The concomitant communication barriers associated with hearing impairment pose an additional risk factor for increased vulnerability to HIV transmission. Unfortunately, as a result of minimal research in this area, information on incidence and prevalence of HIV and AIDS in persons with hearing impairment (PWHI) as a population in South Africa is not available (Mall 2012:27). In reality, there has not been much research in the field of HIV and disability in general (Eide et al 2011:1595). Therefore, as indicated earlier, this study seeks to understand the levels of knowledge that LWHI have of the different transmission modes of HIV.

2.2 THE INCIDENCE OF HIV AND AIDS

The Human Immunodeficiency Virus (HIV) was first identified in the early 1980s in the United States of America (Mall 2012:18). The virus attacks and destroys the body's lymphocytes, which renders it prone to infection (Council of Scientific and Industrial Research 2013:[1]). HIV results in AIDS, which is the advanced end stage of HIV infection (Louw & Mayer 2012:268). People are considered to have AIDS when their immune systems have been destroyed by the virus, rendering them vulnerable to many other infections, known as opportunistic infections. When the persons' CD4 count drops to below 200 cells/mm³, the diagnosis of AIDS is made. With healthy immune systems the CD4 count ranges from 500-1600 cells/mm³ (HIV/AIDS Basics 2014:[1]). Thirty-four million people globally were reported to be living with HIV in 2011 (UNAIDS Report on the Global Aids Epidemic 2012:8). Of these approximately 2 million are reported to demise each year. Hence HIV and its end stage result of AIDS has been considered the most devastating illness of modern times (Nur 2012:1; Bogart, Skinner, Weinhardt, Glasman, Sitzler, Toefy & Kalichman 2011:182; Kimani et al 2013:1; Joge, Deo;

Choudhari; Malkhar & Ughade 2013:1). Hence, numerous governments, South Africa's included, have scheduled research into this disease as a health priority.

Of the millions of People Living with HIV (PLWH) worldwide in 2010, 90% were found to be in the developing countries (Joge et al 2013:1). In this regard Sub-Saharan Africa has been considered the global epicenter of this pandemic. Further, as mentioned, South Africa has been noted to be the country with the highest prevalence worldwide (Kharsany, et al 2012:5). Hartell (2012:113) reported a 49.3% prevalence of HIV in the young adult population group of 15-49 years in South Africa. For this reason the young adult aged 18 years and older, targeted in this study is especially relevant as research has also shown this to be the group with the largest incidence and prevalence of HIV. Global statistics have indicated a 45% incidence of infections in this group, with no clear signs of abatement (Gatta 2011:11). Therefore focussing on this age group is especially pertinent in strengthening efforts to prevent HIV infections. This is also supported by Tarkang (2009:1), who stated that "young people are both the most threatened globally and the greatest hope for turning the tide against HIV/AIDS".

2.3 HIV IN VULNERABLE POPULATIONS

Young adults have been shown to be most at risk of becoming infected with HIV due to their perception of decreased risk of infection, their experimentation with high risk sexual practices, and their lack of appropriate role models/guidance in reference to sexual activity. Studies by Adenuga (2009:29), Gatta (2011:2), Tarkang, Van der Wal and Ehlers (2011:77), demonstrate that reduced risk perception, continued engagement in high risk behaviours, and limited knowledge with regard to the transmission of HIV, are prevalent amongst adolescent learners. There have been inconsistent definitions of the periods of adolescence both between and also within countries (Pitorak, Bergmann, Fullem & Duffy 2013:xi). The WHO has defined an adolescent as a young person who is between 14 and 19 years of age (Pitorak et al 2013:xi). In this study the researcher considers the knowledge of the hearing impaired learner who is 18 years and older with respect to the different transmission modes of HIV. This age range was decided on by considering the definition of youth/young adults as stipulated by the National Youth Policy of South Africa (2009-2014), wherein the terms "youth or young adults" are used to refer to persons falling within the age range of 14 and 35 years. As mentioned above, this is the age group with the fastest growing incidence, as well as the highest

prevalence of HIV. In addition, these are the learners at schools for special needs who are most likely to be exiting the schooling system. Studies, such as those conducted by Mall (2012:27), Tarkang (2009:31) and Adenuga (2009:29) indicated that young adults perceive their vulnerability to HIV and or AIDS to be diminished. They do not consider that either their behaviours or the behaviours of their partners will expose them to risk of infection (Tarkang 2009:168). It is such perceptions that have perhaps exacerbated inappropriate sexual practices, such as reduced use of condoms, and have perpetuated the spread of HIV. Young women, in particular, across the African continent have been observed to be most at risk of infection as a result of their poor access to information, reduced status in relationships, violence, and intergenerational sexual relations (Saad, Subramaniam & Tan 2013:196). In this regard, Kofi Annan (2002) described the crisis on the African continent as having a “woman’s face” (Flint 2011:173).

Wood (2008:47) identified several factors as increasing ones’ risk to infection with HIV. Of these, gender inequality (discussed above), lack of education, traditional or cultural perceptions or practices and poverty, are the most critical within the South African context. Poverty is often associated with poor nutritional status, migrant labour which are people who are compelled to seek employment opportunities away from home, and so may engage in extramarital affairs, and women selling sex. The UNAIDS Report on the Global Aids Epidemic (2012:21) indicated female sex workers as recording a 13.5% greater prevalence of HIV compared to other women. Higher levels of education are believed to serve as a protective factor against possible infection, because the young adults are more empowered with the appropriate knowledge of prevention, transmission of infection, treatment and care options. This is supported by literature which shows that when young adults drop out of school, they are exposed to an enhanced risk of infection (Conn 2010:30, 31; Swartz, Deutsch, Makoe, Michel, Harding, Garzouzie, Rozani, Runciman & Van der Heijden 2012:243). These authors all concur that once learners leave the school environment it is especially difficult to reach them with risk reduction and risk prevention information. Schools are therefore a key role player in the efforts to curb the spread of HIV. Further, as indicated, the target population in this study is an especially vulnerable group.

An additional risk factor within the South African context is the influence of cultural practices and traditions, e.g. the belief that HIV is caused by witchcraft or supernatural powers, or the ancestors’ dissatisfaction with the infected person (Bogart et al

2011:181). The belief that witchcraft or supernatural powers result in infection, would only serve to reinforce the misperception that one cannot protect oneself from infection with HIV, as this would be beyond the individuals control. Such misperceptions do not auger well for the fight against HIV. In addition, LWHI, who are possibly exposed to this view of the spread of HIV, and cannot question this as a result of limited information from other sources, would be especially disadvantaged, and their possible misconceptions of the transmission modes of HIV, would continue.

Further, Swartz et al (2012:243) reported that vulnerability amongst young adults was exacerbated by factors such as older or more mature adults', both teachers and parents, reluctance to openly discuss issues pertaining to sex with youth/young adults. This was also observed by Mall (2012:765) who noted that parents of LWHI were especially uncomfortable in discussing sexuality with them. Thus, LWHI lose another important source of education.

People with sensory deficits, such as visual or hearing impairments are at particular risk for possible infection with HIV, as a result of their lacking an important channel of communication. Most information and educational materials are either presented verbally or via print. Research has demonstrated that the communication barriers experienced by these individuals, reduce their engagement with society at large and that sources of information such as the media (television, radio, print, internet), are inaccessible to them (Goldstein et al 2010:523). As pointed out earlier their inability to access information on HIV via the visual or auditory channels means that their vulnerability to HIV infection is enhanced.

Hearing impaired people who form part of the approximate 600 million people with disability (PWD) in the world, are "among the poorest, least educated, and most marginalised" of the population (Katuta 2011:22). Hanass-Hancock (2009:7) concurred that vulnerability to HIV infection is also exacerbated by exposure to poverty, poor access to health care services, and sex education, and increased risk of sexual abuse. However, vulnerability to HIV infection by persons with disability was only recently acknowledged in national and global HIV and AIDS programmes (Evans & Atim 2011:1438). This late acknowledgement might have been due to the misperception of PWD having a reduced likelihood of being sexually active, using drugs, and being at less risk of being subjected to sexual abuse. The misconception was also corroborated

by Aderemi et al (2013:1). They noted that PWD, who have an equivalent or greater risk to exposure to HIV than those without a disability, as a result of the aforementioned factors of poor socio-economic status and increased vulnerability to abuse, were often not included in HIV management responses. Hence the reports of PWHI having poorer knowledge of modes of transmission of HIV, and their consequent diminished ability to protect themselves from possible infection. This lays the foundation for the current study, which, as mentioned earlier, seeks to determine; what is the level of knowledge of LWHI (learners with hearing impairment) on the different transmission modes of HIV?

2.4 HEARING IMPAIRMENT AND HIV

Knowledge of transmission modes of HIV was found to be lacking amongst PWHI in particular, due to the communication barriers they experienced (Groce et al 2007:368). The researchers found that the PWHI in their study had significantly lower levels of knowledge than those with normal hearing sensitivity, and believed that transmission could occur from unhygienic environments, touching or kissing. Other authors have also acknowledged the communication difficulties experienced by PWHI and further noted that most of the information which people with normal hearing sensitivity acquired from mass media campaigns on HIV prevention strategies, such as the use of television, radio and even print media, were inaccessible to PWHI (Goldstein et al 2010:525; Scheier 2009:8). A further limitation that these researchers reported on was the low levels of literacy amongst LWHI. In their report on the barriers experienced by people who are hearing impaired in acquiring knowledge on HIV and its prevention, Bat-Chava et al (2005:629) also discovered a poor correlation to literacy, and reported that all their study participants had indicated a preference for visual as compared to written media. The latter had also said that they preferred the use of videotapes with Sign Language. Scheier (2009:8) confirmed that poor literacy levels, such as equivalent to Grade 8 only, occurred amongst hearing impaired people. This author indicated that information relayed to PWHI, is therefore best enhanced by additional visual cues. An important factor to be considered is that the studies, mentioned above, have been conducted in developed countries abroad. In South Africa, not only do PWHI lack access to such services, that is additional support via visual cues at most clinics and public health facilities, but they also lack advocacy for these needs (Field Expert 1. Personal communication, 3 April 2014. Pietermaritzburg). This is the foundation for the current study which seeks to explore the level of knowledge of LWHI of the transmission modes of HIV.

The communication barrier experienced by PWHI has consequently resulted in frequent misperceptions about modes of HIV transmission (Goldstein et al 2010:535; Mall 2012:27; Adenuga 2009:6; De Andrade & Baloyi 2011:307; Wen et al 2011:540). It is these incorrect beliefs that perpetuate stigma and discrimination against People Living with HIV (PLWH). The concreteness of language usage of hearing impaired persons experience creates an important barrier to their accessing written information via websites or educational material provided by the Department of Health. Hence messages such as “HIV Kills” and “Living Positively” might lack the clarity necessary for people with hearing impairment to comprehend the severity of the condition, for example the word “positive” is interpreted as something that is desired (Muzatu 2012:16). Hence the use of visual signs would be preferable. However, Sign Language, which is vastly different from English, is not easily translated (Chisanga 2011:22). Further, Sign Language, although a greatly diverse language system, lacks the vocabulary for certain scientific concepts such as HIV and CD4 count (Muzatu 2012:35).

An additional barrier to communication with PWHI is that, currently, most health facilities do not have access to these Sign Language services. Often, if hearing impaired patients are literate, they are asked to write down their requests/needs for services. If there is someone on the premises, who could assist with Sign Language, they would be asked to assist with interpretation. Another common trend is to utilise the services of the person accompanying the PWHI. Thus in 2009, the then Manager of the Disability and Rehabilitation Programme (KZN), Mrs Khan, attempted to introduce Sign Language training, with the intention of ensuring that a member of staff, at each facility, had a basic knowledge of Sign language in order to communicate with hearing impaired people. This, she had argued would ensure that services would be accessible to hearing impaired people. Unfortunately, the efforts proved fruitless, and no roll-out of training occurred (HIV/AIDS Coordinator: Umgungundlovu Health District. Personal communication. 12 September 2014, Pietermartizburg).

According to De Andrade and Baloyi (2011:308), adolescents with hearing impairment were especially poorly informed about the basic information on HIV. Their study revealed poor knowledge of transmission modes, prevention and management, and that their (hearing impaired persons) beliefs were characterised by myths and associated stigmas. This was supported by Goldstein et al (2010:535) who found that when LWHI

attended schools that placed a limited focus on sex education with less information on HIV, the learners presented with poor factual knowledge on HIV. Within the South African context, it was found that although the Department of Education had initiated efforts to train educators to manage HIV related issues within the classroom, the training which was approximately a week long, appeared to be ineffective (Govender 2009:5, Hendricks 2011:1). Further, research has indicated that as teachers are generally reluctant to discuss the issues of HIV, and other emotionally-charged topics, it is possible that the guidelines issued, may not be adequately adhered to, or the programme may be inconsistently implemented (Pitorak et al 2013:xi; Morisky, Ang, Coly & Tiglao 2013:50). As a result, potentially vulnerable learners, such as those with hearing impairment, would be left without adequate information to protect themselves from possible infection with HIV.

As was typical with the various disabilities, PWHI were denied access to services, such as higher educational options and basic health services support (Bell 2013:6; Chisanga 2011:19). In this regard, Chataika, McKenzie, Swart and Lyner-Clophus (2012:385), as well as Louw and Mayer (2012:278) commented that although legislation emphasises the consideration of disability as a human rights issue, there is often a very noticeable gap between the political commitment and the implementation of policies at grassroots levels. A further barrier is that children with disabilities are often not encouraged to pursue schooling (Touko, Mboua, Tohmuntain & Perrot 2010:2, 5). Late diagnosis of hearing impairment, limited schooling opportunities, as well as great distances between homes and institutions, are further barriers to learning opportunities to persons with hearing impairment. Research has shown that higher levels of education have an almost protective effect against HIV (Kimani et al 2013:109), in the sense that those who remained in school longer, were less likely to engage in early sexual debuts, and had less engagement with multiple partners (Zuma, Setswe, Ketye, Mzolo, Rehle & Mbelle 2010:52). These are behaviours which have been shown to increase risk of HIV exposure (Wood 2008:47). It is against this background, that the researcher seeks to establish whether or not LWHI have adequate knowledge of the various modes of transmission of HIV, so that they may protect themselves from falling prey to this disease, as mentioned earlier.

2.5 MODES OF TRANSMISSION OF HIV

The main modes of transmission of HIV have been identified as sexual contact more specifically unprotected sexual activity, exposure to infected body fluids and or tissues via the sharing of needles for drug abuse, needle-stick injuries amongst health care workers, transfusions or injections which have not been thoroughly sterilized, and mother-to-child transmission during pregnancy, labour or breast feeding (Gupta, Anjum, Bhardwaj, Srivastav & Zaidi 2013:1). Currently, sexual intercourse and needle exchange remain the main modes of HIV transmission (Cabezas et al 2013:1).

Within the South African context, vertical transmission, that is mother-to-child transmission, has resulted in an entire generation of individuals who have progressed to the ages of adolescence and beyond, once they had received life-saving ARTs (Gray 2009:1). The risk associated with breastfeeding, as well as mixed feeding methods, which only became apparent as research into HIV continued, has also contributed to the current cohort of infected youngsters, who must then be appropriately counselled and cared for, to prevent further infections. In this regard, continued testing for the virus and appropriate adherence to treatment, if positively identified, is critical.

However, a study by Ramirez-Avila, Nixon, Noubary, Giddy, Losina, Walensky and Bassett (2012:4) in South Africa found that a number of young adults refuse to test for the virus either because they perceive themselves to be at low risk of infection because they were not engaging in sex at that time or because they did not present with any symptoms. Although LWHI did acknowledge that they were at risk for HIV infection, there is a lack of research in this area (Mall 2012:ix). These authors, i.e. Ramirez-Avela et al (2012) and Mall (2012), therefore believe that there is an urgent need to scale up comprehensive and age appropriate testing for youth. This would ensure HIV awareness and knowledge is improved, regular testing occurs and that those who are infected are diagnosed early and given appropriate care. Moreover, this would limit the possible spread of infection. The urgent need for regular testing, as part of routine healthcare, is also strongly emphasised by Kharsany et al (2012:4). In this regard, the potential risk associated with a single contact with an HIV infected person sexually, or via any method of exchange of body fluids, such as intense kissing or engaging in oral sex, would need to be strongly impressed on the hearing impaired learner to reinforce the notion of risk. This is especially relevant to the young learners with hearing

impairment, who are often not fully aware of their vulnerability to HIV infection. The learner with hearing impairment would need to fully understand that even a single encounter implies risk, and that repeated testing when engaging in high risk behaviour, is essential.

An often overlooked area of HIV transmission is the increased use of injectable drugs. Various countries abroad consider injectable drug users (IDU) to form a significant at risk population (Cabezas et al 2013:1). It is very likely that LWHI also engage in such activities, and would thus expose themselves to possible HIV infection through the use of contaminated needles or equipment such as syringes. It is therefore imperative that young adults with hearing impairment are made aware of this method of transmission because higher rates of substance abuse, combined with limited understanding of HIV transmission definitely increase risk of transmission (Winningham et al 2008:4; Machimana 2012:21). They must fully grasp that sexual transmission, whilst being the commonest mode of transmission, is not the only one. Within the South African context drug abuse amongst school going children is especially rife (Sharp, Coffman, Caldwell, Smith, Wegner, Vergnani & Mathews 2011:8). Although no specific study has been done to highlight this problem amongst LWHI, it remains a strong possibility and cannot be overlooked. In fact, studies show increased substance abuse amongst PWD in general (Mall 2012:52). Machimana (2012:21) found that youth who consumed and abused alcohol were also likely to engage in risky sexual behaviour, which further predisposed them to HIV exposure.

Tarkang (2009:461) also noted that learners needed to be alerted to these dangers stemming from exposure to blood not only via transfusions but also epistaxis and or open wounds that could result from sport or road injuries. He further emphasised that not only the modes of transmission, but those which did not result in HIV transmission, such as the casual contacts of the holding or shaking of hands; being bitten by mosquitoes; or sharing of toilet seats; needed to be taught to potentially vulnerable learners (Tarkang 2009:300). Further, although the UN Global Report (2012:20) indicates that male medical circumcision has been shown to reduce the potential risk of transmission from a female to male partner, the traditional practice of conducting these procedures in unsterile environments, poses an additional risk to the uninformed learner (Tarkang 2009:145). Such practices should therefore be discouraged and potentially

vulnerable learners, such as those with hearing impairment, should be educated on the potential risk of transmission of HIV.

Hence whilst sexual transmission undoubtedly remains the leading mode of transmission of HIV, and knowledge of this mode of transmission might be very evident in the general population, the question remains; what do LWHI know about the other modes of transmission of HIV?

Within the South African context, as with most other countries, where African traditional beliefs are supported and practices are performed, the notion of reduced personal responsibility for safer sexual practice is evident. For example practices such as breastfeeding the infants of deceased siblings as the virus may be transmitted via breast milk or “inheriting” the wife of a dead brother with intercourse being the leading mode of transmission of HIV, or even the belief that ancestral spirits dissatisfaction might be responsible for causing the disease, would only serve to perpetuate the belief of inability to ward off possible infection. Thus Tarkang (2009:145) noted that if correct knowledge of the different transmission modes of HIV was improved, the traditional practices that service HIV transmission would disappear. This is also supported by Tanye (2013:18) who reported that tribal markings using razors, scarification and female circumcision, including the practice of “giving” daughters for marriage or elopement, promote the spread of HIV. Bogart et al (2011:3) also found that beliefs such as condoms being infected with worms, or HIV being manufactured by Whites, to limit the population growth of Blacks, were still prevalent in southern African countries such as Zimbabwe, Namibia and South Africa.

2.6 MYTHS ABOUT HIV TRANSMISSION

Particularly relevant to the transmission modes of HIV, are the beliefs that are associated with transmission. Roger (2011:[1]) indicated that HIV cannot be transmitted through coughing/sneezing, dry kissing, casual contacts such as hugging/shaking hands/sitting next to an infected person, or sharing linen or crockery. He further added that swimming in public pools, and the sharing of school facilities also does not transmit HIV. The misconception of mosquito bites as being a mode of transmission was also noted. Mahalakshmy, Premarajan and Abdoul (2011:40) also commented on frequent misconceptions of HIV transmission, especially through casual social contacts such as

cooking or the sharing of utensils, and kissing. Kutznetsova (2011:[1]) also noted the presence of myths such as having sex with virgins or very young boys or babies as a method of prevention of transmitting HIV or even as a cure of AIDS.

In their study of Black South Africans' misconceptions related to the use of condoms Bogart et al (2011:2) identified myths such as HIV being caused by witchcraft, and the non-existence of HIV and AIDS. There is also a belief that HIV was created by Whites to reduce the Black population. These were factors which resulted in young African men being less likely to want to use condoms, posing another setback in the fight against HIV. In addition, the denial of the existence of HIV, or the belief that witchcraft or supernatural powers were responsible for HIV, were likely to result in the perception of a reduced individual ability to ward off possible infection. This would then translate into less protective behaviours, possibly further promoting behaviours that enhance rather than reduce transmission of HIV.

It is especially important to correct misperceptions on transmission modes of HIV for PWHL, as their barriers to communication limit their access to information. Further as discussed earlier, limitations in their ability to appropriately access written information also negatively impacts on their knowledge of the transmission modes of HIV (Bat-Chava et al 2005:629; Scheier 2010:8; Muzatu 2012:35).

2.7 HIV TREATMENT

The fight against HIV in South Africa was rendered almost ineffective with the Government's early denialist stance (Marais 2011:3). HIV was perceived to be a politically motivated illness that was best treated with a healthy diet and exercise. Hence, it was almost a decade later in 1992, that the first advisory committee on HIV, commenced operations in South Africa (Louw & Mayer 2012:268). As a consequence millions of people were denied access to life saving anti-retroviral (ARV) medicines. It was only in 2001, almost 2 decades into the global battle against HIV that South Africa began to acknowledge the condition and the dire consequences of not providing treatment to its masses (Bogart et al 2011:183).

Against this background, the National Department of Health then went on massive campaigns to educate , empower, and treat with antiretroviral therapy (ART), all those in

need. The primary goal of ART is to reduce the damage caused by HIV, and these may take the form of a combination of drugs, or a single tablet/fixed dose combination of tenofovir, lamivudine and efavirenz (HIV and AIDS Treatment and Care 2015:[1]). Currently there are approximately 2.4 million people on ART in South Africa (So much achieved under President Zuma's administration [s.a.]:[1]), and newer; more innovative ways to reach the often marginalised communities are being explored. This would include the addressing of community concerns of associated side effects of the drugs, which makes adherence to treatment especially challenging (HIV and AIDS Treatment and Care 2015:[3]). These efforts, would prove to be difficult to address with LWHI, whose communication difficulties, have already marginalized them from the general population. Hence the issues surrounding the use of ARVs, such as eligibility for treatment, adherence to treatment, as well as side effects, and availability of treatment, are further areas of concern in addressing the specific needs of LWHI.

Countries such as Botswana; Namibia; Uganda, that acknowledged the gravity and complexity of this multifaceted condition, and implemented focused, structured, comprehensive efforts to contain its spread, were the most successful in meeting the challenge of stemming the tide of HIV (Chireshe et al 2010:22). In countries such as South Africa, fragmented efforts to curb the spread, resulted in the unnecessary loss of lives, and an additional burden to a collapsing health service (Bogart et al 2011:183). In this light, efforts to promote accessibility to basic health care, as enshrined in the Constitution, were further crippled by the burgeoning needs of managing HIV and AIDS. As is typical of environments constrained by limited resources, it is inevitable that some sectors/sections would be short changed (Thomas 2013:6). It was further commented in Chapter 1, that in developing countries, life threatening diseases, and not hearing loss that would be given the higher priority (Bell 2013:8; Chataika et al 2012:391). A number of health care sectors tend to focus on the conditions or sectors that are most vocal in their criticisms of service failings. In this regard, PWHI who have often borne the brunt of a lack of resources/services, have remained a marginalised community (De Andrade & Baloyi 2011:312). Thus, the researcher seeks to draw attention to these vulnerable individuals, and possible gaps in their knowledge about the different transmission modes of HIV. Research, such as the present study, could contribute towards enhancing service delivery for this vulnerable community. This is best summed up by the statement that "...often the problem does not get solved by the researcher, although the research contributes towards the problem's solution" (Tarkang 2009:57).

