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Melanie Gallant
University of Windsor

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Peer Education in the Context of School-Based HIV Prevention Programming in Kenya: An Examination of Process and Outcome

by

Melanie Gallant

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Abstract

The main objective of this study was to examine the extent to which peer education could contribute to the effectiveness of a comprehensive, teacher-delivered primary school HIV prevention programme in Kenya. The study used a quasi-experimental design with sequential cross-sections of standard 6 and 7 students, sampled pre and nine months post implementation of the programme. Peer supporters from each experimental school were recruited and trained. Assessment then involved a pre-post test completion using both questionnaires and individual and group interviews to examine the effects of the PSABH programme on peer supporters and students. Outcomes of interest included HIV related knowledge, attitudes and behaviors. Overall, 2769 experimental and 1261 control students were sampled pre and nine-months post implementation of the programme. Peer supporters were assessed pre and post-training as well as six-months later. There was lack of evidence at nine months to credit any changes in students on the targeted outcomes to the intervention itself. Peer supporter training and working as a peer supporter however, was found to have a significant impact on peer supporters. This was evidenced by positive shifts in knowledge, attitudes, pursuit of information and communication as well as an increase in personal confidence and comfort in discussing HIV/AIDS related issues, activity within schools, reported interaction with students and other members of the community and favorable student response to and ratings of peer supporter work. Overall, the study suggested the influence of peer education on peers but not students. The findings are discussed in relation to methodological, theoretical and contextual factors. Suggestions are made concerning the importance of future research on the theoretical underpinnings of peer based HIV prevention programming, the integration of peer education within schools, and the selection, training, and integration of peer educators. Factors to be considered when designing HIV based interventions in AIDS endemic African countries are also discussed and some recommendations are outlined for carrying out future programming of this kind.

Dedication

This work reflects the multiple people, places and experiences that have motivated me to engage in it. Consequently, the completion of it and any positive change that comes out of it should honor each of the people, places and experiences that have made it possible. There are many people who have, at some point, touched my life and in doing so, played a part in my inspiring me to take engage in work related to this dissertation. While my list is too long to mention all of these people, I would like to take a moment to mention a few who have been instrumental in making this dissertation possible. To my mother and father I give credit as it is they who have unconditionally supported me and taught me both in thought and action how to reach out to others and pursue endeavors that promote the social health and well-being. To my sister I honor as she has taught me the importance of paying attention to the details of human emotion and behaviour. To Eleanor, who by example and guidance have nurtured my passion for research and taught me how to approach both it and life with the utmost precision and care. To her husband Sandy I make note as he is an example of one who constantly looks out for the well-being of others, especially my own. To Kathy Lafreniere whose constant and unconditional support, guidance and example have been a vital source of comfort and encouragement. To Ken Cramer who is an example for me of the positive energy that should be poured into each and everyone's personal and work life. Finally, I would like to the people of Africa, especially those involved with Primary School Action for Bettter Health in Kenya as it is they whose undying effort to prevent the spread of AIDS inspires me to join in the fight.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The AIDS epidemic is increasingly being recognized as an affliction of youth. This is particularly evident in sub-Saharan Africa (SSA) where approximately 8.5 of the 26.6 million infected with HIV are under the age of 25 (UNAIDS, 2003, UNICEF, 2002). Kenya is not unlike other countries in SSA. At the end of 1999, for example, the estimated prevalence of HIV infection for Kenyans 15-24 years of age was 11-15% for women and 4-9% for men (UNAIDS, 2000), with the majority of youth infected through sexual contact (UNAIDS, 2002a). The threat to future generations of workers, parents, and leaders here is slowly becoming a reality.

There is still no biomedical solution to HIV/AIDS, and there is little expectation that one will be found in the near future. Changing behavior, especially sexual behaviour, is still the only way to slow the spread of HIV worldwide (Cleland, 1995; Gregson, Zhuwau, Anderson, & Chandiwana, 1998; Macintyre, et al., 2001). Clearly, curbing the epidemic is most urgent in sub-Saharan Africa where millions of lives have already been lost. Peer education has recently been identified as an important strategy in HIV/AIDS prevention (Fisher, Fisher, Bryan & Misovich, 2002; Haignare, Freudenberg, Silver, Maslanka, & Kelley, 1997; Kirby, 1997, 2001) and sexual health promotion in general (Norman, 1998; Sawyer, Pinciaro & Bedwell, 1998; Speizer, Tambashe, & Tegang, 2001). Examples of peer education and peer support programmes appear internationally in literature on both the scientific and public domains (UNAIDS, 1999a).

According to Turner & Shepherd (1999), peer education works through the natural processes of interaction and interpersonal relationships to disseminate knowledge, promote discussion of personal and social issues, and shape attitudes and norms. In recent years attempts have been made to utilize this medium as a vehicle for delivery of health promotion, health risk reduction, and disease prevention programming. Commonly referred to as peer health education interventions (Sciacca, 1987), these programs train individuals of similar age or social position to a target population to become interactive mediums through which health programming is imparted, and positive attitudes and behaviors are modeled.

Despite widespread use, attempts to understand how peer education works have not been a research priority (Sciacca & Black, 1996). Thus peer education is often described as a method in search of a theory (Turner & Shepherd, 1999). It is utilized and accepted, but has yet to be fully examined, evaluated or understood, especially in relation to how it affects the sexual norms and behaviors of young people (Milburn, 1995; 1996). This study does not aim to apply and test potential theoretical models but will describe and comment on existing models commonly applied to peer education.

The present research focuses on the use of peer education as a means of delivering HIV prevention programming to primary school students in Kenya, a country in sub-Saharan Africa. Building on my previous research (Gallant & Maticka-Tyndale, 2004; Maticka-Tyndale, Gallant, Brouillard-Coyle, Metcalfe, & Holland, 2004) on the effects of primary school HIV prevention programming and situated in the area of concentration of the AIDS epidemic in sub-Saharan Africa, this research has the following objectives: (1) to examine whether and how much peer supporter/educator training and program implementation alters the knowledge, attitudes, and behaviors, of peer supporters/educators; (2) to assess the impact of an HIV programme that includes peer supporters/educators on the knowledge, attitudes and behaviors of primary school students; and (3) to examine the extent to which student identification with and rating of both teachers and peer supporters influences their knowledge, attitudes, and behaviours.

HIV/AIDS in Kenya

Kenya is located in east Africa, bordered by Lake Victoria to the southwest, Uganda to the west and north, Ethiopia and Somalia to the north, Tanzania to the south and the Indian Ocean to the east. Situated among countries with the highest rates of HIV in the world, Kenya is not immune to HIV infection or AIDS. In a country with a population of approximately 30 million, over 2 million are currently estimated to be infected with HIV, leaving Kenya among the top 10 countries with the highest HIV infection rates in Africa (UNAIDS, 2001). In light of the current state of HIV and AIDS in Kenya, then President Moi officially declared AIDS a national disaster in 1999 (Kenya Parliamentary address, Nov. 25, 1999).

Why Focus on Adolescents?

Aggleton & Rivers (1999), in their review of HIV interventions, describe the current epidemic among African youth as symbolic of the plight of youth in poor countries. In the midst of mass prevention strategies in wealthy countries, involving considerable time, energy, and money, African youth have been overlooked. Prevention has focused on the high-risk populations, namely, commercial sex and migrant workers, and people with multiple partners (MacDonald, O'Brien, Pittman, & Kimball, 1994). In the meantime, infection rates among youth have steadily increased to the point of epidemic proportion (Kiragu, 2001). Only recently has this population come to the forefront of prevention work, as policy makers and the international health community have begun to recognize that turning around the AIDS epidemic in Africa lies in affecting change in the behaviors of young Africans before they become members of high risk populations.

CHAPTER II

KENYA: CONTEXT FOR SCHOOL-BASED HIV PREVENTION PROGRAMMING

Adolescents in Kenya

Rising rates of HIV join already high rates of STIs and adolescent pregnancy (Nzioka, 2001; UNAIDS, 2002) in compromising the health of Kenya's youth. As of 1999, between 11 and 15% of females and between 4.3 and 8.5% of young males had been infected with HIV (UNAIDS, 2000). HIV is not evenly spread across the country, with some regions experiencing exceptionally high rates among youth. For example, in 1999, 33% of 19-year-old girls and 7% of boys were found to be HIV-positive in Kisumu, a city in southwestern Kenya (UNAIDS, 2000). Teenage pregnancy is also a concern, with approximately 30% of unmarried adolescent girls conceiving a child by the age of 20 (Kamaara, 1999). Adolescent pregnancy often compromises health, almost always halts education and may bring both social and family disgrace. Not surprisingly, an estimated 700 abortions are performed each day on girls between the ages of 15-19 in Kenya (Njau and Radney, 1995). Similarly, STIs other than HIV are a cause of concern, especially as they relate to an increase in susceptibility to HIV infection. Recent statistics released by the Kenyatta National Hospital stated that 36% of young women aged 15-24 visiting antenatal clinics tested positive for an STI other than HIV (Kamaara, 1999).

Because youth in Kenya are considered to be in a transitory phase of development (i.e. neither children nor adults) and have yet to achieve adult status in society, their sexual and reproductive health has often been overlooked in government policy and programming, and research has been sparse (Kekovole, Kiragu, Muruli, Josiah, 1997). Consequently, knowledge regarding the sexual norms and behaviors of young people in Kenya has remained largely unexamined. More recently, in response to high rates of HIV, STIs, pregnancy, and abortion, funding has been diverted to study this population. The results of such inquiry are beginning to aid in an understanding of how life is experienced by young Kenyans and in particular, how such experiences influence their vulnerability to poor sexual health (e.g., Maticka-Tyndale, Gallant, Brouillard-Coyle, Holland, Metcalfe, Wildish, & Gichuru, 2005).

Youth in Kenya are vulnerable to HIV due to a variety of factors. While these vary across ethnic and clan groups, these often include: early onset of sexual activity; a

high value placed on young male virility, countered by strict norms of young female virginity; a lengthening period of adolescence; cultural norms; peer pressure; environmental factors; sexual scripts; rates of poverty which foster the exchange of sex for money; traditional absence of parent-child communication on issues related to sexuality; and limited access to medical care and information (Maticka-Tyndale, et al., 2005; Nzioka, 2001; Ocholla-Ayaya, 1997; Roth, Fratkin, Ngugi, & Glickman, 2001). Such factors help explain why attempts to translate knowledge into positive behavior change have been limited.

Early Onset of Sexual Activity

Among all of Kenya's ethnic groups, sex is considered essential to life (Mensch, Clark, Lloyd, & Erulkar, 1999). For example, among pre and early adolescent Kisii boys, playing sex[1] is spoken of as "essential to the future of Kenya" (Maticka-Tyndale, Gallant, Brouillard-Coyle, & Sverdrup-Phillips, 2002). Such a statement reflects the importance placed on and necessity for procreation. Not surprisingly, in a recent survey of 8,000 upper primary school children (ages 11-17 years) from Nyanza province in Kenya, 53% reported having played sex, the median age for sexual initiation being 12 years (Maticka-Tyndale, 2002). Weisner (1997), in discussing family life in Africa, notes that the early onset of sexual activity is understandable in a context where high mortality rates, reliance on subsistence agriculture, poverty and the possibility of famine and war are ever-present threats. Under such conditions, procreation becomes a way to replace lost lives, keep land and obtain food, and increase or maintain family wealth and status. There is thus, an implicit pressure placed on youth to produce offspring at the earliest possible age.

Value placed on fertility and virility

According to some youth in southwestern Kenya, physiological changes arouse sexual feelings that signal to a young person that he/she is ready to and expected to play sex (Maticka-Tyndale et al., 2002). Observed by Leclerc-Madlala (2002) in urban Kenya and noted by Bunyi (2004) of gender socialization practices in Kenya is that gender norms for men and boys support the need for sexual activity with beliefs that: (1) a man's sexual urges are natural and uncontrollable; and that (2) it is a man's duty to act upon his

[1] In Kenya, as in much of sub-Saharan Africa, the term "playing sex" is used to denote "sexual intercourse".

sexual urges. Girls have also been reported feeling pressured by their physiology (Maticka-Tyndale, et al., 2005). For girls, however, adolescence signals that they are now of reproductive age and therefore ready to play sex. For example, in recent focus group discussions with girls in southwestern Kenya, development of breasts and the enlargement of hips signaled readiness to play sex (Maticka-Tyndale et al., 2002). What these examples suggest is that youth see playing sex as a natural and necessary sequel to the changes of puberty.

Sexual Norms

The biological pressure youth feel to play sex can be better understood by looking at homosociality or the nature of relationships between individuals of the same gender. Same and opposite sex relationships in Africa are meant to serve different purposes. Same sex relationships are bonded within rites of passage and become important sources of emotional intimacy. Opposite sex relationships are bonded within marriage and are for the purpose of supplying offspring (Prazak, 2000). It is important to understand that these are the norms that guide both interpersonal and sexual behavior. Same sex relationships are for open discussion and emotional closeness. Sexual relations within marriage however, have generally tended to be more pragmatic, focusing on procreation (Ntozi, 1997), heightening one's social status and procuring material support (Wandibba, 2004). Sexual activity within this bond is assumed, but seldom discussed among couples, especially in relation to intimacy or pleasure (Davison, 1989). Ahlberg, Jylkas and Krantz (2001), in their comparison of sexuality in Kenya and Sweden, suggest that in Kenya opposite sex relations often alternate between love and violence, reflecting the absence of emotional intimacy within the relationship (Ahlberg, Jylkas, & Krantz, 2001). They further suggest that children are most likely to internalize such behavior and perpetuate it in their relationships with members of the opposite sex. This could help explain why young people in several studies in Kenya seldom identified platonic relationships between boys and girls and never describe them as common (Maticka-Tyndale, et al., 2005; Nzioka, 2001). Boy-girl relationships are instead, described as for playing sex (Leclerc-Madlala, 2002).

More recently, the age of marriage has been delayed, prolonging the period of adolescence. Previously, young people were expected to marry soon after rites of

passage. Thus, the natural sexual urges that were 'awakened' at puberty were accommodated in marriage. Today education in Kenya is more accessible and more young people now wait to finish their education before marrying. However, there are no norms to guide relationships that evolve within this prolonged period. The absence of such norms, in conjunction with the fact that emotional intimacy without intercourse and non-penetrative sexual acts are not commonly practiced, leaves young people without a means to deal with their physiological urges and desires. In fact, when asked what young boys and girls do together, youth are most likely to say, "play sex" (Maticka-Tyndale et al., 2002).

Peer Pressure

Peer pressure also contributes to premarital adolescent sex. For example, Kiragu and Zabin (1993) found that Kenyan boys in their study were seven times more likely to be sexually active if their friends were also sexually active. Among boys in Nzioka's (2001) qualitative study, abstinence was seen as a sign of dysfunction and boys were both teased and shunned by their peers if they were not sexually active. Young girls in Kenya also speak of peer pressure to engage in sexual activity; however, the pressure for them may be more implicit. For example, in recent qualitative interviews with primary school girls, it was found that those in the peer group who played sex could afford or were given nice clothes, shoes, perfume and bodily adornments (Maticka-Tyndale et al., 2002). Observing these girls was said to arouse a certain degree of admiration of sexually active girls and a subsequent motivation to model their behavior.

Environmental Factors

Environmental factors may also support the early initiation of sexual activity making it difficult for young people in Kenya to abstain. For example, lack of dwelling space makes it common for family members to share sleeping quarters. This increases the chance that a young person will be exposed to, tempted by, or curious about the sexual activity they observe among those with whom they share living spaces. In recent focus groups, young Kenyans reported engaging in sexual activity because they had observed their parents, friends, or elder brothers and sisters doing so. This suggests that observation of sexual activity creates a model for one's behavior (Maticka-Tyndale et al., 2002).

Girls may be more vulnerable to forced initiation of sexual intercourse due to lack of safe and protective environments. In most ethnic groups in Kenya, it is customary for girls to be assigned domestic tasks such as going to the market for food, fetching water and washing clothes by the riverbanks. Travel to and from these locations often exposes young girls to situations of opportune or forced sex. In recent focus groups, primary school girls in Kenya spoke explicitly of the danger involved in their daily activities (Maticka et al., 2002). An example of this danger is illustrated in the following quote:

> *When you are going swimming...*[and] *it is late to go back home there are boys who will just be waiting there* [to] *rape you later* (Girls16: 1280-1282) (Maticka-Tyndale, et al., 2002).

Girls also report being sent to a neighbor's house by a family member to help with chores only to realize that the chore is to engage in sexual activity with an older male (Balmer et al., 1997; Maticka-Tyndale, et al., 2002). Thus, rather than protecting their female children, there is evidence that families sometimes play a part in their sexual exploitation. Boys are given more freedom, but this freedom may also expose them to environments that preempt sexual activity (Nzioka, 2001). Such places include bars, discos, and marketplaces. Clearly, for both boys and girls, the environment contributes to the sexual behavior of youth.

Sexual Scripts

According to Gagnon and Simon (1973), sexual scripts are frames of reference that help organize beliefs and expectations about how sexual activity is played out. Such scripts can be of a cultural, interpersonal or intrapsychic nature. In recent research in southwestern Kenya, it was found that strong, uncontested scripts govern how playing sex occurs (Maticka-Tyndale, et al., 2002). Both culturally and interpersonally, playing sex is understood to occur as a result of a sequence of steps. This sequence was clearly articulated in focus groups with upper primary school students (Maticka-Tyndale, et al., 2002). First, interest in a member of the opposite sex is communicated through either a mediator or letter. Once communication is established, a gift is given, usually by the boy to the girl. Receipt of this gift signifies a desire to play sex by the giver (usually a boy) and an obligation to play sex by the receiver (usually a girl). It is customary for a girl to initially refuse the offer knowing well that, in reality she will eventually have to play sex.

It is assumed by boys and girls alike that "no" actually means "yes". This gives a boy justification to force a girl who persistently denies him sex. Either the girl eventually says 'yes,' or, if she is especially 'honorable' and continues to say 'no' even if her desire is to say 'yes' (and it is always assumed that this is what she desires), the boy forces the girl to play sex. The act is then finished. The script ends, i.e. there is no scripting of the aftermath or on-going relationship. There is little emotional attachment associated with playing sex, nor is there anger, sorrow, trauma, or outrage at being forced if the script has been followed. Boys report a sense of pride in the accomplishment while girls speak in terms of the monetary value of the gift they gained from it (Maticka-Tyndale, et al., 2005; Maticka-Tyndale et al., 2002).

The script speaks to both the order and apparent rationality by which playing sex occurs for youth in Kenya. It places the act of sexual intercourse within the realm of social obligation rather than personal choice or agency. This is consistent with what Balmer et al. (1997) found in many areas of sub-Saharan Africa. Young girls were more likely to report that sex was an event that was externally imposed upon them regardless of whether they wanted it or not.

Boys also report feeling powerless, but in a different sense (Maticka-Tyndale et al., 2002). They are more likely to report being forced to play sex by their biology (my body made me do it), social expectations of family or custom, or by their peers. In terms of application, the scripting of sex calls into question strategies for sexual health promotion that focus on personal control and volition when the context for sex is social obligation. Nzioka (1996) suggests that additional ethnographic work is needed in this area to gain a better understanding of how risk is socially constructed by youth and their peer networks.

Material Gain and Poverty

As noted in the description of sexual scripts, sex usually involves an exchange of a gift for sex. Similar to findings across several countries in Africa, material goods play a significant role in the negotiation of sexual relationships in Kenya (Nyanzi, Pool, & Kinsman, 2000; Ocholla-Ayaya, 1997). In a qualitative study involving 37 adolescents in South Africa, 17 out of 20 girls spoke of receiving gifts or money in exchange for sex while 11 out of 17 boys reported paying a girl in some monetary form for sex. Explanations for using money as a form of sexual negotiation stem from two major

hypotheses. The first is that poverty drives young women to engage in sexual activity. Thus, young girls engage in sexual activity in order to acquire basic necessities (i.e. food, clothing, and shelter) (Nyanzi, Pool, & Kinsman, 2000). The second hypothesis maintains that this behavior is an outgrowth of traditional brideprice, where a man pays a woman's family for his bride. Anecdotal evidence from women in Kenya does suggest that a system of marriage based on brideprice was traditionally experienced by women as a form of economic esteems that facilitated their sustenance and status in society (Berger & White, 1999; Powers, 2003). Since brideprice is still widely practiced here, it then makes sense that money is a normative means by which young people negotiate sexual relationships.

The presence of "sugar daddies[2]" has also been noted in Kenya. According to a study conducted by Longfield, Glick, Waithaka, & Berman (2002), 25% of men over the age of 30 surveyed reported having a partner who was at least 10 years younger. School girls in Kenya report that sugar daddies are a means by which they can procure school fees and supplies (Pillsbury, Maynard-Tucker, & Nguyen, 2000). In the era of HIV/AIDS, sugar daddies have taken to choosing primary school girls for sex because of the common belief that girls of this age are HIV free (Aggleton & Rivers, 1999). There is also evidence to suggest that young female adolescents are actively seeking the attention of older men who can provide for them financially (Maticka-Tyndale, 2002; UNIRIN, 2003).

Parent-Child Communication

In many African societies, the public discussion of sex has been taboo. Traditions prescribe who may speak with youth about sexual matters. In areas of Uganda, for example, it is the *senga* or father's sister (Muyinda, Nakuya, Pool, & Whitworth, 2003). In ethnic groups in central and southwestern Kenya it is a community elder during rights of passage. Parents are not responsible, and, in fact, are often forbidden to educate their children about sex, often as part of a larger incest taboo. With the decline of formal rites of passage and the increase in incidence of HIV infection, however, there is a call for increased discussion of sexually related matters between parents and their children

[2] The term "sugar daddy" commonly refers to men who entice girls 10 years or younger than them with money and material goods in exchange for sex (Longfield, Glick, Waithaka, & Berman, 2002).

(UNAIDS, 2000). There are many obstacles to this, however, including: parental lack of self-confidence; shyness in discussing sex with children; and inaccurate knowledge of sexually related matters (Ocholla-Ayayo, 1997). Not surprisingly, over 50% of Kenyan parents surveyed in a recent study reported that they had never spoken to their adolescent children about HIV and AIDS (Kekovole, Kiragu, & Muruli, 1997). This is discouraging because research has shown that young people in Kenya would like their parents to communicate with them about sex (Ocholla-Ayayo, 1997). Currently, there is acknowledgement of the potential for parents to be sex educators for their children (Wanyeki, 1996). Actual institution of this however, will take time.

Access to Medical Information and Services

Kenya is home to a variety of organizations seeking to promote sexual health and prevent sexually transmitted diseases. The primary purpose of such organizations is to disseminate and provide sexual health and reproductive information and services. The means of achieving this involves initiatives like: free condom information and distribution; access to family planning; and availability of HIV/AIDS testing. Unfortunately, these most often target adults and most youth in Kenya do not or cannot access such services. When youth do take advantage of the services they often report being "frowned upon" for their premarital sexual behaviour and subsequently treated negatively by health professionals and/or members of the community (Kiragu, 2001). Lack of access to sexual and reproductive health information heightens young people's risk for engaging in unprotected sex and contributes to their vulnerability to HIV infection.

Socialization

In Kenya, traditional socialization practices encourage the bonding of adolescent age-mates. In many tribes, such bonds are formalized during rites of passage. Youth who partake of rites together share a special bond for the duration of their lives. For example, boys or girls who experience circumcision together in the Kikuyu tribe are considered sisters and brothers once circumcised (Worthman & Whiting, 1987). vanGennep (1908/1960) has identified four stages common to many rites of passage. First, a group of peers of initiation age are uprooted from their natural environment. This group is then initiated (e.g. through circumcision) and information and values about life and sexuality

are acquired. To mark the transition from childhood to adulthood, the group of peers is placed in a transitory environment of exile for a specified amount of time. Finally, the group is then reintroduced into their community with a new identity (van Gennep, 1960). After completing such rites youth are given greater independence of parents, often living apart from their family.

Traditionally, in many ethnic groups, rites of passage were considered the major means through which young people learned about sexuality. In recent years, however, significant social changes such as greater urbanization, the introduction of western ways of life (particularly through exposure to mass media), and a prolonged period of education have altered the ways in which young people receive information about sexual health, norms and values. It has been suggested that traditional rites of passage are no longer practiced in the same manner or to the same extent that they had been in the past (Mbugua, 1999). This has left young people to develop their own ideas, without traditional instruction, on issues related to sexuality.

Lack of traditional instruction has increased the extent to which Kenyan youth turn to their peers for information. According to the most recent Kenyan Demographic Health Survey (National Council for Population and Development [NCPD], 1994) youth were more likely to talk to their friends about: sexuality; family planning; and HIV/AIDS; compared either to their parents, teachers, older sisters and brothers, grandparents or extended kin. In light of such data, and combined with limited communication about sex between adults and youth, as well as a reluctance to deliver comprehensive sex education within schools, peers represent a viable medium through which prevention and sexual health education can be delivered. Prazak (2000) recently suggested that until practical and unified guidelines for adolescent sexuality exist in Kenya, youth will continue to form their thoughts, feelings, and behaviors related to sexuality largely based on both the information and sexual norms dictated by their peers.

Schools and Peer Education in the Fight against AIDS

The high rate of HIV infection among African youth has prompted both national and international recognition and activity. In many African countries, governments have written mandates geared to decreasing rates of infection among youth. Recently, the United Nations officially called on nations to reduce HIV prevalence rates among youth

ages 5-25 by 20-25% by the year 2010 (UNAIDS, 2001b). Education has been proposed as the most promising means of achieving this goal.

By far one of the most important ways of influencing HIV/AIDS prevention efforts is through the public mandate of school-based HIV/AIDS education (Gillies, 1994). In fact, it has been repeatedly suggested that the easiest way to contact youth in Africa is through schools. Several countries have taken up this initiative, as evidenced in a 1993 survey that identified eleven countries in Africa that had national HIV/AIDS mandated curricula (Population Reference Bureau, 2000). The degree to which these policies are being successfully implemented within schools however, remains unknown. In fact, what evidence exists suggests that there is a lack of AIDS education in African schools (UNAIDS, 1997a). A recent survey from South Africa suggested that implementation was actually low with only 18 of the 277 secondary schools sampled offering the nationally mandated sex education curricula (Stewart et al., 2001). In addition, Aggleton and Rivers (1999) note that many educational curricula in Africa negatively sanction the inclusion of taboo subjects; condom use being the prime example.

Education in Kenya

There are over 17, 500 primary and secondary schools in Kenya, serviced by over 200,000 teachers who are responsible for educating approximately 6 million students (Kenya Education Directory, 2001). Education is implemented according to an 8-4-4 system (8 years of primary, 4 years of secondary and 4 years of post-secondary schooling) and focuses on didactic and recitational learning with corporal punishment still practiced in some schools (Mensch & Lloyd, 1997). Schools can be classified by geographical location, national examination scores (KCPE), private versus public, and urban versus rural. Students who attend top (by KCPE scores), private, urban schools are usually afforded the highest quality education. The vast majority of children, however, are usually enrolled in bottom, public, rural schools.

The conditions of education can vary greatly depending on the characteristics of a school. For example, in a top, private, urban school, there is a good likelihood that Kenyan Ministry of Education target ratios of 1 teacher to 30 students are observed (Ehrenreich, Marx, Simons, Templeton, & Thonden, 1999), classrooms are well-built, each student has a desk to him or herself, and there are adequate supplies of educational

materials. This contrasts with a bottom, rural school with large numbers of students, an inadequate number of staff to teach these students, classrooms that are too few and too small, and a building with crumbling walls, poor or no artificial lighting, and holes in walls for windows and doors. Classroom supplies are scarce: chalk is used sparingly (one piece per month), textbooks are shared, and students often share desks or tables, or work on the floor (M. Gichuru, personal communication, September 13, 2002).

Theoretically, as of January 2003, primary education in Kenya is free. Realistically, the underlying costs make access to education dependent on a family's income. Although the basic entrance to school is free, this entrance does not include the provision of basic school necessities such as books, stationery, or uniforms (Mukudi, 1999). These provisions can end up costing parents or guardians over 7000 Shillings (approximately $116 US) per year. This is a considerable amount of money considering that the average per capita income per family in Kenya is $340 US (UNICEF, 2003). The costs of attending school, requirements for assistance at home, and advancement between levels that depend on adequate KCPE scores, make attendance sporadic, and consequently progression through school and grades is erratic. The children in a classroom vary from month to month and a class often includes children covering a wide age range with the range growing wider in advanced grades as children have more years to miss school or more exams to fail. Girls in particular have commonly had to drop out of school in late primary either to marry, help support their families, because of early pregnancy or due to educational practices and policies that favour boys (Mensch & Lloyd, 1997). In the era of AIDS, more boys have had to drop out of school during the middle primary years in order to help support their families. These are the challenges faced by a school-based HIV education programme.