2.8 PREVENTION OF HIV

Currently, three decades into the fight against HIV, a cure remains elusive. As there is no cure or protective vaccine, it is believed that the best way to prevent HIV infection is to educate people about the condition, including the modes of transmission (Wood 2008:4; Wood & Hillman 2008:40; Conn 2010:30; Odusanya & Bankole 2011:54). In this regard, various organisations within society, such as religious/cultural, sporting or youth development initiatives, and even health centres like clinics or hospitals, all have an important role to play. Religious and cultural organisations have been shown to have a positive role in encouraging non engagement in extramarital sex; indulgence in alcohol and drugs (Hassan & Wahsheh 2011:774; Amoako-Agyeman 2012:228). These are considered to be factors which reduce inhibitions, and lead to behaviours, such as unprotected sexual activity which promote the spread of HIV. Research has indicated that parents have difficulty in talking to their children with disability about sex either because of their perception of their children being asexual or the parental lack of ability to convey the information appropriately (Aderemi et al 2013:3). Thus the importance of other institutions in providing education on sex and disability is critical. With regard to the LWHI, health facilities, and schools for learners with special educational needs, consequently serve as an important source of information as most parents are also not able to communicate in Sign Language (Principal. Personal communication, March 2014. Durban). This was a major consideration for the researcher when motivating for the study, that is within health facilities in KZN, no formal training for communication in Sign Language has occurred to date (Manager: Disability and Rehabilitation Programme. Personal communication, 24 February 2014. Pietermartizburg).

For healthcare users who do not need special accommodations such as the use of Sign or other visual systems (mentioned earlier), the increased focus on efforts to curb the spread of HIV, has resulted in a wealth of information being available through clinics, community health centres or hospitals. However, PWHI currently do not experience the same benefit.

Aderemi et al (2013:11) further highlighted the plight of children with intellectual disability in accessing accurate information on HIV and its transmission modes. They stressed that in order to implement interventions that are appropriate and accessible,

strong collaboration between parents, teachers and other HIV prevention service providers, is essential. The importance of teachers and the roles of schools in teaching sex education were also acknowledged by Wood and Hillman (2008:39), who consider education to be the “social vaccine” to stem the tide of HIV transmission. The National HIV Policy for Schools and Educators (2009-2014:35) also indicated that as a result of the critically important role that schools play in learners’ development, they are in the best position to impart knowledge that would combat the transmission of HIV. However, research has also highlighted the discomfort of teachers in teaching what they might consider to be a sensitive topic (Muzatu 2012:53). Further, cultural norms dictate that adults should not be engaging in such discussions with those who are younger than they are. Hence researchers such as Muleya (2010:73) have suggested that teachers should receive regular training in issues pertaining to HIV, and that educators should also receive training in Sign Language. An additional recommendation by both Muleya (2010:73) and Muzatu (2012:52) was the use of computerised teaching and learning materials to overcome the traditional/cultural barriers that inhibit the teaching of sex education. Although, these recommendations are based on studies conducted in Zambia, they are also relevant to the South African context, where perhaps insufficient training of educators had also occurred (Govender 2009:5).

A study conducted by Denison, Tsui, Bratt, Torpey, Weaver and Kabaso (2012:237) on the effectiveness of a school health education programme as well as peer educators in Zambia, indicated improved knowledge of HIV and sexual reproductive health as well as a reduced tendency to engage in risky sexual practices. The use of peer educators was also alluded to by Chireshe et al (2010:22), who found that people with disability preferred to receive HIV and AIDS messages from their peers whom they believed would be less discriminatory towards them. Hence it is essential that every individual has accurate information about HIV transmission, in order to prevent incorrect messages being relayed, thereby intensifying the efforts to curb the spread of infection.

It is crucial that potential sources of information such as parents, teachers and the mass media are encouraged to tailor the material presented to the different sectors of a society. Research alluded to above has thus far revealed a paucity of research with PWD in general. This is in addition to such studies conducted by Goldstein et al (2010:535) and Aderemi et al (2013:11) indicating specific needs of persons with different disabilities requiring information in certain formats, e.g. Braille for the blind.

In order to implement targeted interventions to stem the tide of HIV, it is essential to understand the psychological, behavioural and social milieu in which transmission of the virus occurs (Winningham et al 2008:50; Wood & Daniels 2008:163). The literature reviewed has revealed hearing impaired learners to be especially vulnerable within the South African context of poor socioeconomic status, lower levels of education, lack of access to services such as health promotional material available at clinics and other health facilities, exposure to higher rates of abuse than those without disability, and the lack of appropriate adult role models. It would thus appear that the risk factors that usually predispose the general population to infection are compounded in those with a disability. Thus, the researcher seeks to advocate for recognition of the plight of hearing impaired learners, who are often a neglected population.

That learners are a particularly important target group for intervention efforts, has also been observed in the literature reviewed. As indicated above, the school environment is considered ideal to impart knowledge on the basics of infection, transmission modes, prevention efforts and treatment and care options. In addition, young learners, who are about to leave the confines of the classroom and join general society, are an especially important target group. Once they have left the classroom environment, it is difficult to access the young, (often) unemployed adult, who may live away from urban centres.

Hartell (2012:119) noted that most young adults are coerced into making decisions about sex in the absence of access to services and appropriate information. He also observed that although learners acknowledge the disease's severity, few feel personally vulnerable and this negates the immediacy of the threat. Whilst this information is pertinent to the general learner, information pertaining to learners with hearing impairment is lacking. Such differences underscore the lack of services and resources available to tailor interventions suited to the learner with hearing impairment. It is in this light that this study seeks to understand the learners' with hearing impairments knowledge of the different transmission modes of HIV. Information and knowledge are the key components of any HIV prevention/intervention strategy and poor knowledge results in poor individual prevention efforts (Eide et al 2011:1595-1596).

In recent years, prevention efforts have evolved from interventions at the individual level to that of combination prevention, which considers the socio-economic, cultural and

political milieu, in which transmission of the virus occurs. This is especially pertinent to a LWHL, who in all likelihood has never previously received such information. Hence, Eide et al (2011:1596) also commented that gender, educational levels, and geographical locations (urban areas are often considered to offer more resources in terms of number of clinics and access to information via media as compared to rural settings where households are scattered over rugged terrain and often difficult to access) were the main considerations in identifying sources of information and knowledge for PWD. Such information should be used to tailor interventions to specific communities, in this instance, the LWHL.

Stigmatisation of HIV has had an extremely deleterious effect in the fight against the scourge. People with HIV remain people to “stay away” from or to limit interaction with, an idea borne of the misperception of casual contact playing a contributory role in transmission. It is the lack of accurate knowledge that leads to the formation of myths and subsequent stigmatisation of PLWH. Hence Wen et al (2011:540) suggest that both the modes of transmission which are sexual contact, transmission via bodily fluids and vertical transmission, as well as the casual contacts such as insect bites or social greetings, which do not result in infection with the virus, must be emphasised in any prevention effort . It should be noted that these incorrect modes are referred to above in myths of transmission. These authors noted that myths about transmission modes of HIV are very closely linked to stigma, and the exaggeration of casual contact as a mode of transmission. This is in line with literature (Tarkang 2009:143; Gatta 2011:34) supporting the premise that LWHL lack knowledge of the different transmission modes of HIV. Gatta (2011:34) further commented that knowledge of modes of transmission is an especially important prevention strategy for young adults. They therefore also support the idea of education being a powerful tool in the fight against HIV. Hence education is the first, possibly most important, step towards preventing infection.

Adenuga (2009:29) also observed that the success of any prevention strategy is dependent on disseminating knowledge to empower the individual. Ndzombane (2012:47) concurred, quoting the Information-Motivation and Behavioural Skills Model proposed by Fisher and Fisher (1992), that when people are fully and appropriately informed about health conditions, when they are empowered with the necessary skills to effect behavioural changes, and they are motivated to do so, they will commence and maintain effective preventive behaviours. Thus, it is the researchers’ intention to explore

the levels of knowledge of LWHI on the different transmission modes of HIV, as well as stimulate discussion on basic HIV knowledge during the course of this study. This is to encourage the LWHI, who are often left out of HIV programmes due to the communication barriers, to be more aware of the disease, and more importantly to know how to protect them (Muleya 2010:73).

2.9 CONCLUSION

Chapter 2 focused on a literature review of various aspects related to the study i.e. prevalence of HIV globally and nationally, incidence of hearing impairment, and more specifically LWHI knowledge or lack thereof, about the different modes of transmission of HIV. The following chapter presents the methodology used in conducting the study.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter reflects the research methodology which outlines the methods used by the researcher in conducting the study. She used a quantitative, descriptive and cross-sectional design to explore the knowledge LWHI concerning the different modes of transmission of HIV. The term “respondents” is used interchangeably with LWHI as referred to in the inclusion criteria (view Chapter 2) for this study.

3.2 RESEARCH DESIGN

A research design is essentially the blueprint that a researcher uses to conduct a study. Issues such as the study purpose, setting, temporal aspects, the sample/respondents, the type of data to be collected and analysed, are therefore all components of the design (Sekaran & Bougie 2009:102).

A quantitative, descriptive and cross-sectional design was chosen as it is the researcher’s intention to describe “what exists” (Labaree 2013:3) (Chapter 2 refers). Hence as the researcher seeks to understand and describe the knowledge of LWHI of the different transmission modes of HIV, this was the appropriate design. Further this method allows for the collection of a large amount of data, and it can also allow for in-depth analysis (Labaree 2013:3). The researcher used a questionnaire to collect data. The data was analysed using descriptive statistics.

3.2.1 Quantitative design

Quantitative design comprises 4 types of research design, namely; descriptive, correlational, causal-comparative and experimental research (Key elements of a research proposal-quantitative design 2014:[1]). Quantitative studies offer social

scientists efficiency which is the ability to use numbers to communicate information, approximation/modelling that is the use of numbers to depict phenomena, and the ability to use specific statistical terms and phrases. For this particular study, the data collected from the respondents was quantified to indicate their knowledge of different transmission modes of HIV by using a questionnaire as the data collection instrument. As indicated above, the use of quantification enhances scientific credibility and acceptance of information presented.

3.2.2 Descriptive design

Descriptive design basically portrays the characteristics or nuances of a group. There are no interventions/influences by the researcher, who merely describes variables of interest to the study (Sekaran & Bougie 2009:437; Polit & Beck 2012a:725). This type of study for example, describes the presence or absence of disease in a population. Such studies may be used to provide either incidence or prevalence information. Descriptive studies are of particular relevance to health care planners as they provide useful information to plan and develop services, allocate resources and identify priorities (Moroni & Myer 2007:78). In this regard, the findings of this study should serve as an impetus for creating awareness in health services for the needs of PWHI, especially the needs of LWHI concerning the different transmission modes of HIV. This may enhance the services to become more appropriate, accessible and acceptable (UNAIDS Report on the Global Aids Epidemic 2012:56).

3.2.3 Cross-sectional design

A cross-sectional study was decided upon, because the researcher is interested in identifying current knowledge of the learners at a single point in time, as opposed to measuring change after an intervention (Labaree 2013:3). Data is collected once only, although the timeframe ranges from days to months (Sekaran & Bougie 2009:437). The researcher identifies levels of knowledge of the different transmission modes of HIV within a specific population at a certain point in time; hence this approach is the most suitable. In addition, the researcher was given access to the schools by the Department of Education for a limited period only.

3.3 RESEARCH METHOD

The researcher adopted certain processes in conducting the study. The method reflects on the research setting; study population and sampling; data collection and data analysis. These are outlined below:

3.3.1 Research setting

Data was collected at three different public schools for LWHI in KZN. The first school (School A) is located approximately 400 km away from central Durban, in Northern KZN. It currently hosts 350 learners from grade R to grade 12. The school admits learners from all over Northern and Coastal KZN areas such as KwaNgwanase, Jozini, Ubombo, Mkhuze, Paulpietersburg, Pongola, Vryheid, Newcastle, KwaMbonambi, Mtubatuba, Hlabisa, Nongoma, Nkandla, Melmoth, Ulundi, Eshowe, Stanger, Maphumulo, Greytown, Msinga, Dundee, Glencoe, Escourt, Ladysmith. These areas are largely poverty stricken with limited job opportunities. Admission criteria require the learners to have moderate to severe hearing impairment, to have a normal IQ level, and to be independent in the activities of daily living. The age range for admission to this school is 4-8 years. An academic programme is provided from grade R through to grade 12. From grades 9 to 11 a skills programme (wood work, welding, domestic science) is available to those who cannot cope with the academic programme. Water supplied by the local municipality, is of poor quality, and expensive. Electricity is supplied by Eskom, and the school has a back-up generator. Basic amenities e.g. suitable furniture are required. The majority of the learners reside in a hostel on the premises during school terms as boarders.

The second school (School B) is located approximately 200 km south of Durban. The school was founded by a missionary, and caters for learners with hearing impairment, physical disabilities and cognitive impairments. The school currently hosts 355 learners, of which 142 are hearing impaired, 188 are cognitively challenged, and 5 learners have physical disabilities. The learners range in ages from 4 to 21 years, many of whom are boarders. The hearing impaired and physically challenged learners are encouraged to attempt the National Senior

Certificate over a 2 year period. Hence these learners are taught the national curriculum in Sign Language. There are also skills programmes for those who are not able to cope with academic requirements.

The third school (School C) is located approximately 180 km inland from Durban. Originally established by the Methodist Church as a missionary training institution at the beginning of the 20th Century, the school for hearing impaired was founded in 1985. It currently hosts 180 learners, ranging in ages from 4-21 years. The learners progress through Grades R to 9, after which they may be transferred to schools such as the aforementioned, which offer Grade 12, and hence exposure to the National Senior Certificate. The skills programme which is offered to learners in Grade 9 includes woodwork, hairdressing, needlework, welding and cane-craft. Learners in Grade 9, in schools for learners with special needs, may range in ages from 14 to 21 years, as is discussed in the sample characteristics below. Learners at this school may hail from all parts of KZN, including Umzimkhulu, Ixopo, Bergville, Ladysmith, Newcastle and Tugela.

As is the case with most rural schools (in this study, Schools A and C), access to services is generally limited. Although the school predominately hosts children with hearing impairment, it last had the services of an Audiologist in 2003 (Principal. Personal communication, March 2014. Durban). In addition, the equipment such as the speakers, audiometer and so forth, were stolen a few years ago and were never replaced. The learners are taken to the nearest local hospital for medical services, including batteries for their hearing aids (Principal. Personal communication, March 2014. Durban). The Principal also indicated that the school was promised general refurbishment by the Department of Education in 2009, when they were requested to add a unit to cater to the needs of children with Autistic Spectrum Disorder (ASD), but this did not materialise. However, the school is obliged to continue to enroll children with ASD.

3.3.2 Study population

A study population refers to the group of individuals in which a researcher is interested (Polit & Beck 2012a:273). These authors further defined the target

population as the entire group of individuals regarding whom the researcher would want to make generalisations about, based on the study's findings. For this study, the target population would be all LWHI. The accessible population refers to those individuals who display the characteristics of interest to the researcher, and who are available for participation in the study. Their accessibility might be their willingness to participate, availability/presence at the time of the data collection, or physical accessibility to the researcher (Polit & Beck 2012a:274).

The researcher sought LWHI who are 18 years and older, who are on the brink of exiting the schooling system. Special schools in South Africa are required to cater for and accommodate learners up to the age of 21 years, even though the compulsory age band for general schooling is 7-15 years (SAHRC Charter of Childrens' Basic Education Rights [s.a.]:35). Hence, given the increased prevalence of hearing impairment (Bell 2013:33) and the emphasis on early identification of hearing loss in recent years, the researcher expected to find a substantial number of learners within the age group. However, this was not the case. Reasons proposed for this included a small number of schools in the area, late diagnosis of hearing impairment in some instances, the vast distances between homes and schools, and the fact that children with disabilities are often not encouraged to pursue schooling, as mentioned in Chapter 2 (Touko et al 2010:2). The researcher was informed that learners may be brought to school for the first time, at the age of ten years, as has happened at School A. They would be accepted so long as they met the admission criteria of the school. For this study, the researcher approached six schools within the greater Durban area, and was finally granted permission to conduct the study at the three schools described, outside of Durban. There are nine (9) schools that cater specifically for LWHI in KZN. Of these one school in Durban admits learners only up to grade 7 and thus did not meet the age requirement for the study (Principal. Personal communication, March 2014. Durban). The researcher then approached the remaining schools that were within an acceptable range for her. When these schools declined participation she had to approach others.

3.3.3 Sample and sampling

A sample refers to a subset of a population. Hence the sample must contain the phenomena of interest to the researcher and represent the study population (Polit & Beck 2012a:275). The sampling process may include probability (where individuals or groups are equally selected for participation, e.g. random sampling which is a systematic selection of respondents, e.g. choosing every third or fifth person) or non-probability sampling (where subjects who do not have an equal chance of selection) are targeted (Polit & Beck 2012a:275).

- **Non-probability**

The researcher opted to use a non-probability method or convenience sampling, which uses the “most readily available or convenient group” (Polit & Beck 2012a:290). For the purposes of this study, LWHI in public schools in KZN, who fitted the inclusion criteria, were considered the most convenient or accessible sample. This age group of learner falls within that identified to be amongst those with the highest incidence and prevalence rates of HIV.

As noted the study was premised on the notion that these LWHI, who are often excluded from HIV prevention information, are a group vulnerable to HIV infection (Mall 2012:iii; De Andrade & Baloyi 2011:309; Bell 2013:69; Groce, Rohleder, Eide, Machlachlan, Mall & Swartz 2012:13). Thus, the researcher sought to focus on the LWHI who would be exiting the school system, a process which increases their inaccessibility to prevention campaigns. It has been observed that when learners have left school, including those who have dropped out, there are very few opportunities to target them with information on the prevention of HIV as mentioned in Chapter 2 (Swart et al 2012:244). Hence the researcher sought to target this group as respondents for this study.

An added benefit was that these learners would be approximately 18 years and older, and would not require parental consent to participate. Although in South Africa, youth are considered to be any young child of twelve years and older, participation in research requires that the child is 18 years and above if he or she is

required to provide consent (Ramirez-Avila et al 2012:4). An added consideration in this regard was that the learner was cognitively capable of providing consent for participation. This refers to the learners' ability to understand the study aims, and make an informed decision as to participate or not. In this regard the researcher enlisted the assistance of the teachers at each of the schools to identify those learners who would be eligible candidates.

Further, as a result of the limited number of public schools that cater for the needs of LWHI (approximately 9 in KZN), the majority of learners at these schools reside in the hostel facilities at the schools (Principal. Personal communication, March 2014. Durban). The researcher sought to target these schools within the greater Durban area (6), as they would be the easiest to access (with regard to travel, as well as the fact that the principals were given the option of allowing the researcher access to the learners, outside teaching time in the request to conduct the study). Unfortunately, the 3 schools that were initially approached, declined participation, and the researcher then had to focus on schools outside Durban. Due to time constraints (the Department of Education allowed access to schools only until end June 2014), and the limited scope of this study, the researcher in consultation with the supervisor and statistician, then utilised the learners at the following set of schools that were approached. Although the researcher initially anticipated obtaining at least 300 respondents, who would be available and willing to participate in the study, this target was not met for various reasons, such as learners not having turned 18 years of age yet, or not being cognitively competent to understand the study objectives and provide consent. The end result was only 99 learners who met these requirements and completed the questionnaires.

Convenient sampling was chosen due to the limited number of schools that were willing to participate; time constraints for data collection and the researcher's limited resources which resulted in her focusing on schools that were accessible and willing to participate.

- **Inclusion criteria**

Learners with hearing impairment who are 18 years and older attending a public school in KZN, and were willing to participate in the study. These respondents needed to be cognitively competent to understand the study objectives and provide consent voluntarily.

- **Exclusion criteria**

Learners with hearing impairment younger than 18 years, as well as those not willing to participate were excluded from the study. While those who were not cognitively competent to understand the study objectives and provide consent, were also excluded.

3.3.3.1 Challenges during the sampling process

Unfortunately, the initial schools for LWHI that were targeted declined to participate in the study. Common explanations for resistance to participate included the subjects being “over researched”, the learners declining participation before the researcher was able to visit and explain the objectives of the study even though the principal apparently had no objections, or the principal indicating a lack of learners in the age category despite the researcher’s knowledge of the schools’ admission of this category of learners. This reluctance to allow participation in the study, may be due to lack of understanding of the intentions of the researcher, even though this was fully explained, or a disinterest in supporting the cause of advocating for services for PWHI. It might also be due to assumptions that persons with disabilities are not sexually active, or people’s own discomfort relating to the topic of sexual behaviour or HIV.

The researcher had further assumed that every sector would be familiar with the imminent threat of HIV and would share the concerns to ensure protection of this vulnerable group. This assumption also proved to be incorrect. The researcher had to repeatedly explain the rationale behind the study, as well as justify the age group

to be targeted, in addition to explaining the necessity of their participation to the different principals initially approached within the greater Durban area.

The Natal Blind and Deaf Society (NBDS), a very influential non-governmental organisation, was also contacted for possible inclusion of participants from their prevocational units/workshops. Unfortunately, it did not have prevocational students who would have been suitable candidates either due either to their not meeting the inclusion criteria of being 18 years and older or not being cognitively capable of answering a questionnaire (Deputy Director. Personal communication, 5 March 2014. Durban).

3.3.3.2 Sample size

As mentioned previously Mall (2012:27) and Hanass-Hancock (2009:8) noted a scarcity of information on prevalence of hearing impairment, and a lack of research with disability and HIV in general. As a result, the researcher did not have access to information regarding the prevalence of hearing impairment in the province. Thus, it was not possible to calculate an appropriate sample size (Statistician. Personal communication, March 2014. Durban). However, within the 3 schools that did participate, the principals instructed teachers to identify all those who were willing to participate in the study, and who met the age and cognitive requirements of being able to read, comprehend and answer the questions. The first school (School A) yielded 71 respondents, the second (School B) 18, and the third (School C) 10 respondents. Hence the researcher obtained a sample of 99 respondents. Thereafter the researcher interacted only with those learners who met the inclusion criteria, and did not meet all the LWHI of 18 years and older at the schools, thus rendering her unable to comment on the exact population of learners in this category, except to indicate that a total of 99 learners in the age category 18-25, were respondents in this study.

3.3.3.3 *Development and testing of the data collection instrument*

The researcher initially identified the different modes of transmission of HIV through a literature review. She then formulated a questionnaire, which would yield information that could be answered via a “yes” or “no” answer format. This was in response to her observations during professional interactions with PWHI an audiologist and speech/language therapist, that most of the respondents have difficulties with answering complex questions that yielded information on their specific viewpoints. As was indicated by the literature reviewed, and the professional experience of the researcher, she was aware that their language skills, in particular their reading skills, are generally poorer than that of the normal hearing population (Bell 2013:97). However, acting on the advice of the statistician and supervisor, the response format was changed to indicate degree of respondents’ knowledge and more information on the preferred and current sources of information was added. In this way, the learners would also not have felt their inadequacies might be revealed, as their degree of knowledge, and not knowledge or lack thereof, would be highlighted.

Questionnaires, especially self-administered ones have the advantages of eliciting large amounts of data in a relatively standardised manner, being cost and time efficient, and are anonymous (Polit & Beck 2012a:305). These factors were a major consideration for the researcher in view of the time frames and distances to the venues where the data were to be collected. However, as a result of the language barrier, it was more relevant for this information to be collected in the presence of the researcher and with the assistance of Sign Language interpreters. An additional consideration with the use of questionnaires is that the respondents must possess good literacy skills. The respondents’ proficiency in reading and understanding written language was not individually assessed prior to the study. Hence the researcher relied on the teachers’ direct contact with each of the respondents within the general learning environment to establish whether or not they would be able to complete the questionnaire. Thus, even if a respondent had difficulty in reading and understanding a specific question, the physical presence of the researcher and educators who also served as interpreters, served to clarify any misinterpretations.

The questionnaire (refer to Annexure D) was developed and then given to a prominent member of the Deaf Community and an educator (of 20 years) of LWHI, as well as a senior educator, with 30 years of experience in teaching such learners, to view and amend as was required. These 2 individuals may be considered field experts due to their strong associations with the hearing impaired community, as well as their combined teaching experience of 50 years. Further, the first educator, is the Chairperson of the Women's League of DEAFSA (Deaf Association of South Africa), a member of the Youth Deaf Provincial Council in KZN, and has been a level 2 (advanced level) tutor of Sign Language for many years. These educators indicated that the questionnaire was appropriately worded, and tested relevant knowledge because the learners had already been exposed to this sort of information from Grade 4 during Life Orientation classes. They also indicated that the questions were appropriately worded, and would not be considered culturally-insensitive (to LWHI). However, it was on the basis of the first educators' advice and experience with the administration of the first few questions, that the researcher adopted the method of signing each question and then asking the learners to write down their answers. Although this proved to be a laborious process, it ensured appropriate completion of the questionnaire.

- **Layout of the questionnaire**

The researcher endeavoured to keep the language as simple as possible, not only because of the translation into Sign Language, but also into isiZulu (translation was undertaken by a first language isiZulu-speaking Speech-Language Therapist). This was to possibly assist those learners who struggled with English or preferred to respond in isiZulu. Both language systems are fairly different from English, and required input from both first language users of each group. In addition, LWHI have been shown to encounter significant difficulties with communication hence the simpler the language, the easier it is to understand (Bell 2013:97; Chisanga 2011:22). Hence the field experts' request that students answer each of the questions, as they were being signed by the educators.

The questionnaire comprised 6 sections; socio-demographic data, a general knowledge section, dissemination of information, modes of transmission, preferred communication sources and preferred communication strategies.

Table 3.1: Sections covered in the questionnaire

Section	Aspects covered
<p><i>Section A: Socio-demographic data</i></p> <p>Questions 1-8</p>	<p>Questions required demographic information of respondents' gender, qualifications and experience</p>
<p><i>Section B: General knowledge on HIV</i></p> <p>Questions G 1-10</p> <p>Dissemination of information</p> <p>Question 1: information sources</p> <p>Question 2: effectiveness of sources</p>	<p>Questions indicated respondents' general knowledge about HIV</p> <p>Indicated various information sources from which the respondents had acquired their knowledge on HIV</p> <p>Required respondents to rate the effectiveness of each of these sources of information on a 5 point Likert scale, ranging from least to most effective.</p>
<p><i>Section C: Knowledge of transmission modes of HIV</i></p> <p>Questions 1-25</p>	<p>Indicated different transmission modes as well as myths associated with transmission, and required respondents to indicate whether or not these were in fact modes of HIV transmission. The 3 point scale was to be marked either "true", "false", or "do not know"</p>

Section	Aspects covered
<p><i>Section D: Preferred communication sources</i></p> <p>Questions 1-6</p>	<p>Respondents were given a list of possible sources and required to identify those from whom they would like to learn more about HIV, on a “yes-no” format</p>
<p><i>Section E: Preferred communication strategies</i></p> <p>Questions 1-5</p>	<p>Respondents were given a list of possible communication strategies, and required to indicate their preferences for information about HIV through sources such as the media, healthcare workers. They were again given the option to mark “yes” or “no”.</p>

- **Refinement of the questionnaire**

The questionnaire was approved without changes. However it was suggested that Sign Language educators Sign the questions to respondents during data collection.

- **Competency indicator**

For the section yielding information on the knowledge of the different transmission modes of HIV, a score of 80% and above was considered to indicate satisfactory knowledge, whilst a score of 70% and below was considered to indicate a lack of knowledge on this subject. These percentages were decided upon by consultation with the statistician and field experts. The competency indicator enhanced the validity and reliability of this study.

3.3.4 Data collection

Data refers to the information that is collected during a study (Polit & Beck 2009a:53). Quantitative data, such as that collected in this study, refers to information collected in numeric form.

The researcher sought to ascertain the basic knowledge that respondents had of the different transmission modes of HIV. The information was collected via the use of a questionnaire. The latter was developed after a literature review was conducted by the researcher. A joint sitting of the learners, together with the researcher and Sign Language interpreters, during which the study's aims, and objectives were explained to the learners. Thereafter they were given a choice to participate or not and those who chose to participate were presented with the questionnaires. At the first school, School A, when it became apparent that some learners were struggling to read and understand the question, the teachers/interpreters suggested the Signing of each question, one at a time, and reiterating the response formats. In this way, learners could ask for assistance, when they were unsure, e.g. where the question required information on the effectiveness of parents as an information source, the interpreter Signed the question, and then asked learners to rate them. This had to be done for every question. Discussions occurred on the possible misinterpretations of the items (questions and clarifications). This lengthened the data collection process to approximately 2 hours in schools with larger numbers of learners e.g. in School A which had 71 respondents. However, in that particular school, there were approximately 10 teachers/assistants in the venue, assisting smaller groups of learners, with one main facilitator.

The LWHI at all the schools, displayed enthusiasm, they actively participated in discussions with the interpreters, paid attention to other learners' questions, and at times volunteered their own clarifications to their fellow learners. Respondent fatigue was monitored throughout data collection by the researcher. This was done through observation of non-verbal communication (yawning; resting on their arms, etcetera). At no stage did any of the learners indicate being tired, nor did they request breaks. Only one learner in the study, in School C, declined participation in completing the questionnaire, after the initial information session.

Completed questionnaires were then placed, into a box, at the end of the room. These questionnaires were then collected by the researcher at the end of the session. Polit and Beck (2012a:265) noted several advantages to this method of questionnaire distribution and collection; the researchers' physical presence has a

positive influence on response rates as the number of completed questionnaires is maximised. In addition, there is a greater opportunity for respondents to ask questions or engage with the researcher.

The researcher believes that her physical presence yielded the participation of the highest possible number of respondents. It is highly unlikely that educators (with their workload) would have taken on the responsibility of collecting the maximum number of questionnaires a few days later, and posting them to the researcher. In addition, the researchers' presence also ensured that where the teachers were uncertain of the response format required, or clarification of a mode of transmission, was necessary (as happened at School A, and School C), she was available to respond appropriately. For example, with regard to the statements on the transmission modes, the researcher had to clarify that "kissing someone with HIV" referred to the casual greeting, and that "circumcision" referred to the African traditional practice and not the medical procedure.

That the wording of the questions is appropriate, that the language used is clear, concise and not likely to be misinterpreted, is especially pertinent to LWHI. Marx et al (2011:38) support the premise of learners experiencing barriers to communication as a result of their varying levels of literacy, different degrees of hearing loss, varying backgrounds and cognitive and communicative skills. Hence, presenting information to these learners, in a manner that is understood by them, is essential to eliciting the information required. In this regard, the use of Sign language interpreters was essential.

Those questionnaires that were included in the study sample have been under lock and key at the researcher's office, and accessible only to the researcher, supervisor and statistician. The data will be kept, under lock and key for 5 years after the completion of this study.

3.4 DATA ANALYSIS

Data analysis refers to the process whereby statistical processes are applied to the data collected to determine whether or not the research hypotheses are supported or

not (Sekaran & Bougie 2009:26; Polit & Beck 2012a:725). The data collected via a self-designed questionnaire on the knowledge of learners with hearing impairment of the different transmission modes of HIV, were then coded with the assistance of the statistician. This data was transferred to an Excel spread sheet, which allowed for the use of SPSS to analyse the data. Frequency tables and gender variations were computed, and general trends were identified. Analyses of variance were computed to provide additional information on the ranges of scores that were obtained. The Chi square test allowed for the comparison of 2 different variables, e.g. gender, and religion with a general knowledge question. The findings of these analyses are presented and discussed in the following chapters (refer to Chapters 4 and 5).

3.5 VALIDITY AND RELIABILITY

Validity in quantitative research refers to the extent to which an instrument measures that which “it is intended to measure” (Polit & Beck 2012a:745). Reliability refers to the “degree of consistency or dependability” with which an instrument measures an item (Polit & Beck 2012a:741).

3.5.1 Validity

Validity in research contains 4 facets, namely face validity (considers whether the test measures what it is supposed to), content validity (refers to how comprehensive the test/measure is to include all aspects of the construct), criterion related validity (which is not particularly relevant to this study, that is measurement of the tool against an external measure), and construct validity which is usually related to content validity (Polit & Beck 2012a:339). As the questionnaire was self-designed, based on the literature review and with the assistance of the statistician, the researcher wanted to ensure that it was worded appropriately, did not contain words or phrases that would be ambiguous and thus misconstrued, or words or phrases that would be deemed insensitive to people with hearing impairment. This was facilitated by presenting the questionnaire to the field experts (discussed earlier) for their guidance in these aspects thus also ensuring face validity of the instrument. They indicated no problems with the design and structure of the instrument, with the only recommendation being, as mentioned previously, that each of the questions

was to be individually Signed to enhance the respondent's understanding. In addition, the researcher conducted an extensive literature review to include different transmission modes of HIV, as well as possible myths associated with risk of transmission. Both the actual modes of transmission, and the associated misconceptions, are of particular relevance to people with a hearing impairment (Wen et al 2011:540). Hence, the suggestion of highlighting the misconceptions of transmission was considered pertinent for inclusion in the questionnaire. Furthermore both the research supervisor and statistician were consulted to ensure that the criteria of face, content and construct validity were met for this particular study.

3.5.2 Reliability

Reliability issues are usually concerned with the instrument/study's stability (the relationship that is predicted would recur on repeated administrations of the questionnaire), internal consistency (all items/scales measure the same homogenous traits), and equivalence (the understanding that different researchers would obtain the same/similar results) (Polit & Beck 2012a:331). For these reasons, the researcher opted to use a questionnaire, which is a more standardised method of eliciting information, than an interview.

Reliability of a study may be enhanced by ensuring standardised test procedures which is the use of a questionnaire to elicit the same information from each respondent), the administration/data collection occurring through a single researcher (to reduce observer variation). The data collection also occurred at a single sitting in the school hall to reduce environmental influences. Although the notion of a single group administration of the instrument may have certain pitfalls, for example the respondents would be aware of those who did/did not participate in the study), the understanding that lack of participation would not result in negative consequences, as well as the emphasis that participation in no way implied either active sexual activities or possible HIV infection, was repeatedly stressed during the information session. In this way, none of the possible respondents felt pressured to participate. This also served to underscore the voluntariness of their participation.

The reliability and validity of an instrument may be best tested with the calculation of measures of internal consistency, such as the Cronbachs alpha co-efficient. This test measures the correlations between different test items, indicating whether or not items on the test/questionnaire provide related information (Polit & Beck 2012a:722). A relevant example from this study would be in the general knowledge component of the questionnaire, the statements; “I think HIV is caused by witchcraft” (G7) and “I think HIV is punishment for bad behaviour” (G9) should elicit similar responses from the respondents. The alpha co-efficients for these items are reflected below. (Further co-efficient scores for items may be viewed in Annexure G).

Table 3.2: Inter-item correlation matrix

	G7	G8	G9
G7	1.000	-.032	.020
G8	-.032	1.000	.096
G9	.020	.096	1.000

It would appear that poor correlations exist between these items, as researchers generally consider values of 0.5 and above to indicate good correlation (Polit & Beck 2012a:333). However, it should be noted that LWHI experience difficulties with language comprehension, and this may have resulted in responses that were not related to each other. In addition, despite individual Signing of each question to facilitate ease of understanding, the possibility of response bias (tendency to provide socially acceptable answers), still exists (Polit & Beck 2012a:313).

3.6 ETHICAL CONSIDERATIONS

In any study conducted the researcher is bound to adhere to the values and morals that guide his or her interactions with subjects as relates to his or her professional, legal and societal obligations (Polit & Beck 2012a:727). In this regard the researcher is bound to uphold the rights of study respondents, to respect their dignity and to ensure their confidentiality. The process whereby the researcher conducted this is discussed below.

3.6.1 Permission to conduct the study

The researcher obtained ethical clearance from the Higher Degrees Committee of the Department of Health Studies, University of South Africa in 2013 (refer to Annexure A). This was followed by letters to request and obtain permission for data collection from the Department of Education (DOE) (refer to Annexure B) and Department of Health (DOH) (refer to Annexure B). This was crucial to ensure that these bodies had no objections to the study being conducted with LWHI about their knowledge of different transmission modes of HIV, as discussed previously.

3.6.2 Ethical principles

In research studies with human subjects, the most important principles to consider are beneficence, respect, and justice (Polit & Beck 2012a:152).

3.6.2.1 *Beneficence*

Beneficence requires that study respondents are not exposed to any harm during the course of the study, and actually derive some benefit from their involvement (Polit & Beck 2012a:152). In this regard, all potential respondents were invited to an information session on the aim and objectives of this study about the different transmission modes of HIV. Whilst the learners would have been exposed to this information during their Life orientation sessions, it was clear (from the questions asked), that there were still gaps in their (LWHI) knowledge. In answering some of the questions, such as “How did HIV start?”, the researcher had to ensure that no information that would influence their responses to items on the questionnaire, was included. For the purposes of clarity, the general information and not specific examples were given, e.g. the researcher indicated the transmission modes as being sexual, mother to child or contact with infected blood or body fluids. Specific examples such as sharing of needles, or engaging in sexual activity without the use of condoms, were not discussed. Further, the voluntariness of their participation, including the fact that, the learners would not be prejudiced in any way, had they declined participation, was also indicated. Thereafter, the learners remaining in the

hall were presented with consent forms (refer to Annexure C), and questionnaires to fill in (refer to Annexure D).

An additional aspect to beneficence is that the learners were not exposed to any harm or exploitation during the course of the study (Sekaran & Bougie 2009:221). The researcher ensured that the stipulated period of engagement was adhered to, and that the learners would not be contacted directly for further information/clarification of their responses on the completed questionnaires, as was stipulated to the Department of Education. Further, confidentiality was maintained by not placing any identifying information, such as names, on the questionnaire. In addition, any possible feelings of inadequacy amongst the learners, who may have realised their knowledge gaps on HIV transmission modes, were possibly reduced by the use of a Likert scale. In this way, their knowledge levels would have been ascertained by gauging different levels rather than their possible lack of knowledge.

3.6.2.2 *Respect*

The second principle, respect for individuals is related to their right to participate voluntarily, without the risk of coercion, or penalty. In this regard, one of the learners at one of the schools, School C, opted to leave after the information session, and neither researcher nor educator, attempted to persuade him/her to remain and participate. All learners were informed that they could abandon the task at any stage, without any fear of reprisals. In addition, at the information session, they were all presented with information pertaining to the study in a language (both isiZulu and Sign language) that they fully understood, and were asked to further clarify information that they did not understand. In this way, learners were presented with sufficient information for them to make a fully informed decision on their right to participate.

At no stage, did the researcher attempt to elicit any information in a covert manner, nor did she attempt to conceal any information pertaining to the study.

The researchers' adherence to these principles ensured compliance with scientific integrity.

3.6.2.3 Justice

This principle alludes to the fact that the study population/sample is based on the inclusion criteria of the study, and to prevent possible exploitation (Polit & Beck 2012a:155). In this regard, this study focused on the young adult with hearing impairment of 18 years and older, who was still within the public schooling system. Part of the inclusion criteria stated that respondents had to possess the cognitive ability to provide consent to prevent exploitation of respondents. Hence, the convenience sampling approach employed, required that the researcher conduct the study at schools for the hearing impaired in KZN. To ensure compliance with the principle of justice, ethical clearance was obtained from the Higher Degrees Committee, Department of Health Studies (UNISA). Thereafter permission to conduct the study, was obtained from the Department of Education Provincial Office, in Pietermaritzburg and individual school principals were contacted for permission to conduct the study at the different sites. Schools that declined participation were not contacted again, whilst those who were willing to participate, understood that they would not be compensated in any way. Beyond this, their consent to participate was synonymous with their right to confidentiality in all aspects of the study.

In writing up the proposal for this particular study, the researcher had to ensure that she had considered possible scenarios where ethical dilemmas could arise, and that she had put plans in place to address them. For example:

- a) There was a referral plan to appropriately direct those LWHI in need of services (health and sex education) to a primary health clinic that could accommodate their unique communication needs after the data was collected. This would have been done either through a healthcare professional, who would provide information to all the learners (with the assistance of an interpreter, a role of the school nurse or one of the educators), or via the researcher engaging with the relevant health authorities to provide possible assistance to these learners.
- b) The researchers possible knowledge of learners' HIV status (should this have been divulged during engagement with the researcher) was required to remain confidential.

- c) The researcher had set a plan in place to report possible abuse of LWHI to relevant authorities, as a result of their vulnerability due to their disability.

These are some of the possible scenarios that the researcher may have had to address as ethical issues. Fortunately, none of these possibilities, were realised, and the researcher was not obliged to facilitate any of these interventions.

In summarising the ethical considerations for this study, firstly, the researcher ensured that, none of the LWHI was prejudiced in any way irrespective of their participation or lack thereof in the study. The questionnaires did not request any identifying information from them. Where the LWHI at the different schools had asked questions, it was fully explained that they were being given general information, that they were not targeted because they were at any more risk of infection than for example the younger learners, or because some of them were HIV positive etcetera. This information was especially relevant as there is a tendency amongst PWHI to have a fatalistic attitude, and be more likely to misinterpret information given to them (Bogart et al 2011:3). The researcher continually stressed that general information was being sought, that learners were not selected due to their status, and that the questionnaire “was not a test/examination” (the perception of learners at School C).

3.7 CONCLUSION

This chapter described the research design and methodology. It also includes the sample, data collection and analysis. The researcher used a quantitative, descriptive and cross sectional design to gather data to investigate the knowledge of hearing impaired learners about the different modes of HIV transmission.

Chapter 4 presents the findings of the study.

CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

Chapter 3 described the research methodology used to collect and analyse data. This chapter presents the findings and discussion of these.

This study sought information on the knowledge that LWHI have of the different transmission modes of HIV. The literature that was reviewed, as discussed in Chapter 2, revealed that these learners might be a population that could be vulnerable to HIV as a result of the numerous communication barriers, and limited access to health and education services. The researcher therefore hypothesised that the learners would present with knowledge gaps on the different transmission modes of HIV, and that these gaps, could increase their vulnerability to the risk of infection. Hence the aims of this study as described earlier.

The symbol 'N' will refer to the total number of subjects (respondents), while the symbol 'n' will refer to the number of subjects (respondents) in a subgroup of the study (Polit & Beck 2012b:loc 24262). The terms learners and respondents will be used interchangeably in this chapter.

4.2 DATA MANAGEMENT AND ANALYSIS

As indicated in Chapter 3, the data was coded and placed in an Excel spreadsheet. Ninety-nine (99) (N=99) LWHI from three public schools for hearing impairment in KZN formed the sample for this study. All but one learner from school B, who were identified by the schools, participated in the study. Hence the researcher issued 99 questionnaires, and thereafter analysed 99 questionnaires. This indicates a 100% response rate, which is defined by Polit and Beck (2012a:289), as the actual number of respondents compared to the number in the sample. However not all the respondents

answered all the questions. Thereafter, a software program, Statistical Package for Social Sciences (SPSS), was used to analyse the data. As the study conducted was descriptive in nature, the researcher together with the statistician considered the frequencies of the different variables, cross tabulations of the variables, and undertook analyses of variations in traits observed across the schools. The frequencies indicate the number of responses obtained per question on the questionnaire. These frequencies (f) as well as the percentages (%) will be indicated in the tables. The n is the divisor for calculating percentage. The missing values were included in some of the tables. The findings are discussed below.

4.3 RESEARCH RESULTS

The study findings will be considered as per the layout of the questionnaire:

- Section A: Socio-demographic data
- Section B1: General knowledge on HIV/AIDS
- Section B2: Dissemination of information
- Section C: Transmission modes of HIV/AIDS
- Section D: Preferred communication sources
- Section E: Preferred communication strategies

4.3.1 Section A: Socio-Demographic data

Section A consisted of socio-demographic data and included aspects of age, gender, grade, religion, number of organisations, language and nationality.

4.3.1.1 Age

The respondents ranged in age from 18 to 25 years as indicated in table 4.1. The average age was 20.3 years. The minimum age of 18 years was stipulated, as this is the age when most learners are on the brink of exiting schooling. Further, at this age, the respondents were able to consent to participation in research, by themselves, i.e. they did not need parental consent.

Table 4.1: Age range of respondents (Section A) (N=99)

Age range	N	Minimum	Maximum	Mean	Std. Deviation
Age	99	18.0	25.0	20.364	1.9455
Valid N	99				

4.3.1.2 Gender

Of the 98 respondents who indicated their gender, 49% (f=48) were male, and 51% (f=50) female. One respondent opted not to answer this question (n=98). View table 4.2 and figure 4.1.

Table 4.2: Frequency distribution of gender of respondents (n=98)

Gender		Frequency (f)	Percent (%)
	.0	1	1.0
	Male	48	48.5
	Female	50	50.5
	Total	99	100.0

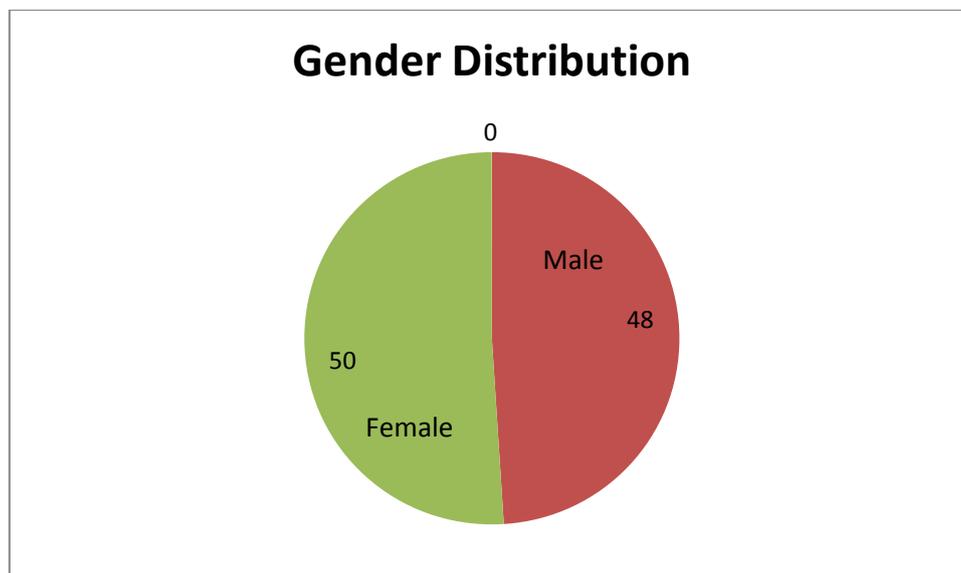


Figure 4.1: Gender frequency distribution of the sample (n=98)

4.3.1.3 Grade

The respondents ranged in grades from Grade 8 through to Grade 12, with the majority of the learners being in Grade 10 as indicated in table 4.3. Of the 98 respondents who indicated their grade, 35.7% ($f=35$) of the learners were in Grade 10. Just 6.1% ($f=6$) was in Grade 9 (view figure 4.2). A number of the respondents were also in skills programmes, which are the prevocational units (hairdressing, woodwork, metalwork, craft, and motor mechanics). Learners may be included in the skills programmes from young ages, if they are found to not be able to cope academically. For this study, however, only those respondents, who were of ages 18 and older, were included in the sample. One respondent did not indicate his/her grade ($n=98$).