Difficulties with School-Based Programmes

There are additional difficulties associated with using schools as a medium to implement HIV/AIDS prevention. Teachers, for example, are reluctant to implement certain key components of HIV/AIDS prevention, especially those related to discussions about sexual intercourse and communication about condoms. Advocacy of the protective benefits of condom use is especially difficult for teachers, since they see it as being in direct conflict with a preferred abstinence message. In two recent evaluations of school-

based HIV/AIDS education programmes, Kinsman, Nakiyingi, Kamali, Carpenter, Quiglery, Pool, & Whitworth (2001) in Uganda and Visser (1996) in South Africa found that teachers failed to address some of the major HIV/AIDS prevention issues included in the curriculum. In fact, students in one study reported that they had actually not been taught the curriculum at all despite the fact that they were excited to learn more about sexual health and HIV/AIDS (Kinsman et al., 2001). Condoms in particular have had to be dropped from some curricula in order for the programme to be endorsed and implemented within schools and communities (Kinsman, et al., 2001; Shuey, Babishangire, Omiat, & Bagarukayo, 1999).The lack of full implementation on the part of teachers could stem from a variety of reasons. These include: lack of school and teacher resources for teaching HIV/AIDS related material, lack of time devoted to the intervention curriculum, curriculum overload, teacher preference for doctrinaire instruction, discomfort with sexual health and HIV/AIDS issues, and disdain from community members and officials towards teachers who discuss sexual matters in their classrooms. Such reasons have been cited as barriers to HIV/AIDS intervention effectiveness not only in Africa, but elsewhere (Applegate, 1998; Kinsman et al., 1999).

Another issue related to school-based prevention in Africa is that of teacher attrition. Absence among teachers is not uncommon and stems from transfers to other schools, illness, and death (World Bank, 2001). The reality of life in Africa is that teachers trained to deliver the intervention are not immune to disease, including HIV. For example, between 1996 and 1998, 85% of teacher deaths in the Central African Republic were attributed to AIDS, between 1995 and 1999 teacher AIDS death rose from 450 to 1500 per year in Kenya, and over 30% of teaching staff in Zambia are estimated to be HIV infected (World Bank, 2001). In Kenya, Zimbabwe, and Zambia it is estimated that over 1.5% of the teaching population is lost each year to AIDS (World Bank, 2000). Moreover, over 30% of teachers in Uganda and Malawi, 20% of teachers in Zambia, and 12% of teachers in South Africa are reportedly HIV positive (World Bank, 2001). This poses a barrier to effectiveness, as interventions cannot be delivered if the conduits of the program are not present because of illness and death. Recently, a school based HIV prevention programme in southwestern Kenya reported an 8% loss of its trained teachers

due to death (not AIDS confirmed) and a 14% loss due to teacher transfer (Maticka-Tyndale, et al., 2004).

When teachers are healthy and able to teach about HIV/AIDS they still face additional challenges and personal struggle. An example of the struggles teachers face as they attempt to implement AIDS education can be seen in the following excerpt from an interview with a primary school teacher in Kenya (Maticka et al., 2002).

> *At times teachers are involved also with playing sex carelessly... you know I can't say* [I] *am very clean here, some of us might be involved in doing immorality with these students so it becomes a problem to talk in front of them again "to stop playing sex"* (Teacher15_M: 100-106).

Sexual harassment of students by teachers is a relatively common occurrence. Recently, a study found Kenyan secondary school girls reporting routine sexual harassment by their male teachers (Webster, 2000). Such harassment ranged from gender discrimination to sexual coercion and force. Also, a recent study in Tanzania by Kinsman et al. (1999) reported that during the course of their intervention, one teacher was lost due to being incarcerated for impregnating one of his female students (Kinsman et al., 1999). This is perhaps the most poignant example of teacher attrition. It has been included here, to illustrate a potential drawback to using teachers as a means of HIV prevention delivery.

Constraints of School-Based HIV Prevention in Kenya

Teachers in Kenya are in the unenviable position of working within a system that is often perceived as being insensitive to their needs. They are underpaid for the amount of time and energy they put into teaching, receive limited opportunity for professional development, and have little control over where they will teach or when they will be transferred (Kreinberg, 2000). In addition, in recent years, a rising number of teachers have been absent from classes because they have been either caring for those suffering from AIDS, attending funerals, or themselves suffering or dying from AIDS. It is estimated that approximately 18 teachers die daily in Kenya due to AIDS. This translates into a loss of approximately 6,750 teachers a year (Gathena & Asanga, 2001). Such absence causes a disruption in class schedules and student learning.

Sex education, under the title of Family Life Education is only a recent (1986) addition to the Kenyan school curriculum (UNAIDS, 1999a) and has been met with

strong opposition. Opponents of sex education argue that teaching about sex is contrary to the tenets of religious, cultural, and traditional mores (Wanyeki, 1996). While most schools in Kenya are government run, many are still dependent on some form of religious sponsorship[3]. Thus, local religions have considerable influence over what type of sex education schools can deliver. In addition, schools are staffed with teachers whose attitudes and beliefs about sex and sex education are significantly shaped by their own cultural, religious and traditional beliefs and codes of conduct. If the sex education curriculum opposes their beliefs, teachers may feel ambivalent about teaching the curriculum to students (Maticka-Tyndale et al., 2004). As in many other places in the world, sex education is thought to promote sexual activity among youth despite the fact that research has shown otherwise (Kirby, Short, Collins, et al., 1994). The consequence of this opposition is that it limits the extent to which educational topics related to sex can be integrated into schools in Kenya.

There are signs that policies that ensure the implementation of sex education within schools are being instituted. In January 2001, the Ministry of Education, Science, and Technology (MoEST) declared HIV a subject to be infused across the curriculum (Nyaranga, 2002). Even more recently (summer 2002) it was declared a testable subject with pupils and teachers told to expect to find questions related to AIDS in exams given across subjects. Right now, while HIV is part of the curriculum, few teachers have been trained to deliver the information and there is no guarantee of what teachers will cover in their lessons (Nyaranga, 2002). Given the nature of education and cultural norms related to sexuality and the time and money it will take to train teachers in delivery of HIV prevention education, it is anticipated that it will be some time before changes in student knowledge, attitudes and behaviors will be evident (UNAIDS, 1999a). It stands to reason that alternate forms of HIV prevention education be initiated. Peer education is one such alternative.

School-based HIV Programming in sub-Saharan Africa

Active attempts to implement some form of HIV prevention within schools across sub-Saharan Africa do exist, albeit for the most part they are reported only in anecdotal or

[3] Religious sponsorship varies by region with some regions receiving greater support from religious groups and others receiving little or no support.

non-peer reviewed forms. In response to such varied accounts, Gallant and Maticka-Tyndale (2004) sought to document and review HIV prevention focused peer-reviewed and evaluated interventions conducted within schools across sub-Saharan Africa. The programmes ranged in design and evaluation method. All appeared somewhat successful in changing knowledge and attitudes. Behaviour, however, where measured proved more difficult to alter.

Overall, two programmes targeting primary school children stood out as exemplary programmes both in terms of intervention design, implementation and reported outcome (Klepp Harper, & Perry, 1994; Klepp, Ndeki, Leshabari, Hannan, & Lyimo, 1997; Shuey et al., 1999). Both of these targeted primary school students and managed to produce positive changes in behaviours, particularly in numbers initiating sexual activity. Programme content included a diversity of activities (i.e. lectures, plays, poems, songs) carried out multiple times over a long period of time. Peer leaders or peer-to-peer models of education were used in both locations. The programmes were in place for 1 and 2 years, respectively, before their outcomes were evaluated. Both programmes used a cascade approach to programme dissemination and teacher training whereby trained teachers were expected to share information with their fellow teachers.

Conclusions drawn based on the success of these two programmes were that targeting younger children, infusing a programme throughout the curriculum, using peer educators as well as teachers, providing multiple participatory activities, using a cascade approach to train teachers as widely as possible, and sustaining a programme over a prolonged period can have an impact on attitudes and behaviours associated with HIV transmission. What must be recognized, however, is that several other, less successful programmes shared some, but not all, of these characteristics.

Summary on Potential Utility of School-based HIV prevention programming

The picture of school-based HIV prevention as presented in this section is that it has the potential to influence students positively, provided the limitations of and challenges it faces in design and implementation are recognized and addressed. In the Kenyan context, this includes most importantly recognition that teacher time and school resources are limited and certain programming components are difficult, if not impossible, to include (i.e. condoms and discussion about sex) given cultural and political

constraint. The current study attempts to address this by using the knowledge that in the Kenyan context, peers play an important role in each other's education and development. Thus, the extent to which peers trained as educators can be integrated into a school-based HIV prevention programme and influence a positive change in their school peers will be examined.

CHAPTER III

PEERS AS HIV EDUCATORS

History

Peer education has its roots in the "monitorial system" set up by Joseph Lancaster in London, England in the early 1800s. Within this system, teachers taught lessons to particular student "monitors" who then passed the information on to their classroom peers (Gerber & Kauffman, 1981). The objective was to decrease the workload of teachers by using trained students as mediums of instructional delivery. With an emphasis on peer learning, this system laid the foundation for the evolution of a peer education movement. Such a movement still enjoys considerable recognition and popularity today.

By definition, peer education refers to a process that attempts to build upon the natural exchange of information between people of similar age or status (FPEP, 1997). As Carpenter (1996) has pointed out, peer education is really a fancy term used to describe a naturally occurring process. The definition is predicated upon the natural evolution of human relationships wherein peers are seen as an essential and adaptive feature of survival. For young people, it is through peer interactions that basic social, cognitive, emotional, and behavioral competencies are learned (Attili, 1990). These, in turn, promote growth and development. Consistent with the definition of peer education then, is the notion that young people are necessary teachers for one another.

Terminology

This basic definition of peer education does vary widely depending on the context, objectives, and nature of learning. For example, peer educator programs which focus on training particular youth to deliver support and counseling to their own peers are commonly defined as peer support and/or peer counseling. This is in contrast to peer education, which focuses on the dissemination of knowledge from one peer to another, or to groups of peers (Shiner, 1999). In many cases, however, peer education has been used as the umbrella term, which encompasses many different approaches involving peers. Shiner (1999) is critical of the peer education literature for the fact that the term "peer education" is not clearly defined and is often applied haphazardly.

Research within the field of peer education is also made difficult to understand and consolidate due to lack of a standard vocabulary (Parkin & McKeganey, 2000). For

example, the terms "peer educator", "peer supporter", "peer tutor", "peer mentor", "peer counselor", and "peer advisor" all appear in the literature in relation to programs whose objectives coincide with the definition of peer education. Ideally, the status of peer promoters should be assigned to individuals who design and implement activities for their peers. Peer counselors on the other hand, would be individuals who interact with one member of their social network in a social support role. Peer educators can be defined as either formal or informal depending on the nature of their duties. A formal peer educator would be an authority figure amongst an egalitarian social group who recreates the imbalance of power found within traditional educational environments. Alternatively, an informal peer educator would maintain the cultural and social equality within a peer group and would not attempt to recreate hierarchical positions. Although these terms appear quite distinct, within peer education programs, an individual could possibly take several of the aforementioned roles. Despite the importance of defining those involved in peer education according to their primary function, Wolf and Bond (2002) suggest that such distinctions are seldom made in the literature.

Clarification of Peer Education Terms

The term being used in this research is peer supporter (PS). A PS is defined as an individual engaged in HIV prevention efforts that take the form of information sessions; one-on-one and group presentations and support and informal advising to fellow peers. In this context the term 'peer supporter' will coincide with the term 'peer educator' used in the literature. The former term is preferred in Kenyan schools since it recognizes and protects the authority and skills of professional teachers to teach or educate.

Peer Education in health domains

From the field of education, the concept of peer learning spread over into and was adopted for use in health-related spheres. Sparked by an influenza outbreak at the University of Nebraska in the 1950s, student health aides became a powerful means of delivering influenza prevention and care information to fellow students (Turner & Shepherd, 1999). The success of this initiative led to widespread use of peer health educators across college and university campuses. This was used quite widely in the 1960s when peer education targeted marijuana and other substance use.

According to John Sciacca (1987), an identified expert in the field of peer health education:

> Peer health education occurs when individuals are selected and trained to provide their peers of similar age and status with health related knowledge, values and behaviors in an interactional and non-threatening manner (cited in Milburn, 1995, p. 407).

This definition is only a slight variation of the original definition of peer education, differing in its focus on health. This distinction, however, is not often cited in the literature.

More recently, peer education has been used as an effective means of health promotion and/or illness prevention (Sciacca & Appleton, 1996). Examples of areas of implementation include: alcohol, smoking, and substance abuse (Perry, 1989), HIV/AIDS education (Richie & Getty, 1994), stress reduction (Carty, 1989), eating behavior (Lenihan & Kirk, 1990) and violence prevention (Tobler, 1992).

Peer Education and HIV/AIDS

Currently, peer education has been gaining international attention in relation to HIV prevention and the promotion of sexual health (Turner & Shepherd, 1999). Within this domain, peer education is defined as the teaching or sharing of sexual health and HIV related information, values, and behaviors by members of similar age or social position (Sciacca, 1987). It is considered a promising method of risk reduction and sexual health promotion. It has been shown to: (1) increase knowledge, change attitudes and beliefs, direct behavior, and facilitate communication between young people and their peers (Haignere, Freudenberg, Silver, Maslanka, & Kelly, 1997; Sawyer, Pinciaro, & Bedwell, 1997); (2) be more cost effective than other health prevention methods (Jones, 1992; Milburn, 1995); (3) offer youth opportunities to collectively adopt and maintain healthier individual and group identities; and (4) reach young people where institutional based prevention programs cannot (HEA, 1993).

While anecdotal evidence of the effectiveness of peer driven HIV interventions have existed for some time, it is only recently that published research and evaluations have been documented. In a recent article on the effectiveness of peer education in the 1990s, Bernert and Mouzon (2001) reported that peer leaders have been used extensively

to support HIV/AIDS prevention efforts, especially for youth. In Europe, attempts to mount a continent-wide HIV prevention program for youth has resulted in a peer education program entitled "Europeer" which is employed by 14 European Union countries (Svenson, 1998). A recent report by Horizons (1999) suggests that peer education was one of the most utilized approaches to HIV prevention worldwide, with youth the targets of a large proportion of these intervntions. What these observations suggest is that for youth in particular, peer education has something attractive and appealing to offer (UNAIDS, 2002). There is still an expressed need, however, to consolidate research findings from the multitude of studies as well as a need to establish a stronger research mandate for peer driven HIV prevention initiatives in the developing world in order to arrive at definitive conclusions regarding the utility of peer education in this respect (Medley, O'Reilly, Schmid, & Sweat, 2004). Approaches to HIV/AIDS prevention using peer education techniques seek primarily to disseminate sexual health and risk reduction information to specific groups (Campbell & MacPhail, 2002). Among peer education interventions for youth, the hope is that trained youth will be able to increase levels of sexual health and HIV related knowledge and, together with their peers, foster the creation of behavioral norms which protect them against sexually transmitted infections (Fee & Youssef, 1996). Insights from HIV prevention programs in the developing world that have utilized peer education demonstrate that this method is an effective means for reaching young people (Kiragu, 2001). The problem is that evaluations of HIV preventive peer education programs are limited in the developing world, despite anecdotal evidence that such programs have the ability to improve health and change risky behaviors (Horizons, 2000; Kerrigan, 1999) and increase condom use (O'Hara, Messick, Fichtner, & Parris, 1996).

Rationale for Using Peer Education

Recently, both Milburn (1995) and Turner and Shepherd (1999), based on literature reviews of peer education publications, offered the main reasons given by proponents of peer education for the effectiveness of this method. Their findings provided justification for the use of peer education.

First and foremost, peer education has been found to be a cost-effective method. Peers are usually less costly to train, do not require excess funds to support them and

their time is usually less restricted compared to professional adults. For example, it is less costly to provide incentives in the form of small stipends or academic credits to peer educators for their delivery of an HIV/AIDS information workshop than it is to hire health professionals to deliver the same workshop. A history of limited fund allocation to adolescent health combined with increasing financial constraints within institutions and organizations makes peer education an attractive and cost-effective alternative to costly health interventions (Bernert & Mouzon, 2001).

Secondly, young people usually turn to their peers for information, support, and guidance. It is therefore assumed that young people can be used as motivators of personal growth and development for one another. It has been shown that young people who are trusted and respected by their peers for their knowledge and supportive nature are more likely to be adopted as confidants (Dishion, Poulin, & Burraston, 2001). Youth may also be more apt to accept information if it comes from their peers, especially when it deals with a sensitive topic (Turner & Shepherd, 1999).

Third, peers interact frequently and in depth. Kelly et al. (1991) recognized that peers continually exposed to each other and in close contact, were more likely to learn from one another. Frequent contact is especially common during the period from childhood to adolescence as school and extracurricular activities see adolescents spending a significant amount of time with each other. It is suggested that such closeness fosters not only development, but also for the formation of peer group norms and values. Evidence of this is supported by research showing that a significant predictor of engagement in behaviors, whether they are high-risk or protective, is whether or not ones peers have engaged in such behavior (Maxwell, 2002). An implication of such findings is that peers can be a means of changing norms for promoting high-risk behavior to norms that favor low-risk behavior.

Effects of Peer Education

Positive findings from research on peer education necessitate a further look into the specific ways in which peer education impacts both peer educators and the peers they interact with. The next section examines these effects.

Benefits to Peer Educator

Research that has been conducted on peer educators suggests that they experience positive changes in a number of personal domains as a result of their participation in peer education (Ebreo, Feist-Price, Siewe, & Zimmerman, 2002). These include increases in self-confidence and self-efficacy; ability to voice their own thoughts, feelings and opinions; enhancement of social skills; adeptness in dealing with resistant peer group members; development and use of social support skills; and identification of and ability to find solutions to relevant issues, problems, or concerns (Badura, Millard, Peluso, & Ortman; Baldwin, 1995; Ebreo et al., 2002; Sciacca & Appleton, 1996). Such changes have been described across a number of studies in different domains.

Research has been limited and results more inconclusive on specific changes in peer educator attitudes and behavior related to HIV risk reduction. Some studies report that peer education significantly alters peer educators' risk related attitudes and behaviors while other studies report no change. Positive changes, as evidenced by an increase in safer sex practices including reduction in number of partners, were reported in a review of 21 AIDSCAP prevention programs in Africa, Asia and Latin America (Flanagan, Williams, & Mahler, 1996). Despite this finding, there are still calls for additional research to help clarify findings where peer educators trained to deliver HIV prevention reported no change in their HIV related attitudes and sexual behavior (Campbell & MacPhail, 2002; Ebreo et al., 2002; Fisher et al., 2002; Lindsey, 1997; Sawyer, 1997; Villarruel, Jemmott, Howard, Taylor, & Bush 1998).

Benefits to Peers

A number of benefits reported by recipients of peer health education have also been documented. Chief among these benefits are: increases in discussion of sensitive topics or issues of concern, development of appropriate social and behavioral skills, a sense of being supported and understood, and a change in knowledge, attitudes, and behaviors (Black, Foster-Harrison, Tindall, Johnson, Varenhorst, & Moscato, 1999).

Examples of the positive effects of peer education on individuals can be found in many areas of health research including HIV/AIDS education. For example, research on the West African Reproductive Youth Initiative found significant changes in reproductive knowledge and use of contraception as a result of its school-based peer education

program (Vrieger, Delano, Lane, Olandepo, & Oyediran, 2001). Similarly, an evaluation of a multi-ethnic HIV peer education program for secondary school students in Canada found that peer educators had a positive effect on their peers in terms of attitudes toward and intentions to abstain from sex and use condoms upon initiation of sex (Caron, Otis, & Pilote, 1998). Positive changes have also been reported for drug, alcohol and tobacco use, nutrition, violence prevention, and tutoring (Black et al., 1999; Sciacca & Appleton, 1996).

Drawbacks and Disadvantages

A discussion of the benefits would be remiss, however, without mention of the possible drawbacks to this method. In terms of peer educators themselves, there is an inherent assumption that they are motivated and capable of being role models to their peers. Some studies have shown that this is not true in all cases. For example, some peer educators have openly supported abstinence or safer sex, but have failed to practice it in their personal lives (Frankham, 1998). There is also the possibility that peer educators could use their position to sexually exploit others. Both of these raise the possibility that training of a select individual to be a peer educator may not lead to a change in that individual's personal attitudes and behaviors making this individual not only a poor role model, but also providing this individual with the power to potentially exploit his peers.

Training of peer educators could also render them mini-didactics or authoritarian experts who set themselves above their peers in status and impose their own thoughts and beliefs upon them. Such a directive and non-participatory context limits the extent to which learning new information and ways of thinking can occur. For example, Campbell and MacPhail (2002) found that peer educators trained in HIV prevention within schools in South Africa simply modeled the behaviors of their teachers by standing up in front of the class and lecturing. They also adopted methods of instruction and interaction reflective of the South African context in which they were raised. These manifested in the form of male peer educators dominating information sessions and decision-making, peer educators disseminating only factual information and allowing little time for discussion or participation, and peer educator discomfort with discussions related to sexually related matters. This study points out that the context in which peer education is conducted has an important influence on both process and outcome. It calls us to recognize that peer

supporters are products of their cultural environment and raises the question of whether training can bring them to act counter to that environment.

There is also evidence that peer education may be more of a benefit to peer educators, with little, if any benefit to the youth they are trained to influence. For example, some studies report significant changes in peer educators, but little evidence that such change diffuses to the target audience (Baldwin, 1995; Milburn, 1995). There is also evidence to suggest that in some cases, professional health educators are preferred to and seen as more credible than peer health educators (Lindsey, 1997). Although these results suggest that peers may not be as effective at transmitting information and motivating change, lack of research in this area precludes any conclusions on the matter. As Milburn (1995) suggests, "this is still a working hypothesis" (p. 415).

Criticisms of Peer Education

A series of articles has been published criticizing health educators and researchers who use peer education methods for their lack of commitment to both the delineation and/or application of theory to the peer education approach. In a recent critical review by Turner and Shepherd (1999), peer education was identified as a "method in search of a theory". They cited the fact that neither anecdotal nor experimental claims of peer health education effectiveness can be tied to any one theoretical paradigm because many published studies are not predicated upon or even apply a specific theoretical model (Turner & Shepherd, 1999). There is also evidence to suggest that when a theoretical framework is mentioned, it is usually given limited time and energy, is not a major driving force of the peer education intervention, and is not used in either analysis or process evaluation (Backett-Milburn & Wilson, 2000).

The fact that peer education is based on a naturally occurring process that has intuitive appeal has detracted from attempts to place or test it within a theoretical framework. The effects of such detraction are identifiable in that peer education: (1) has yet to be proven to be efficacious through scientific evaluation (Milburn, 1995); and (2) remains without a clear operational definition (Shiner, 1999). Until such issues can be reconciled, a complete understanding of peer education will remain elusive.

The main purposes of this thesis is to take a school-based programme that includes a peer supporter component and explore whether hypotheses derived from

existing theories can be used to help understand the processes by which peer supporters work to effect change in their peers. The intent here is not to test any one, or group of, theories, but rather to aid in further understanding the potential utility of existing theories to explain the results obtained from the peer supporter model being examined here.

CHAPTER IV

THEORETICAL FRAMEWORK FOR PEER EDUCATION

Theories provide frameworks in which new concepts or phenomena can be understood and explained (Gazzaniga & Heaterton, 2003). This section focuses on three main theories that could potentially explain how peer education may alter HIV related knowledge, attitudes, and behaviors. Specifically, it attempts to explain the possible reasons why peer education could be a more viable method of disseminating and changing knowledge, altering attitudes, and bringing about behavior change, compared to the same intervention delivered by either teachers, parents, health workers, or other trusted adults. The theories being applied for the purpose of this study are Developmental, Social Learning, and Diffusion of Innovations Theories.

Developmental Theory focuses on the physical, cognitive, and social nature of development and how this shapes and reshapes the thoughts, feelings, and behaviors of an individual as they move through different developmental stages (Lefton, Boyes, & Ogden, 2000). From the perspective of developmental theory, the main point of departure is how the developmental stage of adolescence, particularly in the sub-Saharan Africa context, relates to the relative influence of peers as compared to adults or other sources of influence.

According to Social Learning Theory (SLT), children and adolescents learn behaviors in part through the observation of social models (Gazzaniga & Heatherton, 2003). Thus, SLT can be applied to understanding how peer educators influence behavior through modeling risk reduction or avoidance (Perry and Sieving, 1993; Milburn, 1995).

Diffusion of Innovations Theory (Rogers, 1983; 1995; 2003) provides a model for understanding the ways in which information is disseminated throughout a social network. Considered a theory of social influence, it emphasizes the power of social channels to effect change within a community or group. It works on the notion that over time, information disseminated by a credible source will diffuse through a social network and become adopted by the individuals within that social network (Ewart, 1993; Farquhar et al., 1977).

The remainder of this chapter will review current research on peer education within the context of HIV prevention by: (1) identifying the outcomes of peer health

education that apply to all of the aforementioned theoretical perspectives; (2) examining within each theoretical perspective the components that are most salient to peer education and could help explain the processes by which peer education could potentially change HIV related knowledge, attitudes, and behaviors; and (3) commenting on how these theories could explain why peer led preventive education may be more effective than adult (teacher, health worker, parents) led preventive education.

Each theoretical perspective will be called on to apply its distinct focus to 3 questions: (1) What influences/produces/determines changes in thoughts, attitudes, or behaviors related to reducing or avoiding risk of sexual transmission of HIV?; (2) What is it about adolescence that influences these changes?; and (3) How do peers influence these changes?

Developmental Theory

Developmental Theory is based on the premise that knowledge, attitudes, and behaviors are a function of the physical, cognitive, emotional, and social changes that an individual experiences at different life or developmental stages (Lefton, Boyes, Ogden, 2002). In this sense, growth and change are seen as continuous as individuals progress from infancy, to childhood, to adolescence, and then to adulthood. Such a progression is based on the interaction between the internal and external worlds of an individual. Adolescence is considered a very important phase in this process and is marked by both social and cognitive changes influenced significantly by one's peers (Pugh & Hart, 1999).

Piaget's Cognitive Development Theory

Piaget was one of the first researchers to propose a structural model of development. His model specifically focused on the ways in which individuals organize and structure their thoughts about the world. Cognitive in nature, his model proposed that knowledge and thought processes develop systematically through the mutual interaction between the internal mind and the external environment (Edelstein, 1996). Inherent in this model is the assumption that human thought and identity are constructed based on relations with others. Thus, children develop cognitive abilities based on their interactions with other individuals in their environment. According to Piaget (1965), "discovery of self as a particular individual is based upon a continuous comparison, the outcome of interactional opposition, discussion, and mutual control" (p. 393). This is an

important point as it recognizes the significance of socialization in the development of thought.

Piaget (1965) was one of the first to suggest that social exchanges that occur between a young person and his/her peers are more likely to facilitate development compared to collaborations between a young person and an adult. He also advanced the thought that peer learning can foster a young person's understanding of social justice and fairness as well as both logical and spatial reasoning. Evidence shows that young people who engage in interactive learning with their peers are more likely to show greater social and cognitive awareness compared to young people who engage in independent work (DeLisi & Golbeck, 1999). Although Piaget acknowledged the influence of socialization in the process of cognitive development, he was more interested in studying development as an internal process (Edelstein, 1996). His theory does suggest, however, that one's peers significantly influence one's thoughts. If this is true, it suggests that using peers could be an effective means of changing sexual and HIV-related knowledge and thought.

Vygotsky's Sociocultural Theory

While Piaget was concerned with how young people learn through action, Vygotsky was more concerned with how young people learn from one another. He maintained that children learn as a consequence of being engaged in the mutual construction of thought with others (Vygotsky, 1978). According to Vygotsky, development is socially based. Children naturally extract meaning and come to master higher-order concepts as a result of experiences with the social world; largely facilitated through interactions with parents, teachers, siblings, and peers (Bruner, 1997). In this respect, interactions with others provide mediums through which knowledge is acquired and transformed.