Table 4.3: Grades of the respondents (Section A) (n=98)

Grades of respondents	Frequency (<i>f</i>)	Percentage (%)
8	7	7.1
9	6	6.1
10	35	35.8
11	16	16.3
12	18	18.4
Skills	16	16.3
Total	98	100.0

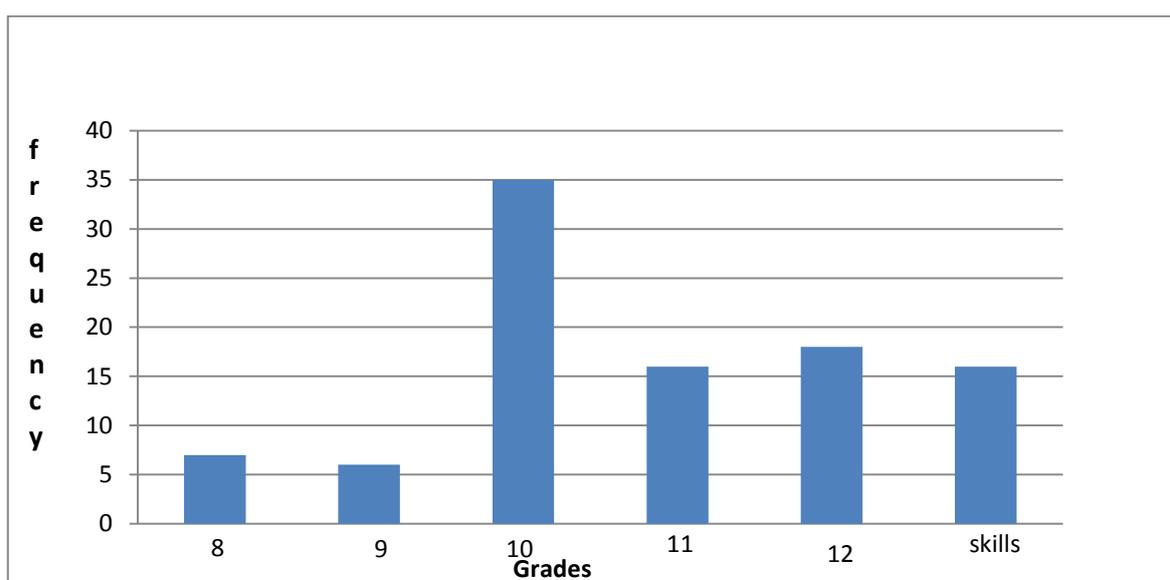


Figure 4.2: Grades of the respondents (n=98)

4.3.1.4 Religion

Of the 96 respondents who indicated their religion, 54.1% ($f=52$) were Christian. Twenty nine point one percent (29.1%; $n=96$; $f=28$) of the 96 respondents indicated that they followed the African traditional religious groups, whilst 16.6% ($n=96$; $f=16$) indicated “other” (view table 4.4). In addition, 3 learners did not respond to this question ($n=96$). Anwar, Sulaiman, Ahmadi and Khan (2010:5) reported a greater awareness of HIV and other sexually transmitted infections amongst Christian learners compared to those of other religious groups. This they attributed to greater participation in sexual activity amongst these young adults.

Table 4.4: Frequency distribution: religion of respondents (Section A) (n=96)

Religion	Frequency (<i>f</i>)	Percentage (%)
Christian	52	54.2
African traditional	28	29.2
Other	16	16.6
Total	96	100.0

4.3.1.5 Number of organisations

Eighty-two percent ($n=92$; $f=75$) indicated that they belonged to sports organisations. Only 16% ($n=92$; $f=15$) indicated membership of youth groups as indicated in figure 4.3. Of the other options, which were support groups or more than one organisation, only 2% ($n=92$; $f=2$) indicated support groups, although these were not specified.

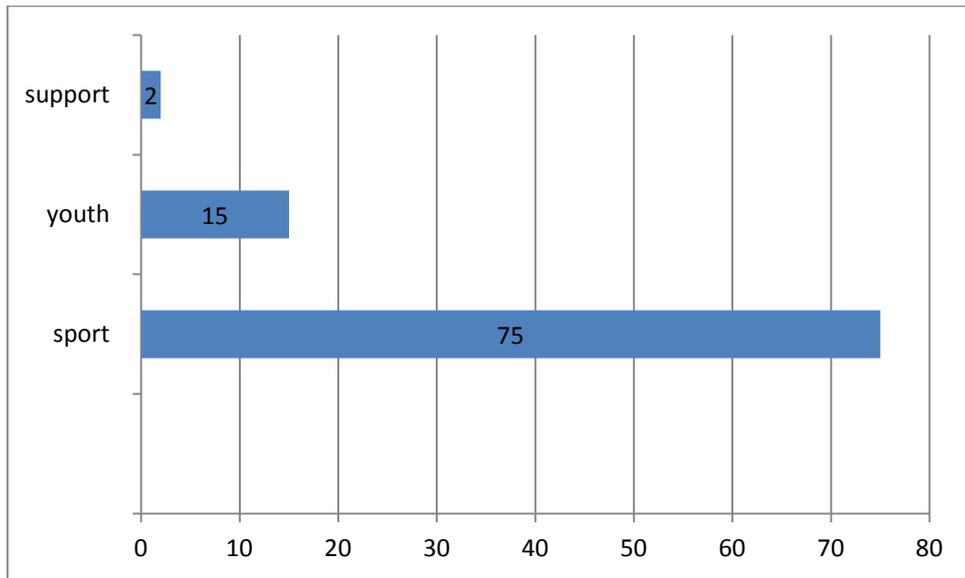


Figure 4.3: Frequencies of the organisations that respondents belong to (n=92)

4.3.1.6 Language

IsiZulu was the language found to feature most prominently as the home language, with 54.5% ($f=54$) of all respondents ($N=99$) selecting this option as discussed in table 4.5. This was expected considering that isiZulu is the predominant language spoken in KZN (South Africa geography 2014:[1]). English was the next largest grouping, with 36.4% ($f=36$) of the learners marking this option. This was followed by Xhosa at 6.1% and “other” at 3% (view figure 4.4). Whilst one of the field experts, a hearing impaired educator and Sign language tutor, had reminded learners that their primary language was Sign, it is possible that respondents interpreted this question to take account of the fact, that most of their parents or significant others, do not communicate in Sign Language (Educators. Personal communication, 4 March 2014. Pietermaritzburg). In this regard, it was a limitation of the study not to include Sign Language, as a category on its own.

Table 4.5: Language of the respondents (N=99)

Language	Frequency (<i>f</i>)	Percentage (%)
English	36	36.4
isiZulu	54	54.5
Xhosa	6	6.1
Other	3	3.0
Total	99	100.0

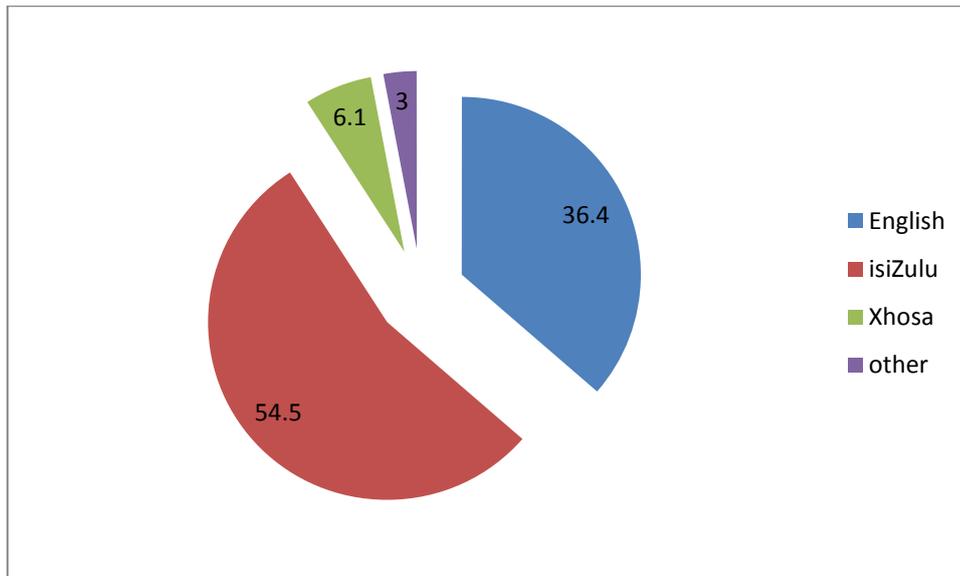


Figure 4.4: Language of the respondents (N=99)

4.3.1.7 Nationality

Only 1 (1%) of all the respondents (N=99) indicated being Nigerian, all other learners were South African.

4.3.2 Section B: General knowledge of HIV/AIDS

On the issue of whether or not HIV and AIDS were the same, 49.4% (n=89; f=44) of respondents responded affirmatively, whilst 50.6% (n=89; f=45) indicated that they believed that the two conditions were different (view table 4.6). This is a fairly high percentage, i.e. almost half of the study sample indicated a lack of clarity on the disease, despite ten respondents not answering this question (n=89).

Table 4.6: G1: Frequency distribution for question ‘HIV and AIDS is the same’ (Section B) (n=89)

Knowledge of HIV/AIDS		Frequency (f)	Percentage (%)
Valid	No	45	50.6
	Yes	44	49.4
	Total	89	0.9
Missing	System	10	10.1
Total		99	100.0

Thirty four point eight percent of the respondents (34.8%, n=89; f=31) indicated that they had not heard of HIV and or AIDS. Again, given the South African context of high incidence and prevalence of HIV and AIDS, this is a relatively high number of persons, indicating that they had not heard of the most devastating illness of modern times. Of the respondents 65.2% (n=89; f=58) indicated having heard of the disease. There were 10 learners who did not respond to this statement (n=89).

More than half of the sample, i.e.72.5% (n=91; f=66) of learners indicated that they did not know of someone presenting with the disease, whilst 27.5% (n=91; f=25) marked the affirmative to indicate that they did know someone. This reflects an alarming statistic, in that 1 of every 4 respondents knows of someone with HIV. However, in view of research indicating that about 12.2% of the South African population was HIV positive in the 2012 South African National HIV Prevalence Report, this finding was to be expected (Cullinan 2014:2). The report also indicated about 469000 infections in 2012. A total of 91 respondents had answered this question (n=91).

That HIV currently does not have a cure, was correctly indicated by 56.5% (n=85; f=48) of respondents. A surprising 43.5% (n=85; f=37) of learners still believe that there is a cure (view table 4.7), and 16.4% (n=85; f=14) had opted not to answer this question. A likely explanation is that they may not know the correct answer, and if totaled with those who believe that a cure exists, the total is then 60%. This finding is supported by other researchers who also found a relatively high number of learners with disability who believed that a cure for HIV existed (Hanass-Hancock 2009:5). Such misperceptions have grim consequences for the fight against HIV. This is further supported by the next question which alluded to the perception that strong healthy bodies ward off the infection, which yielded affirmative responses from 44.1% (n=93; f=41) of respondents.

Table 4.7: G4: Frequency distribution of respondents answers for the statement: “I think HIV/AIDS can be cured” (n=85)

“I think HIV/AIDS can be cured”		Frequency (f)	Percentage (%)
	No	48	56.5
	Yes	37	43.5
	Total	85	85.9
Missing	System	14	14.1
Total		99	100.0

In addition, the following statement, that HIV kills, was disagreed with by 38.8% (n=85, f=33) of the learners. This is closely related to the 43.5%, who believed that a cure is available. As seen in the table above, 14 respondents did not respond to this statement.

Table 4.8: G7: Frequency distribution of respondents answers to the statement: “I think HIV/AIDS is caused by witchcraft” (n=91)

“I think HIV/AIDS is caused by witchcraft”		Frequency (f)	Percentage (%)
	No	58	63.7
	Yes	33	36.3
	Total	91	91.9
Missing	System	8	8.1
Total		99	100.0

The role of witchcraft as a cause of HIV is a further indication of the misperceptions that abound, with 36.3% (n=91; f=33) of learners agreeing that this was a mode of transmission (view table 4.8). This finding was also reported on by Adenuga (2009:25) and Bogart et al (2011:2), who observed a strong belief in the role of witchcraft and supernatural forces as being a transmission mode of HIV. They concluded that this misperception resulted in people being less likely to take personal responsibility for engaging in protective behaviours such as using condoms to decrease the spread of HIV, as they believed that these methods did not have sufficient “power”. For LWHI, such misperceptions would further hinder attempts to alert them to the correct transmission modes of HIV. Bogart et al (2011:2) observed the strong influence of a cultural emphasis on the role of witchcraft and also ancestral punishment for certain illnesses.

It should be noted that 8 respondents did not respond to this statement, thus n=91.

Table 4.9: G8: Frequency distribution of respondents answers to the statement on HIV being a threat to those who use prostitutes: “I think HIV/AIDS is only a threat to those who use prostitutes” (n=88)

“I think HIV/AIDS is only a threat to those who use prostitutes”		Frequency (<i>f</i>)	Percentage (%)
	No	52	59.1
	Yes	36	40.9
	Total	88	88.9
Missing	System	11	11.1
Total		99	100.0

Table 4.10: G9: Frequency distribution of respondents answers to the statement on HIV being punishment for bad behaviour: “I think HIV/AIDS is punishment for bad behaviour” (n=93)

“I think HIV is punishment for bad behaviour”		Frequency (<i>f</i>)	Percentage (%)
Valid	No	55	59.1
	Yes	38	40.9
	Total	93	93.9
Missing	System	6	6.1
Total		99	100.0

The possibility that promiscuous behaviour resulted in HIV, was supported by about 40.9% (n=93; f=38) of learners, as indicated by their responses to the statements that only those who used prostitutes or engaged in bad behaviour were likely to be at risk of infection (view table 4.9).

Table 4.11: G10: Frequency distribution of respondents answers to the statement: “I wouldn’t want to be seen with someone with HIV/AIDS” (n=91)

“I wouldn’t want to be seen with someone with HIV/AIDS”		Frequency (<i>f</i>)	Percentage (%)
Valid	No	56	61.5
	Yes	35	38.5
	Total	91	91.9
Missing	System	8	8.1
Total		99	100.0

It was also noted that only 38.5% (n=91; f=35) of respondents would not want to be in the company of someone who was HIV positive (view table 4.10). This relatively low percentage (61.5%) could indicate a decrease in negative perceptions towards PLWH. Research has shown a significant amount of stigma and discrimination towards people with HIV and or AIDS (Young et al 2010:1). Their study revealed the associated stigma to be a significant barrier to testing for HIV in South Africa. Maughan-Brown and Spaul (2014:1), in a study of discrimination of learners against their peers with HIV, found a significant amount of discrimination amongst those in rural areas and poorer communities. Interestingly, the findings of the current study seem to indicate a relatively low level of discomfort in associating with people with HIV.

4.3.2.1 Gender differences on general knowledge statements

The only significant difference observed with respect to gender and general knowledge statements was for the statement that indicated that LWHI did not want to be seen with someone who is HIV positive. A total of 22 of the 46 males (47.8%; n=46; f=22) in the sample indicated that they did not want to be in the company of PLWH (2 male respondents did not respond to this statement, n=46). This is in contrast to the female learners where 28.8% (n=45; f=13) indicated discomfort with associating with PLWH (5 female respondents did not answer this question, n=45).

This is statistically significant at 10%: $p=0.063 < 0.10$ (view table 4.11). This indicates the probability of having a type 1 error, which is incorrectly rejecting a null hypothesis. Hence these results indicate a difference between male and female responses, i.e. gender differences did indicate a difference in acceptance of PLWH. Further, it is likely that on repeated administration of the questionnaire, similar results may be obtained. The Pearson's test of correlation measures the relationship between two variables, indicating magnitude (Polit & Beck 2012a:737). It was considered useful in this application as the questionnaire used a 'yes/no' format to compare differences in responses between the genders.

Table 4.12: Chi-square test of gender difference in general knowledge of HIV (n=91)

Gender differences	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	3.447 ^a	1	.063
Continuity correction	2.693	1	.101
N of valid cases	91		

A study in Mozambique by Mukolo, Blevins, Victor, Vaz, Seedat and Vergara (2013:8) regarding stigma towards PLWH showed that female respondents had less factual knowledge on transmission modes of HIV. Poorer factual knowledge was more likely to result in stigma. These authors therefore recommended improved knowledge of the different transmission modes of HIV in order to reduce stigma. It would appear that the findings of this study do not support this premise, i.e. these findings indicate possibly less stigma being attached to PLWH by the female respondents. However, the greater acceptance of PLWH by female learners might also render them more vulnerable to the advances of partners with HIV. This finding is a further impetus to focus efforts on females especially in view of the prevalence of HIV in young South African females being 3-4 times higher than that of young males (Louw, Peltzer & Chirinda 2012:2).

4.3.2.2 Religion and general knowledge statements

The researcher hypothesised that:

Ho: There is no association between religion and any of the general knowledge statements.

Ha: There is an association between religion and the general knowledge statements.

The Chi-square test value of 5.625 is significant at the 10% level, $p=0.060 < 0.10$ (view table 4.12). Therefore the null hypothesis is rejected, and religion is seen to have an association with the LWHI perceptions of HIV/AIDS transmission.

Table 4.13: Chi-square test of association between religion and general knowledge of HIV (N=99)

Association between religion and general knowledge	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	5.625 ^a	2	.060
Likelihood ratio	6.156	2	.046
N of valid cases	88		

Winskell, Hill and Obyerodhyambo (2011:9) corroborate this in their study of HIV related stigma in 6 African countries; Swaziland, Namibia, Kenya, South-East Nigeria, Burkina Faso and Senegal. The influence of religion resulted in a high moral code of conduct and was also responsible for the associated stigma, of what was seen to be punishment (HIV affliction) from God for promiscuous behaviour (Winskell et al 2011:9).

Interestingly, Mukolo et al (2013:9), found Muslims to be more likely than Christians to engage in negative labelling, but less likely to practice social exclusion. This study's sample comprised a majority of Christian learners (54.1%), hence no comparison could be made with other religious groups.

4.3.3 Section B: Dissemination of information

This section consisted of: (i) the knowledge sources where the respondents had learned about HIV and (ii) the effectiveness of these sources

4.3.3.1 Knowledge sources of information

Of the respondents 19.1% (N=99; f=19) indicated schools/teachers as their source of information (view table 4.13). This was followed by the local clinics/hospitals at 13.1% (N=99; f=13) and the media at 10.1% (N=99; f=10). Perhaps rather appropriately, 49.5% (N=99; f=49) of all respondents also indicated that they had learnt about HIV/AIDS from more than one source.

Table 4.14: Frequency table indicating knowledge sources of information (N=99)

Sources		Frequency (<i>f</i>)	Percentage (%)
Valid	School (teachers)	19	19.1
	Parents	6	6.1
	Friends/peers	2	2.0
	Local clinics/hospitals	13	13.1
	Media	10	10.1
	More than one of above	49	49.5
	Total	99	100.0

4.3.3.2 Effectiveness of these sources

Of the respondents 68.7% (n=83, f=57) indicated teachers as being the most effective source of information on HIV and AIDS. Clinics/hospitals ranked second with 51.4% (n=74; f=38) of respondents showing these as being most effective. The media ranked third with 49.4% (f=38), whilst parents (36.6%; n=71; f=26), religious leaders (31.7%; n=60, f=19), and friends/peers (14.1%; n=64; f=9) followed. This is an interesting contrast to the literature which found peers and friends to be the sources of choice as they were perceived as not stigmatising or discriminating (Chireshe et al 2010:21; Bat-Chava et al 2005:625). These authors, who also observed this preference for peer-acquired information, commented that this may also be a source of some of the gaps in knowledge. Perhaps schools provide the most comprehensive information in a structured manner, and there are also educators who communicate in Sign, hence their rating of being most effective.

Interestingly, the use of media also featured prominently (49.4%; n=77; f=38), which serves as an impetus to continue with health promotion messages in whatever form (print, visual, sign). This is despite researchers such as Groce et al (2007:368) finding that poorer levels of education and literacy resulted in LWHI experiencing a barrier to access to information where radio campaigns or television programmes that were not accompanied by captions or sub-titles, had limited benefit.

4.3.4 Section C: Knowledge of transmission modes of HIV

Section C of the questionnaire tested the knowledge about the different transmission modes of HIV i.e. how HIV/AIDS can be spread. Respondents were required to agree/disagree by indicating if the statements were true/false or indicating that they “did not know”. The findings are reflected in table 4.14.

4.3.4.1 ‘HIV can be transmitted by having sexual relations with someone with HIV’

Whilst 54.2% (n=96; f=52) of the respondents correctly agreed that this was a mode of transmission, 19.8% (n=96; f=19) disagreed, and a startling 26% (n=96; f=25) indicated that they did not know whether or not this was correct. Three respondents did not respond to this statement, hence n=96.

4.3.4.2 ‘HIV can be transmitted by sharing needles with someone with HIV’

Again, 54.7% (n=95; f=52) of the respondents correctly agreed that this was a transmission mode of HIV, 24.2% (n=95; f=23) of the learners disagreed and 21.1% (n=95; f=20) responded that they did not know. Four respondents did not answer this question, hence n=95.

4.3.4.3 ‘HIV can be transmitted by performing oral sex’

Of the respondents 44.1% (n=93; f=41) correctly agreed that this is a transmission mode of HIV, with 18.3% (n=93; f=17) incorrectly disagreeing that it was not. Further, 37.6% (n=93; f=35) of the learners marked the “do not know” option. Six respondents did not answer this question, hence n=93.

4.3.4.4 ‘HIV can be transmitted by kissing someone with HIV’

Whilst 37.4% (n=99; f=37) of the learners incorrectly agreed that casual kissing is a mode of transmission, 44.4% (n=99; f=44) correctly disagreed that the virus is not transmitted via this method. All respondents answered this question (n=99). Groce et al

(2007:369) also observed that PWHI incorrectly believed that casual kissing could transmit the virus.

4.3.4.5 'HIV can be transmitted by engaging in sexual acts with someone with HIV without a condom'

The majority of the respondents, 64.6% (n=96; f=62) correctly agreed that transmission of HIV was possible if a condom was not used, while 18.8% (n=96; f=18) felt that this was not possible. Only three respondents did not answer this question, n=96.

4.3.4.6 'HIV can be transmitted by having contact with HIV infected blood/other body fluids'

Sixty eight point one percent (68.1%; n=94; f=64) of the respondents correctly agreed that this was a transmission mode, whilst 13.8% (n=94; f=13) provided an incorrect response, and 18.1% (n=94; f=17) indicated not knowing. Further, five respondents did not answer this question (n=94).

4.3.4.7 'HIV can be transmitted by sharing razors with someone with HIV'

Just 51.6% (n=93; f=48) of respondents correctly agreed that this could be a transmission mode, whilst 30.1% (n=93; f=28) indicated not knowing, and 18.3% (n=93; f=17) disagreed and thought that this was incorrect. Six respondents did not respond to this question, n=93.

4.3.4.8 'HIV can be transmitted by sharing of linen or dishes with someone with HIV'

Although 46.7% (n=90; f=42) of the respondents correctly disagreed that this would not transmit the virus, 18.9% (n=90; f=17) incorrectly agreed, whereas 34.4% (n=90; f=31) indicated not knowing. Nine learners did not respond to this question, n=90.

4.3.4.9 'HIV can be transmitted by shaking hands with/sitting next to someone with HIV'

The majority of respondents, 48.3% (n=87; f=42), correctly disagreed that this was a transmission mode. Thirty one percent (31%; n=87; f=27) of the respondents incorrectly agreed that this was as a mode of transmission, whilst 20.7% (n=87; f=18) were uncertain.

4.3.4.10 'HIV can be transmitted by an infected mother delivering a baby'

Of the respondents 47.3%; f (n=91; f=43) of the learners correctly agreed that child delivery was a potential mode of transmitting the virus from mother to child, whilst 33% (n=91; f=30) indicated that they did not know whether or not this was possible. Nineteen point eight percent (n=91; f=18), answered this question incorrectly.

4.3.4.11 'HIV can be transmitted by an infected mother breastfeeding a baby'

Of the respondents 54.3% (n=94; f=51) correctly identified breastfeeding as a transmission mode, whilst 28.7% (n=94; f=27) were unsure. Seventeen percent (17%;n=94; f=16) incorrectly disagreed with this statement.

4.3.4.12 'HIV can be transmitted by an infected father carrying a baby'

Just 36.3% (n=91; f=33) of the respondents were able to correctly disagree that this was a transmission mode. However, 30.8% (n=91; f=28) of the respondents incorrectly believed that this was a transmission mode.

4.3.4.13 'HIV can be transmitted by an infected person having many sexual partners'

Of the respondents 71.7% (n=92; f=66) of the learners correctly agreed that this was a transmission mode. Thirteen percent (13%; n=92; f=12) disagreed with the statement, whilst 15.2% (n=92; f=14) indicated that they did not know.

4.3.4.14 'HIV can be transmitted by a family member with HIV coughing near you'

A fairly large number of the respondents, 60.4% (n=96; f=58) incorrectly agreed that this could be a transmission mode. Twenty seven point one percent (27.1%;n=96; f=26) of the respondents correctly disagreed indicating that HIV is not transmitted via coughing.

4.3.4.15 'HIV can be transmitted by being bitten by an HIV infected person'

Just 26.7% (n=86; f=23) of the respondents correctly agreed that this is a transmission mode, while 37.2% (n=86; f=32) of the respondents disagreed incorrectly, and 36% (n=86; f=31) indicated not knowing.

4.3.4.16 'HIV can be transmitted by talking to or hugging an HIV infected person'

Half of the respondents, 60.4% (n=96; f=58) correctly disagreed that this was not a transmission mode. However, 19.8% (n=96; f=19) incorrectly indicated that it was, whereas 19.8% (n=96; f=19) also indicated not knowing.

4.3.4.17 'HIV can be transmitted by being bitten by mosquitoes'

Of the respondents 37.2% (n=86; f=32) correctly disagreed, while 33.7% (n=86; f=29) incorrectly agreed that this was a transmission mode, and 29.1% (n=86; f=25) did not know whether or not mosquitoes carried the virus. Thirteen respondents did not respond to this question (n=86).

4.3.4.18 'HIV can be transmitted by an infected person sneezing near you'

Again, 47.8% (n=90; f=43) of respondents incorrectly agreed that HIV is air-borne, 31.1% (n=90; f=28) answered correctly that this statement was false, and 21.1% (n=90; f=19) indicated not knowing. This may be related to the responses obtained from the statement on coughing, where 60.4% of the respondents incorrectly believed this to be a transmission mode.

4.3.4.19 'HIV can be transmitted by having a circumcision'

Of the respondents 37.9% (n=87; f=33) of learners correctly agreed that this is a possible transmission mode (this refers to the traditional methods of circumcision performed outside of medical facilities), whilst 37.9% (n=87; f=33) claimed not to know, and 24.1% (n=87; f=21) answered incorrectly by disagreeing. Twelve learners did not respond to this question. This low correct response rate was a surprising finding as the DOH in KZN had recently embarked on a massive campaign to promote circumcision as a risk reduction strategy. The practice of male medical circumcision has been lauded as a valued risk reduction strategy to decrease the chances of transmission from female to male partners. The WHO in 2007 had already promoted voluntary male medical circumcisions in countries such as South Africa that had a high HIV prevalence (UNAIDS Global on the Global Aids Report 2012:20). Fokazi (2014:2) also reported on the Human Sciences Research Council proposal that a banning of the traditional circumcisions be endorsed by traditional leaders as this practice resulted in unnecessary deaths or penile amputations due to unsterile environments.

4.3.4.20 'HIV can be transmitted by always wearing condoms during sexual activities'

Fifty-seven percent (57%), (n=93; f=53) of respondents correctly agreed that constant condom use is a protective factor and could lessen the risk of transmission, although 26.9% (n=93; f=25) of respondents felt that HIV may still be transmitted despite the consistent use of condoms. Six learners opted not to respond to this question. Goldstein et al (2010:535) felt that this information on consistent condom use, which reflects basic knowledge about the efficacy of condoms, has important implications for whether or not these learners with hearing impairment would be willing and able to use condoms to protect themselves from HIV infection.

4.3.4.21 'HIV can be transmitted by always bathing/showering after unprotected sex'

Only 27.7% (n=94; f=26) of the respondents correctly agreed that bathing/showering after unprotected sex, did not reduce the risk of transmission. Of the respondents (45.7%), (n=94; f=43) of learners incorrectly agreed that the cleansing process was

effective in curbing transmission. A further 26.6% (n=94; f=25) responded with “do not know”.

4.3.4.22 ‘HIV can be transmitted by having unprotected sex with someone whose status is not known’

Of the respondents 34.7% (n=95; f=33) correctly agreed that this could lead to virus transmission. A surprising 46.3% (n=95; f=44) checked “did not know”, whilst 18.9% (n=95; f=18) disagreed, incorrectly. This finding may be correlated with poor knowledge of both basic transmission modes, as well as poor knowledge of the appropriate use of condoms.

4.3.4.23 ‘HIV can be transmitted by having sex with a partner who is HIV positive while using a condom’

Of the respondents 47.4% (n=95; f=45) correctly agreed that condom use is not 100% effective in the prevention of HIV transmission, whilst 36.8% (n=95; f=35) disagreed incorrectly.

4.3.4.24 ‘HIV can be transmitted by sitting with a HIV positive person’

Of the respondents 41.7% (n=96; f=40) correctly agreed that this form of casual contact did not result in infection. However, a relatively high number, 34.4% (n=96; f=33) answered incorrectly, indicating a misperception of casual contact being a transmission mode.

4.3.4.25 ‘HIV can be transmitted by swimming/surfing with a HIV positive person’

Of the respondents 40.6% (n=96; f=39) correctly disagreed that this is a transmission mode, whilst 24% (n=96; f=23) incorrectly believed that this could result in HIV. This is further supported by responses to statement 9 (shaking hands), where 31% of the respondents incorrectly believed in the casual contact as a transmission mode.

From the responses indicated above, it is evident, that a number of misperceptions about HIV transmission still abound. The role of casual contacts in the non-transmission of HIV/AIDS, has not been established. This is also supported by literature (Tarkang 2009:462; Maughan-Brown & Spaul 2014:11). A summary of the respondents' knowledge of the transmission modes of HIV is presented in the table below:

Table 4.15: Frequency distribution of respondents' knowledge of the transmission modes of HIV

Modes of transmission	True		False	
	<i>f</i>	%	<i>f</i>	%
HIV can be transmitted by:				
1. Having sexual relations with someone with HIV	52	54.2	19	19.8
2. Sharing needles with someone with HIV	52	54.7	23	24.2
3. Performing oral sex on someone with HIV	41	44.1	17	18.3
4. Kissing someone with HIV	37	37.4	44	44.4
5. Engaging in sexual acts with someone with HIV without a condom	62	64.6	18	18.8
6. Having contact with HIV infected blood/other body fluids	64	68.1	13	13.8
7. Sharing razors with someone with HIV	48	51.6	17	18.3
8. Sharing linen or dishes with someone with HIV	17	18.9	42	46.7
9. Shaking hands with/sitting next to someone with HIV	27	31.0	42	48.3
10. An infected mother delivering a baby	43	47.3	18	19.8
11. An infected mother breastfeeding a baby	51	54.3	16	17.0
12. An infected father carrying a baby	28	30.8	33	36.3
13. An infected person having many sexual partners	66	71.7	12	13.0
14. A family member with HIV coughing near you	58	60.4	26	27.1
15. Being bitten by an HIV infected person	23	26.7	32	37.2
16. Talking to or hugging an HIV infected person	19	19.8	58	60.4
17. Being bitten by mosquitoes	29	33.7	32	37.2
18. An infected person sneezing near you	43	47.8	28	31.1
19. By having a circumcision	33	37.9	21	24.1
20. Always wearing condoms during sexual activities	53	57.0	25	26.9
21. Always bathing/showering after unprotected sex	26	27.7	43	45.7
22. Having unprotected sex with someone whose status is not known	33	34.7	18	18.9
23. Having sex with a partner who is HIV positive while using a condom	45	47.4	35	36.8
24. Sitting with a HIV positive person	33	34.4	40	41.7
25. Swimming/surfing with a HIV positive person	23	24.0	39	40.6

4.3.5 Section D: Preferred communication sources

Section D indicated the preferred sources from which the respondents would like to learn more about HIV. The respondents were required to indicate “yes” or “no” to the different sources that were listed.

Table 4.16: Preferred communication sources (N=99)

Preferred choices	Yes		No	
	<i>f</i>	%	<i>f</i>	%
Parents	53	68.8	24	31.2
Teachers	68	87.2	10	12.8
Friends/peers	42	61.8	26	38.2
Religious/cultural organisations	34	50.7	33	49.3
Clinic/hospitals	74	87.1	11	12.9
School/community functions	49	65.3	26	34.7

Teachers were rated the highest preferred source of education on HIV and AIDS by 87.2% (n=78; f=68) of the respondents as indicated in table 4.15. Clinics/hospitals (87.1%; n=85; f=74) followed, thereafter parents (68.8%) (n=77; f=53), school/community rallies (65.3%; n=75; f=49), friends/peers (61.8%; n=68; f=42), while the lowest preferred choice from which to obtain HIV information was religious/cultural leaders (50.7%; n=67; f=34). Goldstein et al (2010:530) also observed that schools were preferred by 70% of their respondents, whereas 52% indicated friends/peers, and 44% chose family members as a preferred source of education. Although their study was conducted across various schools in the United States, it is interesting to note that teachers/schools were rated highly, a fact which underscores their vital role in HIV prevention strategies.

The finding that religious/cultural leaders were the least/lowest preferred information provider, was to be expected as learners may have been too scared to consult revered leaders about their concerns. The literature had indicated that in certain instances, friends/peers were preferred sources of information (Tarkang 2009:151; Chireshe et al 2010:22). This is clearly not supported by the findings of this study, where authority

figures, such as healthcare professionals, teachers and parents, are the preferred sources.

That clinics or hospitals were also scored highly as being the preferred source of information, is indicative of learners' needs for services, for their desire for privacy (discussing medical matters of a sensitive nature with relative strangers is often easier than with known persons, e.g. parents or teachers), as well as of their need to be considered equal to other members of society.

4.3.6 Section E: Preferred communication strategies

Section E indicated the preferred communication strategies that the respondents would like to be used when learning more about HIV. The respondents were again required to complete their responses using the "yes-no" format and findings are reflected in table 4.16.

Table 4.17: Preferred communication strategies (N=99)

Preferred strategies	Yes		No	
	<i>f</i>	%	<i>f</i>	%
Internet	70	87.5	10	12.5
Visuals	49	68.1	23	31.9
Billboards	29	44.6	36	55.4
Individual face-to-face contact	71	83.5	14	16.5
Other	36	64.3	20	35.7

The majority of the learners (87.5%; n=80; f=70) of the respondents indicated a preference to reading information off the internet. These results are also indicative of the need for individuality or individual-specific information. In the Goldstein et al (2010:530) study, 56% of the respondents had indicated the use of the internet as the preferred method of obtaining information about HIV.

A number of respondents, i.e. 83.5%, (n=85; f=71) also indicated a preference for individual/face to face contact at clinics or hospitals. This is in line with the information presented above, where the respondents wanted to access HIV education at these institutions.

The use of pictures/visual cues to relay information was supported by 68.1% (n=72; f=49) of the learners. This was also reinforced in a literature review by Scheier (2009:7) pertaining to communication barriers experienced by those with hearing impairment in accessing healthcare which also indicated greater comprehension of information that is supported by additional visual cues.

Billboards or pamphlets providing information on HIV/AIDS, were only supported by 44.6% (f=29; n=65) of the respondents. This is further related to their preference for more interactive and personalised learning, as indicated by their preference for information presented individually at clinics/hospitals.

Sixty-four percent of (64%; n=56; f=36) respondents indicated a preference for the use of other strategies, although none were mentioned. This is possibly due to the communication barrier, where they might have not understood the question, or could not spell out their response, hence chose to omit providing more detail.

4.4 ANALYSIS OF VARIANCE

The ANOVA procedure was used to determine differences in the knowledge about the learners of the transmission modes of HIV, across the different schools.

The researcher hypothesised that:

Ho: Mean knowledge of HIV transmission modes scores for the learners at the 3 schools does not differ.

Ha: The mean knowledge of HIV transmission modes scores differs from school to school.

Performing a one-way analysis of variance on the knowledge scores yielded an F statistic value of $F=0.32$ with corresponding p-value= 0.7249 as indicated in table 4.17. The p-value is 0.79 which is considerably >0.05 , so H_0 is not rejected. This means that the null hypothesis is accepted indicating no evidence to suggest that the mean

knowledge scores differ across the schools. Hence no assumptions about the influence of rural or urban settings may be proposed from the findings of this study.

Table 4.18: ANOVA of mean knowledge scores across the schools

Source	DF	Sum of squares	Mean square	F-value	Pr > F
Model	2	12.245181	6.122591	0.32	0.7249
Error	96	1820.663910	18.965249		
Corrected Total	98	1832.909091			

These low averages indicate a general paucity of knowledge of the different transmission modes of HIV by LWHI. Factors which may have contributed to this include the various communication barriers experienced.

The average knowledge scores of the different transmission modes for the 3 schools are presented in table 4.18:

Table 4.19: Average knowledge scores

School	Sample average
School A	9.871
School B	10.632
School C	9.400

The data is also presented in a box-plot below (figure 4.5). The clustering of scores on the transmission modes around 10 correct responses on the 25 statements, which is approximately 40%, falls short of the 80% score (competency indicator) that this study considered as indicating adequate knowledge of the transmission modes of HIV. The use of gestures and signs, to counteract one of the most significant barriers to communication with these LWHI, should have facilitated greater understanding of the transmission modes, however, the results indicate otherwise.

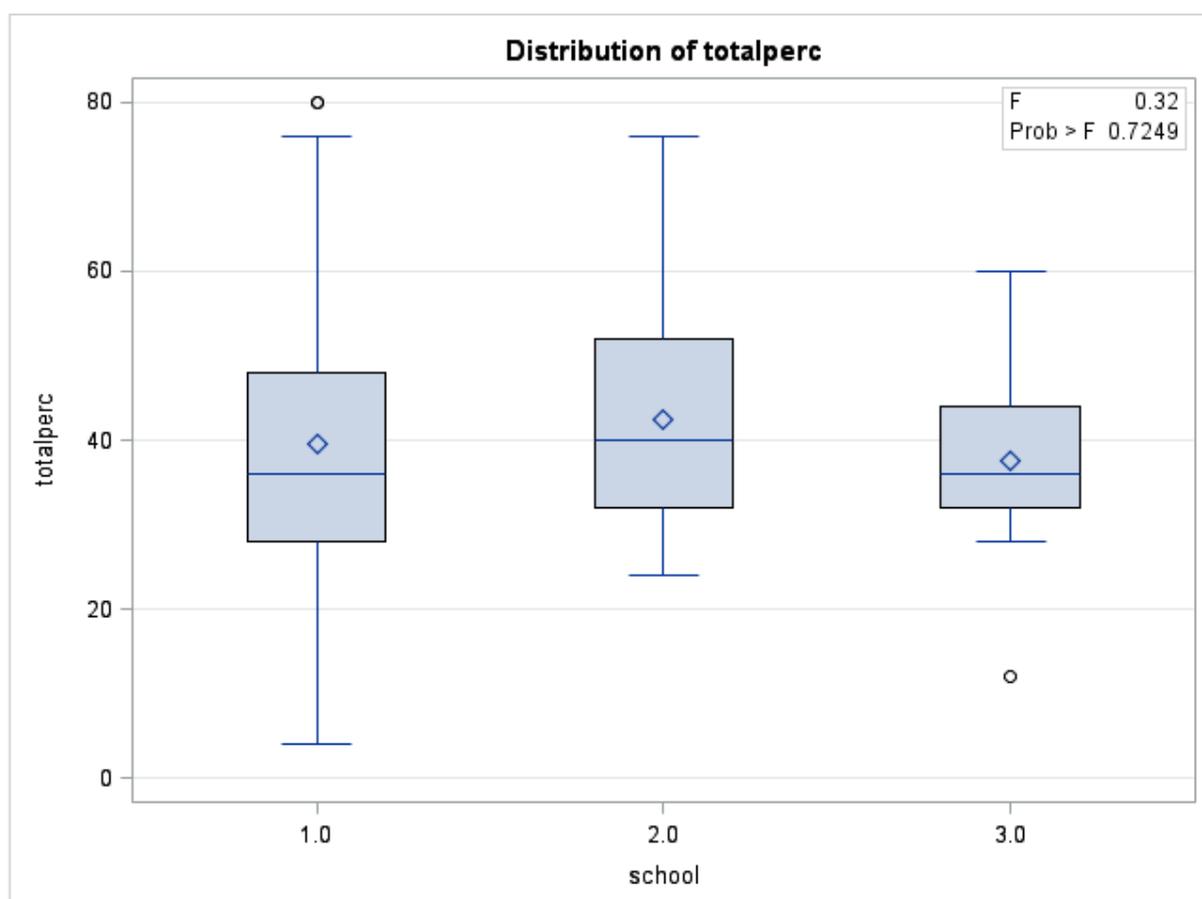


Figure 4.5: Average knowledge scores across schools

The box plot is a graphical representation of the average scores as well as the range of scores of knowledge of the LWHI of the different transmission modes of HIV. These average scores (School A had an average score of 9.8, School B 10.6, and School C 9.4) indicate no significant differences in the knowledge levels of learners in rural as opposed to urban schools. The literature reviewed (Chapter 2) indicated that those residing in urban areas were more likely to be better informed about HIV and AIDS than those living in rural areas as a result of the greater availability of services (Chireshe et al 2010:20; Eide et al 2011:1596). However, the findings of this study do not support the findings of differences in knowledge of different transmission modes of HIV between rural and urban residents. This may be due to the fact that the schools for LWHI in KZN are few and far between, and that they accept learners from all over the province (rural and urban). Hence the learners' exposure to information on HIV in general cannot be related to their areas of residence and possible exposure to different levels of service.

The limited sample size restricts generalisability of these findings to all LWHI. However, the literature reviewed has indicated that PWHI in general have poorer knowledge of

HIV, its prevention, and modes of transmission (Adenuga 2009:6; Machimana 2012:51; De Andrade & Baloyi 2011:311).

4.4.1 Gender differences in knowledge scores

The researcher hypothesised that:

Ho: Mean knowledge scores for girls is the same as for boys.

Ha: Mean knowledge scores for girls differ from that of boys

The one-way ANOVA yielded an F statistic of 7.91 with the p-value=0.0059 which is significant at the 1% level ($p < 0.01$).

Sample means are recorded in the following table:

Table 4.20: Mean knowledge scores related to gender

Gender	Sample mean	N
Male	11.163	48
Female	8.800	50

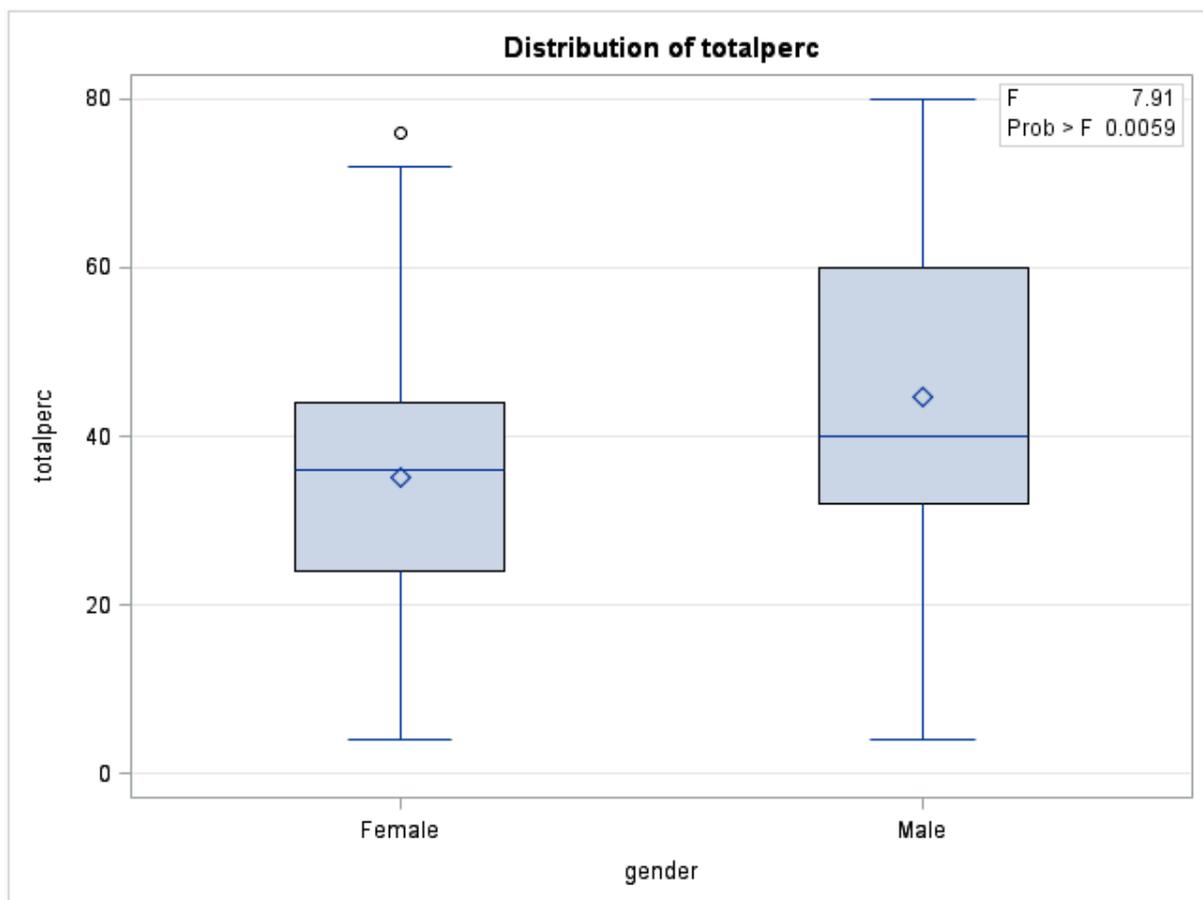


Figure 4.6: Mean knowledge scores related to gender

Hence it would appear that female respondents in this study have poorer knowledge of transmission modes of HIV than their male counterparts. This finding is in keeping with those of the literature review, wherein the UNAIDS Report (2012:20) indicated that of the 31 countries surveyed, 26 reported that less than 50% of young women had correct and comprehensive knowledge of HIV and its different transmission modes. Mugoya and Ernst (2014:208) who also observed gender differences in knowledge of HIV transmission and hence more stigma from female participants attributed this to various socio-cultural factors such as lower socio-economic status, education levels and status of employability, and the cultural perceptions/traditions that afforded women lower status than men. This they felt provides only a partial explanation for the gender differences observed. Mehra, Ostergren, Ekman and Agardh (2014:8) concurred that gender differences needed to be considered in planning intervention programmes so that likely explanations for certain behaviour patterns, such as low condom usage, may be explored and addressed appropriately.