The ideas put forth by Vygotsky in 1934 were quickly suppressed by the dominant theories of learning and development at the time. In the mid-1980s, however, the works of Vygotsky proved useful in the field of education, where cooperative learning strategies were beginning to emerge. Cooperative learning, defined as a method of learning whereby students engage in problem-solving tasks as a collective, is predicated upon Vygotsky's idea that consciousness results largely from socialinteraction and activity (Presseisen, 1992). Peer-mediated learning is thus a means by which

consciousness can be raised, thoughts challenged and altered, and skills developed (Bransford & Vye, 1989). What Vygotsky's sociocultural theory suggests is that socially charged learning may be an effective means through which young people can actively engage in the generation, utilization, and reorganization of knowledge in a way that allows them to think about and solve problems. In the context of this dissertation, it suggests that peer education can potentially foster a change in the thinking patterns of young people and enhance their ability to solve problems related to sexual health and HIV risk reduction. This is especially important since what is needed is a break from the existing dominant thinking and behavior of adolescents with respect to their sexuality.

Social Cognition

Current research in the area of child development places considerable focus on social cognition and its influence on the thoughts, attitudes and behaviors of young people. Rogoff (1990), a leading proponent of social cognition, maintains that the developing child cannot be defined without reference to the social world. Social cognition shares with earlier theories put forth by Piaget (1967), Vygotsky (1978), and Durkheim (1925/1973) all of whom emphasized the role of social interaction in learning. In this sense, development is seen as an active process in which young people interact with each other in order to solve socially and culturally defined problems (Wartofsky, 1983). Provided that the interaction is cooperative, interactional activities have the power to alter a young person's development on cognitive, emotional, social, and behavioral levels (Bearison & Dorval, 2002). It is on each of these levels that change is necessary before an individual can engage in behaviors that concomitantly decrease their risk of disease and increase the likelihood of living healthy lives.

More recently, Harris proposed a distinct theory of socialization that could directly apply to peer education. According to Harris (1995), and supported by Johnson and Johnson (1987), peers represent the single most important means through which socialization occurs. Harris' conclusion was predicated upon reviews of research studies, which found that parents did not have sustaining effects on these variables compared to peers.

Despite the questionable and controversial nature of the theory put forth by Harris, it has been effective in promoting greater exploration of the role of one's peers in

development. Today, it is suggested that both peers and parents play a significant role in the development of adolescent thought, emotion and behavior (Youniss, 1985) but that the degree of influence by either parents or peers is mediated by age (i.e. peers are more influential during adolescence) (Cohen, 1991). In addition, there is evidence to suggest that peers have more of an influence when it comes to engaging in health-risk behaviors (Maxwell, 2001).

If the assumptions about the nature of cognitive and social development espoused by Piaget, Vygotsky, Romonoff, and Harris are valid, then it stands to reason that given the opportunity to engage in goal-directed cooperative learning with their peers, young people would be raised to higher levels of both social and cognitive processing so long as conditions for interdependent learning are met (Damon, 1984). Johnson and Johnson (1989, 1992, 1994), noted researchers in the field of peer education, give several reasons why peer education enables higher-order mental processing: (1) When students teach each other about concepts they are better able to conceptualize and organize material. (2) Engaging in dialogue with one's peers facilitates an oral recitation of thoughts and ideas. Such practice facilitates the encoding and storage of information into memory as well as easing the retrieval of information from long-term memory (Lefton, Boyles, & Ogden, 2001); (3) Peer learning encourages both divergent and creative modes of thinking and reasoning, as young people bring to the learning process their individual ways of thinking. (4) Peer learning engenders "perspective-taking" whereby young people are provided with alternative points of view by their peers and are invited to look at things in a different manner. (5) Peers who engage in collaborative learning often challenge each other to provide a rationale for their own thoughts and attitudes. (6) When peers come together some of the issues raised within the group are subject to controversial thought. Such controversy stimulates increased thought-processing. When the points are taken together, peer learning appears to foster cognitive development. If the key to an educational program is to foster higher level thought processing, whether it be for mathematical skills or preventive health education, then peer learning appears to be a means through which young people can be challenged to confront their own ways of thinking and either accommodate or assimilate new ways of thinking.

In relation to peer education and cooperative learning, the opportunity to coordinate self-perception, values and experiences with one's peers has been shown to promote cognitive, emotional, and social growth (Bearison, 1991). For example, young people who engage in problem-solving with their peers tend to develop solutions which reflect higher-order reasoning and cognitive skills (Mugny & Doise, 1978). They are also more likely to solve problems when working together than when working alone (Doise & Mugny, 1984). Research also shows that when young people are trained in ways that enable them to both encourage and challenge their peers to think about certain problems or issues then both the trained student and the peers they interact with are better able to conceptualize and understand the problem or issue (King, Staffieri, & Adelgais, 1998).

For the most part, it has been assumed that age necessitates the type of interactive learning that presupposes a young person's reexamination of the logic of their personal thoughts (Bearison & Dorval, 2002). While this may be true, there are still a host of other factors, which potentially influence the extent to which peer collaboration influences the thinking of individuals and their peers. These include socioeconomic status, self-confidence and self-esteem, and personality. As of yet, the influence of these characteristics remains unexamined.

Social Learning Theory

Compared to Developmental Theory, Social Learning Theory emphasizes the interactional nature of learning with more of an emphasis on behavioral change. Developmental Theory, on the other hand, focuses on critical thinking, moral reasoning and cognitive processes. In this sense, in Social Learning Theory, behavior is seen as a direct outgrowth of direct learning through trial and error and action or indirect learning through imitation or modeling (Bandura, 1986). As young people grow and develop, peers become important models through which new behaviors are acquired or old one's altered (Muuss, 1976). Especially with respect to young people, information alone is not sufficient to transform knowledge into actual behavior (Bandura, 1994). In this sense, if the desired outcome of learning is behavior change, then young people must be given the necessary resources and social support to make the change.

Bandura (1977) outlined the components necessary for social learning through imitation or modeling of others to occur. These components have to do with the

characteristics of the person who models the desired behavior and the nature of the individual who is observing the role model. According to Bandura, learning is best achieved when the model is perceived as being attractive, similar to the individual perceiver, and of credible status (Gazzaniga & Heaterton, 2003). Other factors which appear to optimize social learning include: the degree to which the behavior is executable by the observer; whether or not the observer has an independent or dependent personality; the degree of certainty the observer has about the correct behavior to display in a given situation (Lefton, Boyles, & Ogden, 2000).

Studies of peer education programs that make reference to theory often mention some aspect of Social Learning Theory (Klein, Sondag, Drolet, 1994; Milburn, 1995; Perry & Sieving, 1993). Most often, Social Learning Theory is considered relevant to modeling and self-efficacy.

Both Social Learning Theory and peer education are premised on the assumption that young people are more likely to adopt the behaviors of role models who are both similar to themselves and perceived as credible sources (Turner & Shepherd, 1999). According to Klepp, Harper, & Perry (1986), the importance of role modeling is vital to the objectives of peer learning. The role model is considered the medium through which social information is transmitted in a non-didactic and interactional way. In order for learning to occur it is best if the role model is of similar age, status and academic level to the observer. This suggests that the best role model for an adolescent is one of their peers. Studies have shown that choosing key opinion leaders to be peer education facilitators increases the degree to which their peers acquire knowledge (Shulkin, Mayer, Wissel, deMoor, Elder, & Franzini, 1991) and intentions to engage in (Rickert, Jay, & Gottlieb, 1991) or actually adopt healthier behaviors (Perry & Sieving, 1993).

Modeling and practice are not the only requirements for behavior change. According to Bandura (1988), behavior change is also dictated by confidence in ones' ability to execute a particular behavior. For example, young women may know the steps involved in using contraception, but have little confidence in their ability to use contraception themselves or to negotiate its use with a partner. Especially when it comes to sexual behaviors, self-efficacy appears to be an important moderator of behavior.

Peer education has the possibility of raising one's confidence in performing a given skill provided that the peer education includes social skills training –i.e. developing confidence in one's ability to act in a particular way. For example, it is not productive to provide young people with HIV/AIDS information if they will not have the confidence to abstain or the skills required to resist the offer of sexual intercourse, or the skills required to use or negotiate use of a condom. The degree to which peer education can successfully increase the degree of self-efficacy when it comes to health behaviors has yet to be substantiated. While research has found that chosen peer leaders often demonstrate high levels of self-efficacy when it comes to the behaviours in which they are trained to effect a change in their peers(Klein, Sondag, & Drolet, 1994), the degree to which they can actually influence the self-efficacy *of their peers* remains unknown (Turner & Shepherd, 1999).

While there is support in the literature for the ability of young role models to effect a change in the behaviors of their peers (Cox, 1999; Milburn, 1995; Turner & Shepherd, 1999), understanding how this change takes place remains elusive. Further research is required to examine the ways in which peers influence one another's behavior, especially as it relates to sexual health and HIV/AIDS prevention.

Diffusion of Innovations Theory

Diffusion of Innovations Theory posits that over time, innovations such as information, ideas, and interventions, spread throughout a social network (Rogers, 1983). According to diffusion of innovations, this spread is brought about via certain channels (Rogers, 1995). In this case, the channels refer to people in the social network who are perceived by members of that network to be respected and knowledgeable about the innovation.. When applied to an intervention, the ultimate goal is to bring about change in either individual or collective thought, attitude or behavior. The hope is that diffusion will either change an existing norm or bring about a new social norm (Elford, Sherr, Bolding, Serle, & Maguire, 2002). The Diffusion of Innovations Model is considered a community level model, -i.e. it explains how something new spreads through a community -- and as such applies best to community-level health promotion and illness prevention campaigns or interventions (Kelly, 1994).

The component of the Diffusion of Innovations Model that appears most applicable to the peer education model is the reliance on opinion leaders to disseminate a particular innovation within a social network (e.g., youth, gay men, commercial sex workers). According to Rogers (1983), opinion leaders within the social network who are respected and perceived to be knowledgeable of the innovation are more likely to be influential (Dearing, Meyer, & Rogers, 1994).

Specific to HIV prevention though, the theory predicts that peers would be more likely to adopt healthy behaviours when those they respect and deem knowledgeable promote these behaviours. Peer education capitalizes on the credibility of natural opinion leaders chosen and trained to deliver HIV prevention messages to their peers. The theory is that this information will diffuse throughout the peer group and become adopted by its members. As youth often have dense social networks characterized by a high degree of interpersonal communication and interaction, diffusion of innovation theory may help explain how information can spread and effect change among peers (McClellan & Pugh, 1999).

Diffusion of Innovation is also reliant on the structure of the social network. Innovations are more likely to diffuse throughout a homogeneous network compared to a heterogeneous one (Rogers, 1983). If this is the case, then young people should be susceptible to the diffusion of innovation provided that they are part of a uniform, homogeneous network. Research has shown that youth who are tied to social networks with defined protective norms are healthier and less likely to engage in risky behaviors (Milburn, 1996). Peer education then, may offer added benefits because it is usually conducted within a network of young people who are similar on key variables including age and academic level.

Theoretical Application within the Context of HIV Prevention

Each of the Developmental, Social Learning and Diffusion of Innovation Theories contains tenets which potentially apply to peer education. In the context of HIV prevention, exploring peer education within these theoretical approaches may aid in an understanding of how peer educators affect a change in the knowledge, attitudes and behaviours of their peers as they relate to HIV and AIDS. The purpose of this section is

to comment on the potential the relationship between each theory and peer education in the context of HIV prevention.

Developmental Theory

Adolescents are at a stage of both social and cognitive development where the creation and maintenance of sexual attitudes and norms are largely influenced by peer networks (Ball, 1997). As adolescence progresses, young people are also more likely to form thinking patterns, attitudes and behaviours that coincide with those of their peers (Jay, DuRant, Shoffit, Linder & Lilt, 1984). In relation to HIV prevention, this suggests that if an individual's peer group holds favourable attitudes towards protected sex and condom use, they also will hold these attitudes. This is supported by DiClemente's (1989) work which showed that the best predictor of condom use was whether one's peer group supported it.

In the early stages of adolescence, young people are less likely to engage in abstract, logical thinking, compared to older adolescents and adults; however, they are more likely to be challenged by their peers to develop these skills (Costa & O'Leary, 1992). In this way, peer education may work by having young people confront their peers with the reality of HIV/AIDS and the personal, social, and environmental factors that contribute to risk for HIV infection. Alone, it is questionable whether individuals at this age can independently think of alternatives to existing sexual attitudes and norms, let alone, have the confidence to challenge such attitudes and norms (Campbell & MacPhail, 2002).

Social Learning Theory

The development of cognitive, emotional and social skills is considered important to enabling young people to prevent HIV infection (Bandura, 1994). This is known as skill-based prevention and its purpose is to facilitate the transfer of knowledge into actual behaviour change (WHO, 1993). Peer education encourages the development of skills by offering young people the opportunity to engage in more active and in-depth kinds of learning (i.e., brainstorming, hypothesizing, problem solving) within social groups that are familiar, cooperative and reaffirming (Solomon, Davidson, & Solomon, 1992). Young people exposed to peer educators report being able to practice sexual negotiation and assertiveness skills essential for avoiding high-risk sexual behaviour (DiClemente,

1993).

According to Social Learning Theory and in the context of HIV prevention, peer education can provide young people with sources of information and models of behaviour that promote the adoption of HIV risk-reduction behaviours (i.e. abstinence and condom use). There are a number of ways in which peer education can work to achieve this. The first way is through the provision of credible, attractive models who are similar to the targeted youth to provide information about HIV/AIDS and sexual health, and to demonstrate appropriate HIV risk reduction behaviour. For example, having popular peer group members demonstrate the proper use of condoms has shown to increase condom use among those exposed to the demonstration (O'Hara, Messick, Fichtner & Parris, 1996). If young people are exposed to peer norms and behaviours that promote either abstinence or protected sexual intercourse then they are more likely to incorporate these sexual norms and behaviours.

The second way is through skill development (communication, sexual and condom negotiation) wherein role-playing and group discussions provide exposure to and practice of important risk reduction strategies. For example, the SISTA programme in the United States has young African American women discuss and practice sexual decision-making skills by having them observe and participate in different sexual decision-making scenarios. Results show that these women are better able to make healthier sexual choices compared to matched controls given basic information about sexual decision-making (DiClemente & Wingood, 1998). Having young people engage in participatory activities with their peers allows them to discuss and practice ways of avoiding high-risk situations they have or are likely to face in the future. It also generates positive reinforcement and support for the adoption of risk-reduction behaviours.

The third aspect of social learning theory that could be applied to peer education relates to self-efficacy. In this respect, peer education works because peer leaders encourage their peers to identify and employ risk-reduction strategies. The assumption here is that self-efficacy is influenced by support and encouragement from one's peers in the form of oral feedback and the modelling of important risk-reduction strategies (e.g., post-poning sexual initiation, resisting pressures to engage in sex, condom use). Very few peer education evaluations have attempted to measure the effect of peer education on

participant self-efficacy. There is evidence to suggest that trained peer educators demonstrate greater confidence in their ability to be positive role models and agents of change (Klein, Sondag & Drolag, 1994) and to employ risk-reduction strategies (Pearlman, Camberg, Wallace, Symons & Finison, 2002). Future research on the effects of peer education on self-efficacy, however are needed before any conclusions can be drawn.

Diffusion of Innovations Theory

When applied to HIV interventions, Rogers stresses the importance of ensuring that the focus be to have individuals adopt an innovation that will lower the probability of them becoming infected with HIV (Rogers, 2003). Such innovations have commonly taken the form of abstinence, being faithful and condom use (i.e. The ABC approach) in countries where transmission is largely through sexual relations, and a combination of needle exchange and adherence to the ABC approach in countries with high levels of injection drug use (Bertrand, 2004).

The bulk of studies in both the U.S. and Europe appear to have focused on community level prevention programmes with particular emphasis on drug users and men who have sex with men (Hart, 1998; Kegeles, Hays, & Coates, 1996; Kelly, 1994; Kelly, Murphy, Sikkema, et al., 1997). One of the earliest studies using Diffusion of Innovations Theory was called STOP AIDS in San Francisco. Initiated in the early 1980s the intervention recruited gay and HIV positive outreach workers who were well-respected in the community and trained them to deliver small group meetings related to HIV prevention in the home and apartments of gay men within that community. After each meeting, those present were asked to commit themselves to lead future meetings within their own respective social networks. The program reached 30,000 men from 1985 to 1987 and was partially credited with the decline seen in HIV infections within that community in the late 1980's (Wohlfeiler, 1998).

While the apparent success of STOP AIDS could not be attributed to Diffusion of Innovations Theory it did generate interest in further exploration of it with gay men across the U.S. Consequently, Kelly (1994) adopted the STOP AIDS model in certain bars with the purpose of having gay men adopt condom use by altering peer norms. Kelly et al. (1991) put time and energy into an intervention focused on selection and training of

natural opinion leaders frequenting such bars. Opinion leaders signed agreements to engage in HIV preventive conversations with gay men designed to encourage condom use. The intervention was conducted in two U.S. cities. Comparison cities were chosen as control cities. Results showed community-level adoption of condom use among men in the intervention cities (Kelly, St. Lawrence, Diaz, et al., 1991; Kelly, St. Lawrence, Stevenson, et al., 1992). In the U.S. this model became popularized based on its apparent success (Kelly, Winett et al., 1993; Miller, Klotz & Eckholdt, 1998).

Recently, Elfod, Bolding and Sherr (2001) in their attempt to replicate the findings of Kelly and others using this model on gay men in the United Kingdom (UK) proved unsuccessful. They subsequently called into question the potential applicability and use of the model on both gay men outside of the U.S. or populations other than gay men. Kelly (2004) responded to such suggestions by conducting a systematic review of all of the research produced thus far on the model. Based on this, Kelly concluded that the UK programme and other interventions that claimed to be based on the principles of Diffusion of Innovations Theory were not actually specific to the principles of the theory. Kelly also reconfirmed, based on this review, that peer opinion leaders can be powerful agents of behavior change (Kelly, 2004). There remains, however, question as to why the Diffusion of Innovations Theoretical model does not appear to underlie many HIV prevention interventions taking place outside of the U.S.

Thus, while there is evidence to suggest that diffusion of innovation is successful in promoting HIV/AIDS related risk-reduction strategies among gay men in the U.S. (Rogers, 2003), there is less evidence of its success with young people within their own peer groups, especially those from developing countries. More research is needed to examine the extent to which HIV related information diffuses throughout adolescent peer groups when mediated by a natural opinion leader.

Assumptions

In exploring theories that can potentially aid in an understanding of peer education, certain assumptions are being made. These models have been developed and tested in the western world. Although they are highly researched and display strong predictive power, the extent to which they are valid cross-culturally has not been tested. There are a number of reasons why cross-cultural testing is necessary. Firstly, these

models emphasize rationality, cognitive processing, individual control and independent decision-making. These are concepts that may be less evident or important in collectivist cultures where communal norms, social obligations, and cultural traditions significantly influence one's thoughts and modes of action. Individualism and independent decision-making are simply not part of, or are much weaker parts of, the cultural framework. This raises questions as to whether components of these models: (1) are defined and understood in the same way across cultures; (2) can be applied cross-culturally; and (3) aid in an understanding of peer education as a medium through which HIV prevention can be successfully disseminated in Kenya (Aggleton & Rivers, 1999; Buck-Morss, 1975; Tomasello, 2000).

The theories have been chosen as ones for exploration in relation to the peer education programme under study for two reasons. First, they are commonly mentioned as being applicable to and underlying existing peer education interventions. Second, they contain components that reflect or take into consideration factors that are seen as important in the Kenyan context. These include: (1) recognition of the importance of social norms and values in the creation of knowledge and the shaping of attitudes and behaviours related to sexuality; (2) significant value placed on the context in which knowledge is acquired, attitudes are formed and behaviours are performed; and (3) they are applicable to the age-mate structure that is an important part of adolescence for Kenyan youth.

CHAPTER V

PRIMARY SCHOOL-BASED HIV PREVENTION IN KENYA

In many areas of the world, those who deliver school-based HIV/AIDS education are rarely formally trained (Bennell, Hyde, & Swainson, 2002). This is the case in Kenya, where the Ministry of Education, Science and Technology (MoEST) has mandated that all schools incorporate AIDS education into their curriculum. They have done so, however, without the provision of AIDS education training for teachers. Instead, teachers are given an AIDS education syllabus, a basic teaching manual and a few selected student booklets on AIDS education. The research for this dissertation is one component of a larger effort to prevent HIV infection among primary school children in Kenya.

Primary School for Better Health (PSABH) is a comprehensive school-based, community-collaborative HIV prevention initiative currently being pilot tested in over 1,600 schools in Kenya, 220 of which are participating in its formative evaluation. The Centre for British Teachers (CfBT) is responsible for curriculum design, training and implementation. PSABH is part of the multisectoral HIV/AIDS Prevention and Care (HAPAC) programme funded by the Department for International Development (DFID) of the United Kingdom (UK). The primary action goal of PSABH is change the behaviors of upper primary school children (11-17 years old) that expose them to potential HIV infection. The programme involves collaboration between schools, communities and the Ministry of Education, Science and Technology (MoEST), uses the ABC (Preferably abstain, If not, be faithful, if not, use a condom) approach to prevention. The eventual goal of CfBT and its partners is to develop a model of HIV prevention that can be implemented in over 18,000 primary schools in Kenya.

Research informing the content of PSABH and monitoring its evaluation, is being undertaken by, Dr. Eleanor Maticka-Tyndale at the University of Windsor. This involves testing a basic PSABH model, comparing this model with new variations and identifying the barriers to PSABH programme uptake in schools and communities and to the adoption of PSABH behavior change messages by teachers and youth. There are currently 220 research schools participating in the evaluation in two of Kenya's provinces [Nyanza (160 schools) and Rift Valley (60 schools)].

Basic Model

The intent of PSABH is to change the behaviors of upper primary school children (11-17 years old) that expose them to potential HIV infection. In order to accomplish this, PSABH designed a basic intervention model. This model is grounded not only in Social Learning Theory but also in knowledge of existing HIV prevention interventions within Africa and abroad, as well as the experiences of educators and interventionists who work with Kenyan children and know the Kenyan context. This approach, which uses both theory and the experience of local programme planners, educators and interventionists has been noted for its ability to promote intervention success (Gallant & Maticka-Tyndale, 2004; Maticka-Tyndale, Brouillard-Coyle & Gallant, 2004).

Theoretical Framework

The basic model borrows from Social Learning Theory through its incorporation of an active and personalized approach to both training and implementation. Both training of teachers and peer supporters is highly active and interactive. Training focuses on teaching teachers and peer supporters personalized teaching methods, instruction on how to best equip pupils to identify and deal with social pressures and social norms, offers opportunities to practice communicating and interacting with pupils about sex and other important issues, and allows for both teachers and peer supporters to actively contribute to the intervention curriculum.

The curriculum itself also incorporates Social Learning Theory principles. It does so by focusing on the promotion of healthy living values and life skills. Pupil knowledge, attitude and behaviour represent the targeted mediums of change. Active inclusion of different opportunities for discussion and participation are present through the use of question boxes, information corners and school health clubs (See www.psabh.info for a copy of the Health Activity Kit approved by the Ministry of Education, Kenya). HIV/AIDS lessons and activities are infused throughout curricular subjects. In addition, community activities (incorporating HIV/AIDS education) such as inter-school and inter-zone competitions in: drama, music, art, public speaking, recitations, writings, sports and exhibitions form an integral part of the curriculum.

Experiential Input

PSABH utilizes the existing educational infrastructure as well as knowledge and experience of local community members, teachers, parents and programme planners in programme design and delivery. It was formed based upon the best practices developed under two earlier national programmes in Kenyan primary schools (SPREDI and PRISM and consultations with Kenyans with experience working with youth (Mary Gichuru, Personal Communication, March 14, 2005). Its training teams include staff from the Ministry of Education, Science and Technology (MoEST) and Ministry of Health (MoH), building on the procedures and training base of staff who participated in training for these earlier programmes.

PSABH is based on an action research model where the programme is modified based on research findings at baseline, at each phase of evaluation data collection, and from the monitoring reports completed annually by Zonal Inspectors. The evaluation and monitoring are likewise modified to capture new information incorporated into programme modifications (Maticka-Tyndale, Brouillard-Coyle, Holland & Metcalfe 2005). In this way, the programme is responsive to issues emerging from the research which are then incorporated into the peer supporter and teacher training, the support provided by Zonal Inspectors, and articles in a newsletter distributed to all participating schools. .

Training

The approach to training is one of a modified cascade model involving pupils, peer supporters, head teachers, teachers, community leaders, and zonal inspectors. The cascade begins by preparing select MoEST and MoH workers to be full-time trainers. From each school, they then train a Headteacher, three resource teachers and one community representative who in turn provide school-based training to teachers and parents. The MoEST and MoH trainers are also responsible for peer supporter training of four pupils and one teacher in each school. Additionally, Zonal School Inspectors are trained separately to monitor the schools for which they are responsible, while lecturers at Primary Teacher Training Colleges are trained to provide pre-service training.

For the purposes of this dissertation, a discussion of training will focus on Headteacher, resource teacher and community representatiave as well as peer supporter

training groups. For these groups the aim of training is to equip them with the necessary skills to support the adoption of healthy life skills and values in pupils. Training therefore occurs within a set schedule whereby sessions are divided based on content of delivery.

There are five basic content-based categories: health information, values and skills, school-based activities, participant determined sessions and evening sessions. Health Information content includes that related to STIs, HIV/AIDS transmission & prevention, VCT, home-based care, positive living; Adolescent Health and Sexuality and Annonymous Question Session. The Values and Skills category includes content related to sexuality, touch, living values, life skills and HIV counseling and guidance. School-Based Activity sessions focus on methods of integration HIV prevention within one's school/community, communication approaches and use of co-curricular and extra-curricular activities (e.g. Question Box, School Health Club, Assemblies) as well as school action planning and responsiveness. Sessions that are determined by participants are based upon their articulated expectations and fears, climate setting, their responses to emerging issues in and out of school, community action and mobilization, and dealing with external conflicting messages. Evening sessions allow participants to view and discuss videos as well as provide training feedback.

Adult Group: Training Protocol

For the adult group, two teachers and one community representative participate in two, one week residential training sessions separated by one three-month long school term. Training includes a focus on infusing HIV prevention into all school subjects and co- and extra-curricular activities (e.g. school assemblies and clubs) within their school/community. The goal is to support the adoption of healthy life skills and values by pupils. For teachers, a combination of didactic and participatory approaches to AIDS education delivery are emphasized and practiced during training. These include lectures, group discussion, debates, essay competitions, role-play, song and dance, and games. The PSABH programme also supports the initiation and development of a school health club, school question box and information corner. Teachers are encouraged to help integrate and infuse AIDS education within their respective school curricula. Community representatives (typically parents who are members of the school parent-teacher association) are trained to raise community awareness of HIV/AIDS, to raise support for

the school curriculum, and to facilitate collaborative activities between the school and community.

Peer Supporter Group: Training Protocol

The basic model also provides one-week residential peer support/education training for four pupils and one teacher in each of the PSABH programme schools approximately one term after the 2nd teacher training session has occurred. This separation is necessary within the Kenyan context to respect the position of teachers as the primary leaders of the programme. Thus, teachers are trained and become experienced in delivery of the PSABH programme in their schools before pupils are trained as peer supporters/educators.

Training focuses on topics related to HIV/AIDS, sexual health, communication, and life skills. Training methods include lectures, group discussions, role-plays, demonstrations, games and sports, song and dance, poetry, booklets and videos. The training is participatory in nature and attempts to help peer supporters develop the knowledge and skills necessary to apply what they have learned when they return to their respective schools. Peer supporters are coached in how to set up and maintain various HIV/AIDS prevention activities (e.g. school health club).

The PSABH programme is meant to be an ongoing and enduring intervention initiative. It is hoped that over time, since PSABH is built and maintained within the existing education system, AIDS education will become integrated and infused across all primary schools within Kenya and have a positive effect on pupils.

PSABH Basic Model Variations

Variations of the basic model are based on the baseline research for PSABH and research in other African countries that demonstrate the effectiveness of particular intervention models. They include: (1) training two additional teachers/school to provide a larger core in each school; (2) training a church leader together with two teachers and a community representative in recognition of the need to collaborate with churches as they are a strong influence in communities, are already active in AIDS education and may otherwise be seen in competition with schools; (3) deploying a trained health worker to work with schools in recognition that medical authorities are trusted sources of information and motivators of behavior change in Kenya and may be the only

authoritative source of information on condoms; and (4) a cost-share model, wherein schools cover the costs associated with transportation to and accommodation during PSABH training while donors cover the cost of PSABH training itself. Each of these models have been evaluated, with the results informing the development of a model which is now being gradually rolled-out across all primary schools in Kenya (Maticka-Tyndale, Gallant, Brouillard-Coyle, Holland 2004). What is important to note here is that this dissertation project involves investigating only one component of the basic model.