4.5 COMPETENCY INDICATOR

Following discussions with the initial statistician from UNISA, the 25 items used in the knowledge of transmission were used to gauge whether or not LWHI would possess correct information of the different transmission modes of HIV, as well as of the casual contacts that would not result in infection. A cumulative score of 80% and above was considered to indicate adequate knowledge, whilst 70% and below, would indicate poor knowledge of the different transmission modes of HIV. The results are presented in the box plot (figure 4.7) below:

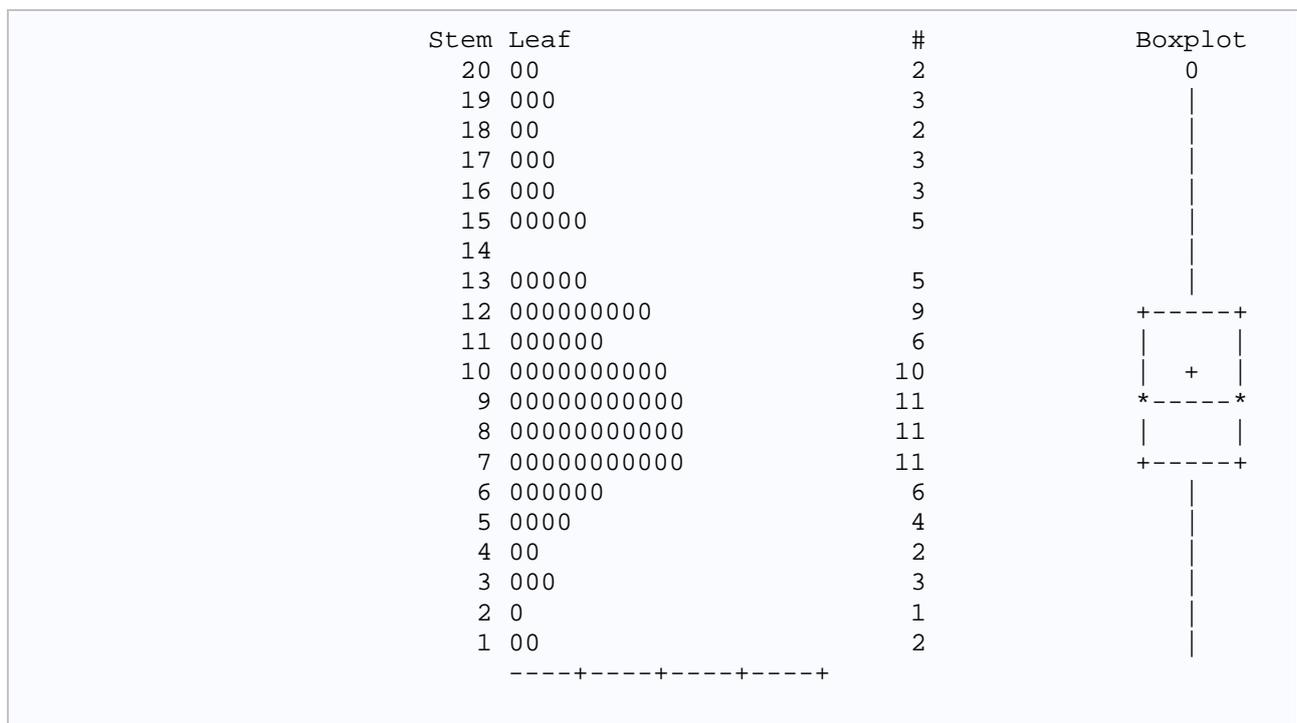


Figure 4.7: Stem and leaf plot depicting knowledge scores of learners

These results indicate only 2 learners in the sample obtaining a score of 80%, with the majority of the learners scoring approximately between 25-48%. These extremely low scores indicate very poor knowledge of the different transmission modes of HIV. Furthermore none of the respondents obtained the maximum possible score, i.e. 100%.

These results are supported by previous findings of LWHI having poorer knowledge of the basics of HIV and its different transmission modes, cited in the literature review (Groce et al 2007:386; Bat-Chava et al 2005:625; Adenuga 2009:5; Gatta 2012:2).

Additionally, it may be deduced that very few LWHI have gained adequate knowledge of the different transmission modes of HIV.

4.6 CONCLUSION

The results presented above indicate a number of gaps in the knowledge that LWHI have about the different transmission modes of HIV. These findings are further discussed in Chapter 5.

CHAPTER 5

FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

5.1 INTRODUCTION

HIV has been considered to be the most devastating illness of modern times (Nur 2012:2). Diverse groups of people such as those with disability, women, adolescents and children have all been shown to be vulnerable to HIV infection (Padayatchi, Naidoo, Dawood, Kharsany & Abdool-Karim 2010:89; Hanass-Hancock 2009:2; Melwa & Oduntan 2012:190). In this regard LWHI are considered particularly vulnerable to HIV infection, as they frequently are not exposed to the usual methods of auditory or verbal communication of information and educational materials.

The main *aim* of this study was to determine the knowledge gaps of LWHI about the different transmission modes of HIV and to propose recommendations to improve knowledge gaps in this regard. The underlying premise is that education is a key strategy in prevention of infection. Prevention starts with knowledge, therefore the success of any prevention strategy is dependent on the dissemination of information to facilitate the empowering of the individual (Adenuga 2009:29).

The first *objective* was to determine the knowledge gaps of LWHI on the different transmission modes of HIV. This was undertaken through an intensive literature review (Chapter 2) which resulted in the development of a questionnaire (Annexure D). Chapter 3 outlined the process/methodology of the research whilst Chapter 4 presented the findings of the study. The results reflected that these LWHI lacked adequate knowledge of the different transmission modes of HIV. This is despite the great number of awareness campaigns conducted by both government and non-governmental associations.

The second *objective* was to propose recommendations to improve the knowledge gaps of LWHI on the different transmission modes of HIV that had become apparent during the course of the study.

This chapter provides an interpretation of the findings, conclusions and limitations of the study. In addition, the second objective of the study, which was to suggest recommendations to improve the knowledge of transmission modes of HIV by LWHI, is discussed. The chapter also seeks to highlight the risk of infection faced by such learners as a result of their increased vulnerability.

5.2 RESEARCH DESIGN AND METHODOLOGY

The study employed a quantitative descriptive and cross-sectional design, and was conducted at three public schools for LWHI in the province of KZN. A self-designed questionnaire was used to elicit information on the knowledge that LWHI have of the different transmission modes of HIV.

The sample comprised 99 learners from three special needs schools in KZN. LWHI who were 18 years and older, and who were cognitively capable of responding to the questionnaire, were accessed via convenience sampling for inclusion in the study. Their responses were analysed with the assistance of the statistician via the SPSS software programme.

5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS

The findings of the study are addressed under this heading.

5.3.1 Findings

The findings reflect on the biographic data and the knowledge gaps identified from the data.

5.3.2 Demographic data

The socio-demographic data refers to the age, grades, gender, language, nationality and religion of respondents.

- **Ages and grades of the respondents**

The learners ranged in age from 18 years to 25 years. The average age was 20.3 years (Chapter 4; 4.3.1.1). As previously indicated, this is the age group that would most likely be on the verge of exiting the formal schooling system, and going out into the adult world of further tertiary education or seeking employment opportunities. As a result of limited training and learning opportunities for hearing impaired young adults, a fair proportion of those who leave school around this time, are likely to remain at home, and form part of the general household, reliant on their disability grants as a source of income (Principal. Personal communication, March-May 2014. Durban).

The learners in this age category were in Grades 8 to 12. Those who could not cope with the academic demands of these grades were in skills programmes. A large number of these learners might not complete Grade 12 due to their poor literacy levels and or reduced cognitive abilities, which further limits their employment opportunities. As was mentioned previously, schools for learners with special needs are obliged to accommodate them up until the age of 21. However, in school A, the learners were encouraged to continue accessing the skills programmes up to the age of 25, due to the limited resources available to them. This, the principal believes, assists the community in caring for these vulnerable learners. Research has shown that those who are exposed to support within the school environment were less likely to engage in early sexual debuts and also less likely to have multiple partners (Zuma et al 2010:52; National Strategic Plan on HIV, STIs and TB 2012-2016:21). Thus these high risk factors for HIV infection might be alleviated.

Improved knowledge as a function of age (generally greater worldliness experienced by increasing age and further social experiences) does not apply to this group of respondents. Oladunni (2012:292) noted that amongst young adults with disability, learning limitations, poor body image and self-esteem, as well as poor social skills resulted in poor knowledge of sexual and reproductive knowledge. Not only are their communication barriers a significant factor in limiting their interactions with their general environment, but their age groups' interest and subsequent experimentation with sex, also add to their vulnerability. Mayaki (2012:11) concurred that the young adults' vulnerability is related to early sexual debut, multiple partners, increased frequency of sex, greater age differences, unprotected sex, and greater risk of coercion and abuse.

Unfortunately, young adults do not perceive their behaviours or those of their partners as possibly increasing their vulnerability. They do not recognise the immediacy of the threat and hence continue to engage in risky behaviours. Morisky et al (2013:49) reported on exposure to life skills education as resulting in a positive effect on sexual health and reproductive health knowledge amongst younger African youth who would be perhaps less exposed to such information within their social and cultural environments. Further their study revealed greater benefits for younger learners, adding further impetus to the call for greater focus on sex education at the prepubertal stage (Tarkang 2009:142). The findings of this study may also lend support to this suggestion, as the respondents were found to possess poor knowledge on the transmission modes of HIV.

The answers obtained on the latter tended to cluster around 10 correct responses to 25 statements in this study. This indicates a knowledge score of approximately 40%, whereas 80% and above was considered indicative of adequate knowledge. Only 2 of the 99 (2%) respondents obtained a score of 80%. It could therefore be concluded that a large number of young adult learners with hearing impairment do not have adequate knowledge concerning the transmission modes of HIV. This is supported by other studies, which also reflected poor levels of knowledge about HIV transmission and infection amongst young adults (Adenuga 2009:5; Mall 2012:iii). These researchers had also recommended that young adults urgently needed basic information on HIV because knowledge of transmission is the first step towards prevention of infection with HIV.

- **Gender**

The sample comprised 48 males and 50 females.

The results of this study indicated that the males scored higher on the knowledge of the modes of transmission of HIV than the female respondents. Male respondents obtained an average of 11, whilst female respondents recorded an average score of 8 (Table 4.20). Differences between genders as regards knowledge about HIV transmission modes, prevention and treatment were also observed in studies conducted abroad, with males displaying more accurate knowledge (Srivastava, Mahmood, Mishra, Shrotriya & Shaifali 2011:88). Research has shown young women in the age group 15-24 years, to

have the poorest knowledge of HIV transmission in South Africa (Eriksson, Lindmark, Axemo, Haddad & Ahlberg 2013:454). The findings of this study add support to this. The gender bias in knowledge is another reason for intervention programmes to consider the different needs of the genders in accessing as well as incorporating information into their general life practices.

Further, the results of this study also indicated the presence of more stigmatising attitudes amongst males (where 47.8% indicated a preference for not wanting to be seen with someone with HIV) as compared to female learners (28.8%). This finding is in contrast to some research which has acknowledged females as holding stigmatising attitudes towards PLWH (Mukolo et al 2013:8). In addition, presenting with a disability is often associated with stigma. This would be further complicated by the occurrence of infection with HIV, which could possibly result in double stigmatisation (Groce et al 2012:6). Stigma is strongly associated with poor knowledge of HIV transmission; hence reducing the former is a very powerful component of the prevention armoury (Wen et al 2011:537).

Within the South African context, more females than males, in the young adult age group, have been found to present with HIV (Harrison, Newell, Imrie & Hoddinott 2010:1). Eriksson et al (2011:455) have observed that the prevalence of HIV in 15-19 year old females is 2.7 times higher than that observed for young males. Factors such as gender inequalities, poorer social status, poverty, and or lower levels of education, have been postulated as increasing a females' vulnerability to HIV infection (Shisana, Rice, Zungu & Zuma 2010:39). Hence researchers and clinicians alike have called for more attention to be focused on female learners. The findings of this study further support this call for a greater focus on females.

- **Religion**

Religious beliefs were found to play a prominent role in determining learners perceptions, e.g. the majority of Christian learners (46%) agreed with the statement that "HIV is only a threat to those who use prostitutes". A study by Anwar et al (2010:5), also indicated a significant link between religion and sexual behaviour amongst learners. They reported greater awareness of HIV and other sexually transmitted illnesses amongst Christian learners, which they attributed to greater participation in sexual

activity as compared to other religious groups. Although this study did not focus on religious beliefs specifically, since the sample mainly comprised Christian respondents, the influence of religion and associated practices cannot be ignored. Research has shown religion to exercise a significant influence on the practice of sexuality, with regular attendance of religious meetings having a delaying effect on sexual debut (Eriksson et al 2013:455). Early sexual debut has been considered a high risk factor for HIV infection. Although, most faith based interventions had initially focused efforts on promoting the abstinence approach, i.e. abstaining from sexual intercourse until marriage to prevent HIV infection, the limitations of this approach were soon realised, as incidence and prevalence rates continued to rise. More recent strategies, such as SAVE (safer practices, available medications, voluntary counselling and testing, and empowerment) have tended to incorporate other information on HIV and focus on safe sexual practices with messages focusing on delaying sexual debut, faithfulness to a partner, and other HIV prevention practices (Eriksson et al 2013:463). Amoako-Agyeman (2012:239) reported on a dichotomy of intrinsic (personal) versus extrinsic (organisational) religiosity, which he proposes that institutions such as the church should focus on. He noted that those young adults who had very high intrinsic or private religiosity were more likely to abstain from sex. However, once sexual activity was practiced, they were less likely to use condoms. Thus, he further proposed that HIV prevention programmes should consider such practices in order to promote more socially and culturally accepted behaviours. This approach, is in essence tailoring intervention programmes to suit the context, which is currently the approach endorsed by the WHO, i.e. the “Know your epidemic, know your response” campaign. With regard to the respondents in this study, this approach would be especially cognisant of their communication barriers too.

In this study, only 31.7% of the learners felt that religious leaders were effective sources of information on HIV. This low percentage might have also been an indication of their discomfort in discussing this sensitive issue with these leaders whom they would see as figures of authority. Alternately, this might also be due to their understanding of the abstinence approach messages, with which they could possibly not agree. Given the current South African context of high engagement with certain risk factors amongst the youth, it is necessary for intervention efforts to consider the impact of these behaviours as relating to the abstinence approach. Eriksson et al (2013:462) reported that the most frequent explanations for engagement in sexual activities were peer pressure, easy

access to alcohol and drugs, and messages from the media portraying favourable sexual images. It should be noted that although his study concerned individuals without impairment of hearing, these considerations should also apply to those with hearing impairment, as additional research unveils supplementary information about the unique needs of this population (PWHI). As mentioned previously, research amongst individuals with disability has been neglected, hence the dearth of information. In this regard, the respondents were not questioned about their engagement in sexual activities; thus no information on their perceptions was elicited.

5.4 THEMES FOR THE QUESTIONNAIRE

The following themes were identified from the questionnaire:

- **General knowledge of HIV/AIDS**

In this study, about half (49.4%; $n=89$; $f=44$) of the respondents indicated that they did not understand the distinction between HIV and AIDS. A further 34.8% ($n=89$; $f=31$) of the respondents had indicated that they had never heard of the disease. These figures are cause for concern in view of the fact that globally departments of health have bombarded their populations with information pertaining to HIV (Harrison et al 2010:1). Within the South African context especially, given the high rates of incidence and prevalence of HIV, an intensive campaign to raise awareness of the disease, has been conducted. Clearly the LWHI at the schools where this study was conducted, have either not been exposed to such information or they have not understood the information. Whether or not they had received the exposure via the curriculum is possibly also a confounding factor, as documentation indicates that Life Orientation lessons encompass this training (Curriculum and Assessment Policy Statement 2011). This variable of a discrepancy between the curriculum and the practical implementation thereof has also been alluded to in other research (Gupta et al 2013:2).

A further area of concern would be the fact that approximately 43.5% ($n=85$; $f=37$) of the learners indicated that a cure for HIV existed. Research by Adegoke, Fife and Corneille (2011:43) and Srivastava et al (2011:88) also indicated relatively high percentages of respondents who believed that HIV could be cured. Not only does this reflect their poor knowledge of the condition, but also a possible confusion with other illnesses (Touko et

al 2010:4). This erroneous belief may also be associated with their not being able to fully understand the gravity of the disease, or as research has shown, that young adults do not perceive themselves as being vulnerable (Tarkang 2009:128; Mayaki 2012:18). This is a factor that might further exacerbate their vulnerability to possible HIV infection.

An additional cause for concern amongst the different stakeholders in HIV prevention is the belief that the disease is caused by witchcraft. Thirty three (36.3%; n=91; f=33) of the respondents in this study indicated that this was a mode of transmission. This was also reported on by studies done by Adenuga (2011:25) and Adegoke et al (2011:42). That this misperception still exists is indicative of the fact that HIV prevention efforts need to be further strengthened. The information and educational materials which are currently utilised seems not to have been successful in dispelling this myth.

- **Modes of transmission of HIV**

The researcher set a target of 80% correct identification of transmission modes and non-transmission modes, as being indicative of possessing adequate knowledge (as measured by the knowledge indicator) of the different transmission modes of HIV. A score of 70% and below would serve to indicate poor knowledge, as indicated in Chapter 3 (3.3.4.1, competency indicator) Only 2 of the 99 (2%) learners in this study obtained a maximum score of 80%.

The learners tended to have lots of misperceptions of casual contacts being a mode of transmission. For each of the statements on casual contacts, such as being bitten by a mosquito, shaking hands with an HIV infected person, sharing utensils with an HIV infected person, approximately 30% of the respondents indicated that these were transmission modes of HIV. That they were also not sure of the correct transmission modes clearly indicates definite gaps in their knowledge. This is also supported by the studies cited earlier (Mall & Swartz 2012:765; De Andrade & Baloyi 2011:310) (Chapter 2, literature review).

It does seem likely that the study respondents would have been exposed to the correct information during their Life Orientation lessons. Their curriculum from Grades 10-12 includes a section on Development of Self in Society, which includes topics on sexuality and HIV (Curriculum and Assessment Policy Statement 2011:11). Further, this

exposure would have been in the correct medium of communication, from educators who understood the unique needs of the hearing impaired. Hence the question remains as to how best to provide information on HIV and its different transmission modes to LWHI.

- **Preferred sources and methods of communication**

Most learners (87.1%; N=99; f=74,) had indicated their preferred source of information to be the clinics or hospitals, regarding face to face contact as the most effective. Teachers (87.2%; N=99; f=68,) and schools (65.3%; N=99; f=49) were also ranked highly by the majority of the learners as providing comprehensive HIV information. This may be related to these learners' (LWHI) need for confidentiality and privacy. This serves as an important indication for healthcare personnel to consider the importance of receiving training in Sign Language. In addition, minor accommodations, such as giving the learner full attention within the clinic setting, checking if they would be able to write down their ailments and providing the requisite pen and paper, basically even appearing to be more empathetic, were perceived by LWHI to be indicative of genuine interest in them and their needs (Field Expert 1. Personal communication, 3 April 2014. Pietermaritzburg). The preference for individual contact via the use of the internet or direct contact is also highlighted. Their limited literacy skills, cognitive abilities, and difficulties in understanding subtlety in language, as well as the preference for concrete language, is perhaps related to their preference for tailored information. In this regard, the ideology behind "Know your epidemic, Know your response" is especially pertinent (Case et al 2012:831). The UNAIDS call for tailored interventions, relevant to the different contexts, considers unique needs. Nkansah-Amankra et al (2011:738) concurred that focused interventions, which acknowledged the specific age and developmental needs of populations, have greater efficacy than broad based generalised efforts. Hence, the importance of information presented in the correct medium, i.e. either Sign Language, or information supplemented by visual cues, and presented in a manner that is easily understood, is preferable. In addition, the use of simple language, when engaging with LWHI, goes a long way to facilitating understanding.

5.5 Conclusion

The results of this study indicate that LWHI are an especially susceptible group to HIV infection as they lack the basic knowledge on the disease, particularly the transmission modes. This may result in their not engaging in relevant preventive behaviours, thereby further exacerbating their vulnerability.

The LWHI difficulties in accessing appropriate information, due to their poor sensory ability, as well as the possible cognitive delays alluded to previously, may result in fewer interactions with the world around them. This has the snowball effect of poor knowledge of transmission modes of HIV and prevention.

5.6 RECOMMENDATIONS

The recommendations will focus on clinical practice, education and research.

5.6.1 Recommendations for clinical practice

The findings of this study indicate the need for professionals working with LWHI to understand the unique communication needs of these individuals when relaying information to them. The respondents' preferences for having individual face to face contact and the use of the internet, emphasise the need to tailor interventions to suit their needs. This is also indicated by their preference for information that is presented by teachers and clinic or hospital personnel. The fact that they also indicated a preference for information supported by visual cues is further impetus to ensure the use of gestural systems which would facilitate ease of understanding for these learners. This lack of Sign Language usage in clinics/health facilities was the identified gap in current services rendered to LWHI, hence it formed original basis for this study.

Within the classroom setting, perhaps a very practical strategy would be to present the information, and thereafter to assess the comprehension of the information either via questioning or portrayal of case scenarios. In this way, whether or not information presented is correctly interpreted or misinterpreted, may be gauged. This would be an important strategy to utilise especially when information on the transmission modes of HIV is relayed to LWHI. That casual contacts such as casual kissing, hugging, sharing

of crockery or linen, swimming with PLWH, play no role in HIV transmission, as well as the actual transmission modes needs to be strongly emphasised. The various misperceptions, including the myth of air borne transmission (coughing or sneezing), also emphasise the need for LWHL, to receive information that is concrete, simple or enhanced by visual representations. The actual implementation of the proposed curriculum during Life Orientation lessons should be monitored (Govender 2009:108). The same author noted that although policies existed with regard to how best to acknowledge the impact of HIV on the teaching and learning processes, there were significant gaps between policy and the practical implementation. The present study's findings also indicate significant knowledge gaps by LWHL on such critical factors as the differences between HIV and AIDS, the lack of a cure for AIDS, and the efficacy of condoms in HIV prevention. These are considered basic knowledge on HIV and form part of the curriculum (Curriculum and Assessment Policy Statement 2011:11).

The fact that there is such a paucity of information available on HIV in PWD, suggests that they have been largely ignored in responses to the disease, as indicated by the literature reviewed in Chapter 2 (Evans & Atim 2011:1438; Eide et al 2011:1595). A very relevant need in this regard is that further information e.g. updated statistics on prevalence of hearing impairment as well prevalence of HIV with hearing impairment, within our context is urgently required (Manager: Disability and Rehabilitation Programme. Personal communication, 24 February 2014. Pietermaritzburg).

An important aspect to consider would be gender sensitisation as this study also revealed that females have poorer knowledge of HIV transmission than male learners. Perhaps a greater focus should be placed on female learners by both educators and nursing personnel to improve the formers' knowledge of ways to protect themselves. The School Health Nurse Programme, which forms part of the package of Primary Health Care Services by the DOH, is an important avenue to facilitate this focus (Manager: Primary Health Care Services. Personal communication, 12 September 2014. Pietermaritzburg).

Further, the efforts to reduce stigma and practices of discrimination towards people with HIV as demonstrated by LWHL in this study, needs to be escalated to the levels of attempts to decrease stigma amongst the general hearing population (De Andrade & Baloyi 2011:312).

5.5.2 Recommendations for clinical education/training

The information presented above with regard to practical clinical practice should be incorporated into the curriculum for nursing students as well as for other healthcare professionals. The information presented to LWHI must be cognisant of their unique communication needs, i.e. either accompanied by visual cues, and or captured by concrete, simple language structures to facilitate ease of understanding. In this regard some basic training and practice in using Signs, gestures or visual cues would be beneficial. An additional suggestion would be some form of assessment of what has been understood by the listener.

Further, given that schools are currently viewed as an important source of information for all learners, more intensive training of educators in sensitive issues such as HIV and sexuality is indicated. Not only did the respondents in this study identify teachers as a highly preferred source of information, but some research has also shown teachers to encounter difficulties in communicating about such sensitive subjects with their learners (Chisanga 2011:20). Their prejudices might hinder their discussions with learners, hence it is important for educators to understand their valued role as being a source of accurate information.

Nursing staff would need to receive specific training in interacting with persons with hearing impairment, ensuring that they are cognisant of communication difficulties such as requiring visual cues, the use of simple concrete language, as well as culturally sensitive practices.

Teachers should also receive training and practice in working with LWHI. They need to ensure that they overcome their own prejudices when teaching sensitive topics such as sexuality, sexual behaviour and associated topics (Swartz et al 2012:243). That teachers were considered a valuable source of information in this study recognises their importance for HIV prevention efforts. Learners, especially those who live in hostel facilities at schools, may consider teachers to be their parents, and thus an important source of education and guidance. This is therefore an avenue to be properly explored to optimise use of the valued status of educators.

5.5.3 Recommendations for research

The findings of this study, underscore the need for the development of interventions which are context specific. This view is supported by Harrison et al (2010:4). Their review of interventions for prevention which had positive outcomes, targeted youth across South Africa and highlighted the importance of contextual factors such as economic empowerment of females, or suggested use of leisure time constructively minimising engagement in risky behaviours. In this regard, further investigation of the teaching of this sensitive topic to LWHI, as well as the learners' experiences of communication barriers, is required. The current efforts have failed to sufficiently enlighten these learners so that their vulnerability may be diminished.

In general there is a greater need for research with persons experiencing different types of disability, and their specific needs with regard to learning about HIV, e.g. LWHI require the use of a gestural system, whereas learners with cognitive impairments may require that information is presented to them using a combination of simple language, practical demonstrations, as well as visual cues. De Andrade and Baloyi (2010:312) therefore reported that policymakers need to be more inclusive of youth with hearing impairment in designing interventions for them. They also indicated that persons with hearing impairment needed HIV counselors who were specially trained.

Groce et al (2013:21) also noted that it was particularly important for those who conduct research in HIV and AIDS to forge relationships with organisations for PWD, and for researchers in the field of disability to foster combined efforts to address the needs of PWD, such as definitions of disability, ethical considerations for research, identification of future studies.

Pitorak et al (2013:xi) also commented on the inconsistencies in definitions of adolescence between as well as within countries. This renders the data that is collected inadequate with regards to determining whether or not the needs of young adults are being met.

5.6 SIGNIFICANCE OF THE STUDY

The findings of this study have important implications as regards training and practical suggestions for professionals and non-professionals in their interactions with hearing impaired people and LWHI specifically. The fact that such individuals are finally being given recognition within the general South African context (attempts to include sign Language as an official language) is a step in the right direction. This study thus adds to the body of knowledge that is currently available about the limitations experienced by LWHI in acquiring information on HIV and AIDS. Further, as indicated by a study conducted by Morisky et al (2013:49) in South Africa, young learners who are exposed to life skills education on HIV appear to have internalised the information better than older learners, as they would have been exposed to the programme for a longer period of time. This is also supported by Tarkang (2009:142) who observed that younger learners who were more receptive, should be a target group as they were more likely to translate the acquired knowledge into appropriate practices. He further commented that this was a way to ensure that those learners who did not complete their basic education were thus exposed to the information. Hence the findings of this study also lend support to this recommendation of exposing learners to the appropriate information in the correct medium.

5.7 LIMITATIONS OF THE RESEARCH

The lack of statistics resulted in the researchers' inability to determine an appropriate sample size. Possibly, a bigger sample size would have yielded results that had greater applicability to the general hearing impaired population. An additional shortcoming was that the researcher did not consider the use of a CD (featuring someone presenting the basic information on the study as well as Signing the questions) which could have been played at each of the venues. This would have allowed for the use of a single Sign Language presenter resulting in a more standardised presentation of questions, as compared to the method used in this study, i.e. the use of educators within the different schools.

A further limitation of the study was the lack of information on the severity of the learners' hearing impairment, and whether or not trends of misinformation could thus be explained. This shortcoming may also serve as a recommendation for future study.

5.8 CONCLUDING REMARKS

This study sought information on the knowledge that LWHI had about the different transmission modes of HIV. Based on a review of pertinent literature, the researcher hypothesised that they would have inadequate knowledge due to the communication and language barriers that they experienced. The findings of this study, which utilised a self-designed questionnaire to investigate this hypothesis, add concrete evidence to other research findings of poor knowledge about HIV transmission modes and general information about the disease by LWHI. A difference in knowledge amongst male and female learners was also noted. Further, it emerged that these LWHI preferred receiving information that was specific to their individual needs. They also valued the roles of the school based programmes and teachers as important sources of information. This lends support to the notion of education being an important prevention strategy, and indeed the “social vaccine”, until a cure for HIV is found.

LIST OF REFERENCES

Aaro, LE, Breivik, K, Klepp, KI, Kaaya, S, Onya, HE, Wubs, A, Helleve, A & Flisher, AJ. 2011. An HIV/AIDS knowledge scale for adolescents: item response theory analyses based on data from a study in South Africa and Tanzania. *Advance Access Publication*, 26:212-224.

Adegoke, AA, Fife, JE & Corneille, M. 2011. The influence of age, gender and parental education on adolescents HIV/AIDS-related knowledge in Ibadan Metropolis, Nigeria. *The Journal of Aging in Emerging Economies*:9-56.

From: <http://www2.kent.edu/sociology/resources/jaee> (accessed 1 July 2014).

Adeniyi, S, Oyewumi, A & Fakolade, O. 2011. An assessment of the level of influence of life and HIV/AIDS education on knowledge, attitude and decision making among adolescents with hearing impairment in some states in Nigeria. *International Journal of Special Education*, 26:5-11.

Adenuga, BA. 2009. HIV/AIDS knowledge of secondary school learners in Sefhare, Botswana. Unpublished Master of Public Health. University of South Africa: Pretoria.

Aderemi, TJ, Pillay, BJ & Esterhuizen, TM. 2013. Individual and sociocultural factors contributing to the spread of HIV and the AIDS pandemic among adolescents: a socioeducative perspective. *Journal of the International AIDS Society*, 16:1-9.

Amoako-Agyeman, KN. 2012. Adolescent religiosity and attitudes towards HIV and AIDS in Ghana. *Journal of Social Aspects of HIV/AIDS*, 9(4):227-240.

Anwar, M, Sulaiman, SAS, Ahmadi, K & Khan, TM. 2010. Awareness of school students on sexually transmitted infections (STIs) and their sexual behavior: a cross-sectional study conducted in Pulau Pinan Hillmang. From: <http://www.biomedcentral.com/1471-2458/10/47> (accessed 3 September 2013).

Bat-Chava, Y, Martin, D & Kosciw, JG. 2005. Barriers to HIV/AIDS knowledge and prevention among deaf and hard of hearing people. *AIDS Care*, 17:623-634.

Bell, D. 2013. Investigating teaching and learning support for students with hearing impairment at a University in the Western Cape. Unpublished Doctor of Philosophy. University of Stellenbosch: Stellenbosch.

Bogart, LM, Skinner, D, Weinhardt, LS, Glasman, L, Sitzler, C, Toefy, Y & Kalichman, SC. 2011. HIV misconceptions associated with condom use among Black South Africans: an exploratory study. *African Journal of Aids Research*, 10:181-187. From: www.ncbi.nlm.nih.gov/pmc/articles/PMC3144581 (accessed 4 March 2014).

Borg, S. 2009. English language teacher's conception of research. *Applied Linguistics*, 33(3):358-388.

Cabezas, MC, Fornasini, M, Dardenne, N, Borja, T & Albert, A. 2013. A cross-sectional study to assess knowledge about HIV/AIDS transmission and prevention measures in company workers in Ecuador. *BMC Public Health*, 13:139. From: <http://www.biomedcentral.com/1471-2458/13/139> (accessed 3 September 2013).

Case, KK, Ghys, PD, Gouws, E, Eaton, JW, Borquez, A, Stover, J, Cuci, P, Abu-Raddad, LLJ, Garnett, GP & Hallet, TB. 2012. Understanding the modes of transmission model of new HIV infection and its role in prevention planning. *Bulletin World Health Organisation*, 90:831-838A. From: doi 10.2471/BLT.12.102574, www.who.int/bulletin/volumes/90/11/2-102574/en/ (accessed 24 July 2013).

Chataika, T, Mckenzie, JA, Swart, E & Lyner-Cleopheus, M. 2012. Access to education in Africa: responding to the United Nations Convention on the rights of persons with disabilities. *Disability and Society*, 27(3):385-398.

Chireshe, R, Rutondoki, EN & Ojwang, P. 2010. Perceptions of the availability and effectiveness of HIV/AIDS awareness and intervention programmes by people with disabilities in Uganda. *Journal of Social Aspects of HIV/AIDS*, 7:17-23.

Chisanga, GM. 2011. *Access to HIV and AIDS information by learners with hearing impairment in selected basic schools in central and northern provinces*. From: <http://dspace.unza.zm.8080/xmlui/bitstream/handle> (accessed 20 February 2014).

Conn, CP. 2010. Girls are people who at least know something: Hearing young women's voices and HIV/AIDS. Unpublished Doctoral Thesis: University of Leeds. From: http://etheses.whiterose.ac.uk/1716/1/final_thesis (accessed 13 May 2013).

Council for Scientific and Industrial research. 2013.

From:<http://www.csir.co.za/publications/pdfs/SSNovforwe> (accessed 3 June 2013).

Cullinan, K. 2014. Unprotected sex starting earlier. HIV prevalence study. *The Mercury*, 2 April:2.

Curriculum and Assessment Policy Statement. 2011. From: www.education.gov.za (accessed 20 April 2014).

Danermark, B, Cieza, A, Gangé, JP, Gimigliano, F, Granberg, S, Hickson, L, Kramer, SE, Mcpherson, B, Möller, C, Russo, I, Strömgren, JP, Stucki, G & Swanepoel, D. 2010. International classification of functioning, disability, and health core sets for hearing loss: A discussion paper and invitation. *International Journal of Audiology*, 49:256-262.

De Andrade, V. 2011. Traditional healers and modern doctors do not understand each other because they learn different things: South African traditional health practitioners training with regards to hearing impairment. *International Journal of Health Promotion and Education*, 49:120-127.

De Andrade, V & Baloyi, B. 2011. HIV/AIDS knowledge among adolescent sign language users in South Africa. *African Journal of AIDS Research*, 9:307-313.

Denison, JA, Tsui, S, Bratt, J, Torpey, K, Weaver, MA & Kabaso, M. 2012. Do peer educators make a difference? An evaluation of a youth-led HIV prevention model in Zambian Schools. *Health Education Research*, 27:237-247.

Disabilities. 2014. From: <http://www.who.int/topics/disabilities/en/> (accessed 25 September 2013).

Eide, AH, Schür, C, Ranchod, C, Rohleder, P, Swartz, L & Schneider, M. 2011. Disabled persons' knowledge of HIV prevention and access to health care prevention services in South Africa. *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV*, 23:1595-1601.

Eriksson, E, Lindmark, G, Axemo, P, Haddad, B & Ahlberg, BM. 2013. Faith, Premarital sex and relationships: are church messages in accordance with the perceived realities of the youth? A Qualitative study in KwaZulu-Natal, South Africa. *Journal of Religious Health*, 52:454-466.

Evans, R & Atim, A. 2011. Care, disability and HIV in Africa: diverging or interconnected concepts and practices? *Third World Quarterly*, 32:1437-1454.

Flint, A. 2011. *HIV/AIDS in sub-saharan Africa. Politics, AIDS and Globalization*. Palgrave MacMillan.

Fokazi, S. 2014. Scientists call for ban on traditional circumcisions. *The Mercury*, 11 August:2

Gatta, AA. 2011. Knowledge and attitude towards voluntary counselling and testing (VCT) services among adolescent high school students in Addis Ababa, Ethiopia. Unpublished Master of Public Health: University of South Africa: Pretoria.

Goldstein, MF, Eckhardt, EA, Joyner-Creamer, P, Berry, R, Paradise, H & Cleland, CM. 2010. What do deaf high school students know about HIV? *AIDS Education and Prevention*, 22:523-537.

Govender, MS. 2009. *The efficacy of the Department of Educations' response to HIV/AIDS in changing educators' and learners' risk behaviours*. From: <http://hdl.handle.net/10500/2212> (accessed 8 January 2014).

Gray, GE. 2009. Adolescent HIV-cause for concern in Southern Africa. *PLoS Med* 7(2):e1000227. From: doi:10.1371/journal.pmed.1000227 (accessed 23 July 2013).

Groce, NE, Rohleder, P, Eide, AH, Machlachlan, M, Mall, S & Swart, L. 2012. *HIV issues and people with disability: a review and agenda for research*. From: doi:10.1016/j.socscimed.2012.10.024.www.ncbi.nlm.nih.gov/pubmed/23219851 (accessed 23 February 2014).

Groce, NE, Yousafzai, AK & Van der Maas, F. 2007. HIV/AIDS and disability: Differences in HIV/AIDS knowledge between deaf and hearing people in Nigeria. *Disability and Rehabilitation*, 29:367-371.

Gupta, P, Anjum, F, Bhardwaj, P, Srivastav, JP & Zaidi, ZH. 2013. Knowledge about HIV/AIDS among secondary school students. *North American Journal of Medical Sciences*, 5(2):119-123.

Hanass-Hancock, J. 2009. Disability and HIV/AIDS: a systematic review of literature on Africa. *Journal of the International AIDS Society*, 12:34.

Hanass-Hancock, J, Regondi, I & Naidoo, K. 2013. Disability and HIV: What drives this relationship in Eastern and Southern Africa? *African Journal of Disability*, 2:1-3.

Harris, T, Peer, S & Fagan, JJ. 2012. Audiological monitoring for ototoxic tuberculosis, human immunodeficiency virus and cancer therapies in a developing world setting *The Journal of Laryngology and Otology*, 126:548-551.

Harrison, A, Newell, M, Imrie, J & Hoddinott, G. 2010. HIV prevention for South African youth: which interventions work? A systematic review of current evidence. *BMC Public Health*, 10(102):1-12. From: <http://www.biomedcentral.com/1471-2458/10/102> (accessed 2 April 2014).

Hartell, CG. 2012. The status of HIV/AIDS and education research among adolescents in South Africa. *International Journal of Adolescence and Youth*, 11:113-133.

Hassan, ZM & Wahsheh, MA. 2011. Knowledge and attitudes of Jordanian nurses towards patients with HIV/AIDS: Findings from a nationwide survey. *Issues in Mental Health Nursing*, 32:774-784. From: DOI: 10.3109/01612840.2011.610562 (accessed 3 September 2013).

Hendricks, NGP. 2011. The role of life orientation teachers in addressing the emotional needs of HIV/AIDS affected learners in the intermediate and senior phases at two Schools in Gauteng. From: https://ujdigispace.uj.ac.za/bitstream/handle/1C_hendricks_pdf (accessed 2 July 2013).

HIV/AIDS Basics. 2014. From: <http://www.aids.gov/hiv-aids-basics> (accessed 16 August 2014).

HIV and AIDS Treatment and Care. 2015. Starting, monitoring, switching HIV treatment From: <http://www.avert.org/hiv-and-aids-treatment-and-care.htm> (accessed 29 January 2015).

Jemmott, JB, Jemmott, LS, O'Leary, A, Ngwane, Z, Icard, LD, Bellamy, SL, Jones, SF, Landis, JR, Heeren, GA, Tyler, JC & Makiwane, MB. 2010. School-based randomized controlled trial of an HIV/STD risk-reduction intervention for South African adolescents *Archives of Pediatric and Adolescent Medicine*, 164:923-929.

Joge, US, Deo, DS, Choudhari, SG, Malkar, VR & Ughade, HM. 2013. "Human immunodeficiency virus serostatus disclosure: rate, reactions, and discrimination": A cross-sectional study at a rural tertiary care hospital. *Indian Journal of Dermatology Venereology and Leprology*, 79:135.

Katuta, S. 2011. Sexual behaviours and vulnerabilities to HIV: A case study of the hearing and visually impaired pupils of Munali Boys and Munali Girls High Schools in Lusaka. *Medical Journal of Zambia*, 38(3):22-35.

Key elements of a research proposal-quantitative design. 2014.

From: www.bcps.org/offices/lis/researchcourse/develop_html (accessed 14 March 2014).

Kharsany, ABM, Mlotshwa, M, Frohlich, JA, Zuma, NY, Samsunder, N, Abdool Karim, SS & Abdool Karim, Q. 2012. HIV prevalence among high school learners opportunities for schools-based HIV testing programmes and sexual reproductive health services. *BMC (Biomedcentral) Public Health*, 12:[1-6].

Kimani, JK, Ettarh, R, Ziraba, AK & Yatich, N. 2013. Marital status and risk of HIV infection in slum settlements of Nairobi, Kenya: results from a cross-sectional survey. *African Journal of Reproductive Health*, 17(1):103-113.

Klein, A. 2010. *Communicating with deaf children: exploring the experiences of hearing parents*. From: <http://wiredspace.wits.ac.za/handle/10539/8158> (accessed:24 July 2013).

Kutnetzsova, T. 2011. *Myths about the transmission of HIV*. From: http://www.health.am/aids/more/myths_about_the_transmission_of_HIV (accessed 2 September 2014).

Labaree, R. 2013. *Type of research designs*. From: <http://libguides.usc.edu/writingguide> (accessed 7 March 2014).

Learning definition. 2013.

From: <http://www.learnersdictionary.com/spelling/definition%20of%20learning> (accessed 25 September 2013)

Leonard, AD, Markham, CM, Bui, T, Shegog, R, & Paul, ME. 2010. Lowering the risk of secondary HIV transmission: insight from HIV-positive youth and health care providers. *Perspectives on Sexual and Reproductive Health*, 42:110-116.

Li, RJ, Jaspan, HB, O'Brien, V, Rabie, H, Cotton, MF & Nattrass, N. 2010. Positive futures: a qualitative study on the needs of adolescents on antiretroviral therapy in South Africa. *AIDS Care*, 22:751-758.

Louw, L & Mayer, CH. 2012. Health professionals' challenges in managing HIV/AIDS in South Africa. *Organization Management Journal*, 9:4:268-279.

Louw, J, Peltzer, K & Chirinda, W. 2012. Correlates of HIV risk reduction self-efficacy among youth in South Africa. *The Scientific World Journal*, 8:2, Article ID 817315, 8 pages.

Machimana, EG. 2012. Perceptions of the association between alcohol misuse and the risk of HIV-infection among male youths in Soshanguve, Gauteng Province. Unpublished Masters Dissertation. University of South Africa: Pretoria.

Mahalakshmy, T, Premarajan, KC & Abdoul, H. 2011. Correlates of Human Immunodeficiency Virus (HIV) related knowledge among HIV infected people. *Indian Journal of Dermatology, Venereology and Leprology*, 11(77):37-41.

Mall, S. 2012. HIV prevention issues for deaf and hard of hearing adolescents: views of parents, teachers, adolescents and organizations serving the deaf community. Unpublished Doctorate. University of Stellenbosch: Stellenbosch.

Mall, S & Swartz, L. 2012. Perceptions of educators of Deaf and hard-of-hearing adolescents of HIV-risk factors for these youths. *African Journal of Aids Research*. 11(4):343-348. From: <http://www.dx.doi.org/10.2989/16085906.2012.754834> (accessed 2 July 2013).

Maluleke, TX. 2010. Sexual risk behaviour amongst young people in the Vhembe district in the Limpopo Province, South Africa. *Health SA Gesondheid*, 15(1). From: www.hsag.co.za (accessed 24 July 2013).

Marais, H. 2011. *South Africa pushed to the limit: the political economy of change*. Claremont: UCT Press.

Marx, EMM, Soer, ME & Dick, AL. 2011. The ability of adolescents with hearing loss in special schools to access and use academic material in three provinces in South Africa. From: <http://web.up.ac.za/research/2011/Output/10938.html> (accessed 18 July 2013).

Maughan-Brown, B & Spaul, N. 2014. HIV-related discrimination among grade six students in nine Southern African countries. From: <http://www.plosone.org> 9(8), e102981 (accessed 20 September 2014).

Mayaki, TF. 2012. Knowledge, attitudes and practices towards voluntary HIV counselling and testing among adolescents of a senior high school in Nigeria. Unpublished Master of Public Health. University of South Africa, Pretoria.

Mehra, D, Ostergren, P, Ekman, B & Agardh, A. 2014. *Inconsistent condom use among Ugandan university students from a gender perspective: a cross sectional study*. From: <http://www.dx.doi.org/10.3402/gha.v7.22942> (accessed 12 September 2014).

Merriam-Webster Online Dictionary. 2013. Sv "learning". From: <http://www.merriam-webster.com/dictionary/learning> (accessed 25 September 2013).

Mid-year Population Estimates. 2011. Stats SA.

From: <http://www.statssa.gov.za/publications/P03014/P0301> (accessed 8 September 2013).

Morisky, DE, Ang, A, Coly, A & Tiglao, TV. 2013. *Transitions to adulthood in the context of AIDS in South Africa: the impact of exposure to life skills education*. From: <http://www.popcouncil.org/pdfs/horizons/> (accessed 6 February 2014).

Moroni, M & Myer, L. 2007. Study design, in *Epidemiology: a research manual for South Africa*, edited by G Joubert and R Erlich. 2nd edition. Cape Town: Oxford Press:77-93.

Mugoya, GCT & Ernst, K. 2014. *Gender differences in HIV-related stigma in Kenya*. From: <http://dx.doi.org/10.1080/09540121.2013.808733> (accessed 12 September 2014).

Mukolo, A, Blevins, M, Victor, B, Vaz, LME, Seedat, M & Vergara, A. 2013. Correlates of social exclusion and negative labelling and devaluation of people living with HIV/AIDS in rural settings: evidence from a general household survey in Zambezia Province, Mozambique. *PLOS ONE*, 8(10):1-12.

Muleya, RM. 2010. Attitudes and sexual behaviour practices among the hearing impaired pupils in Zambia in the era of HIV and AIDS. Master of Gender Studies: University of Zambia.

From: <http://dspace.unza.zm:8080/xmlui/bitstream/handle/123456789/611/muleya0001> (accessed 25 February 2014).

Muzatu, K. 2012. ... *in teaching HIV and AIDS prevention to learners with hearing impairment: a case for 2 secondary schools for hearing impaired learners in Zambia*. From: <http://dspace.unza.zm:8080/jspui/bitstream/1-81> (accessed 25 February 2014).

National HIV Policy for Schools and Educators 2009-2014. From: <http://education.pwv.gov.za> (accessed 11 March 2014).

National Strategic Plan on HIV, STIs and TB 2012-2016.

From: http://www.sanac.org.za/resources/cat_view/2-nsp (accessed 9 February 2014).

National Youth Policy. 2009-2014. From: <http://www.the-presidency.gov.za> (accessed 24 March 2014).

Ndzombane, L. 2012. An investigation of the uptake of voluntary counselling and testing by adolescents aged 15 to 19 at two integrated youth friendly service sites in Gauteng, South Africa. Unpublished Dissertation. University of South Africa: Pretoria.

Nkansah-Amankra, S, Diedhiou, A, Agbanu, H, Harrod, C & Dhawan, A. 2011. Correlates of sexual risk behaviors among high school students in Colorado: analysis and implications for school-based HIV/AIDS programs. *Maternal and Child Health Journal*, 15:730-741.

Nur, N. 2012. Turkish teachers' knowledge and attitude towards, HIV *Croatian Medical Journal*, 53(3):271-277.

Oladunni, TM. 2012. Sexual behavior and practices among adolescents with disabilities in Southwest Nigeria. *Sex Disability*, 30:289-299. From: doi 10.1007/s11195-012-9270-8 (accessed 1 July 2014).

Odusanya, OK & Bankole, OM. 2011. A Survey of Information Sources Used by Secondary School Students in Ogun State, Nigeria for Knowledge and Attitudes towards HIV/AIDS. *British Medical Central*, 16(1):53-63.

Padayatchi, N, Naidoo, K, Dawood, H, Kharsany, A & Karim, QA. 2010. *A review of Progress on HIV, AIDS and Tuberculosis. South African Health Review*. From: http://www.healthlink.org.za/uploads/files/sahr10_9.pdf (accessed 24 July 2013).

Petersen, I, Bhana, A, Myeza, CN, Alicea, S, John, S, Holst, H, Mckayd, M & Collins, C. 2010. Psychosocial challenges and protective influences for socio-emotional coping of HIV adolescents in South Africa: a qualitative investigation. *AIDS Care*, 22:970-978.