Monitoring and Evaluation

The evaluation of the peer supporter component of the programme was conducted in the Rift Valley sites. It employs a quasi-experimental, multi-method, triangulated design. Schools are selected to participate based on matched intervention-control design. Target or intervention schools receive teacher, community and peer supporter training on how to implement an AIDS education curriculum while control schools receive the Ministry of Education AIDS education syllabus. Baseline data for this research was collected using quantitative self-report surveys and qualitative interviews and focus groups with teachers and pupils in 40 Rift Valley schools in August of 2002. Twenty were scheduled for PSABH training and 20 received only the basic AIDS syllabus distributed to all schools in Kenya. Peer supporters were trained in March, 2003 in Rift Valley. Testing for effects of the PSABH basic model occurred 16 months post-programme initiation in Rift Valley (8-9 months after peer supporter training) using the same method of data collection (October, 2003). Appendix A, Table A1, provides a detailed description of activities related to the monitoring and evaluation of the PSABH programme for Rift Valley, the focus of this dissertation, and Nyanza Province, the site of the full-scale evaluation.

Research Questions and Hypotheses

The main objective of this study is to examine the extent to which peer supporters contribute to the effectiveness of the PSABH school-based HIV/AIDS prevention programme. In order to accomplish this, the following hypotheses will be tested:

1. a. Students in schools with PSABH trained teachers and peer supporters delivering an HIV prevention programme will demonstrate greater gains in targeted knowledge,

attitudes and behaviors than students in schools where only the AIDS syllabus provided by the MoEST is provided to teachers.

b. Peer Supporters will show an increase in knowledge, hold more positive attitudes/beliefs, and engage in more risk-reduction behaviours six months after peer supporter training

2. Nine months following deployment of trained peer supporters in schools, trained peer supporters, compared to students participating in PSABH programmes will: (1) score higher on measures of HIV/AIDS related knowledge; (2) be more accepting of abstinence, condom use, and people living with HIV/AIDS; (3) engage in more risk reduction strategies including delayed first intercourse, decreased recent sexual activity, increased condom use and increased avoidance of settings where sex is likely to occur; (4) express greater confidence in their ability to employ risk reduction strategies; (5) report greater pursuit of HIV/AIDS related information and communication with others about sex and HIV/AIDS.
3. Students will rate peer supporters more favorably as AIDS educators than they rate teachers.
4. Identification with and ratings of peer supporters will be positively associated with changes in knowledge, attitudes and behaviour (KAB). Specifically:
    a. Increasing student identification with and rating of *peer supporters* will be associated with increases in knowledge, positive shifts in attitudes/beliefs and reduction in high-risk behavior.
    b. Increasing student identification with and rating of *teachers* will be associated with increases in knowledge, positive shifts in attitudes/beliefs and reduction in high-risk behaviour.
    c. The overall associations will be greater with respect to identification with/rating of peer supporters compared to identification with/rating of teachers.
5. Youth who receive peer education training will be more likely after (compared to before) training to: (1) report greater comfort and confidence in their ability to be peer educators; (2) expect to employ different interactive activities and communication strategies to address HIV/AIDS and sexual health; (3) perceive

themselves as positive role models and agents of HIV education and prevention and (4) show greater knowledge and more positive attitudes/beliefs.

CHAPTER VI

METHOD

Description of Overall Design

This study uses a quasi-experimental design with sequential cross-sections of students, sampled pre and nine-months post implementation of the peer supporter programme. Twenty of the schools in Rift Valley that sent[4] two teachers and a community representative to a PSABH training programme participated in evaluation of the programme. These schools were then funded to send 4 pupils accompanied by a teacher to a separate peer supporter training programme that took place 4 months after the teacher training. An attempt was made to match these schools by zone and socio-geographical characteristics (e.g. location on an agricultural farm, military or police base, urban and rural) to 20 schools that had not sent teachers to training sessions. Assessment then involved a pre-post test completion using both questionnaires and individual and group interviews to examine the effects of the PSABH programme on peer supporters and students.

Participants

The participants for this study were pupils and peer supporters in Standard 6 and 7[5] between the ages of 11-17.

Pupils

In August 2002, all students (586 control and 1201 target in the 40 participating schools) in Standard 6 and 7 filled out pre-programme questionnaires. In October 2003, all Standard 6 and 7 students (734 control and 1645 target school) from the same schools filled out post-programme questionnaires. Focus groups were conducted with students in 4 target and 2 control schools in August 2002 and 3 target schools in October of 2003. Two focus group discussions were conducted at each site, one for boys (n=8) and one for girls (n=8). This produced a total of 12 focus group discussions pre-programme and six focus group discussions post-programme. Refer to Appendix A, Table A2, for a complete description of data collection and sample sizes.

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[4] Rift Valley was chosen by PSABH as the site where a cost share model would be tested. As such schools in this region were invited to training, but were required to pay the transportation and per diem of participants. CfBT paid the cost for trainers and training. Twenty schools were randomly selected from those that came for training.

[5] This is approximately equivalent to Grade 6 and 7 in the North American education system.

Peer Supporters

Eighty pupils (four from each of 20 target schools) attended peer supporter training in early March 2003 and filled out pre- and post-training surveys while 73 of these peer supporters filled out six-month post-training questionnaires in October, 2003. From these, 65 peer supporters from 18 schools were retained for analysis[6]. Six focus groups (i.e. 3 with 8 girls and 3 with 8 boys) were conducted with peer supporters at six-months post-training.

Quantitative Measures

The study used two self-administered questionnaires. The first was completed by all Standard 6 and 7 pupils in target and control schools and the second was completed only by peer supporters (See Appendix B and C).

Student Survey

The purpose of the student questionnaire was to obtain information on Standard 6 and 7 students' demographic background; educational and extra-curricular activities related to HIV/AIDS education; knowledge, attitudes/beliefs and behaviors related to HIV/AIDS and STIs; communication about sex; pursuit of information related to HIV/AIDS; perceptions of and identification with peer supporters and with teachers; and evaluation of the peer education program. The questions were adapted from an instrument currently being used to evaluate the PSABH programme in primary schools in Kenya. The original survey was developed from instruments used in HIV prevention studies in Uganda and Tanzania, and from the WHO/UNESCO HIV Prevention Evaluation Kit (WHO/UNESCO, 1999). Additional questions were added to the post-programme student survey, which measured student identification with and assessment of both the peer supporters and teachers who delivered HIV/AIDS education within their school.

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[6] Two of the schools that sent pupils to peer supporter training were not from the original target schools. These were excluded from further analysis leaving 75 peer supporters for pre/post-training analysis. Seventy-three peer supporters completed six-month post-training surveys. Four of these however, had not filled out pre/post-training surveys and were excluded from further analyses. In addition, six schools did not send the full complement of four peer supporters to the refresher training where nine-month surveys were completed. All of these events left a total of 65 peer supporters for inclusion in pre-post-six-month test analyses.

Peer Supporter Pre/Post/Six-Month Post Training Survey

Peer supporters completed a survey in order to evaluate their training and examine the experience of being a peer supporter. Besides knowledge, attitudes and behaviors related to HIV and AIDS, it included questions related to peer supporter perceptions of themselves as both role models and agents of change; personal comfort with and confidence in their ability to be peer supporters; and evaluation of the peer education training. The survey was administered before training, immediately after training and again approximately six months after the completion of training. Appendices D, E and F provide a summary of questions asked at each administration.

Qualitative Measures

To supplement the quantitative data with interpretive and contextual information, focus group discussions were conducted with students and peer supporters. Kreuger defines a focus group as a "carefully planned discussion designed to obtain perceptions in a defined area of interest in a permissive, non-threatening environment" (1988, p.18). Such discussions provide information about participants' perceptions on a particular issue and are useful in examining why and how a particular programme does or does not work (Fisher et al., 2002).

Interview Schedules with Students

The purpose of focus group discussions with students was to explore their perceptions of HIV/AIDS, personal risk, dating, playing sex, condoms, and community expectations (see Appendix G).

Interview Schedules with Peer Supporters.

The purpose of focus group discussions with peer supporters was to explore their perceptions of HIV/AIDS, personal risk, dating, playing sex, condoms, and community expectations. In addition, they were asked to comment on the experience of being a peer supporter (see Appendix H).

Quantitative Measures For Students

Demographics

Surveys with students included questions about age, gender, tribe (ethnic group), religious affiliation, and questions for designing a locally appropriate indicator of SES (see Appendix B). The SES indicator was designed in consultation with Kenyan

researchers and was based on a composite score rating: sleeping accommodations; materials used for home construction; roof; floor; the main sources of lighting and water; and, type of toilet facility.

HIV/AIDS Knowledge

General knowledge regarding transmission and prevention of HIV/AIDS was assessed using 22-true/false/not sure items. All items were relevant to risk reduction. They were selected from questions 34, 34b, 35, 39 and 40 of the PSABH survey (see Appendix B). Responses for 18 core knowledge items were summed to create an overall index of knowledge. The index was calibrated to a scale with scores ranging from 0 to 10; low scores reflected poor knowledge and high scores better knowledge.

Attitudes and Beliefs

Students were asked to rate on a 5-point scale, ranging from 1 '*definitely yes*' to 5 '*definitely no*', the degree to which they agreed with specific attitudes/beliefs. These included items such as: I believe I can say "no" to sex; I think when a girl says "no" she means "no"; It is always necessary to pressure or persuade a girl to have sex; If a girl says NO she means YES; I am able to have a boyfriend or a girlfriend for a long time and not play sex with them; I can tell my boyfriend or girlfriend that I will wait until marriage to play sex; I can talk to my boyfriend or girlfriend about using a condom; and I can make sure a condom is used if I play sex (see question 11 Appendix B). Six items were reverse coded so that high scores indicated attitudes/beliefs more conducive to HIV-prevention (e.g. postponing sexual intercourse, using a condom) in order to test for habituated response patterns. Factor analysis and Cronbach's alpha did not support the clustering of any of these items into scalar measures. Consequently, each item was used independently in analyses.

Behaviors

The desired behavioral outcomes were: delayed initiation of first sexual intercourse, reduction in students reporting recent sexual activity, increase reports of condom use at last intercourse, and avoidance of high risk situations. Having engaged in sexual intercourse was measured using a dichotomous (0 '*no*' 1 '*yes*') response item to which pupils indicated if they had ever played sex (Question 22) Recent sexual activity was also assessed using a dichotomous (0 '*no*' 1 '*yes*') question to which respondents

indicated whether or not they had played sex in the last three months (Question 25a). Two items measured condom use (one for girls and one for boys). These items used a dichotomous response (0 *'no'* 1 *'yes'*) to a question of whether they (or the person they were with) used a condom during their last sexual encounter (Question 26 for boys and Question 27 for girls) Avoidance of high-risk situations was measured using two dichotomous (0 *'no'* 1 *'yes'*) items. These items assessed whether they had refused the opportunity to play sex (Questions 29 and 30). For both recent sexual activity and condom use, those who indicated that they have never played sex were not included in the analysis. Each behavioural item was used independently in analyses.

Pursuit of Information

Students were asked six questions related to their pursuit of HIV/AIDS information and participation in a variety of HIV/AIDS related informational events/activities (Question 16). Such questions included the extent to which participants had asked a question about HIV/AIDS in the school question box, asked a teacher a question about HIV/AIDS, talked to a parent about HIV/AIDS, took part in a competition or performance on the theme of HIV/AIDS, read about HIV and AIDS in the school information corner and talked about HIV/AIDS at the school health club. Possible responses to these questions were 0 *'no'* 1 *'I am not sure'* and 2 *'yes'*. Responses were recoded into dichotomous (0 *'no'* 1 *'yes'*) variables for the purpose of analysis with 'not sure' coded as 0. Factor analysis and Cronbach's alpha supported the creation of a scalar measure with these items. Consequenlty, items were summed to form a scale indicating the extent to which participants were actively pursing HIV/AIDS related information.

Communication

Students were asked to identify, from a list, those whom they have spoken to or asked a question about sex (Question 23e). Factor analysis and Cronbach's alpha supported clustering items into 3 scalar measures: having spoken to a female relative, to a male relative or other community members.

Impact of Peer Supporters on Students

Identification with Peer Supporters

Students were asked to rate the degree to which the peer supporters in their school are: similar to them, a credible source of information, easily approachable, highly

regarded, and a role model (see Appendix B, Questions 47m1-5). For both similarity and credibility, students were asked to rate on a 4-point scale ranging from 1 '*definitely yes*' to 4 '*definitely no*' the degree to which the peer supporters know a lot; are a lot like them, and are easy to talk to about a personal problem. In terms of high regard, students were asked to rate on a 4-point scale ranging from 1 '*strongly disagree*' to 4 '*strongly agree*' the degree to which the peer supporter is someone whom the student would like to emulate (i.e. I wish I could act like the peer supporters do). In order to examine whether students perceived the peer supporter as a role model, they were asked on a 4-point scale ranging from 1 '*definitely yes*' to 4 '*definitely no*' whether they would think about what the peer supporter would do when faced with a difficult situation (e.g., to keep myself safe from HIV I would think of what the peer supporter would do). Factor analysis and Cronbach's alpha supported clustering these items into a single scalar measure ranging from 0-10. Higher scores indicated greater pupil identification with the peer supporter.

Assessment of Peer Supporters

Seven items rated on a scale of 1 '*strongly agree*' to 5 '*strongly disagree*' were included to examine the impact of peer supporters on pupils (See Appendix B, Questions 49m1-7). The items asked pupils to specify the extent to which they agree or disagree that the peer supporter: (1) has been helpful; (2) has taught them about HIV and AIDS; (3) is difficult to understand; (4) makes them feel shameful; (5) is boring; (6) has taught them how to protect themselves from HIV and AIDS; and (7) has made them feel more confident in their ability to make better decisions about sex. Factor analysis and Cronbach's alpha supported clustering these items into a single scalar measure ranging from 1-10. A low score indicated an unfavorable assessment of the peer supporter while high score a more favorable assessment.

Interaction with Peer Supporter

To assess degree of contact with peer supporters, (see Appendix B, Questions 48m1-8) 8-items were used in which participants answered on a 3-point scale (0 '*no*' 1 '*yes*' 2 '*not sure*') whether or not they have: (1) asked the peer supporter a question about HIV or AIDS; (2) talked to the peer supporter about a personal problem;(3) talked to the peer supporter about how to abstain from playing sex; (4) talked to a peer supporter about being forced to play sex; (5) participated in an activity that was led by a peer supporter;

(6) went to a school health club meeting led by a peer supporter; (7) received information about condoms from a peer supporter; and (8) learned how to use a condom from a peer supporter. Factor analysis and Cronbach's alpha supported clustering these items into a single scalar measure ranging from 1-10. Low values on the scale indicated minimal interaction with peer supporters while high scores indicated maximum interaction.

Identification with, Assessment of and Interaction with Teachers

All three theories support the conclusion that students will relate better to, understand more and be influenced to a greater extent by peer supports than teachers. Consequently, the same items were used to assess perceptions of and interaction with peer supporters were used to assess perceptions of teachers (see Appendix B, Questions 50, 51 and 52).

Quantitative Measures -Peer Supporter Training

Peer Supporter Comfort

Peer supporter comfort was assessed using 8 items that measured the extent to which peer supporters feel comfortable with the tasks required of a peer supporter (see Appendix E). Peer supporters were asked to rate on a 5-point scale, ranging from 1 '*strongly agree*' to 5 '*strongly disagree*' how comfortable they are talking about topics such as: HIV transmission, risk and prevention of HIV, AIDS, and playing sex. Factor analysis and Cronbach's alpha supported clustering these items into a single scalar measure ranging from 1-10.

Peer Supporter Confidence

Peer supporter confidence was assessed using 8 items on a 5-point scale, 1 '*strongly agree*' to 5 '*strongly disagree*'. These included the extent to which peer supporters feel capable of carrying out certain tasks such as: obtaining information, presenting accurate information, and talking to other pupils about playing sex, helping other pupils develop skills to protect themselves from HIV and AIDS; explaining to other pupils how a condom should be used; helping other pupils care for people with AIDS; helping other pupils understand their risk for HIV and AIDS; and making presentations about HIV and AIDS. Individual items were summed and averaged to produce a score ranging from 1 to 5 for peer supporter confidence. Factor analysis and Cronbach's alpha

supported clustering these items into a single scalar measure ranging from 1-10 for peer supporter confidence.

Evaluation of Peer Supporter Training

Ten items, each rated on a 3-point response scale, 1 '*definitely*' to 3 '*not at all*', were used to assess the degree to which peer supporters felt they learned important skills during training (see Appendix E). Peer supporters also rated, on a 3-point response scale, 1 '*excellent*' to 3 '*poor*', each of the major methods of training delivery (i.e. lectures, discussions, videos, games, role-plays, etc.). Lastly, peer supporters were asked to rate the overall quality of the peer supporter training by indicating on a 5-point scale, 1 '*strongly agree*' to 5 '*strongly disagree*', the extent to which they felt the training: was useful; taught them everything they need to know about being a peer supporter; was difficult to understand; was a bit shameful; was boring; will help protect them from HIV/AIDS; will help them protect others from HIV/AIDS.

Six-Month Follow-up Peer Supporter Survey

Peer supporters were surveyed during a post-training refresher workshop held six-months after their initial training seminar (see Appendix F). This was conducted as a follow-up to the peer supporter training. Here the peer supporters completed an identical questionnaire to the one that students in peer supporter schools filled out with an additional section which included comfort and confidence items from the pre/post-training survey as well as additional items which measured the peer supporter activities and challenges.

Peer Supporter Activity

Peer supporters were asked whether or not they had implemented any six of the following peer supporter activities (see Appendix F, Questions 48m1-6): answering a question in the question box; talking to a pupil about HIV and AIDS; setting up a health activity for pupils; holding a meeting of the school health club; talking about HIV and AIDS at the school health club; and helping a pupil avoid a situation that may have led to playing sex. Responses were categorized as either 0 '*no*', 1 '*I am not sure*' or 2 '*yes*'.

Peer Supporter Communication with Students

Peer supporters were asked whether or not they had spoken to other students about 8 items: (see Appendix F, Questions 46m1-8) HIV transmission, playing sex,

AIDS, condoms, abstinence methods and expressions of love outside of sexual activity. Items were categorized as either 0 '*no*' or 1 '*yes*'. Factor analysis and Cronbach's alpha supported clustering these items into a single scalar measure ranging from 1-10.

Peer Supporter Challenges

In order to examine potential difficulties faced by peer supporters in their attempt to carry out their role within their schools, they were asked to respond to 6-items, rated on a 5-point scale, 1 '*strongly agree*' to 5 '*strongly disagree*' (see Appendix F, Questions 50m1-6). Examples of these items include: Not enough time to set up activities; Not enough training; Pupils are too shy to talk about HIV or AIDS; Pupils are too shy to talk about Sex; I am uncomfortable talking about HIV or AIDS; I am uncomfortable talking about playing sex. Factor analysis and Cronbach's alpha supported clustering these items into a single scalar measure ranging from 1-10

Procedures

Pupils

All students were invited to complete the survey instrument both at pre and post-programme. In addition, a subset from 6 schools were selected for participation in focus group discussions.

Data collection was contracted with Steadman Research Services (SRS). SRS is a Nairobi-based social science and marketing research corporation with extensive experience in collecting survey and qualitative (in-depth interviews and focus groups) data. SRS staff members are multilingual and noted for excellence in quality control over their work. They were contracted to collect both quantitative and qualitative data as part of the larger PSABH project of which this dissertation is a part. SRS is commonly contracted to collect data for a large number of development projects in East Africa. Their work includes contracts with United States Agency for International Development (USAID), Population Services International (PSI), Department for International Development (DFID) and United Nations AIDS (UNAIDS), all international development and research organizations.

Trained individuals employed at SRS administered all questionnaires. Schools were contacted ahead of time to arrange a date for data collection. During data collection all girls and boys in Standard 6 and 7 were separated into single gender classrooms. SRS

staff then administered the questionnaires by reading questions aloud as students followed along on their copies of the questionnaire. The rationale for this was based on the fact that the reliability and validity of survey responses to paper and pencil surveys filled out without linguistic assistance from youth in Africa have been questioned based on the suggestion that this population has poor reading skills. SRS staff also translated phrases into local dialects not commonly spoken in English. This was very important as there are often several languages within one classroom and although education is conducted in English, children may not be familiar with the English vernacular of terms related to sex and HIV/AIDS. SRS upholds the tenets of confidentiality (see Appendix I) and as such, SRS staff assured students of confidentiality and obtained consent before administering questionnaires or conducting focus group discussions (see Appendices J and K).

Peer Supporters

Peer supporters filled out surveys at the beginning of and immediately after the completion of their one-week training course. These surveys were administered and collected by SRS staff. When peer supporters arrived for training they were given an envelope containing both the pre and post-training surveys. They were then instructed to fill out the pre-training survey, return it to their envelope and place their name on the envelope. The envelopes were then collected and stored in a safe place. When training was complete, peer supporters were given back their envelopes and asked to fill-out the post-training survey contained within. Both pre and post-training surveys were printed on different colored paper in order to ensure that pre/post-training surveys were filled out at the proper times. Keeping them in the same envelope ensured surveys for each supporter were linked. After completion, the survey packages for each peer supporter were sealed and mailed to Windsor (analysis site) for input and analysis. Envelopes with peer supporter names were destroyed as soon as the surveys were removed from their enveloped and linked. Six months post-training, peer supporters attended a refresher workshop and there completed nine-month post-training surveys.

Data Processing

SRS took responsibility for entering raw survey data into database form (SPSS) for pupils both pre and post-programme. The data were then sent to Windsor for

screening and analysis. Pre and post training peer supporter surveys were sent directly to Windsor for entry. Post-programme peer supporter survey data was also entered by SRS and sent to Windsor. SRS also took responsibility for transcription of focus group discussions conducted with both pupils and peer supporters. Each transcript was saved as a WORD file and sent to the University of Windsor for analysis.

Data Analysis

Quantitative Data

Data collected at all points in time (pre and post programme for pupils and pre/post/six-month training for peer supporters) and from all participants (i.e. peer supporters and pupils) originally entered into separate databases by SRS were merged into one database for analysis at the University of Windsor.

Data were then screened for reliability and validity prior to conducting data analysis. First, responses to all questions were tested for content validity by comparing responses on logical sequences or combinations of questions. Scales were then created and tested using principal components factor analysis and analysis of internal validity using Cronbach's alpha. Construct validity was tested using correlations among similar indicators or indicators with well-established relationships. Frequency distributions were examined to assess the suitability of variables for use in further testing (i.e. t-tests, chi-square and regression analyses).

Textual Data

Analysis of textual data was facilitated using N5 and N6 Software. Raw transcripts were converted at the University of Windsor to text form for import into N5. All textual data was read and coded based on the original interview/focus group questions. Coding was set up in N5 so as to enable data analysis that focused on:

1. Confirming/Refuting quantitative results
2. Examining the experiences of peer supporters in relation to training and their subsequent role in school
3. Examining pupil experiences with and assessment of peer supporters

Sections from all interviews dealing with the above areas of focus were then read to develop an understanding of these areas from the perspective of both pupils and peer supporters. Summaries based on these understandings were prepared.

CHAPTER VII

RESULTS

Preliminary Analyses

Before testing the main hypotheses, preliminary analyses were conducted. Such analyses included data screening of all variables, descriptive statistics for main independent and dependent variables, reliability statistics for all scalar measures and testing of assumptions related to multivariate statistical procedures to test the main hypotheses. All quantitative analyses were executed using SPSS, Version 11 or Wesvar (the latter package allows for accommodating a cluster design).

Descriptive Statistics

Originally, the total data pool consisted of 4385 pupils and 75 peer supporters. Data were only analyzed, however, for a total of 4030 pupils and 65 peer supporters. This was because the original matched-pair design was affected by events in the field that resulted in the loss of several schools[7] and a decision was made to truncate for age[8]. For final analyses, broken down by target and control as well as pre and post-programme, the sample included 567 control, 1168 target students pre-programme as well as 65 peer supporters pre-training and 694 control, 1601 target students post-programme and 65 six-months peer supporters post-training.

Analyses were conducted to test for differences between those who were excluded from further analysis due to age and those who were not on demographic variables. This

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[7] During the first round of data collection, one control school was found unsuitable for participation because it had no Standard 6 or 7 classes. A neighboring school was selected as a replacement, but, unknown to SRS staff, this school had already self-selected itself for PSABH training leaving 19 control and 21 target schools at pre-test from which 586 and 1201 students filled out surveys and 32 students participated in focus group discussions.
During post-test data collection it was discovered that eight of the original control schools sent teachers to a later training sessions. Since schools self-selected into training, the training staff did not feel they could turn teachers from these schools away from training once they had arrived. These schools were from 2 specific geographical divisions, therefore the loss could not be considered random. In addition, it was discovered that one school which had been labeled as a target school actually had neither trained teachers nor peer supporters. The aforementioned schools were dropped from further analysis. With these changes, the final complement of schools was 12 control and 20 target from which 734 and 1645 students filled out surveys and 32 students participated in focus group discussions at post-test.

[8] Pupils and peer supporters below the age of 11 and over the age of 17 were dropped from the analysis. These older and younger pupils represented outliers in the standard 6 and 7 school population whose presence in the classrooms was related to the implementation of free primary education in January 2003, which resulted in considerable disruption in schools and shifting of students to rationalize class sizes, even when it meant combining a wide diversity of age groups in a single class.

was accomplished using chi-square and Cramér's V for categorical variables and t-tests for continuous variables. Those excluded were significantly more likely to have been boys, over the age of 17, Standard 7 students and members of the Kalenjin tribe. Additional analyses examining differences on key dependent variables showed that those who were excluded were also more likely to have played sex, albeit not recently.

Several demographic characteristics, which were likely to have an effect on outcomes, were controlled for in data analysis. These included gender, age, standard, ethnicity, religion and socioeconomic status (SES). Baseline differences on these characteristics for target, control and peer supporter subgroups were examined using chi-square and Cramér's V for categorical variables and t-tests and one-way ANOVAs for continuous variables. Refer to Appendix L for a detailed summary.

Important to keep in mind when examining baseline differences is that target schools self-selected to training. This raises the probability that these schools are characteristically different from control schools. It was for this reason that these demographic characteristics were entered as controls in the multivariate analyses.

Gender

By gender, the entire sample broke down to 46% male and 54% female. This was further broken down by pre/post, target/control distinctions. There were no significant baseline differences in gender across control, target and peer supporter subgroups at baseline.

Standard

An equal proportion of Standard 6 and 7 students were represented in the overall sample both pre and post. There were a significantly greater number of control school (56%) pupils in Standard 6 compared Standard 7 (44%) and compared to target school (49% Standard 6 and 51% Standard 7) pupils at baseline, however the latter difference was not significant. Peer supporter students were equally represented across Standard 6 (52%) and Standard 7 (48%).

Age

Pupils were only included if they ranged in age from 11-17. Mean and median ages were 13.98 and 14.00 respectively. An ANOVA run to examine differences in age across control, target and peer supporter groups at baseline suggested significant

differences, F (2, 1863) = 20.42, $p < .001$. Tukey's post-hoc analysis identified these differences as occurring between control (M = 14.00, SD = 1.48), target (M = 13.75, SD = 13.98) and peer supporter (M = 13.45, SD = 1.40) pupils. In this case, control pupils were significantly older and peer supporter pupils significantly younger than target pupils.

Tribe or Ethnic Group

The majority of pupils reported being from the Kikuyu tribe (66.8%), followed by Kalenjin (15.3%), Luhyia (6.5%), Luo (5.4%), Kisii (2.3%) and other (3.7%) tribal groups. Significant differences were present at baseline between control and both target and individual peer supporter subgroups with the majority of control students being Kikuyu (92%) and the majority of both target and peer supporter students being a mixture of Kikuyu (55%) and Kalenjin (23%), Cramér's V = .26, p < .001.

Religion

Protestant (55%) was the main religious affiliation of students in the sample, followed by Catholic (36.5%) and other (7.7%). Control students were significantly more likely at baseline to be of the Protestant faith (60%) compared to either target (53%) or individual peer supporter (54%) students, Cramér's V = .10, p < .001.

SES

SES of students as measured using a proxy based on relevant living standards, ranged from 31.8 to 100 (0-100 scale) with a mean of 66.6 and median of 63.6. An ANOVA run on baseline data suggested significant differences, F (2, 2337) = 61.80, $p <$ .001 with Tukey's post-hoc analysis indicating that control pupils reported significantly lower mean SES scores (61.8) than either target (68.6) or individual peer supporter (72.7) pupils. This supports the observation that because of self-selection into training and the selection of pupil leaders to attend peer supporter training, there would be socio-economic differences among these groups.

Effect size was also calculated on observed differences for standard, age, religion, ethnicity and SES to determine the extent to which such differences could be considered meaningful[9]. When this was done noted differences were found to be non-significant.

[9] Effect size was calculated because the sample size was large (i.e. 4096) introducing the possibility that statistically significant differences may not in be substantively meaningful.

The sample was also broken down based upon key dependent variables. These included items related to knowledge, attitudes/beliefs and behavior. The following section provides a descriptive account of these results both pre and post-programme and points out noted differences between target, control and peer supporter pupils. It does not offer significance tests however, as all of these findings were further tested in relation to the main hypotheses. Qualitative findings have also been incorporated to further aid in an understanding of pupil and peer supporter knowledge, attitudes/beliefs and behaviours.

Knowledge

Knowledge scores for the entire sample were found to be slightly above 56% correct at both baseline ($M = 5.61$, $SD = 1.61$) and follow-up ($M = 5.48$, $SD = 1.57$) (Refer to Table 1). When these were broken down by subgroup[10] (Refer to Table 1 for a complete summary) however, control pupils had lower knowledge at baseline compared to target school pupils and peer supporters. Post-programme the same differences were noted with control pupils scoring lower than target pupils and peer supporters scoring higher than both target and control pupils.

In considering individual questions that were used to tap knowledge, a large proportion of both pupils and peer supporters at baseline and follow-up were aware that avoiding sex was a way to stay safe (75% correct), sharing razor blades and knives places one at risk for HIV infection (67% correct), all injections should be done with a clean needle (72% correct) and that one need not avoid shaking hands with a person who has HIV/AIDS (68% correct). Participants were less likely however, to correctly identify having fewer sexual partners (29% correct) and using a condom to reduce the risk of becoming infected with HIV/AIDS (43% correct) as means of preventing HIV transmission. For a detailed account of responses to all knowledge items refer to Appendix M.

Quantitative results for pupils suggested average mean knowledge scores (i.e. 56% correct) with little change from pre to post-programme. In focus groups, however, pupils were able to identify and explain various modes of HIV/AIDS transmission and methods of prevention. Post-programme pupils appeared to have eliminated erroneous

[10] Subgroup is determined based on whether a participant belongs to a target or control school or is a PSABH trained peer supporter.

sources of transmission (i.e. kissing, being in the same room with a person who has HIV/AIDS, mosquitoes). The following quotes, from focus group discussions with pupils, suggest accurate pupil knowledge of HIV transmission and the ability to elaborate on such knowledge.

> *Everyone should use his/her own sharp things and your blood should be tested before transfusion...*
> *You may shake hands with someone infected, who has a wound and if you have a wound too, the blood may mix then you get infected...*
> *Don't have sex with anyone* (RGirls1: 456-488[11]).

> *It can be that thing* [penis] *from the boy will go into the girl and then transfer it* [HIV]. *If the boy had the disease the girl will be infected* (RBoys1: 388-389).

> *The person who circumcises people uses the same knife. If one has HIV and it has been used on him, then he uses it on you, you can also be infected with HIV/AIDS* (RBoys2: 430-433).

> *You may shake hands with someone infected, who has a wound and if you have a wound too, the blood may mix then you get infected* (RGirls3: 478-479).

Peer Supporters were more sophisticated in their responses, connecting HIV transmission to testing and recognizing that appearance did not reveal one's HIV status.

> *If one...wants to have sex, then he/she should go for testing before engaging in sex* (PSGirls1: 1756-1757).

> *At first, there are no symptoms, the person will look very healthy but when one goes for a test he will be positive...If the person has no symptoms, but has sex with another person, he can infect them* (PSGirls2: 126-129).

Focus groups supported quantitative findings for knowledge about condoms and further suggested that such knowledge was largely founded upon myths, misinformation and confusion. These observations were evident for both pupils and peer supporters.

> *One time there was a girl who agreed to play sex with somebody and the person used a condom. The condom burst and remained inside the girl, the girl started complaining about her stomach till she was taken to the hospital...when they examined her it was discovered there was a condom inside her* (RBoys1: 719-720).

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[11] Quotes are referenced (i.e. RGirls1: 456-488) to indicate whether the quote comes from a Rift Valley student or peer supporter focus group girl or boy (i.e. RBoys, RGirls, RPSGirls, RPSBoys), with a number code for each focus group (i.e. 1) and a number range (i.e. 456-488) which specifies the lines on which the quote appears in the N6 database.

> *It is not good to use them* [condoms] *because their* [young people] *organs are small and the condom is big.... It may fall in the vagina of the girl and make a wound in the uterus. It will lead to death* (RPSGirls1: 1056-1061).

Overall, focus group discussions suggested that both pupils in target and controls schools, as well as trained peer supporters, possessed correct knowledge of HIV transmission and prevention methods. Such findings confirmed those found quantitatively.

Table 1

Summary of Mean Summative Knowledge Scores Across Waves of Data Collection and Target/Control/Peer Supporter Groups

Participant/Pupil Subgroups	Pre-Programme Knowledge		Post-Programme Knowledge	
	Mean	SD	Mean	SD
Control	5.24	1.62	4.96	1.61
Target	5.73	1.58	5.64	1.49
Peer Supporter	5.77	1.71	6.54	1.46
Overall Total	5.61	1.61	5.48	1.59

[a] Knowledge scores were converted from a percentage score ranging from 0-100 to a mean value ranging from 0-10.

Attitudes/Beliefs

Participant attitudes/beliefs with respect to key HIV/AIDS and sexuality related issues were for the most part positive across subgroups and waves of data collection with most participants agreeing that they could say no to sex (61%, $M = 3.35$, $SD = 1.79$), that when a girl says no she means no (55%, $M = 3.33$, $SD = 1.60$), one can have a boyfriend/girlfriend for a long time and not play sex with them (67%, $M = 3.79$, $SD = 1.55$), one can tell their boyfriend/girlfriend that they will only have sex after marriage (77%, $M = 4.15$, $SD = 1.41$), one could tell their boyfriend/girlfriend about using a condom (54%, $M = 3.29$, $SD = 1.73$) and one could ensure that if they had to play sex a condom would be used (61%, $M = 3.54$, $SD = 1.70$). In addition, a large proportion disagreed with the belief that it is always necessary to pressure/persuade a girl to play sex (54%, $M = 3.29$, $SD = 1.66$). For a complete breakdown of these items by subgroups and across waves of data collection[12] refer to Appendix M.

Qualitative findings supported these quantitative findings especially when it came to attitudes and beliefs about abstinence in general, with abstinence appearing as the preferred method of prevention. This was especially noted post-programme where pupils in target schools and peer supporters appeared confident in their ability to abstain providing they focus on constructive goals and activities.

> *Sex is not bad but one should be prepared in life i.e. after one has gone through education, through a course, acquiring a job then later on one can involve him/herself in sex, after one is happily married* (RPSGirls4: 191-194).

> *It is not difficult...One can abstain...stay without sex...by controlling themselves... You can meet with a girl but should she bring in the topic of sex, you discourage her from talking about and instead you talk other things that are constructive* (RBoys4: 788-805).

Communication/Pursuit of Information

To examine the extent to which participants were communicating with others about HIV/AIDS related issues post-programme, participants were provided with a list of people and asked which of those they wanted to speak to and which on the list they had spoken to. These questions produced three scalar measures. The measures represented

[12] Only two attitude/belief items were asked of target/control pupils at baseline because the original survey did not include the other six items. These were added at follow-up.

wanting and having spoken with female relatives, male relatives and other community members.

Participants appeared more likely to report talking to other people (i.e. pupils, community leaders/members), and to female relatives compared to male relatives. A breakdown by subgroups found that peer supporters were actively communicating the most, followed by pupils in target schools and finally those in control schools. Table 2 provides a detailed account of these findings.

At baseline there was evidence that pupils in target schools were pursuing information about HIV and AIDS to a greater extent than were pupils in control schools. At follow-up there was a noted increase in pursuit of information by both target and control school pupils. Peer supporters were not surveyed at baseline on items related to pursuing information but were surveyed at six-month follow-up. At this time peer supporters were most noted for their pursuit of information compared to either target or control school pupils. Refer to Table 3 for a complete summary of these results.

Table 2

Mean Levels of Communication with Female Relatives, Male Relatives and Others by Target, Control and Peer Supporter Pupils Nine-months Post-Programme

	Post-Programme							
Communication with...	Control		Target		Peer Supporter		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Female Relatives	2.87	3.27	4.22	3.58	5.46	3.18	3.85	3.54
Male Relatives	2.41	3.05	2.90	3.21	4.08	3.76	2.79	3.20
Others	3.01	2.22	4.31	2.09	4.92	2.13	3.94	2.22

Note. Maximum = 10 and minimum = 0. Higher means indicate more communication.

Table 3

Mean Levels of Pursuit of Information by Target, Control and Peer Supporter Pupils

	Pre-Programme				Post-Programme					
	Control		Target		Control		Target		Peer Supporter	
	Mean	SD	Mean	SD	Mean	Mean	Mean	SD	Mean	SD
Pursuit of Information	3.95	3.54	5.56	3.54	4.24	2.75	6.38	2.67	8.40	2.16
N	567		1168		694		1601		65	

Note. Maximum = 10 and minimum = 0. Higher means indicate greater pursuit of information.

Behaviour

At baseline, a sizeable proportion of pupils in control (43.7%) and target (38.6%) schools reported that they had played sex, while peer supporters were less likely to have reported doing so (27.0%) (n=18). Few of those who reported playing sex had done so within the last 3 months (24.1% of control, 19.9% of target and 6.3% of peer supporters). A small proportion of boys reported having used a condom at last sex with no apparent differences between those in target or control schools. This was also the case for girls reporting that their partner used a condom at last sexual intercourse. Fewer girls in target schools, however, reported condom use (14%) compared to either control (27%) or peer supporter (50%) (n=9) pupils. Note that the percentages for peer supporters are based on small numbers.

At follow-up there did not appear to be a significant change in those reporting that they had played sex, done so recently, or used condoms. There did appear to be an increase in reported condom use by girls in target schools (i.e. from 14% at pre to 27.9% at post).

At both baseline and follow-up, across control, target and peer supporter pupils, a sizeable proportion (39%) reported having refused opportunities to play sex within the last three months. Similarly, a sizeable proportion (37%) reported having not gone somewhere in order to avoid playing sex. There did not appear to be a significant increase in these reports over time. For a detailed description of pre and post programme results for behavioural indicators refer to Table 4.

Table 4

Behavioural Percentages by Target, Control, and Peer Supporter Pupils Pre and Post-Programme

	Pre-Programme			Post-Programme			
% Who have...	Control	Target	Peer Supporter	Control	Target	Peer Supporter	Total
Ever Played Sex	43.7	38.6	27.0	35.7	34.9	23.1	36.9
(n)	(241)	(443)	(17)	(241)	(547)	(15)	(1504)
Refused to Play Sex	39.2	42.5	42.2	38.3	36.8	43.2	39.2
(n)	(178)	(384)	(27)	(197)	(428)	(16)	(1230)
Chosen Not to go somewhere to avoid playing sex	33.6	35.4	34.4	41.3	37.7	34.2	36.8
(n)	(175)	(350)	(11)	(210)	(450)	(13)	(1209)
Engaged in Recent Sex	24.1	19.9	0.0	29.9	26.7	6.7	24.3
(n)	(55)	(83)	(0)	(72)	(145)	(1)	(356)
Used Condom -Boys	23.8	22.8	8.3	25.9	19.5	18.2	21.8
(n)	(147)	(263)	(15)	(131)	(328)	(11)	(895)
Boy Used Condom - Girl	27.4	13.8	50.0	28.8	27.6	0.0	23.1
(n)	(17)	(16)	(1)	(19)	(34)	(1)	(87)

Internal Consistency of Scales and Subscales

Clusters of items from the surveys were tested using factor analysis and Cronbach's alpha to determine whether they could be reliably combined into scalar measures[13]. Table 5 provides a detailed summary.

Quantitative Measures –Pupil Survey

All scale means and alpha's are reported in Table 5.

Pursuit of Information

Cronbach's alpha indicated that the 8 item scale had adequate reliability ($\alpha = .62$).

Communication about sex

The result was 3 separate variables with adequate reliability to assess communication with female relatives ($\alpha = .71$), male relatives ($\alpha = .68$) and others ($\alpha = .58$). Each of the three scales was used in further analysis.

Impact of Peer Supporters on Students

Identification with/Rating of Peer Supporters

Cronbach's alpha indicated that the 5 item scale was unreliable ($\alpha = .48$). The deletion of one item however, (Peer Supporters are not like me), improved the reliability of the scale ($\alpha = .75$).

Assessment of Peer Supporters

To assess degree of contact with peer supporters, (see Appendix D) 7 items were used. Cronbach's alpha indicated adequate reliability of this scale ($\alpha = .62$).

Interaction with Peer Supporter

Cronbach's alpha ($\alpha = .71$) suggested adequate reliability of this measure.

Identification with/Rating of, Assessment of and Interaction with Teachers

Cronbach's alpha indicated that the 5-item identification with teachers measure was unreliable ($\alpha = .39$). The deletion of one item however, (Teachers are not like me), improved the reliability of the scale ($\alpha = .62$). The teacher assessment measure proved adequately reliable ($\alpha = .68$). Cronbach's alpha ($\alpha = .72$) also suggested adequate

[13] Due to the applied nature of this research and the fact that none of the dependent variable measures have been validated or tested outside of this setting, a more liberal alpha level was accepted (i.e. $\geq .60$). This was done recognizing that the internal validity of a scale (alpha) sets the upper limit for external validity and that the effect of a low alpha on analyses using these scales is to attenuate (artificially lower) the coefficients. This, in essence, makes it less likely to achieve statistical significance but more likely to suggest a real change when and where statistical significance is found.

reliability for the 8 items relating to the extent to which students had interacted with teachers. All of these measures were used in subsequent analyses.

Quantitative Measures -Peer Supporter Survey

Peer Supporter Comfort

Cronbach's alpha suggested marginal reliability for all 8 items ($\alpha = .58$). Deletion of 2-items (i.e. Comfort discussing playing sex and ways to show you love someone without playing sex) improved the reliability of this scale ($\alpha = .64$). Consequently, a scale of 6-items was used in further analyses.

Peer Supporter Confidence

Cronbach's alpha indicated adequate reliability of these combined items ($\alpha = .69$).

Peer Supporter Activity

Cronbach's alpha indicated that the 6-item Peer Supporter Activity Scale designed for this study was unreliable ($\alpha = .55$). Deleting one item however, (Have you ever helped a student avoid playing sex) increased the reliability ($\alpha = .61$) of the scale. This item was deleted and the scale was subsequently used in further analyses.

Peer Supporter Communication with Students

Cronbach's alpha suggested marginal reliability for all 8 items ($\alpha = .53$). Deletion of 2-items (i.e. Comfort discussing playing sex and ways to show you love someone without playing sex) improved the reliability of this scale ($\alpha = .60$). Consequently, a scale based on 6 items was used in further analyses.

Peer Supporter Challenges

Cronbach's alpha indicated that this 6 item measure assessing overall peer supporter challenges was reliable ($\alpha = .64$).

Table 5

Means, Standard Deviations, Ranges and Reliability Coefficients for Key Dependent Variable Measures for Total Sample (N = 4030)

Variable	# items	Mean	SD	Final Alpha	Expected Range	Actual Range
Pupil Self-Reported						
Identification with/Rating of Peer Supporters	5	8.49	2.60	.75	0-10	2-9
Identification with/Rating Teachers	4	8.26	1.67	.62	0-10	2-9
Interaction with Peer Supporters	8	4.94	2.33	.62	0-10	0-10
Interaction with Teachers	8	5.20	2.80	.68	0-10	0-10
Assessment of Peer Supporters Influence	7	7.07	1.34	.71	0-10	2-7
Assessment of Teachers Influence	7	7.14	1.16	.68	0-10	2-7
Peer Supporter Self-Reported						
Comfort	6	6.89	1.43	.64	0-10	4-10
Confidence	8	9.02	1.50	.69	0-10	2-10
Activity	5	7.78	2.60	.61	0-10	0-10
Communication with Students	6	5.46	2.32	0.60	0-10	1-9
Barriers/Challenges	6	4.30	1.46	.64	0-10	2-8
Pupil and Peer Supporter Self-Reported						
Pursuit of Information	8	5.48	3.24	.62	0-10	0-10
Communication with female relatives	3	3.85	3.53	.71	0-10	0-10
Communication with male relatives	3	2.79	3.20	.68	0-10	0-10
Communication with others	10	3.94	2.22	.58	0-10	0-10

Multivariate Analysis Assumptions

Linearity

Simple inspection of scatterplots was used as a non-statistical method of determining if nonlinearity existed. A rule of thumb (Hutcheson, & Sofroniou, 1999) indication of nonlinearity was applied where the standard deviation of the residuals was examined to see if it exceeded the standard deviation of the dependent variable. Based on these examination of relationships among variables it was determined that the independent variables were linearly related to the DV.

Normality

Normality was assessed through a combination of techniques. These included examinations of skewness and kurtosis, tests of normality (i.e. Shapiro-Wilks's W and Kolmogorov-Smirnov D test) and graphing methods (i.e. normality and Q-Q plots). Multivariate normality itself was examined for normally distributed error through histograms of standardized residuals, normal probability (P-P Plots) and tests of normality (i.e. Shapiro-Wilks's W and Kolmogorov-Smirnow D test).

Tests for skewness were determined by dividing the skew statistic (s) by its standard error. Those skew statistics found to be greater than 2 were considered skewed. This was the case for the majority of attitude/belief indicators. Standard tests of normality (i.e. Shapiro-Wilks's W and Kolmogorov-Smirnow D test) confirmed this. Additional examination of the data using graphing techniques however, indicated normality was not problematic for knowledge and the attitude/belief items pertaining to "if a girl says no she means yes" and "I can make sure that a condom is used". There was negative skew for beliefs about ability to say no to sex, have a girlfriend/boyfriend for a long time and not playing sex, ensuring that a condom is used during sex, talk to a girlfriend/boyfriend about postponing sex until marriage and condom use, indicating greater agreement with each item.

Nonlinear transformations of skewed attitude/belief items were attempted. These did not significantly alter statistical results (i.e. regressions were run and compared for both transformed and untransformed indicators but results were not significantly different).

Overall, the non-normality seen in the data was interpreted as a reflection of how youth naturally distributed across items. As a result, a decision was made to conduct analyses using untransformed variables. Care was taken when interpreting subsequent results. For a more detailed discussion of normality refer to Appendix N.

Multicollinearity

Predictor variables were examined for unacceptably high levels of correlation with each other through bivariate correlations, with correlations above .80 used to indicate multicollinearity problems (Garson, 2004). Predictor variables were correlated with knowledge, attitudes/beliefs and behaviours but only modestly with each other. These were included in the analysis (Refer to Appendix N, Tables 6, 7, 8 and 9 for the correlations of the predictor variables with each of knowledge, attitudes/beliefs and behaviour[14]).

Tolerance values were also reviewed, searching for values over 2.00, as were VIF values equal to or greater than 4 and Durbin-Watson coefficients between 1.5 and 2.5. This was done for regressions run on each of the main hypotheses. In all cases, tolerance values were less than .95, VIF values were less than 1.20, and Durbin-Watson coefficients between 1.5 and 2.5 indicating that there was no multicollinearity.

[14] Due to the large number of predictor variables the correlation matrix has been divided into 4 separate matrices, one each for knowledge, attitudes/beliefs, communication/pursuit of information and behaviour.

Table 6

Bivariate Correlations: IVs with Knowledge

	1	2	3	4	5	6	7	8	9	10	11
1. PUP_PS	-	.	.	.	.006	.001	-.006	-.032	.037	.046	.135**
2. PRE_9M		-	.	1.000**	.000	.199**	.015	-.062	.110	.	.235**
3. PRE9M_POST			-	-.502**	-.007	-.083	.000	.021	-.045	.	-.094
4. 9M_PREPOST				-	.004	.181*	.011	-.054	.099	.	.211**
5. STANDARD					-	.295**	.030	-.002	-.004	.043**	.166**
6. AGE						-	-0.14**	.026	-.035**	-.180**	-.064**
7. GENDER							-	.012	.052**	.109**	-.081**
8. TRIBE								-	.054**	-.118**	-.100**
9. RELIGION									-	-.034*	.018
10. SES										-	.095**
11. KNOW											-

**. Correlation significant at the 0.01 level (2-tailed)

* . Correlation significant at the 0.05 level (2-tailed)

. Cannot be computed because at least one of the variables is constant.

PUP_PS Pupil vs. Peer Supporter Dummy Coded Variable: 0 = Pupils 1 = Peer Supporters

PRE-9M Pre-training vs. Nine-months Post-training Dummy Coded Variable

PRE9M_POST Pre and Nine-month post-training peer supporters vs. Post-training peer supporter Dummy Coded Variable

9M_PREPOST Nine-month post-training peer supporter vs. Pre- and Post-training peer supporters Dummy Coded Variable

SES Socioeconomic Status

KNOW Knowledge

Table 7

Bivariate Correlations: IVs with Attitudes/Beliefs

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. PRE_9M	-	.	.	1	.199*	.015	-.010	.239**	.	.279**	.182*	.072	.134	-.142	-.051	.181*	-.025
2. TPUP_PS		-	.	.	.001	-.006	.029	.034	.046	.077*	.050*	.039	.075**	-.076**	-.018	.089	.046
3. TRAINING			-	-.502	-.083	.000	.011	-.110	.	.022	.021	.165*	.110	-.102	.026	.012	-.006
4. NINEPOST				-	.181*	.011	-.013	.228**	.	.187**	.117	-.028	.049	-.047	-.049	.120	-.015
5. AGE					-	-.140**	.079	-.041**	-.180**	-.051*	-.066**	-.041*	-.028	.024	.007	-.040*	-.074**
6. GENDER						-	-.010	.059**	.109**	-.003	.105**	.026	.061*	-.131**	-.141**	.048*	.050*
7. RELIGION							-	.014	-.216**	-.045*	-.015	.003	-.038	-.065**	-.118**	.032	-.034
8. ETHNICITY								-	.047*	.032*	.024	-.004	.021	-.051*	-.052*	.021	.036
9. SES									-	.074**	.074**	.073**	.079**	.014	.054**	.066*	.098**
10. SAYNO										-	.239**	.158**	.184**	.081**	.106**	-.034	.044*
11. NONOGIRL											-	.145**	.108**	.006	-.01	-.033	.134**
12. GFBFNOSX												-	.244**	.024	.067**	.030	.025
13. CANABS													-	.077**	.143**	.010	.087**
14. TELLUSEC														-	.437**	-.187**	-.130**
15. USEC															-	-.098**	-.078**
16. PRESGIRL																-	.248**
17. NOYSGIRL																	-

Note. **. Correlation significant at the 0.01 level (2-tailed). * Correlation significant at the 0.05 level (2-tailed). . Cannot be computed because at least one of the variables is constant.

PUP_PS Pupil vs. Peer Supporter Dummy Coded Variable: 0 = Pupils 1 = Peer Supporters
PRE-9M Pre-training vs. Nine-months Post-training Dummy Coded Variable
PRE9M_POST Pre and Nine-month post-training peer supporters vs. Post-training peer supporter Dummy Coded Variable
9M_PREPOST Nine-month post-training peer supporter vs. Pre- and Post-training peer supporters Dummy Coded Variable
SES Socioeconomic Status
SAYNO = I can say no to sex; NONOGIRL =When a girl says no to playing sex she means no; GFBFNOSX = I am able to have a girlfriend/boyfriend for a long time and not play sex
CANABS = I can tell my boyfriend/girlfriend that I will only have sex after marriage; TELLUSEC = I can tell my boyfriend/girlfriend about using a condom;
USEC = I can ensure that a condom is used when playing sex; PRESGIRL = It is always necessary to pressure or persuade a girl to play sex; NOYGIRL = If a girl says no she means yes.

Table 8

Bivariate Correlations: IVs with Communication and Pursuit of Information

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. PUP_PS	-	.	.	.	.006	.001	-.006	-.032	.037	.046	.146**	.068**	.070**	.057*
2. PRE_9M		-	.	1.000**	.000	.199**	.015	-.062	.110	.	.	.	.	.
3. PRE9M_POST			-	-.502**	-.007	-.083	.000	.021	-0.045	.	.	.	.	.
4. 9M_PREPOST				-	.004	.181*	.011	-.054	.099	.	.	.	.	.
5. STANDARD					-	.295**	.030	-.002	-.004	.043**	.126**	.063**	.007	.153**
6. AGE						-	-.140**	.026	-.035**	-.180**	-.011	-.022	.063**	.010
7. GENDER							-	.012	.052**	.109**	.061**	.354**	-.248**	-.013
8.TRIBE								-	.054**	-.118**	-.049**	-.039	-.084**	-.055**
9. RELIGION									-	-.034*	-.021	.036	-.039	.015
10. SES										-	.100**	.099**	-.047*	.082**
11. INFOR											-	.316**	.236**	.366**
12. TLKFREL												-	.289**	.395**
13. TLKMREL													-	.336**
14. TLKOTH														-

**. Correlation significant at 0.01 level. * . Correlation significant at 0.05 level. . Cannot be computed because at least one of the variables is constant.
PUP_PS Pupil vs. Peer Supporter Dummy Coded Variable;
PRE-9M Pre-training vs. Nine-months Post-training Dummy Coded Variable;
PRE9M_POST Pre and Nine-month post-training peer supporters vs. Post-training peer supporter Dummy Coded Variable;
9M_PREPOST Nine-month post-training peer supporter vs. Pre- and Post-training peer supporters Dummy Coded Variable;
SES Socioeconomic Status;
INFOR Pursuit of HIV/AIDS related information; TLKFREL Talked to a female relative; TLKMREL Talked to a male relative; TLKOTH Talked to other person.

Table 9

Bivariate Correlations: IVs with Sexual and Preventive Behavior

	PUP & PS	PRE & 9M	9M & PREPOST	9M & PREPOST	STANDARD	AGE	GENDER	TRIBE	RELIGION	SES	EVERSI	RECSEX	BCONDOM	GCONDOM	REFUS3M	NOTGOAV
PUP_PS	-	.	.	.	.006	.001	-.006	-.032	.037	.046	-.0490*	-.052	-.006	-.095	.023	-.012
PRE_9M		-	.	1.000**	.000	.199**	.015	-.062	.110	.	-.0450	-.121	.146	-.500	.010	-.002
PRE9M_POST			-	-.502**	-.007	-.083	.000	.021	-.045	.		.081	-.070	.167	.005	.001
9M_PREPOST				-	.004	.181*	.011	-.054	.099	.	-.0320	-.128	.144	-.408	.005	-.002
STANDARD					-	.295**	.030	-.002	-.004	.0430**	-.012	-.064**	-.058	.036	.051**	.009
AGE						-	-0.14**	.026	-.035**	-.180**	.143**	.084**	.030	.191**	.078**	.033
GENDER							-	.012	.052**	.109**	-.298**	-.175**	.	-.181**	-.037*	.094**
TRIBE								-	.054**	-.118**	-.004	-.060**	-.153**	-.074	-.011	-.028
RELIGION									-	-.034*	-.073**	-.039*	-.045	-.057	-.005	.019
SES										-	-.092**	-.033	-.066	.032	.023	-.057**
EVERSI											-	.370**	-.001	-.152**	.097**	.069**
RECSEX												-	.185**	.168**	.020	.115**
BCONDOM													-	.	.008	.153**
GCONDOM														-	.040	.091
REFUS3M															-	.219**
NOTGOAV																

**. Correlation significant at the 0.01 level (2-tailed). * Correlation significant at the 0.05 level (2-tailed). . Cannot be computed because at least one of the variables is constant.
PUP_PS Pupil vs. Peer Supporter Dummy Coded Variable
PRE-9M Pre-training vs. Nine-months Post-training Dummy Coded Variable
PRE9M_POST Pre and Nine-month post-training peer supporters vs. Post-training peer supporter Dummy Coded Variable
9M_PREPOST Nine-month post-training peer supporter vs. Pre- and Post-training peer supporters Dummy Coded Variable
SES Socioeconomic Status
EVERSI Ever played sex
RECSEX Played sex in the last 3 months
BCONDOM Boy –Used condom at last intercourse
GCONDOM Girl –Boy used condom at last intercourse
REFUS3M Refused to play sex in the last 3 months
NOTGOAV Did not go somewhere to avoid playing sex in the last 3 months

Main Hypotheses Testing

Hypothesis 1a

Students in schools with PSABH trained teachers and peer supporters delivering an HIV prevention programme will demonstrate greater gains in targeted knowledge, attitudes and behaviors than students in schools where only the MoEST AIDS syllabus is provided to teachers.