Pitorak, H, Bergmann, H, Fullem, A & Duffy, MH. 2013. *Mapping HIV services and policies for adolescents: a survey of 10 countries in Sub-Saharan Africa*. Arlington, VA: USAID's AIDS Support and Technical Assistance Resources, AIDSTAR-One, Task Order 1.

From: http://www.aidstar-one.com/focus_areas/care_and_support/resources/report/mapping_hiv_services (accessed 21 February 2014).

Polit, DF & Beck, CT. (eds). 2012a. *Nursing research: generating and assessing evidence for nursing practice*. 9th edition. Philadelphia: Lippincott Williams and Wilkins.

Polit, DF & Beck, CT. 2012b. *Nursing research: generating and assessing evidence for nursing practice*. 9th edition. Kindle edition.

Ramirez-Avila, L, Nixon, K, Noubary, F, Giddy, J, Losina, E, Walensky, RP & Bassett, IV. 2012. Routine HIV testing in adolescents and young adults presenting to an outpatient clinic in Durban, South Africa. *PLoS ONE*, 7(9).1-5.

From: <http://www.plosone.org/article> (accessed 5 February 2014).

Roger, DR. 2011. *Myths about the transmission of HIV*.

From: http://www.health.am/aids/more/myths_about_the_transmission_of_HIV (accessed 2 September 2014).

Saad, BM, Subramaniam, G & Tan, P. 2013. Awareness and Vulnerability to HIV/AIDS among young Girls. *Procedia - Social and Behavioral Sciences* (105) 195-203. From: www.sciencedirect.com (accessed 24 May 2014).

SAHRC Charter of Childrens' Basic Education Rights [s.a.]. From: <http://www.sahrc.org.za> (accessed 24 March 2014).

Sanpath, A. 2014. Durban to host next AIDS summit. *The Independent on Saturday*, 26 July:5.

Scheier, DB. 2009. Barriers to healthcare for people with hearing loss: a review of literature. *The Journal of the New York State Nurses Association*, 40:4-108.

Schools for hearing impaired in KZN. 2014. From: [www.saslha.co.za/images/Resource Directory on Disability.xls](http://www.saslha.co.za/images/ResourceDirectoryonDisability.xls) (accessed 14 June 2014).

Sekaran, U & Bougie, R. 2009. *Research methods for business: a skill building approach*. 5th edition. West Sussex: John Wiley & Sons.

Sharp, EH, Coffman, DL, Caldwell, LL, Smith, EA, Wegner, L, Vergnani, T & Mathews, C. 2011. Predicting substance use behavior among South African adolescents: The role of leisure experiences across time. *International Journal of Behavioral Development*, 35 (4):343-351.

From:

<http://repository.uwc.ac.za/bitstream/handle/10566/756/SharpSubstanceUse%202011.pdf?sequence=1> (accessed 22 March 2014).

Shisana, O, Rice, K, Zungu, N & Zuma, K. 2010. Gender and poverty in South Africa in the era of HIV/AIDS: a quantitative study. *Journal of Women's Health*, 19(1):39-46. From: doi 10.1089/jwh.2008.1200 (accessed 23 July 2013).

So much achieved under President Zuma's administration. [s.a.]. From: www.gov.za/blogs/2013/zuma_admin_140211.html [1] (accessed 14 February 2014).

South Africa geography. 2014.

From: <http://www.southafrica.info/about/geography/kwazulu-natal.htm#.VBVnCXIxnIU> (accessed 13 September 2014).

Srivastava, A, Mahmood, SE, Mishra, P, Shrotriya, VP & Shaifali, I. 2011. Adolescence awareness: a better tool to combat HIV/AIDS. *National Journal of Community Medicine*, 2(1):86-91.

Swanepoel, DW & Laurent, C. [s.a.]. Classification of hearing loss. From: <https://vula.uct.ac.za/access/content/group/27b5cb1b> (accessed 29 January 2015).

Swartz, S, Deutsch, C, Makoae, M, Michel, B, Harding, JH, Garzouzie, G, Rozani, A, Runciman, T & Van der Heijden, I. 2012. Measuring change in vulnerable adolescents: findings from a peer education evaluation in South Africa. *Journal of Social Aspects of HIV/AIDS: An Open Access Journal*, 9(4):242-254.

Swenson, RR, Rizzo, CJ, Brown, LK, Vanable, PA, Carey, MP, Valois, RF, DiClemente, RJ & Romer, D. 2010. HIV knowledge and its contribution to sexual health behaviors of low-income African American adolescents. *Journal of the National Medical Association*, 102:1173-1182.

Tarkang, EE. 2009. Knowledge, attitudes and perceptions regarding HIV/AIDS and sexual behaviours among senior secondary school learners in Kumba, Cameroon. Unpublished Doctoral Thesis Litt et Philosophy. University of South Africa: Pretoria.

Tarkang, EE, Van Der Wal, DM & Ehlers, VJ. 2011. The explanatory power of factors associated with perceived risk of contracting HIV among senior secondary school learners in Cameroon. *Africa Journal of Nursing and Midwifery*:77-91.

Tanye, VK. 2013. *Exploring the attitude, knowledge and experiences of the youth towards HIV counselling and testing*. From: <http://www.ugspace.ug.edu.gh> (accessed 5 September 2014).

Taylor, M, Dlamini, SB, Meyer-Weitz, A, Sathiparsad, R, Jinabhai, CC & Esterhuizen, T. 2010. Changing sexual behaviour to reduce HIV transmission: a multi-faceted approach to HIV prevention and treatment in a rural South African setting. *AIDS Care*, 22:1395-1402.

The Oxford Online Dictionary. 2013a. Sv "knowledge".

From: <http://www.oxforddictionaries.com/definition/knowledge> (accessed 25 September 2013).

The Oxford Online Dictionary. 2013b. Sv "hearing impaired".

From: <http://www.oxforddictionaries.com/definition/english/hearing-impaired>, (accessed 25 September 2013).

Thomas, S. 2013. Hearing healthcare for children in developing countries: a global perspective. Graduate Studies: University of Ohio.

Touko, A, Mboua, CP, Tohmuntain, PM & Perrot, AB. 2010. Sexual vulnerability and HIV sero-prevalence among the deaf and hearing impaired in Cameroon. *Journal of the International AIDS Society*, 13:2-5.

UNAIDS Report on the Global Aids Epidemic. 2012. From:

<http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2012/gr2012> (accessed 8 September 2013).

US Department of Health and Human Sciences. 2008. The Ryan White HIV/AIDS Program. The deaf and hard of hearing and HIV/AIDS: fact sheet. From: <http://hab.hrsa.gov/about/hab/populations/deafhardhearingfacts.pdf> (accessed 20 August 2013).

Wen, Y, Wang, H, Zhao, C, Yao, Y, Ye, D & Jiang, Z. 2011. Associations of HIV transmission and non-transmissions knowledge with negative attitudes towards HIV/AIDS. *Chinese Medical Journal*, 124(4):537-540.

Winningham, A, Gore-Felton, C, Galletly, C, Seal, D & Thornton, M. 2008. Lessons learned from more than two decades of HIV/AIDS prevention efforts: Implications for people who are deaf or hard of hearing. *American Annals of Deaf*, 153:48-54.

Winskell, K, Hill, E & Obyerodhyambo, O. 2011. Comparing HIV-related symbolic stigma in six African countries: social representations in young people's narratives. *Social Science & Medicine* 73(8):1257-1265.

Wood, L (ed). 2008. *Dealing with HIV and AIDS in the classroom*. Cape Town: Juta.

Wood, L & Daniels, E. 2008. Human rights, in *Dealing with HIV and AIDS in the classroom*, edited by L Wood. Cape Town: Juta.

Wood, L & Hillman, S. 2008. The impact of HIV and AIDS on education in Africa, in *Dealing with HIV and AIDS in the classroom*, edited by L Wood. Cape Town: Juta:39-163.

World Health Organization (WHO). 2011. Definition of disability.
From: <http://www.who.int/topics> (accessed 25 September 2013).

Yaw, A. 2011. HIV/AIDS education in regular and special (deaf) secondary schools in Ghana Pro Gradu in Education. University of Finland: Finland.

Young, SD, Hlavka, Z, Modiba, P, Gray, G, Van Rooyen, H, Richter, L, Szekeres, G & Coates, T. 2010. HIV-related stigma, social norms and HIV testing in Soweto and Vulindlela, South Africa: NIMH Project Accept (HPTN 043). *Journal of Acquired Immune Deficiency Syndrome*, 15; 55(5):620-624.

Zuma, K, Setswe, G, Ketye, T, Mzolo, T, Rehle, T & Mbelle, N. 2010. Age at sexual debut: a determinant of multiple partnership among South African youth. *African Journal of Reproductive Health*, 14(2):47-54.

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

HS HDC/266/2013

Date: 10 December 2013 Student No: 4717-535-4
Project Title: Hearing impaired learners' knowledge of the different modes of transmission of HIV/AIDS.
Researcher: Krebaloshini Mahalini Pillay
Degree: Masters in Public Health Code: DLMPH95
Supervisor: Dr E Janse van Rensburg
Qualification: D Cur
Joint Supervisor: -

DECISION OF COMMITTEE

Approved

Conditionally Approved

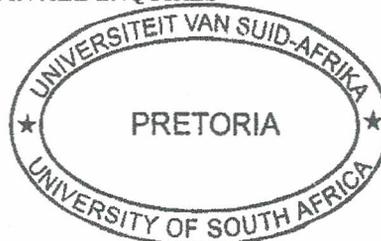
PP 
Prof L Roets

CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

to 
Prof MM Moleki

ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES





Mrs K Pillay
27 Himalaya Drive Everest
Verulem
4339

Dear Mrs Pillay

PERMISSION TO CONDUCT RESEARCH IN THE KZN DoE INSTITUTIONS

Your application to conduct research entitled: **“HEARING IMPAIRED LEARNERS KNOWLEDGE OF THE DIFFERENT TRANSMISSION MODES OF HIV / AIDS”**, in the KwaZulu-Natal Department of Education Institutions has been approved. The conditions of the approval are as follows:

1. The researcher will make all the arrangements concerning the research and interviews.
2. The researcher must ensure that Educator and learning programmes are not interrupted.
3. Interviews are not conducted during the time of writing examinations in schools.
4. Learners, Educators, Schools and Institutions are not identifiable in any way from the results of the research.
5. A copy of this letter is submitted to District Managers, Principals and Heads of Institutions where the intended research and interviews are to be conducted.
6. The period of investigation is limited to the period from 01 February to 30 June 2014.
7. Your research and interviews will be limited to the schools you have proposed and approved by the Head of Department. Please note that Principals, Educators, Departmental Officials and Learners are under no obligation to participate or assist you in your investigation.
8. Should you wish to extend the period of your survey at the school(s), please contact Mr. Alwar at the contact numbers below.
9. Upon completion of the research, a brief summary of the findings, recommendations or a full report / dissertation / thesis must be submitted to the research office of the Department. Please address it to The Director-Resources Planning, Private Bag X9137, Pietermaritzburg, 3200.
10. Please note that your research and interviews will be limited to schools and institutions in KwaZulu-Natal Department of Education (see attached list)

Nkosinathi S.P. Sishi, PhD
Head of Department: Education
Date: 24 March 2014

KWAZULU-NATAL DEPARTMENT OF EDUCATION

POSTAL: Private Bag X 9137, Pietermaritzburg, 3200, KwaZulu-Natal, Republic of South Africa
PHYSICAL: 247 Burger Street, Anton Lembede House, Pietermaritzburg, 3201. Tel. 033 392 1004
EMAIL ADDRESS: kehologile.comnie@kzndoe.gov.za; CALL CENTRE: 0860 596 363;
WEBSITE: WWW.kzneducation.gov.za



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Epidemiology, Research & Knowledge Management
Private Bag X9051, Pietermaritzburg, 3200
330 Lanagalibalele Street, Pietermaritzburg, 3201
Tel.:033 395 2046 Fax.: 033 394 3782
Email:elizabeth.lutge@kznhealth.gov.za:
www.kznhealth.gov.za

10th March 2014

To whom it may concern

Re: Hearing impaired learners' knowledge of the different modes of transmission of HIV/AIDS

Ms K Pillay wishes to conduct the above study at schools in KwaZulu-Natal, and has ethics approval from the University of South Africa to do so. Should there be any health-related issues among the learner's in her study, and where this is appropriate, she will refer learners to the nearest Department of Health clinic for further assessment or treatment.

The KZN Department of Health does not have any objection to this study.

Yours faithfully,

Dr Elizabeth Lutge
Manager: Epidemiology, Research and Knowledge Management
KwaZulu-Natal Department of Health

ANNEXURE B

PERMISSION TO CONDUCT RESEARCH AT PUBLIC SCHOOLS FOR THE HEARING IMPAIRED

27 Himalaya Drive
Everest Heights
Verulam 4339
5 March 2014

The Senior Education Manager
The Department of Education

Sir/Madam

PERMISSION TO CONDUCT RESEARCH AT PUBLIC SCHOOLS FOR THE HEARING IMPAIRED

I am a Masters student (limited scope) in the Faculty of Health Science, University of South Africa (student number :47175354). I am interested in researching **Hearing impaired Learners' Knowledge of the Different Modes of transmission of HIV/AIDS.**

The purpose of this study will be to enhance the knowledge of the different modes of transmission of HIV/AIDS for hearing impaired learners, which research has shown to be lacking. The specific objectives are:

- Determine the level of knowledge of hearing impaired learners on the different modes of transmission of HIV/AIDS
- To propose recommendations to improve knowledge gaps identified for hearing impaired learners on the different modes of transmission of HIV/AIDS

It is envisaged that this study would open the channels of communication between learners, educators and nursing staff, and would also enhance the services that are currently being rendered to these vulnerable children.

Please note that the learners will not be harmed in any way during the data collection process. Their participation will be purely at their discretion. They will be allowed to withdraw at any stage. Their anonymity will be preserved by there being no identifying markers on the completed questionnaires. The learners' responses will be placed in a sealed box, to which only the researcher and statistician will have access. The completed questionnaires will be destroyed via shredding after 5 years. The questionnaires will take approximately 20 minutes to complete, and the learners will be presented with these in a joint sitting.

Should you require further information, please do not hesitate to contact me

Yours faithfully

KM Pillay (Mrs)

Approved

Not Approved

Signature:-----

Designation:-----

Date:-----

ANNEXURE B

PERMISSION TO REFER LEARNERS FROM PUBLIC SCHOOLS FOR THE HEARING IMPAIRED

27 Himalaya Drive
Everest Heights
Verulam 4339
5 March 2014

The Clinic Manager
The Department of Health

Sir/Madam

PERMISSION TO REFER LEARNERS FROM PUBLIC SCHOOLS FOR THE HEARING IMPAIRED

I am a Masters student (limited scope) in the Faculty of Health Science, University of South Africa (student number :47175354). I am interested in researching **Hearing impaired Learners' Knowledge of the Different Modes of transmission of HIV/AIDS.**

The purpose of this study will be to enhance the knowledge of the different modes of transmission of HIV/AIDS for hearing impaired learners, which research has shown to be lacking. The specific objectives are:

- Determine the level of knowledge of hearing impaired learners on the different modes of transmission of HIV/AIDS
- To propose recommendations to improve knowledge gaps identified for hearing impaired learners on the different modes of transmission of HIV/AIDS

It is envisaged that this study would open the channels of communication between learners, educators and nursing staff, and would also enhance the services that are currently being rendered to these vulnerable children.

Please note that the learners require a possible range of services, including sex education and VCT. The learners may or may not be accompanied by an interpreter who communicates in Sign Language. Hence they may require additional assistance, such as written requests for services, or the use of pictorial representations (may use charts that are found within the clinic to point out needs). Kindly assist as required.

Should you require further information, please do not hesitate to contact me

Yours faithfully

KM Pillay (Mrs)

Approved

Not Approved

Signature:-----

Designation:-----

Date:-----

ANNEXURE C: CONSENT LETTER

To: The Researcher

Sir/Madam

HEARING IMPAIRED LEARNERS' KNOWLEDGE OF THE DIFFERENT TRANSMISSION MODES OF HIV/AIDS

I, -----, a pupil at-----, am willing to participate in this study.

I understand the purpose of the study, and that my participation is voluntary, without remuneration and or recourse.

Annexure D

QUESTIONNAIRE

RESEARCH PROJECT: Hearing Impaired Learners Knowledge of the Different Modes of HIV/AIDS Transmission

Instructions:

Please answer all the questions as honestly as possible. The information collected for this study will be collated and analysed in order to form an accurate picture of this research project on Hearing Impaired Learners knowledge of the Different modes of Transmission of HIV/AIDS

You do not need to identify yourself and, similarly, the researcher will uphold anonymity in that there will be no possibility of any respondent being identified or linked in any way to the research findings in the final research report. Where required please indicate your answer with a cross (X) in the appropriate box or write a response in the space provided.

SECTION A: SOCIO-DEMOGRAPHIC DATA

Q1. How old are you?

--

Q2. What is your gender:

Male	
Female	

Q3. What grade are you in?

--

Q4 Religion:

Christianity	
Islam	
African traditional belief	
Hinduism	
Other (Please specify)	

Q6. Do you belong to any organisations?

Sport	
Youth	
Religious	
Support	

Q7. Which language do you frequently speak at home? (choose only one)

English	
Afrikaans	
isiZulu	
Xhosa	
Other (Please Specify)	

Q8. What is your nationality?

South African citizen	
Zimbabwean	
Nigerian	
Other (Please Specify)	

SECTION B: General Knowledge on HIV/AIDS

	yes	no
HIV &/AIDS is the same		
I have heard about HIV/AIDS		
I know someone who has HIV/AIDS		
I think HIV/AIDS can be cured		
I think you cannot get HIV/AIDS if you are strong and healthy		
I think HIV/AIDS kills		
I think HIV/AIDS is caused by witchcraft		
I think HIV/AIDS is only a threat to those who use prostitutes		
I think HIV/AIDS is punishment for bad behaviour		
I wouldn't want to be seen with someone with HIV/AIDS		

SECTION B: Dissemination of Information

1. I learned about HIV/AIDS from:

1. School (teachers)	
2. Parents	
3. Friends/peers	
4. Local clinics/hospitals	
5. Media (radio, television, newspapers, websites)	
6. Church/religious/ traditional leaders	

2. Rate the effectiveness of these sources: (the information provided was most comprehensive, accurate, appropriate):

	Most effective	effective	Neutral	ineffective	Least effective
1. School (teachers)					
2. Parents					
3. Friends/peers					
4. Local clinics/hospitals					
5. Media (radio, television, newspapers, websites)					
6. Church/religious/ traditional leaders					

SECTION C: HIV/AIDS can be spread/transmitted by:	TRUE	FALSE	DON'T KNOW
1. Having sexual relations with someone with HIV			
2. Sharing needles with someone with HIV			
3. Performing oral sex on someone with HIV			
4. Kissing someone with HIV			
5. Engaging in sexual acts with someone with HIV without a condom			
6. Having contact with HIV infected blood/other body fluids			
7. Sharing razors with someone with HIV			
8. Sharing linen or dishes with someone with HIV			
9. Shaking hands with/sitting next to someone with HIV			
10. An infected mother delivering a baby			
11. An infected mother breastfeeding a baby			
12. An infected father carrying a baby			
13. An infected person having many sexual partners			
14. A family member with HIV coughing near you			
15. Being bitten by an HIV infected person			
16. Talking to or hugging an HIV infected person			
17. Being bitten by mosquitoes			
18. An infected person sneezing near you			
19. By having a circumcision			
20. Always wearing condoms during sexual activities			
21. Always bathing/showering after unprotected sex			
22. Having unprotected sex with someone whose status is not known			
23. Having sex with a partner who is HIV positive while using a condom			
24. Sitting with a HIV positive person			
25. Swimming/surfing with a HIV positive person			

SECTION D: Preferred communication Sources

I would like to learn more about HIV/AIDS from:

	yes	no
1. My parents		
2. My teachers		
3. My friends/peers		
4. My religious/cultural organisations		
5. My clinic /hospitals		
6. School/community functions/rallies		

SECTION E: Preferred Communication Strategies

I would like to learn about HIV/AIDS from :

	yes	no
1. The internet/television		
2. The use of visuals/ pictures		
3. Billboards/pamphlets		
4. Individual face to face contact at clinics or community health worker		
5. Other		

What prevents you from accessing information about HIV/AIDS transmission?

.....
.
.....
.....
.....

THANK YOU

CERTIFICATE

D N R LEVEY (PROF.)
FREELANCE LANGUAGE EDITOR AND CONSULTANT
t/a Expert English Editors CC 2007/147556/23
editsa@gmail.com

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Member of South African Translators Institute. For bouquets or brickbats regarding quality of service please contact SATI at P O Box 1710, Rivonia, 2128. Tel. +27 (0)11 803-2681, sati@intekom.co.za,

TO WHOM IT MAY CONCERN

This is to certify that I have edited the following document for English style, language usage, logic and consistency; it is the responsibility of the author to accept or reject the suggested changes in order to finalise the text.

Author: Ms Krebaloshni Pillay

Item: Masters in Public Health dissertation THE KNOWLEDGE OF LEARNERS WITH HEARING IMPAIRMENT ON THE TRANSMISSION MODES OF HIV.

Sincerely



DAVID LEVEY
2014-10-08



School of Mathematics, Statistics and Computer Science

10 October 2014

TO WHOM IT MAY CONCERN

This is to confirm that I, Prof Glenda Matthews assisted with the statistical analysis of the M.Ph. entitled "The knowledge of learners with hearing impairment on the transmission modes of HIV" by Kребaloshni Pillay.

I have a PhD in Mathematical Statistics awarded by the University of Pretoria.

Yours faithfully,

Professor GB Matthews

Westville Campus

Postal address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27(0)31 2603011 Facsimile: +27(0)31 2601009

ANNEXURE G

ALPHA CO-EFFICIENT SCORES

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
age	99	18.0	25.0	20.364	1.9455
Valid N (listwise)	99				

Statistics

		gender	grade	religion	nooforg	language	nationality
N	Valid	99	99	99	99	99	99
	Missing	0	0	0	0	0	0

Frequency Table

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	1	1.0	1.0	1.0
	Male	48	48.5	48.5	49.5
	Female	50	50.5	50.5	100.0
	Total	99	100.0	100.0	

Grade

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.	1	1.0	1.0	1.0
	10	35	35.4	35.4	36.4
	11	16	16.2	16.2	52.5
	12	18	18.2	18.2	70.7
	8	7	7.1	7.1	77.8
	9	6	6.1	6.1	83.8
	skills	16	16.2	16.2	100.0
	Total	99	100.0	100.0	

Religion

	Frequency	Percent	Valid Percent	Cumulative Percent
.	3	3.0	3.0	3.0
Valid Christian	52	52.5	52.5	55.6
Valid African Traditional	28	28.3	28.3	83.8
Valid Other	16	16.2	16.2	100.0
Total	99	100.0	100.0	

Frequencies

Frequency Table

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
.0	1	1.0	1.0	1.0
Valid Male	48	48.5	48.5	49.5
Valid Female	50	50.5	50.5	100.0
Total	99	100.0	100.0	

Grade

	Frequency	Percent	Valid Percent	Cumulative Percent
.	1	1.0	1.0	1.0
10	35	35.4	35.4	36.4
11	16	16.2	16.2	52.5
Valid 12	18	18.2	18.2	70.7
8	7	7.1	7.1	77.8
9	6	6.1	6.1	83.8
skills	16	16.2	16.2	100.0
Total	99	100.0	100.0	

Religion

	Frequency	Percent	Valid Percent	Cumulative Percent
.	3	3.0	3.0	3.0
Christian	52	52.5	52.5	55.6
Valid African Traditional	28	28.3	28.3	83.8
Other	16	16.2	16.2	100.0
Total	99	100.0	100.0	