Effect of Programme on Students

Differences over time and between target and control pupils were examined using both logistic regression and Ordinary Least Squares (OLS) regression with the dependent variables of knowledge, attitudes/beliefs and behaviour. The independent variables were target vs. control school and pre- vs. post-programme. A third independent variable was added to capture the interaction between these two variables. This was termed interaction and was created by multiplying the target/control and pre/post independent variables. These were entered into both OLS and logistic regressions with statistical controls for age, gender, standard, ethnicity, religion and ses in order to assess the stability of results over various demographic groupings. Please note that it is the interaction term that tests whether the changes from pre to post programme in target schools is significantly different from that in control schools. This also controls for baseline values while comparing changes in target and control schools. The absence of significant interactions indicates a lack of programme effect (controlling for baseline values). The WESVAR programme[15] (Westat, 2002) was used to perform both OLS and logistic regressions.

There was no evidence of significant differences between target and control pupils at pre or post programme, nor over time (i.e. from pre to post programme) on

[15] WESVAR uses a jacknife method to adjust for non-random sampling. This is necessary when comparing target and control schools because of the non-random loss of control schools and the sampling of pupils by schools. The jacknife itself is a repeated replication method used to estimate the sampling variability of a statistic that takes into account the properties of the sample design. In this respect, it provides unbiased estimates of the sampling error arising from complex sample selection procedures; reflects the component of sampling error introduced by the use of weighting factors that are dependent on the sample data obtained; and can be readily adapted to the estimation of sampling errors for parameters estimated using statistical modeling procedures. It does this by dividing a single sample into multiple subsamples and using the fluctuation among the subsamples to obtain an estimate of the overall sampling variability. The first step in this procedure is to divide the full sample into random groups. In turn, each group is removed from the full sample in order to create a subsample. The JRR procedure derives estimates of the parameter of interest from each of the subsamples, and calculates the variance of the full-sample estimate from the variability between the subsample estimates.

knowledge scores. This observation was also true for attitudes/beliefs. Significant differences were noted between target and control school pupils for pursuit of information and communication.

In terms of pursuit of information, the regression model accounted for a small but significant proportion of variance, $R^2 = .103, F(7, 31) = 8.15, p < .01$ (Refer to Table 10). Standard, gender and target/control variables were statistically significant predictors ($p < .05$ and $p < .01$ respectively) with those in standard 7 and girls pursuing information to a greater extent compared to those in standard 6 and boys. Target school pupils ($M = 6.10$, $SD = 3.10$) were also found to be pursuing significantly more information compared to control school pupils ($M = 4.11$, $SD = 3.14$). Of note is there was neither a pre to post programme nor an interaction effect, which means that the difference between target and control pupils at post-programme cannot be credited to the intervention but rather reflects the differences that existed at baseline.

Table 10

Output for 7 Separate OLS Regressions with Independent Variables of Interest (Target/Control, Pre/Post and Interaction) controlling for Standard, Age, Gender, Ethnicity, Religion and SES

	Control/Target[a]			Pre/Post[b]			Interaction[c]			
Dependent Variable	B[d]	Beta	t	B	Beta	t	B	Beta	t	R^2
Knowledge	.48	.198	1.79	-.29	.16	-1.46	.21	.21	.878	.083***
Attitudes/Beliefs										
I can say no to sex	.17	.159	1.08	.14	.154	.942	.16	.224	.729	.021***
When a girl says no she means no	.00	.154	.011	.04	.195	.204	.00	.244	.02	.017***
Pursuit of Information	1.52	.605	2.51*	.19	.473	.397	.65	.592	1.10	.103***
Talked to female relative	1.36	.404	3.36**	-	-	-	-	-	-	.161***
Talked to male relative	.047	.32	1.49	-	-	-	-	-	-	.071***
Talked to others	1.31	.268	4.89***	-	-	-	-	-	-	.099***

Note. *** $p < .001$. ** $p < .01$. * $p < .05$.

[a] Control coded as 0 and Target coded as 1.

[b] Pre coded as 0 and Post coded as 1.

[c] Interaction variable = Target/Control * Pre/Post.

[d] Coefficients controlling for standard, age, gender, religion, ethnicity and SES.

For communication with female relatives, the regression model accounted for a small but significant proportion of variance, $R^2 = .161$, $F(7, 31) = 13.38$, $p < .001$ (Refer to Table 10). Both religion and target/control variables were statistically significant predictors ($p < .001$ and $p < .01$ respectively). These results indicated that pupils of Protestant faith ($M = 3.91$, $SD = 3.58$) compared to other faiths (i.e. Catholic, Muslim and other) ($M = 3.67$, $SD = 3.48$) and those in target ($M = 4.22$, $SD = 3.57$) compared to control ($M = 2.87$, $SD = 3.27$) schools were communicating with female relatives to a greater extent. This observation was true for post-programme only because this information was not collected pre-programme. Consequently, we cannot tell whether the difference between target and control schools can be credited to the programme or to differences that were present pre-programme.

The regression model with covariates for communication with others also accounted for a small but significant proportion of variance, $R^2 = .099$, $F(7, 31) = 11.71$, $p < .001$ (Refer to Table 10). Both Standard and target/control variables were statistically significant ($p < .001$). These results indicated that those in Standard 7 ($M = 4.26$, $SD = 2.21$) compared to Standard 6 ($M = 3.57$, $SD = 2.25$) and those in target ($M = 4.31$, $SD = 2.10$) compared to control ($M = 3.00$, $SD = 2.22$) schools were communicating with others to a greater extent. As in communication with female relatives, these results were only based on post-programme data and consequently cannot be credited to the programme.

Separate logistic regressions were used to predict the variables ever played sex, recent sex, condom use, and risk-reduction behaviour (i.e have refused to play sex and have not gone somewhere to avoid playing sex) using WESVAR. All variables of interest, including controls, were entered simultaneously. The only model for which significance evidenced with respect to one of the key dependent variables (i.e. target/control, pre/post, interaction) was that of recent sex, $F(9, 23) = 24.10$, $p < .001$, with the full model explaining 5.8 % of the variance (Cox-Snell R^2).

Table 11

Output for 3 Separate Logistic Regressions with Independent Variables of Interest (Target/Control, Pre/Post and Interaction) Controlling for Standard, Age, Gender, Ethnicity, Religion and SES)

Logistic Regression	Measure Overall of Fit	Adjusted Odds Ratio			B		
		Control/ Target[a]	Pre/ Post[b]	Inter.[c]	Control /Target[a]	Pre/ Post[b]	Inter.[c]
Ever Played Sex	12.21***	1.15	1.54	0.81	.140	.430	-.210
Recent Sex	24.07***	1.38	2.25	0.94	.320	.810***	-.060
Refused to play sex in the last 3 months	2.89	0.89	1.13	1.16	-.120	.120	.150
Not gone somewhere in the last 3 months to avoid playing sex	3.20	0.92	0.73	1.25	-.090	-.320	.220

Note. *** p < .001. ** p < .01. * p < .05.
[a] control coded as 0 and target coded as 1.
[b] pre coded as 0 and post coded as 1.
[c] Interaction variable = Target/Control * Pre/Post.

Overall, there was no evidence of a significant programme effect on the key dependent measures. Differences were noted between target and control schools with target school pupils pursuing greater amounts of HIV/AIDS related information and communicating more with females and others compared to pupils in control schools but this difference was present at baseline and did not change significantly. None of these results could be credited to the intervention.

Hypothesis 1b

Peer Supporters will show an increase in knowledge, hold more positive attitudes/beliefs, and engage in more risk-reduction behaviours six months after the peer supporter programme has started compared to before the programme.

Effect of Programme on Peer Supporters

To assess the impact of the programme on peer supporters, analyses using time (pre vs. six-month post peer supporter training) as the independent variable and knowledge, attitudes and behaviour as the dependent variables were performed using hierarchical logistic and OLS regression. In both cases, a dummy coded variable for time was created where a value of 1 denoted six-month post-peer supporter training and a value of 0 denoted pre-peer supporter training. Knowledge, attitudes and behaviour scores were regressed on the time variable, controlling for the standard, age, gender, ethnicity and religion of individual peer supporters. Standard, age, gender, ethnicity and religion were entered simultaneously as a block in the first step of the analysis to control for potential demographic effects on knowledge, attitudes and behaviour, then time was added.

There was evidence of significant shifts in knowledge among peer supporters. Specifically, in the regression model, the controls accounted for a small, but significant proportion of variance in knowledge scores, $R^2 = .092, F(5, 118) = 3.49, p < .01$. Only standard and ethnicity emerged as statistically significant predictors ($p < .05$ and $p < .01$ respectively). Peer supporter training accounted for a significant additional proportion of knowledge variance, R^2 change $= .069, F(1, 117) = 10.04, p < .01$. The results indicated that six-months post-training peer supporters had better HIV/AIDS related knowledge compared to pre-training.

There was also evidence of changes in select attitudes over time (Refer to Table 12). With respect to the belief that one can say no to sex, the covariates did not account for a significant proportion of variance, $R^2 = .053, F(5, 124) = 1.39, p > .05$; however, the addition of the peer supporter training variable made the regression model significant, R^2 change $= .094, F(1, 123) = 3.64, p < .001$. These results indicated that compared to

pre-training, peer supporters at nine-months were more likely to believe they could say no to sex.

There was also a significant shift toward greater agreement that when a girl says no to sex she means no. For this item, controls accounted for a significant amount of the variance, $R^2 = .069$, $F(5, 123) = 2.91$, $p < .05$, with standard and gender emerging as the only statistically significant predictors ($p < .01$ and $p < .05$ respectively). Girls and those in standard 7 were more likely to convey this attitude compared to boys and those in standard 6. The addition of the peer supporter training variable accounted for an additional significant proportion of variance, R^2 change = .044, $F(1, 122) = 6.25$, $p < .01$. This suggested that peer supporters were significantly more likely six-months post-training to agree that when a girl says no she means no.

Significant shifts in attitude with respect to whether it is possible to have a boyfriend or girlfriend and not play sex, tell a boyfriend/girlfriend to wait until marriage to play sex, tell a boyfriend/girlfriend about condom use and use a condom when playing sex were not evidenced.

Table 12

Effect of Programme on Peer Supporter Knowledge and Attitudes Controlling for Standard, Age, Gender, Ethnicity and Religion in 9 Separate Hierarchical OLS Regressions using Independent Variable of Interest (Pre-Training Peer Supporter vs. Six-Month Peer Supporter)

IV: Pre. vs. Nine-month Post Training Peer Supporter[a]

Dependent Variable	Constant[b]	B[c]	*Beta*	t	R^2	R^2 Change
Knowledge	5.47	.889	.273	3.17**	.156***	.069**
Attitudes/Beliefs						
I can say no to sex	6.89	1.047	.317	3.69***	.106**	.094***
When a girl says no she means no	5.28	.688	.215	2.50*	.107**	.044**
It is always necessary to pressure a girl into playing sex	3.08	.545	.183	2.06	.04*	.032*
When a girl says no she means yes	3.38	.070	.023	.256	.043	.000
I can have a BF/GF for a long time and not play sex	6.41	.338	.113	1.27	.034	.012
I can tell my BF/GF to wait until marriage to play sex	5.11	.282	.136	1.51	.009	.017
I can tell my BF/GF about using a condom	4.83	-.464	-.138	-1.56	.044	.018
If I must play sex I can make sure we use a condom	4.84	-.112	-.034	-.371	-.033	.001

Note. *** $p < .001$. ** $p < .01$. * $p < .05$.

[a] Pre-peer supporter training coded as 0 and nine-month post peer supporter training coded as 1.

[b] Constant also represent mean score for pre-training peer supporter on each dependent variable

[c] Coefficients for each variable were controlled for Standard, age, gender, ethnicity and religion.

Separate logistic regressions were used to predict each of the variables ever played sex, recent sex, condom use, and risk-reduction behaviour (i.e have refused to play sex and have not gone somewhere to avoid playing sex) controlling for age, gender, tribe and religion. There was no evidence of significant change six-months after peer supporter training on any of the behavioural indicators. Table 13 provides a detailed summary of these results.

Overall, the results suggest that peer supporter training has had a positive influence on knowledge and two attitude items. There was no evidence however, of significant shifts towards reduction of sexual risk behaviour. At the same time, there was no evidence to suggest a significant increase in sexual behaviour, nor a decrease in risk-reduction behaviour (i.e. not going somewhere to avoid playing sex). With the exception of behaviour, the results support hypothesis 1b.

Table 13

Effect of Programme on Peer Supporter Behaviour Controlling for Standard, Age, Gender, Ethnicity and Religion in 3 Separate Hierarchical Logistic Regressions with Independent Variable of Interest (Pre-training Peer Supporter vs. Six-Month Peer Supporter)

Logistic Regression	Global Chi-Square Model of Fit	Adjusted Pre-Post Odds Ratio	Wald Statistic	B
Ever Played Sex	14.50*	.750	.811	-.287
Refused to play sex in the last 3 months	24.93***	.859	.091	-.152
Not gone somewhere in the last 3 months to avoid playing sex	7.75	.765	.226	-.268

Note. *** $p < .001$. ** $p < .01$. * $p < .05$.
Recent sex and condom use items were not included in logistic regression as dependent variables due to the small number of peer supporters who had played sex (n = 18).

Hypothesis 2

Six months following deployment of trained peer supporters in schools, trained peer supporters, compared to students participating in PSABH programmes will: (1) score higher on measures of HIV/AIDS related knowledge; (2) be more accepting of abstinence, condom use, and people living with HIV/AIDS; (3) engage in more risk reduction strategies including delayed first intercourse, decreased recent sexual activity, increased condom use and increased avoidance of settings where sex is likely to occur; (4) express greater confidence in their ability to employ risk reduction strategies; (5) report greater pursuit of HIV/AIDS related information and communication with others about sex and HIV/AIDS.

To examine differences between peer supporters and pupils on knowledge, attitudes and behaviour six-months after the programme entered the schools, both hierarchical logistic and OLS regression analyses were used. For continuous scale scores, OLS regression analyses were performed using peer supporters/pupils as the independent variables and knowledge and attitudes as the dependent variables. For categorical items, logistic regression analyses were used with peer supporters/pupils as the independent variable.

In both cases, a dummy coded variable for peer supporters vs. pupils was created where a value of 1 denoted individual peer supporters and a value of 0 represented pupils in peer supporter schools. This variable consisted of pupils and peer supporters surveyed at nine-months only. Standard, age, gender, ethnicity and religion were entered simultaneously as a block in the first step of the analysis to control for baseline differences and any possible confounding effect on knowledge, attitudes/beliefs and behaviour.

For knowledge, the controls accounted for a small, but significant proportion of variance in knowledge scores, $R^2 = .044$, $F\ (6, 1075) = 9.20$, $p < .001$ (Refer to Table 14). All controls with the exception of age proved to have a statistically significant effect on knowledge ($p < .05$). In this case, those in standard 7, boys, from a tribe other than Kikuyu and a faith other than Protestant had higher knowledge scores. Addition of the peer supporter vs. pupil variable accounted for an additional significant proportion of

knowledge variance, R^2 change = .016, F (1, 1074) = 18.77, $p < .001$. Peer supporters evidenced better knowledge of HIV/AIDS compared to pupils.

There was also evidence that peer supporters held stronger convictions with respect to select attitudes and beliefs compared to pupils. With respect to the belief that one can say no to sex, the controls accounted for a small, but significant proportion of variance, $R^2 = .012$, F (6, 1630) = 11.96, $p < .001$ (Refer to Table 14) with age, ethnicity and SES emerging as having a statistically significant effect ($p < .05$). Specifically, those younger in age, of a faith other than Protestant and higher in SES expressed being more certain they could say no. The addition of the peer supporter vs. pupil variable accounted for a significant additional amount of variance, R^2 change = .005, F (1, 1629) = 8.56, $p < .01$. In this case, peer supporters were more likely than pupils to believe they could say no to sex.

An additional difference was seen between peer supporters and pupils when it came to beliefs about the necessity of pressuring a girl to play sex. With respect to this belief, the controls accounted for a very small, but significant proportion of variance, $R^2 = .023$, F (6, 1617) = 7.23, $p < .001$ (Refer to Table 14), with standard, gender and ethnicity identified as statistically significant effect ($p < .05$). The addition of the peer supporter vs. pupil variable accounted for a significant additional proportion of variance, R^2 change = .009, F (1, 1616) = 14.73, $p < .001$. These results indicated that peer supporters were more likely than pupils to reject the idea that it is always necessary to pressure a girl into playing sex. Rejection of this statement also received greater endorsement by standard 7 pupils, girls, and those from the Kikuyu tribe.

With respect to beliefs about one's ability to have a dating partner and not engage in sexual intercourse, differences were noted only with respect to age. In the regression model, the controls did account for a very small, but significant proportion of variance $R^2 = .005$, F (6, 1608) = 2.35, $p < .05$, (see Table 14), but age emerged as the only significant variable ($p < .05$). Addition of the peer supporter vs. pupil variable proved non-significant and failed to contribute to the overall model. In this case, those younger in age (e.g.,10-12) expressed greater certainty in their ability to have a boyfriend/girlfriend for a long time and not play sex compared to those older in age (e.g., 16-17 year olds categories).

Differences were found between peer supporters and pupils with respect to beliefs about ability to tell one's dating partner that sex is only appropriate after marriage. In this case, the control model accounted for a very small, but significant proportion of variance, $R^2 = .010$, F (6, 1614) = 3.86, $p < .01$ (Refer to Table 14) with standard and ethnicity having statistically significant effects ($p < .05$). The addition of the peer supporter vs. pupil variable accounted for a significant additional amount of variance, R^2 change = .005, F (1, 1613) = 8.13, $p < .01$. These results indicated that peer supporters were significantly more convinced than were pupils that they could tell their boyfriend/girlfriend to wait until marriage to play sex compared to pupils as were those in Standard 7 and those not of the Kikuyu tribe.

When it came to beliefs about the ability to talk to a boyfriend/girlfriend about using condoms, interesting differences were also noted between pupils and peer supporters. For this regression model, the controls accounted for a significant proportion of variance, $R^2 = .042$, F (6, 1622) = 13.00, $p < .001$ (Refer to Table 14) with gender, ethnicity and SES proving statistically significant ($p < .05$). Girls, those from a faith other than Protestant and those higher in SES expressed greater confidence in their ability to talk to a partner about condoms. The addition of the peer supporter vs. pupil variable accounted for a significant additional amount of variance, R^2 change = .007, F (1, 1621) = 11.94, $p < .01$. In this case, however, it was pupils who were significantly more likely to believe that they could speak to their boyfriend/girlfriend about condoms compared to peer supporters.

Examination of differences on pursuit of HIV/AIDS related information found the controls accounting for a significant proportion of variance, $R^2 = .017$, F (6, 1643) = 5.67, $p < .001$, (Refer to Table 14) with standard and gender proving to have statistically significant effects ($p < .05$). The addition of the peer supporter vs. pupil variable helped explain a significant additional proportion of variance R^2 change = .022, F (1, 1642) = 37.38, $p < .001$ indicating that peer supporters were pursuing HIV/AIDS related information to a significantly greater extent than pupils. Similar to peer supporters, girls and those in Standard 7 were also pursuing more information.

While both pupils and peer supporters were communicating to a certain extent with female relatives, differences were noted in the degree to which both groups were

doing so. For this model the controls accounted for a significant proportion of variance, $R^2 = .187$, F (6, 1643) = 62.97, $p < .001$, (Refer to Table 14) with only gender emerging as having a statistically significant effect ($p < .05$); specifically, girls communicated more than did boys with female relatives. Addition of the peer supporter vs. pupil variable helped account for an additional amount of variance, R^2 change = .003, F (1, 1642) = 7.06, $p < .05$. In this respect, peer supporters were shown to be communicating with female relatives to a greater extent than were pupils.

The same pattern was seen for communication with male relatives, where the controls accounted for a significant proportion of variance, $R^2 = .076$, F (6, 1643) = 22.41, $p < .001$ (Refer to Table 14) in this case, with both gender and ethnicity having statistically significant effects ($p < .05$). In this sense, boys and those of non-Kikuyu tribal groups reported talking more to male relatives. Addition of the peer supporter vs. pupil variable helped explain an additional proportion of variance, R^2 change = .005, F (1, 1642) = 8.48, $p < .01$ again with peer supporters having communicated more with male relatives compared to pupils.

With respect to communication with others (i.e. teachers, community leaders, pupils, etc), the regression model with controls accounted for a significant proportion of variance, R^2 = .023, F (6, 1643) = 7.39, $p < .001$ (Refer to Table 14) with standard proving statistically significant ($p < .05$), specifically those in Standard 7 having talked to others significantly more than those in Standard 6. Adding the peer supporter vs. pupil variable accounted for a significant additional amount of variance R^2 change = .003, F (1, 1642) = 4.94, $p < .05$ with peer supporters having communicated with others to a much greater extent than pupils.

Table 14

Coefficients for Peer Supporter-Pupil Differences in 13 Knowledge and Attitude Variables Calculated using Hierarchical OLS Regression and Entering Demographic Controls (Age, Gender, Ethnicity, Religion and SES) in Step 1.

Dependent Variable	Constant[a]	B	*Beta*	t	Full Model R^2	R^2 Change[b]
Knowledge	5.98	.843	.128	4.33***	.059***	.016***
Attitudes/Beliefs						
I can say no to sex	4.60	.617	.072	2.93**	.017***	.005**
When a girl says no she means no	4.36	.407	.047	1.92	.018***	.002
It is always necessary to pressure a girl into playing sex	3.66	.786	.094	3.84***	.031***	.009***
When a girl says no she means yes	3.46	.377	.045	1.83	.027***	.002
I can have a BF/GF for a long time and not play sex	4.48	.303	.038	1.53	.006*	.001
I can tell my BF/GF to wait until marriage to play sex	4.29	.496	.071	2.85**	.015***	.005**
I can tell my BF/GF about using a condom	3.82	-.761	-.084	-3.46*	.049***	.007***
If I must play sex I can make sure we use a condom	4.03	-.221	-.025	-1.03	.051***	.001
Pursuit of HIV/AIDS related information	4.98	2.03	.148	6.11***	.038***	.022***
Talked to female relative	1.40	1.28	.071	3.13**	.192***	.005**
Talked to male relative	3.56	1.15	.070	2.91**	.076***	.005**
Talked to other[c]	4.00	.582	.054	2.22*	.025***	.003*

Note. *** $p < .001$. ** $p < .01$. * $p < .05$.

[a] Constant value also represents mean for pupils controlling for standard, age, gender, religion, ethnicity and SES.

[b] Represents change in R after addition of the Peer Supporter/Pupil variable.

[c] Other includes those who are not female or male relatives (i.e. teacher, pupil, community leader).

Separate sequential hierarchical regressions were used to predict the variables ever played sex, recent sex, condom use, and risk-reduction behaviour (i.e have refused to play sex and have not gone somewhere to avoid playing sex) controlling for age, gender, tribe, religion and SES. Table 15 provides a summary of results for all logistic regressions performed.

For ever played sex, control variables were entered at the first step and were found to be significant, Chi. Sq (6, N = 4226) = 199.65, $p < .001$. The pupil/peer supporter variable was entered next and on its own was also significant, Chi Sq. (7, N = 4226) = 4.81, $p < .05$. Wald tests showed that age, [Wald (1) = 15.68, p = .000], gender, [Wald (1) = 137.91, p = .000], tribe, [Wald (1) = 7.56, p = .000] and pupils/peer supporters [Wald (1) = 4.43, p = .000] made significant unique contributions. Specifically, the odds of ever having played sex were greater for those older in age, boys, Kikuyu and pupil (Wald's statistic = 4.43, *df* = 1, Adjusted *OR for Peer Supporters vs. Pupils* = .516, $p < .05$[16]) participants.

Overall, the results for hypothesis 2 suggest that post-programme, peer supporters had better knowledge about HIV/AIDS, expressed greater belief in their ability to say no to sex and to have a girlfriend or boyfriend for a long time without engaging in sex and were less likely to agree that it is necessary to pressure a girl to play sex or that when a girl says no to sex she actually means yes. Peer supporters were also found to be doing more to attain HIV/AIDS related information and to be communicating to a greater extent with a number of different people. In terms of sexual behaviour, of significance was the finding that pupils were 1.9 times more likely ($.516^{-1}$) to have reported ever having played sex than were peer supporters. Overall, the results supported hypothesis 2. These results however, do not permit us to conclude that peer supporters gained more from the programme as we did not test for difference over time.

[16] NOTE: An odds ratio greater than 1.0 indicates greater likelihood that a peer supporter had ever played sex. Conversely, an odds ratio of less than 1.0 indicated less likelihood that a peer supporter had engaged in sex compared to a pupil.

Table 15

Output for 6 Hierarchical Logistic Regression Analyses with Independent Variable of Interest (pupils vs. peer supporters) Controlling for Age, Gender, Ethnicity, Religion and SES

Logistic Regression	Global Chi-Square Measure of Fit	Adjusted Odds Ratio	Wald Statistic	B
Ever Played Sex	204.46***	.516*	4.43	-.662
Refused to play sex in the last 3 months	7.32	1.305	.615	.266
Not gone somewhere in the last 3 months to avoid playing sex	43.86***	.888	.113	-.119
Recent Sex	39.76***	.188	12.29	.014

Note. *** $p < .001$. ** $p < .01$. * $p < .05$.

Hypothesis 3

Students will rate peer supporters more favorably than they rate teachers.

Differences Between Pupil Reported Ratings of Peer Supporters and Teachers

To examine whether there was a difference between how pupils identified with (rated) teachers compared to peer supporters, the composite identification/rating scores for teachers and peer supporters were compared using a paired samples t-test. The results suggested no difference between the ratings given to peer supporters and those given to teachers, $t = 1.38$, $df = 1135$ (see Table 16), nor in the extent to which pupils were interacting with either peer supporters or teachers, $t = -.44$, $df = 1004$. They did suggest, however, significant differences in terms of perceived influence of teachers vs. peer supporters, $t = -5.25$, $df = 895$. In this respect, pupils were significantly more likely to perceive teachers as having more influence on them than peer supporters.

Table 16

T-tests on Ratings of Teachers vs. Peer Supporters

Variable	t	df	Mean Peer Supporter Mean	SD	Teacher Mean	SD
Pair 1: Identification with/Rating of Peer Supporters vs. Teachers	1.37	1135	8.47	1.88	8.40	1.62
Pair 2: Peer Supporter Influence vs. Teacher Influence	-5.25**	895	7.09	1.33	7.30	1.13
Pair 3: Pupil Interaction with Peer Supporters vs. Pupils Interaction with Teachers	-.438	1004	5.16	2.84	5.20	2.81

*** $p < .001$, ** $p < .01$, * $p < .05$.

Hypothesis 4

Identification with and ratings of peer supporters will be positively associated with changes in knowledge, attitudes and behaviour (KAB). Specifically:

a. *Increasing student identification with and rating of peer supporters will be associated with increases in knowledge, positive shifts in attitudes/beliefs and reduction in high-risk behavior.*
b. *Increasing student identification with and rating of teachers will be associated with increases in knowledge, positive shifts in attitudes/beliefs and reduction in high-risk behaviour.*
c. *The overall associations will be greater with respect to identification with/rating of peer supporters compared to identification with/rating of teachers*

Effect of Pupil Reported Identification with/Ratings of Teacher and Peer Supporters on Knowledge, Attitudes/Beliefs and Behaviour

To test the effect of teacher and peer supporter ratings on knowledge, attitudes and behaviour post-programme, OLS regression was used for continuous dependent variable scores and logistic regression for categorical dependent variable items. Both the teacher identification/rating and peer supporter identification/rating variables were entered into the regression simultaneously. To test whether ratings given to peers had a stronger effect than ratings given to teachers, the regression coefficients were then compared. A summary of the results for all OLS and logistic regressions performed are contained in Tables 17 and 18 respectively.

For knowledge, the overall regression model was significant, $R^2 = .013$, $F\,(2, 780) = 6.27$, $p < .01$. Only the peer supporter identification/rating however, achieved statistical significance, $p < .001$.These results indicated that those who rated peer supporters more highly also had higher knowledge scores.

Similar results were seen for attitude/belief items. In particular, the overall regression models were significant for predicting beliefs about one's ability to say no to sex, ($R^2 = .028$, $F\,(2, 1128) = 17.08$, $p < .001$), appropriateness of pressuring a girl to play sex, ($R^2 = .008$, $F\,(2, 1115) = 5.79$, $p < .01$), and that when a girl says no she means yes, ($R^2 = .004$, $F\,(2, 1133) = 3.10$, $p < .05$). For all of these, only the peer supporter rating had a significant effect ($p < .05$) with those who rated the peer supporter higher more

likely to agree that they could say no to sex and to disagree that it is necessary to pressure a girl to play sex and that when a girl says no to sex she means yes.

Both teacher and peer supporter ratings proved to have a significant effect with respect to the belief that one could have a dating partner without playing sex, with the overall model explaining a significant proportion of the variance, ($R^2 = .022$, F (2, 1105) = 12.27, $p < .001$). This finding suggested that pupils who rated teachers and peer supporters higher were also more likely to agree that they could have a dating partner for a long time without playing sex.

Both teacher and peer supporter ratings also proved significant ($p < .001$) as did the overall model, ($R^2 = .033$, F (2, 1133) = 12.27, $p < .001$), when it came to pursuit of HIV/AIDS related information, indicating greater pursuit of information by those who rated both the teacher and peer supporter more highly. In this case, the coefficient for peer supporter ratings was greater (Beta = .117) than the coefficient for teacher ratings (Beta = .107) indicating a greater increase in pursuit of information as ratings of peer supporters increased compared to that of teacher ratings.

For communicating with female relatives, the overall model explained a significant proportion of variance, ($R^2 = 015$, F (2, 1133) = 9.69, $p < .001$), with only the teacher rating emerging having a statistically significant effect ($p < .01$). This indicated that pupils who rated teachers higher were also communicating more with female relatives.

The regression model for communication with others was also significant, ($R^2 = .047$, F (2, 1105) = 27.80, $p < .001$), with both the peer supporter and teacher ratings proving significant ($p < .001$ and $p < .05$ respectively). Here those who rated peer supporters and teachers higher were also communicating more with others.

Table 17

Coefficients for Teacher vs. Peer Supporter Ratings in 13 Separate Hierarchical OLS Regressions

	Identification with/ Rating of Teacher			Identification with/ Rating of Peer Supporter			
Dependent Variable	B	Beta	t	B	Beta	t	R^2
Knowledge	-.002	-.002	-.049	.106	.126	3.30***	.013**
Attitudes/Beliefs							
I can say no to sex	-.029	-.029	-.898	.160	.181	5.65***	.028***
When a girl says no she means no	.055	.055	1.68	.012	.014	.433	.002
It is always necessary to pressure a girl into playing sex	.040	.040	.221	.069	.079	2.41**	.010**
When a girl says no she means yes	.017	.017	.515	.059	.065	2.02*	.004*
I can have a BF/GF for a long time and not play sex	.085	.089	2.74**	.072	.087	2.68**	.020***
I can tell my BF/GF to wait until marriage to play sex	.030	.036	1.204	.034	.048	1.46	.003
I can tell my BF/GF about using a condom	.013	.012	.370	-.020	-.021	-.631	.000
If I must play sex I can make sure we use a condom	-.030	-.028	-.844	-.003	-.003	-.090	.001
Pursuit of HIV/AIDS related information	.175	.107	3.35***	.166	.117	3.67***	.033***
Communication							
Talked to female relatives	.215	.097	3.02**	.106	.055	1.72	.015***
Talked to male relatives	.105	.052	1.61	-.082	-.047	-1.45	.001
Talked to others	.100	.077	2.43**	.191	.173	5.47***	.045***

*** $p < .001$, ** $p < .01$, * $p < .05$.

Separate logistic regressions were used to predict the variables ever played sex, recent sex, condom use, and risk-reduction behaviour (i.e have refused to play sex and have not gone somewhere to avoid playing sex). Refer to Table 18 for a complete summary. Both teacher and pupil ratings were entered into the model with each of the criterion variables. The model for ever played sex was significant, [Chi. Sq (2, N = 1125) = 44.31, $p < .001$]. Wald tests showed that both rating of peer supporters, [Wald (1) = 15.81, $p = .000$] and rating of teachers, [Wald (1) = 11.06, $p = .000$] made significant unique contributions. Specifically, the odds of ever having played sex were lower when ratings of both peer supporters and teachers were higher. Since the result for ever playing sex is in the desired direction, this is equivalent to the hypothesized positive association. In general, peer supporter ratings influenced knowledge and attitudes/beliefs to a greater extent than did teacher ratings. Teacher ratings appeared to have greater influence only with respect to communication with female relatives. For beliefs about ability to have a dating partner for a long time and not play sex, pursuit of information, communication with others and ever having played sex, peer supporter and teacher ratings were equally influential.

Table 18

Output for 6 Separate Hierarchical Logistic Regressions with 2 Independent Variables of Interest (Ratings of Teachers and Ratings of Peer Supporters)

Logistic Regression	Global Chi-Square Measure of Fit	Adjusted Odds Ratio		Wald Statistic		B	
		Teacher Rating	Peer Supporter Rating	Teacher Rating	Peer Supporter Rating	Teacher Rating	Peer Supporter Rating
Ever Played Sex	44.30***	.870***	.866***	11.06	15.82	-.139	-.143
Refused to play sex in the last 3 months	3.68	1.027	1.063	.325	2.07	.027	.061
Not gone somewhere in the last 3 months to avoid playing sex	1.53	1.012	.953	.066	1.47	.012	-.048

Hypothesis 5a

Youth who receive peer education training will be more likely after training to: (1) report greater comfort and confidence in their ability to be peer educators; (3) expect to employ different interactive activities and communication strategies to address HIV/AIDS and sexual health; (4) perceive themselves as positive role models and agents of HIV education and prevention and (5) show greater knowledge and more positive attitudes/beliefs.

Effect of Peer Education Training

Description of Peer Supporter Training Effects on Pupils and Peer Supporters

Survey questions related to peer supporter training were examined in order to assess how peer supporters were perceived and received within the schools as well as how peer supporters themselves were experiencing their roles. This section describes both quantitative and qualitative results based on reports given by both pupils and peer supporters with respect to this topic.

Peer supporters reported playing an active role within their school, as evidenced by their involvement in setting up school activities related to HIV and AIDS and communicating with pupils about the subject. Pupil responses to survey questions about peer supporter involvement supported such claims. Table 19 presents the mean percentage of self-reports by both pupils and peer supporters of peer supporter activity. Interesting to note are differences in the percentage of peer supporters reporting engagement in select activities and pupils reports of such engagements. In this case, pupils were less likely to report that peer supporters were actively engaged in each activity.

Table 19

Mean Percentage of Pupils and Peer Supporters reporting Peer Supporter Activity within School

	Pupil n	Percentage of Pupils report that PS[a] has...	PS n	Percentage of PS who say they have...
Talked to pupil about HIV/AIDS	1432	81.1	65	87.0
Helped a pupil avoid playing sex	1375	74.4	65	91.3
Answered question in question box	1412	64.3	65	79.7
Talked about HIV/AIDS at school health club	1370	62.9	65	91.3
Set up a school activity for pupils	1312	53.9	65	71.0
Held a school health meeting	1357	54.3	65	69.6

Note: [a] PS = Peer Supporter

Input from qualitative interviews with pupils suggested that peer supporters have been visible and actively engaged in activities related to HIV and AIDS within their respective schools. In focus groups, pupils said that peer supporters had helped lead activities and answer questions for them. At times, peer supporters stepped up in the absence of teachers to lead activities or disseminate information.

> *They taught us on how AIDS starts the symptoms and they told us it is not good to play sex* (RGirls1: 342-343).

> Q: *When do they* [peer supporters] *teach you?*
> *When the teachers has not yet come* (RGirls4: 804-806).

An attempt was also made to assess the degree to which pupils identified with peer supporters in terms of being similar, a credible source of information, easily approachable, highly regarded, and a role model. Table 20 presents the mean percentage of pupils agreeing with each identification item in relation to both peer supporters and teachers. Results suggested that pupils perceived peer supporters as being similar to them, easy to talk to, knowledgeable and role models. For comparison purposes, pupils were also asked to rate teachers on these same characteristics. Results suggested that teachers were also identified similarly to peer supporters.

In terms of pupils having interacted directly with or taken part in activities led by peer supporters, a large proportion of pupils reported having asked a question about HIV/AIDS, talked about abstaining from sex or gone to a meeting and received information about condoms, all with or from a peer supporter. Fewer pupils reported having spoken about being forced to play sex or discussing a personal problem with a peer supporter. Similarly, pupils reported active engagement with teachers to relatively the same degree as with peer supporters. Table 21 presents the mean percentage of pupils reporting engagement in each activity with each of peer supporters and teachers.

Table 20

Mean Percentage of Pupils Agreeing with each Identification Item in Relation to Both Peer Supporters and Teachers

Percentage of pupils who agree that either the peer supporter or teacher...	n	Peer Supporters	n	Teachers
Know a lot	1347	86.4	1512	89.4
Are like me	1512	44.3	1512	38.6
Is someone I can talk to	1400	81.0	1016	86.0
I would like to do what they do to stay safe	1377	76.8	1497	71.2
I wish I could act like they do	1348	79.8	1493	72.8

Table 21

Mean Percent of Pupils Reporting Engagement in Activity with Peer Supporters and with Teachers.

Percentage of pupils who have...	n	Peer Supporters	n	Teachers
Asked a question about HIV/AIDS	1512	69.3	1459	72.6
Talked about a personal problem	1512	44.8	1399	48.8
Talked about abstaining from sex	1512	60.1	1377	57.4
Talked about being forced to play sex	1512	36.4	1396	34.5
Participated in an activity led by	1512	48.1	1332	48.3
Went to a school health club meeting led by	1512	48.0	1372	54.4
Received information about condoms from	1512	50.9	1372	54.4

Pupils were also asked to assess both peer supporters and teachers in terms of helping or influencing them in either positive or negative ways. Table 22 presents the mean percentage of pupils agreeing with each assessment item. Both teachers and peer supporters were seen by a large proportion of pupils as being helpful, easy to understand and not dull or boring. Teachers were slightly more likely to have been identified as teachers of HIV/AIDS, conduits of knowledge, able to help pupils to make better decisions about playing sex. Note however, that peer supporters were also identified for their ability to do these things by a large majority of pupils.

In focus groups, pupils reported liking the peer supporters because they give advice on and strategies for abstaining from sex, avoiding being forced to play sex and caring for People Living with HIV/AIDS (PLWHA's). Pupils also recognized peer supporters for their answering of questions in the question box.

> Q: *What are some of the things you like about peer supporters?*
> *They give us good advice* [on] *what we can do when people are telling us to play sex, if they tell you to play sex you say no* (RGirls2: 1140-1143).

> Q: *Have the answers from peer supporters helped you?*
> *Yes.*
> Q: *Like in what way have the answers helped you especially you.*
> *To avoid playing sex...*
> *Helped me to stop playing sex...*
> *Has helped me to avoid these issues...going round playing sex...*
> *Has helped me to maintain personal hygiene like razor blade in the barbers shop* (RBoys1: 1651-1672).

> *They teach us well* (RGirls4: 1220).

Also to emerge from focus groups was that not all peer supporters were adequately assuming the roles they were trained to play. A few youth were concerned that some peer supporters were too shy to reach out to their peers while others commented that the male peer supporters in their school were not setting such a good example by engaging in the very behaviours they tell pupils to refrain from.

> *If we ask them they shy off* (RBoys4: 1477).

Sometimes they surely say do not play sex and when you find them they play sex... When they have taught people the truth they should also not do so in order for the others to follow (RBoys1: 1721-1726).

Table 22

Mean Percent Agreement with Assessment Items

Percentage of pupils who agree that...	n	Peer Supporters	n	Teachers
Been very helpful	1388	87.2	1472	93.9
Taught me about HIV/AIDS	1388	80.7	1457	90.6
Are difficult to understand	1512	34.7	1512	33.7
Do not feel shameful talking to them	1351	69.6	1396	75.7
Are boring	1512	28.1	1512	28.0
Have learned a lot from them	1380	81.4	1443	86.2
Can make better decisions about playing sex because of them	1305	67.1	1342	72.2

Individual items related to peer supporter comfort discussing various topics were examined for significant differences both pre to post-peer supporter training and pre- to six-month peer supporter training using Chi-square analysis. Table 23 describes the mean percentage of peer supporters who agreed with each of the items. Results suggested that peer supporters became more comfortable over time discussing how HIV is transmitted, playing sex, information about AIDS and ways to abstain from playing sex or showing love to someone without playing sex.

Of note is peer supporter comfort with respect to talking about condoms. Immediately after training there was a significant increase in comfort (i.e. from 35.4% to 72.7% for when to use a condom and from 33.8% to 83.3% on how to use a condom). This was followed however, by a marked decrease in speaking about the subject (i.e. from 72.7% to 47.8% for when to use a condom and from 83.3% to 33.3% for how to use a condom).

Overall, reported comfort in discussing most topics appeared to translate to active communication on the part of peer supporters within their schools. The exception to these topics, however, appeared to be with respect to condoms where a very small percentage of peer supporters reported actually speaking about them to pupils (i.e. < 37%).

Table 23

Mean Percent Agreement with Discussion Comfort Items

I am comfortable talking about...	% Pre-training	% Post-training	% 6m post-training	% Post-Pre Diff	% 6m-Pre Diff
How HIV is transmitted	78.5	87.9	98.6	9.4	20.1**
Playing sex	27.7	31.8	50.0	4.1	22.3*
AIDS	63.1	78.8	95.6	15.7	32.5***
Ways to abstain from playing sex	55.4	27.3	91.3	-28.1**	35.9***
Ways of showing you love someone without playing sex	64.6	34.8	88.1	-29.8**	23.5***
When to use a condom	35.4	72.7	47.8	37.30***	12.4
How to use a condom	33.8	83.3	33.3	49.50***	-0.5
Where to get a condom	27.7	40.9	23.1	13.2	-4.6
Risk for HIV/AIDS	70.0	80.0	81.8	10.0	11.8
I have actually spoken about...					
How HIV is transmitted	-	-	95.7	-	-
Playing sex	-	-	53.6	-	-
AIDS	-	-	94.2	-	-
Ways to abstain from playing sex	-	-	95.7	-	-
Ways of showing you love someone without playing sex	-	-	92.8	-	-
When to use a condom	-	-	36.2	-	-
How to use a condom	-	-	26.1	-	-
Where to get a condom	-	-	23.2	-	-

Note: *** $p < .001$ ** $p < .01$ * $p < .05$.

There was ample evidence from focus groups with pupils to support claims made by peer supporters of their activities in speaking about sex and HIV/AIDS. As noted in the quantitative results, communication about condoms was more problematic and tended to emphasize their fallibility.

> Q: *What do peer supporters do?*
> *They talk to us about how to live and prevent it...avoiding Aids, having one partner, trust one another and visiting VCT...They come and we are taken to the hall, boys on their own and girls to, we are taught and we write notes* (RBoys2: 97-109).
>
> *Sometimes when you go to sit with them they start telling what they were taught* (RGirls2: 1018-1019).
>
> Q: *What did they tell you about HIV/AIDS?*
> *That when somebody wants to make love to you, you pinch him here...*
> Q: *At the nose?*
> *Yes...[and] that you hit him between his legs* (RGirls4: 1137-1146).
>
> *We tried to explain that HIV virus is very small...that it would pass through the breathing pores of the condom* (RPST4: 137-139).
>
> *He* [peer supporter] *told us that it* [the condom] *has several holes* (NGirls9: 975-984).

Reported peer supporter confidence in carrying out tasks fundamental to their role was relatively high both before training and remained so over time. Such observations were confirmed using Chi-square analysis. Table 24 represents the mean percent of peer supporters who agreed with each of the eight confidence items included in the survey. There was indication of a sizeable increase in confidence when it came to getting information, presenting such information accurately and making presentations about HIV/AIDS, talking to other pupils about playing sex, and teaching others how to care for people living with HIV and AIDS. These noted observations were subsequently tested in multivariate regression analyses, the results of which appear in the section on main hypotheses testing.

Table 24

Mean Percent Agreement with Peer Supporter Confidence Items

I am confident that I can...	Pre-training	Post-training	6m post-training	Pre-Post diff.	6m-Pre diff.
Get information about HIV/AIDS	80.0	83.3	97.1	3.30	17.1**
Present accurate information about HIV/AIDS to pupils	67.7	84.9	94.2	17.2*	26.5***
Talk to other pupils about playing sex	24.6	36.4	46.4	11.8	21.8**
Help other pupils develop skills to protect themselves	87.6	81.8	95.7	-5.8	8.1*
Explain to pupils how a condom should be used	32.3	15.2	37.6	-17.1	5.3
Teach other pupils how to care for PLWHA's	81.5	90.9	97.1	9.4	15.6***
Help other pupils understand their risk for HIV/AIDS	84.6	88.8	95.6	4.2	11.0
Make presentations about HIV/AIDS	61.5	66.7	88.4	5.20	26.9**

Note: *** p < .001. ** p < .01. * p < .05.

While barriers to being a peer supporter were reported, this was for the most part by a select few (Refer to Table 25). A majority of peer supporters did cite shy pupils as being a major barrier to them in their role as a peer supporter.

Focus group discussions with peer supporters indicated that their roles were not without constraint or difficulty. Their main concern seemed to be the fact that some pupils teased and ostracized them. The majority, however, saw and accepted this as embedded within their role.

> *The disadvantage is when you explain to your colleagues some of them might abuse you in disregard and call you stupid* (BPSI: 708-709).

> *Some of them say we do waste their time and whatever we teach them is not examinable during exams* (BPSI: 886-889).

> *When you are writing and you have turned your back, they hit you. When you turn and ask who has done it, nobody talks to you instead they laugh* (MBPSII: 355-357).

> [When they argue with me] *I tell them it is not bad but to have a lover is bad. A boyfriend is just a male friend, a lover is someone that you love the most and he is not the same sex. If your intentions are bad, it is bad. Good intentions are to say 'no' to sex and to discuss more about education* (GPSI: 934-940).

> *Others mock you, ask senseless or hard to answer questions, accused of having AIDS, pupils do not pay attention to or respect you, nor do they take you seriously, boys and older girls (i.e. 16 and above) are especially difficult, accuse you of knowing nothing especially if you cannot answer their questions, pupils disobey you when teaching, pupils do not take what you say seriously, they laugh at you. But this is part of our job* (BPSI: 1023-1045)

Table 25

Mean Percent Agreement with Peer Supporter Barrier Items.

Percentage who agree that...	% 6M post-training
Not enough time to set up activities for pupils	31.9
Not enough training	27.9
Pupils are too shy to talk about HIV or AIDS	42.6
Pupils are too shy to talk about playing sex	51.5
I am uncomfortable talking about HIV and AIDS	36.8

Hypothesis 5b

Peer Supporters will be more likely over time to: show greater knowledge and more positive attitudes/beliefs and engage in greater risk-reduction behaviours.

Effect of Peer Education Training across pre-post-training and nine-month follow-up

To test the effect of training on peer supporter knowledge, attitudes and behaviour at pre/post-training and six-months post-programme, responses were dummy coded to reflect whether they represented pre-programme training [(i.e., pre- training (1) vs. post-training/6m post-training (0)], post-programme training [(i.e., post-training (1) vs. pre-training/6m post-training (0)] or six-month post-programme training [(i.e., 6m post-training (1) vs. pre-training/post-training (0)] scores. These dummy coded variables were used as the independent variables and both logistic and OLS regressions were performed on knowledge, attitudes and behaviours on these dummy coded variables of interest. In order to control for baseline differences for demographic characteristics and possible confounding variables, standard, age, gender, religion and ethnicity were added as controls. The regressions were run in a hierarchical manner where, the controls were entered into the equation first and both dummy coded variables of interest second. The results of all OLS and logistic regressions performed can be found in Tables 26 and 27 respectively. Mean values for significant results can be found in Table 28.

For knowledge, the controls accounted for a significant proportion of variance in knowledge scores, ($R^2 = .109$, $F\,(5, 183) = 4.49$, $p < .001$) with standard and ethnicity statistically significant ($p < .05$). More specifically, those in standard 7 and Kikuyu scored higher on knowledge. Addition of the peer supporter variables accounted for a significant proportion of additional knowledge variance R^2 change = .06, $F\,(2, 181)$, $p < .01$. The significant gain in peer supporter knowledge was not immediately evident post-training, but was evident after they had been working as peer supporters for six months.

In terms of beliefs about ability to say no to sex, it was found that the control variables accounted for a significant proportion of variance, ($R^2 = .043$, $F\,(5, 190) = 2.76$, $p < .05$), with standard, age and religion statistically significant. In this case, pupils in Standard 7, younger in age and of a faith other than Protestant were more likely to feel they could say no to sex. Addition of the main independent variables of interest

accounted for an additional significant proportion of variance, R^2 change = .063, F (2, 188) = 2.76, $p < .001$, with both immediate post-training and six-month post training variables proving statistically significant ($p < .05$). The results suggested a significant shift over time in peer supporters' beliefs about their ability to say no to sex, with more believing they could do so immediately following training and again after working as peer supporters for six months.

The initial regression model with only controls predicting beliefs about ability to have a dating partner did account for a small but significant proportion of variance, (R^2 = .038, F (5, 190) = 2.54, $p < .05$); however, none of the controls proved to be statistically significant on their own. Addition of the peer supporter variables, however, accounted for a significant additional change in the proportion of variance, (R^2 change= .031, F (5, 188) = 3.26, $p < .05$), with only the immediate post-training variable statistically significant. After the one-week peer supporter training workshop, peer supporters were significantly more likely to believe they could have a boyfriend/girlfriend but not play sex. This belief did not change over the six months they were peer supporters.

Differences were also seen for peer supporter confidence in their role and comfort talking about HIV/AIDS related issues. The regression model for confidence accounted for a significant proportion of variance (R^2 = .113, F (7, 187) = 9.48, $p < .001$). These results suggested a significant increase in peer supporter confidence from pre to post training and an additional increase from after six months.

The same effect was seen for peer supporter comfort, with the regression model accounting for a significant proportion of variance, (R^2 = .053, F (7, 181) = 2.49, $p <$ .05), only after inclusion of the peer supporter training variables. Peer supporters became significantly more comfortable with their role from pre to post training and continued gaining comfort through to six-months post-training.

The results for hypothesis 5b suggest that peer supporter training has had a significant and positive influence on knowledge, attitude/beliefs, and comfort and confidence in one's role as a peer supporter. For knowledge, a significant shift was not evidenced until six-months post-training. For beliefs in one's ability to say no to sex and comfort and confidence in one's role as a peer supporter, significant changes were seen both post-training and at six-months. Beliefs about ability to have a boyfriend/girlfriend

and not play sex were strongest after the one-week training period and remained constant after six months. There was no evidence to suggest a significant decrease over time in ever having played sex, nor a significant increase in risk-reduction behaviour. Important to note here is that there was also no evidence of an increase in reported sexual or risk-reduction behaviour.

Table 26

Output for 11 Separate Hierarchical OLS Regressions with 2 Independent Variables of Interest (Pre vs. Post/Nine-months Post Training and Six-Months vs. Pre-Post Training) Controlling for Standard, Age, Gender, Religion and Ethnicity

Dependent Variable	Immediate Post-Training[a]			Six-months Post Training[b]				
OLS Regression	B	Beta	t	B	Beta	t	R^2	ΔR^2
Knowledge	.057	.017	.214	.919	.262	3.27***	.169***	.060**
Attitude/Beliefs								
I can say no to sex	.547	.158	2.00*	1.03	.294	3.67***	.098***	.062***
When a girl says no she means no	.364	.107	1.35	.645	.188	2.33*	.098***	.026
It is always necessary to pressure a girl into playing sex	.320	.101	1.25	.617	.194	2.37*	.091*	.027
When a girl says no she means yes	-.055	-.016	-.200	.024	.008	.089	.011	.031
I can have a BF/GF for a long time and not play sex	.602	.205	2.55*	.301	.102	1.24	.094**	.031*
I can tell my BF/GF to wait until marriage to play sex	.359	.181	2.21*	.284	.142	1.71	.027	.027
I can tell my BF/GF about using a condom	-.610	-.170	-2.07*	-.473	-.131	-1.57	.024	.024
If I must play sex I can make sure we use a condom	.014	.004	.046	-.105	-.030	-.348	.017	.000
Confidence in peer supporter role	.134	.041	.528	1.27	.387	4.84***	-.009	.128***
Comfort discussing HIV/AIDS related issues	.833	.273	3.36**	.694	.220	2.67**	-.003	.064**

*** $p < .001$, ** $p < .01$, * $p < .05$.

[a] Independent variable for pre-post-nine-month training was dummy coded where post-training coded 1 = both pre and 0 = nine-month post-training peer supporter.

[b] Independent variable for nine-month training was dummy coded 1 = nine-month post-training peer supporter and 0 = pre and post-training peer supporter

[c] Controls not added in this regression.

Table 27

Output for 3 Separate hierarchical Logistic Regressions with 2 Independent Variables of Interest (Pre vs. Post/Nine-months Post Training and Six-Months vs. Pre-Post Training) Controlling for Standard, Age, Gender, Religion and Ethnicity

Logistic Regression	Global Chi-Square Measure of Fit	Adjusted Odds Ratio		Wald Statistic		B	
		IV: Imm. Post-training	IV: Six months Post-training	IV: Imm. Post-training	IV: Six months Post-training	IV: Imm. Post-training	IV: Six months Post-training
Ever Played Sex	17.42*	.897	.764	.066	.376	-.109	-.270
Refused to play sex in the last 3 months	39.29***	1.06	.885	.022	.063	.060	-.122
Not gone somewhere in the last 3 months to avoid playing sex	12.34	.991	.852	.000	.083	-.009	-.160

Note: *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 28

Mean Values for Knowledge and Attitudes Across Peer Supporter Training Periods Controlling for Standard, Age, Gender and SES.

Dependent Variable	Pre-Training Mean	Post-training Mean	Six-month post-training Mean
Knowledge	6.53	6.59	7.45
Attitude/Beliefs			
I can say no to sex	6.07	6.61	7.09
When a girl says no she means no	5.10	5.46	5.74
It is always necessary to pressure a girl to play sex	4.80	5.12	5.41
When a girl says no she means yes	3.12	3.06	3.06
I can have a BF/GF for a long time and not play sex	4.90	5.26	5.18
I can tell my BF/GF to wait until marriage to play sex	5.59	6.19	5.89
I can tell my BF/GF about using a condom	4.25	3.64	3.78
If I must play sex I can make sure we use a condom	4.30	4.31	4.19
Confidence in peer supporter role	9.63	9.76	10.89
Comfort discussing HIV/AIDS related issues	6.46	7.29	7.15

CHAPTER VIII

DISCUSSION

Preventing HIV infection among youth has become a global goal and there are concerted efforts within schools, communities, organizations and nations to make this happen. Shaping and/or shifting knowledge, attitudes and behaviour with respect to both HIV/AIDS and sexually related issues, has been the cornerstone of this goal. Various means of achieving this have been attempted (Finger, 2003; Finger, Lapetina, & Pribila, 2003; Kiragu, 2001; World Bank, 2001; 2000). The present study was designed to examine the extent to which a school-based peer education approach could play an effective role in HIV prevention efforts.

Findings Concerning Specific Hypotheses

Hypothesis 1a

In this study, an overall intervention effect on pupils in target schools was not detected through quantitative analyses. This is to say that any changes in pupil knowledge, attitudes and behaviour at six months could not be credited to the teacher-peer supporter delivered intervention. Subsequent evaluation results from the larger PSABH monitoring and evaluation study however, have indicated significant differences in the desired direction for Rift Valley target compared to control schools (Maticka et al., 2005). These differences however, do not parcel out the peer supporter component of the overall intervention.

Hypothesis 1b

Peer supporter training was found to have a positive influence on the knowledge, select attitude items, pursuit of information, and communication of peer supporters. There was no evidence, however, of significant shifts towards reduction of sexual risk behaviour. At the same time, there was no evidence to suggest a significant increase in sexual behaviour, nor a decrease in risk-reduction behaviour (i.e. not going somewhere to avoid playing sex). Important to note about sexual behaviour, however, was that the majority of peer supporters had not engaged in sexual activity at baseline.

Hypotheses 2 and 5

The results of this study also support the idea that peer supporters may be influenced to a greater extent than their peers. This was evident in that peer supporters

showed better knowledge about HIV/AIDS, expressed greater belief in their ability to say no to sex and to have a girlfriend or boyfriend for a long time without engaging in sex and were less likely to agree that it is necessary to pressure a girl to play sex or that when a girl says no to sex she actually means yes. Peer supporters were also found to be doing more to attain HIV/AIDS related information and to be communicating to a greater extent with a number of different people. In terms of sexual behaviour, of significance was the finding that the odds of a pupil having engaged in sex were significantly more likely than the odds of a peer supporter having done so. Overall, the results suggest that the greatest beneficiaries of a peer education intervention may be those peers targeted and trained to deliver the intervention.

Important to this study was assessing the extent to which peer supporters could function within, and be received by pupils, within their respective schools. For this, there was strong evidence that peer supporters were sufficiently able to carry out the roles they were trained to play. This consisted of their organization and leading of HIV/AIDS related school and community activities, communications with fellow peers about, and answering of pupil questions regarding, HIV/AIDS, as well as assistance provided to teachers implementing the school HIV/AIDS curriculum. Such findings lend credibility to the belief that peer supporter training is able to influence the leadership and communication skills of those who participate in it.

Hypothesis 3

Contrary to the belief in this study that pupils would identify with peer supporters to a greater extent, the results of this study found that pupils rated both teachers and peer supporters to relatively the same degree. There was evidence, however, that teachers were perceived as having a greater overall influence on pupils.

Hypothesis 4

When it came to the effect of pupil identification with teachers and peer supporters on key knowledge, attitudes and behaviours, peer supporter ratings showed a greater influence on knowledge and attitudes/beliefs than did ratings given to teachers. Teacher ratings appeared to have greater influence only with respect to communication with female relatives. For beliefs about ability to have a dating partner for a long time and not play sex, pursuit of information, communication with others and ever having

played sex, peer supporter and teacher ratings were equally influential. The results of this study then, partially support the idea that identification with a peer supporter is able to influence knowledge, attitudes and behaviours.

Overall Discussion of Main Findings

Programme Effect on Peer Supporters

The most prominent finding from this study is that peer supporter training and working as a peer supporter had a significant impact on peer supporters. This was evidenced by positive shifts in knowledge, attitudes/beliefs, and pursuit of information and communication. The effects of training were also seen as they related to peer supporter confidence and comfort in discussing HIV/AIDS related issues, activity within schools and reported interaction with pupils and other members of the community. There was also evidence that many of these changes either increased or were maintained over time. The results evidenced here are not unparalleled. Several evaluations of peer led programmes have demonstrated sizable gains in knowledge and changes in attitudes and intentions for peer leaders who have gone through peer education training (e.g. Lane, 1997; Pearlman, Camberg, Wallace, Symons, & Finison, 2002; Randolph 1996).

These results suggest that intensive peer education training does have an impact on those pupils selected to attend. Important to note is that such differences have been shown to last, and in some cases strengthen over time. It would be interesting to further investigate how the relatively brief training session used in this study produced such individual transformation. This would entail a more detailed look at the training itself in relation to its impact on peer educators. That is, how does the content and delivery of the training influence pupils? Interesting to note about the peer educator training from this study is that it took young people out of their regular environment for one week during which they resided in the same quarters and participated in repeated workshops. Whether such an approach to training may account for some of the reported changes in peer supporters, however, requires further investigation. An additional area to probe would be exploring methods which best enable transference of the personal growth observed in peer supporters to their peers.

There is also a need to recognize that those trained as peer educators also spoke of barriers they encountered in their attempts to reach pupils. For example, there was

evidence of peer supporters being taunted by pupils. Such taunting took the form of labeling peer supporters –for example: "HIV positive" and insulting or throwing rocks at them. While peer supporters admitted that these were not deterrents they did find it difficult to remain motivated to engage pupils in light of them. It was also suggested that pupils asked questions of them, either directly or through a question box that were either nonsensical or too difficult for them to answer. In all of the above cases, peer supporters wished that they had been trained to handle these situations.

Pupil Perceptions of Peer Supporters and Teachers

Identification with intervention leaders (i.e., Peer educators and teachers for this study) by their target audience has been noted for its ability to promote the adoption of HIV-preventive behaviour (UNAIDS, 1999). Results from this study suggested that pupils identified with peer supporters and teachers to relatively the same degree in terms of them being similar, approachable and appropriate role modes. Both of these leaders then, should be able to influence behaviour change. Recently, Mellanby, Rees, & Tripp (2000) suggested that both teachers and peer supporters play essential, yet different roles in school-based HIV prevention programming. Specifically, Mellanby, Newcombe, Rees, & Tripp (2001) found that peer leaders were more effective in discussing and changing attitudes and norms related to sexual health, whereas teachers were more effective in imparting valid information and engaging students in participatory and educational activities related to the sexual health curriculum. Others have found similar results, giving peer leaders and teachers credit for influencing different outcomes (Stephenson et al., 2004). Such findings suggest the possibility that both teachers and peer supporters have different roles to play in HIV prevention, and that each may exert influence, albeit in different ways.

In the present study, both peer supporters and teachers appeared to exert influence. Note, however, that peer supporters were found to be somewhat more influential when it came to select attitudinal outcomes. This lends support to the aforementioned findings (Mellanby et al. 2000; Stephenson et al., 2004). Interesting are the possible reasons for the noted observations. It is possible that teachers trained in curricular instruction and presumably more advanced in terms of education and age, as well as more practiced in teaching, might better be able to reach youth with valid and

reliable information. On the other hand, peers, who are supposedly of similar age and who share many of the same experiences, may also share similar knowledge, attitudes and behaviour that are easier to bring up and relate to in discussion.

Less than a handful of systematic reviews appear to exist in relation to peer health education for youth (Harden, Oakley, & Oliver, 2001; Lindsey, 1997; Mellanby et al., 2000). Only five methodologically sound studies, however, have compared the impact of peer vs. teacher led delivery. Results based on these studies have been mixed, with two finding peer leaders more effective than teachers, two finding that both were equally effective, and one finding neither as being effective. That said, there is not yet conclusive evidence to suggest that either peer supporters or teachers are ineffective conduits of HIV prevention (Brieger, Delano, Lane, Oladepo & Oyeridan, 2001). Both then, deserve credit for the potential role they can play in influencing targeted youth.

Programme Effect on Pupils

While peer leaders often show the greatest gains, in many programmes there have also been gains demonstrated for the targeted youth audience (Advance Africa 2003; Frontiers, 2001; Lane 1997; Speizer et al. 2001). The PSABH programme that was implemented in Nyanza Province, Kenya also demonstrated statistically significant gains for pupils (Maticka-Tyndale et. al, 2004). Results of this study appear less favorable for pupils, with no observed differences after six months between pupils in target and control schools on most dependent measures. Note however, that the significant gains observed in Nyanza Province were only evidenced after the programme had been in place for 18 months (Maticka-Tyndale et al., 2004).

Differences worth noting were that target school pupils were pursuing greater amounts of HIV/AIDS related information and communicating more with women and others in the community, compared to pupils in control schools. This parallels the pattern found in Nyanza Province nine-months after programme implementation (Maticka-Tydale et al., 2003). Such results are favourable, in that they signal increased motivation and discussion, both of which are considered important to subsequent behaviour change (UNAIDS, 1997b). Increasing communication is perhaps especially important in this context as HIV/AIDS and sexuality have been difficult, or even 'taboo' or negatively sanctioned topics of discussion between young people and adults.

Additional insight gained from qualitative interviews did suggest positive gains for pupils in peer supporter schools. In focus group discussions, pupils reported having engaged with peer supporters, talked actively about HIV/AIDS related issues, displayed accurate knowledge about means of HIV/AIDS transmission and prevention and were aware of methods they could use to abstain from sexual intercourse. In addition, both teachers and pupils recognized that the conversations that peer supporters have with pupils are different than those between teachers and pupils. While such insight was not confirmed quantitatively, it does suggest positive shifts in the right direction.

As part of the larger PSABH evaluation, additional analyses, which looked at differences in school uptake and implementation of the programme, suggested greater gains in schools with trained peer supporters compared to those where only teachers were trained. More specifically, pupils in peer supporter schools reported greater levels of teaching specific strategies for delaying, avoiding and resisting sexual activity, maintained higher scores on summative HIV/AIDS related knowledge, and more pupils rejected the idea that it is necessary to pressure a girl into playing sex or that when a girl says 'no' she means 'yes' (Maticka-Tyndale et al., 2004). This latter result suggests that perhaps peer supporters have an influence on pupil beliefs about appropriate and healthy roles girls and boys should play in a sexual relationship.

The Topic of Condoms

One discouraging outcome area related to condom knowledge, attitudes and behaviours. Both quantitative results and qualitative focus groups demonstrated that this was a difficult and confusing issue for both peer supporters and pupils to handle. In interviews and focus groups, it was clear that the main message being delivered either by peer supporters or adults (i.e. teachers, pastors, community members) was that condoms were only for married couples. On this issue, peer supporters appeared to mirror adults in giving messages that negatively sanctioned condom use by young people. They were prone to disseminating fearful messages such as suggesting condoms do not prevent transmission of HIV, they have holes or are too porous to prevent HIV from passing through.

Such messages are understandable given that mixed messages about condoms are ubiquitous in Kenya and present themselves at all levels of society (Maticka-Tyndale,

Wildish, & Gichuru 2004). For example, prominent Kenyan figures, including the Archibishop of Nairobi and a former president, have been quoted as delivering messages deterring condom use by suggesting they are not 100% effective (Gould, 2003). This contrasts with public health messages encouraging condom use as an effective protection against HIV. This has generated considerable confusion among Kenyan people as to the efficacy of condoms in preventing HIV infection. Note also that condom education and support have been difficult to implement in school-based programmes across much of sub-Saharan Africa (Gallant & Maticka-Tyndale, 2004). The situation in the schools studied here appears no different. Given this, and the confusion about condoms that exists in Kenya, it appears overly optimistic to expect to see a change in primary school pupils' condom knowledge, attitudes and behaviours in the desired direction, in the context of the present intervention.

Taken in context, it does not seem surprising that reported rates of condom knowledge and attitudes towards condom use, as well as reported use of condoms, were relatively low at baseline and remained so at follow-up. Even though peer supporters received training on the topic of condoms and felt somewhat confident about talking to their peers about the issue, once they returned to the school, such confidence dwindled.

Overall Summary of Findings

What can be concluded about the effect of the peer led component was that it was being implemented, that pupils were aware of and responsive to it. This, together with the results from Nyanza Province, and results from other reviews of peer led programmes which note their general success provided they are actually implemented (Frontiers, 2001; UNAIDS, 1999), suggest that there may be positive results for this programme given a longer time period. The results are also encouraging recognizing the context (i.e. HIV epidemic region of the world, environmental factors present which often compromise health) in which the programme was implemented. Although at six months there is not yet evidence of pupil gains, the results do parallel those found in the Nyanza province PSABH programme at nine-months. This is said also noting that other school-based programmes across Africa evidenced the greatest gains only 12 months after their programmes had been up and running (Gallant & Maticka-Tyndale, 2004).

The integration of the peer supporter component into a large scale school-based HIV prevention initiative also proved advantageous. This was evidenced by high rates of retention for peer supporters over the course of training and program implementation, active participation of peer supporters within their respective schools and support for peer supporters within these schools. Overall, the peer supporter component did help support ongoing HIV prevention integration and implementation within targeted schools. This finding supports anecdotal claims that peer education can be effective when integrated within a comprehensive school-based HIV prevention intervention.

Discussion of Theoretical Application within the Context of HIV Prevention

Of interest in this dissertation was the potential utility of Developmental, Social Cognitive and Diffusion of Innovation theories to help explain how peer education works. Although comprehensive testing of the theories was not undertaken, hypotheses 3 and 4 did address certain components of the theories and discussions in focus groups provided insight into other components.

Developmental Theory

In terms of development, Ball (1997) has asserted that adolescents are at a stage of both social and cognitive development where the creation and maintenance of knowledge, attitudes and beliefs are largely influenced by peer networks. Assuming peers are one of the most important influences on them, it seems fitting that exposure to peer educators who are identified by pupils as similar would encourage further development of knowledge, attitudes and behaviour. Furthermore, this exposure could influence pupils to a greater extent than, in this study, exposure to teachers. Hypothesis 4 addressed this by comparing the strength of the relationship between ratings given to peer educators and teachers and key outcomes. Results in Table 17 provide support for the conclusion that peer educators were able to influence a greater number of outcomes compared to teachers.

What must be recognized, however, is that teachers were rated as highly as peer supporters (see Table 16). This may reflect a mixture of Kenyan culture and the life stage of most of the pupils. In this context, respect for teachers is high especially among children. Transition out of childhood with its shift from adult to peer influence is marked by and only occurs with participation in rites of passage. This is typically postponed until

primary school completion, regardless of age. Thus, teachers may retain significant influence over their students and the strong age-mate bonds common in the cultural groups represented in this research may not yet have formed.

This, together with work in South Africa (Campbell & MacPhail, 2002), can lead to questioning the sufficiency of Developmental Theory in the African context. For example, Developmental Theory describes the early stages of adolescence as a time when young people can be challenged by their peers to develop the skills necessary to engage in abstract, logical thinking (Costa & O'Leary, 1992). In relation to peer education, this suggests that having peer educators confront pupils with factual information about HIV/AIDS and point out personal, social, and environmental factors that contribute to their risk for HIV infection will instigate greater thought and reasoning about personal and collective HIV risk and as a consequence, move toward innovative methods of decreasing such risk in one's life.

Campbell and MacPhail (2002), who have worked with young peer educators in South Africa, have questioned the extent to which peer educators themselves are able to confront their peers. They also express scepticism about the extent to which peer supporters in collaboration with their peers are able together to make changes in their personal lives without outside support i.e. from adults and the larger community. Insight from focus group discussions conducted with pupils and peer supporters in this study did suggest that young people were capable of and beginning to engage in deeper thought. Such thought included detailed offerings of novel risk reduction methods, questioning of traditional customs or beliefs, and calling for clarification on topics for which they felt they were given incomplete, conflicting or confusing information (e.g. condoms). Translating such depth of thought into actual behaviour change, however, remained to be seen.

There is a dearth of information at this point on the relationship between thought, reason and behaviour among Kenyan youth, especially as it relates to sexual behaviour and HIV/AIDS. This is particularly relevant since Kenya is a culture where sexual behaviour is governed by social custom and obligation more than personal choice (Francoeur, 2001; M. Gichuru, personal communications 2002-2004). Understanding how young people are thinking about HIV/AIDS and sexuality related issues particularly

in relation to the social customs and obligations surrounding sexual behaviour is important. Such insight might help shed light on the relationship between personal knowledge and behaviour change, particularly in a more collectivist culture.

Social Learning Theory

In relation to Social Learning Theory, learning is best achieved when a peer educator is perceived as being attractive, similar to the individual perceiver, and of credible status (Gazzaniga & Heaterton, 2003). In this case, students did perceive peer educators as attractive, similar and credible. They also perceived teachers as such, and to the same degree. This is an interesting observation, one yet to emerge from the literature. Such an observation begs further examination of the reasons for which pupils judged both teachers and peer supporters as similar to themselves.

Potentially, these observations suggest that in the Kenyan context both of these parties are highly regarded, albeit perhaps for different reasons. For example, in focus groups, youth describe teachers with respect and admiration and trust them to convey what is true. Peers warrant the kind of respect and admiration of a close friend or companion. How these ratings influence outcomes, however, was difficult to assess.

Another important mechanism by which behavior is changed is through self-efficacy. Within this study, self-efficacy related most to beliefs about ability to "say no to sex", to have a boyfriend or girlfriend for a long time and not play sex, and to talk to or get one's boyfriend or girlfriend to use a condom. Results of this study found that peer educators were more likely after the programme to believe they could say no to sex and that pupils who rated the peer supporter higher were also more likely to agree that they could say no to sex. This finding partially reinforces the theoretical link between self-efficacy and the act of being a peer supporter.

Overall, there was no evidence of changes in self-efficacy for most items. Possible reasons for this could have arisen for a variety of different reasons. For instance, perhaps efficacy questions relating to future sexual experiences (i.e. can have a boyfriend or girlfriend for a long time and not play sex) are difficult for pupils to grasp, given their cognitive stage of development and the context in which they live. This could relate back to the embedding of sexual behaviour in social custom and obligation. Perhaps youth cannot relate to questions about sexual activity that are isolated from the contexts within

which those activities take place. This is the position taken by Aggleton and Rivers (1999) following their extensive study of youth sexuality across different cultures.

It has also been suggested that sexual intercourse is usually not a pre-meditated event for youth, especially for youth in sub-Saharan Africa. Finally, the topic of condoms is controversial in Kenya and multiple mixed messages and contradictory information abound. Reports from this and the larger PSABH study suggest that both youth and adults struggle with the topic. This might explain why poor outcomes with respect to condom efficacy were observed.

In particular, the Western concept of self-efficacy has been criticized on the grounds that it may be difficult to define within the context of, or not apply to, Kenyan youth. As Franzblau & Moore (2001) suggest, perhaps self-efficacy in Kenya is embedded more within social and cultural networks as opposed to residing solely within the self. Also questionable is the degree to which abstinence, sexual refusal and safer sex are health behaviours that are susceptible to modeling, especially in the context in which this study was implemented.

Diffusion of Innovations Theory

As in Social Learning Theory, Diffusion of Innovations Theory highlights the importance of peer leaders being credible, accepted, and liked if they are to affect the ideas, attitudes and behaviours of their networks. While there was evidence that the peer educators in this study were perceived as credible and accepted sources of information, teachers were also rated as credible, suggesting that perhaps different domains of credibility exist. Pupils were as likely to engage in conversations with peer educators about HIV/AIDS and abstinence, as they were with teachers and were as unlikely to discuss condoms, being forced to play sex and personal problems with both groups.

Diffusion of information throughout an existing peer network is best achieved when introduced by natural opinion leaders who are specifically chosen and trained to deliver HIV prevention messages to their peers. Kelly (2004) has recently asserted that those chosen as peer educators, in addition to being peers, should be people who are influential because of their social standing. This introduces the possibility that the term 'peer' may be somewhat of a misnomer in that natural opinion leaders, while the same in some respects to their peers, possess certain characteristics that set them apart. Or

alternatively, that a peer is not necessarily a natural opinion leader (i.e. the best natural opinion leader could be a non-peer).

Diffusion of Innovations Theory has also been applied to peer education on the grounds that youth often have dense social networks characterized by a high degree of interpersonal communication and interaction (McClellan & Pugh, 1999). Thus, messages delivered by natural opinion leaders can easily flow throughout the network. Given the structure of schools in this study and the knowledge that youth tend to congregate in cliques, the possibility that multiple and complex social networks for which natural opinion leaders from each were not chosen to be peer educators exists. Within schools, then, especially those with a mix of cultures and tribes, perhaps preliminary research is required to identify the various social networks within a school and those natural opinion leaders who seem to yield influence within these networks.

Diffusion of Innovatiosn Theory also rests on the notion that the messages delivered by 'peer educators' are not merely informational but more conversational and intended to bring about more critical thought (Kelly et al., 1997). With respect to HIV prevention, this would entail conversational messages that engage peers in expressing their knowledge and attitudes about and behaviours related to HIV/AIDS related issues. Focus group discussions with pupils and peer educators in this study suggested that peer supporters were engaging in more formal and informational conversations with pupils as opposed to deeper and more interactive forms of conversation. This observation is interesting in that it introduces the possibility that the peer educators in this study required training on communication styles. Alternatively, it could suggest that an interactive, one-on-one form of communicating is not common among the youth in this study. If this is the case, more research is needed to uncover the types of communication that youth of this age, and in this context usually engage in.

From this study, it appears as if Diffusion of Innovations Theory relates to peer education mainly in its intuitive appeal. That is, if 'natural opinion leaders' are identified, trained, and able to deliver messages in a conversational and engaging manner, then there is increased chance of influencing the knowledge, attitudes and behaviours of youth within the social network of those leaders. While the peer educators chosen in this study were perceived as credible and while pupils were able to engage in dialogue with them, at

this point the degree to which such dialogue was constructive in bringing about change remains undetermined. Furthermore, it is questionable whether youth at this age can be trained to engage in the type of communication required to influence the HIV related knowledge, attitudes and behaviour of their peers.

A comprehensive HIV prevention strategy like the one highlighted here commonly uses multiple elements to change behaviour. With a comprehensive approach, it is often the case that each element potentially relates to different and established theoretical frameworks. While there is currently no one theory that best explains peer education, in particular that applied to HIV prevention, a number appear to apply. Recognizing that multiple theories apply, perhaps greater collaboration between those who plan and implement peer education programmes and those who research the topic needs to be encouraged. This in turn could help better document the characteristics and processes of peer education and the factors that influence success and failure of programmes based on it. Such documentation could lead to more solidly based and potentially effective peer education programming and new or better theoretical frameworks for understanding peer education.

Limitations

The complexity of the PSABH programme and the applied nature of its evaluation presented various limitations particular to the design of this research. The first limitation stems from the fact that target schools were deemed so because they self-selected into PSABH training. This introduces the possibility that these schools are characteristically different from controls. While an attempt was made to insure that each target school had a geographically matched control, this did not control for other characteristics that may differ between target and control schools (i.e. wealth of school, motivation levels of teachers and pupils, pupil exam scores). Judging from differences found at baseline, it appeared as if target schools were more likely to be represented by pupils in Standard 7, with lower mean ages, from a mix of tribes, of non-Protestant faiths and of higher SES. This is in contrast to control school pupils who were more likely to be in Standard 6, with higher median ages, from the Kalenjin tribe, of Protestant faith and with a lower SES. These differences were controlled for in subsequent statistical analyses, but may yet have

influenced the outcomes, since not all possible paths of influence of such differences can be statistically controlled.

Another limitation is that teachers in target schools also received PSABH training. Thus, it is difficult to disentangle the effect of teacher delivery of HIV/AIDS education from that of peer supporter delivered education. Peer led programming, because of its flexibility, however, is often used to complement health promotion and HIV prevention initiatives within schools (USAID, 2002). With respect to school-based HIV prevention in Africa, it has been recommended that programmes utilize a combination of leaders (e.g. teachers, peer educators, medical workers, community and religious leaders) in programme delivery (Campbell, 2004; United States Agency for International Development [USAID], 2002).

Peer educators are often selected because they are liked and respected within their schools or community and known for their ability to communicate, interact with their peers and display positive behaviour (Barton, 1998). In this study, teachers selected peer supporters based on the above criteria. For this reason, teacher bias or preference for certain students may have produced a pool of peer educators who were not necessarily liked or respected by their peers. The other difficulty with this selection method is that those chosen may represent a population lower in risk and more knowledgeable. They may not necessarily be adept at talking about behaviour change due to lack of attempts to change their behaviour. It has been suggested that peer educators of this kind are useful with younger adolescents. With older adolescents, however, it is recommended that peer educators who shifted their own behaviour be selected (Barton, 1998).

The fact that peer educators evidenced the greatest change over the course of this study must be kept in mind, noting the fact that they may represent an elite population of youth, predisposed with greater levels of accurate knowledge and healthier attitudes/beliefs and behaviours. This in comparison to the pupils they interact with. Controlling for baseline differences between these two groups for the purpose of analysis, however, was an attempt to examine differences regardless of baseline levels or personal characteristics.

Evaluation Tools and Measures

Evaluations of school and peer based HIV related interventions for youth in Africa have in general been able to influence knowledge to some degree (Brieger et al., 2001; Chege, Averand, Ngay, 1995; Gallant & Maticka-Tyndale, 2004; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2003). Quantitative findings from this study were not successful in bringing about knowledge change. Recognition of this and the fact that qualitative focus groups with pupils indicated greater levels of knowledge incited further probing of data, survey items and field workers so as to understand the lack of improvement in general HIV related knowledge. Through this, it was discovered that perhaps the form of testing was a deterrent. For many of the pupils in this study, paper and pencils are a luxury. It is often the case that a piece of paper and a pencil are used repeatedly, as both come at a premium. To be given 15 pages of brand new paper with heavily worded questions and a fresh pencil with which to write responses to the questions was suggested by field workers to have potentially hampered pupils' ability to both, focus on, comprehend, and respond, to the survey items. This, coupled with the fact that these youth come from an oral culture and education system predicated upon recitational learning and examination, may help to explain the lack of observable outcomes with respect to knowledge. Also to consider was the utilization of a survey adapted from pre-existing tools and only partially pre-tested.

The validity of self-report measures used among youth populations has not gone without interrogation (Alexander, Somerfield, Ensminger, Johnson, & Kim, 1993; Brown, 1999). Schopper, Doussantousse, and Orav (1993), in examining the validity of surveys tapping knowledge, attitudes and behaviours used with youth in South Africa, found inconsistencies in responses to similar questions. This and other similar accounts from researchers working with youth in Africa (Maticka-Tyndale et al., 2004; Plummer et al., 2004) have raised calls for better design, testing and utilization of these types of surveys. It has also fueled more attempts to explore alternative ways to explore sexual and reproductive health, as well as HIV/AIDS related issues with youth. Recent examples of these methods include adult and computer self-assisted testing and face-to-face qualitative interviewing. While these have been said to offer greater depth of information they are more costly and time-consuming. Given the size of the target population for this

study and the budgetary allowance for monitoring and evaluation, such methods were not feasible.

Length of evaluation

Observations elsewhere suggest that in the short-term, personal characteristics often exert greater influence than programme characteristics with programme effects taking a longer time to evidence effect (Maticka-Tyndale, Brouillard-Coyle, Gallant, Holland & Metcalfe, 2004). This suggests that a longer period of evaluation time for this programme may be needed to obtain significant results. In sub-Saharan Africa, the most promising results from school-based and community HIV/AIDS prevention programmes with youth seem to evidence in evaluations conducted after a minimum of one year implementation (Gallant & Maticka-Tyndale, 2004; Shuey, 1999).

Field Limitations

The applied nature of this setting introduced many challenges. The first of these was management of control and target schools. For example, following data collection, it was discovered that eight control schools had attended PSABH training workshops for teachers. This compromised the sample and prompted a change in method of analysis for examination of target and control school differences.

The study was also affected by changes at higher levels of the education system. In December, 2002, a new president was elected in Kenya. Upon election, President Mwai Kibaki declared that primary education would be free of charge. Within one month of this declaration, an estimated 1.5 million children, who were previously out-of-school, turned up to attend classes (IRIN, 2003) in schools whose teaching and material resources had not changed. This affected the study in a number of ways. First, it delayed peer supporter training. Second, it compromised the extent to which HIV/AIDS education could be the focus of attention for the schools in this study, as their energy was now required to manage the influx of new students.

Kenya is the focus of much HIV/AIDS related attention. As such, many HIV/AIDS related programmes are operating in this country. Evidence from data collected[17] as part of the larger PSABH evaluation suggested that additional HIV-

[17] As part of the larger PSABH evaluation data has been collected from teachers and community members and school zonal inspectors have conducted surveys of schools.

programming was going on in both target and control schools involved in this study. There is also much activity at the community and national levels with respect to HIV/AIDS prevention. Such widespread activity is difficult, if not impossible, to control for in relation to this study. Specifically, it introduces the real possibility that control school pupils were also exposed to HIV/AIDS programming, thus limiting the extent to which differences between control and target groups can be detected.

Future Directions

Sound designs of youth based HIV prevention initiatives, often idealistic in proposal, may not necessarily be realistically feasible. Best practices and gold standard manuals exist for the design, implementation, monitoring and evaluation of HIV prevention, peer education and the related theoretical frameworks. It is sometimes difficult, however, to implement these at the intervention level, especially when working on a large scale across different cultural groups and contexts. The following future directions are proposed, taking into account the difficulties encountered when attempting to apply the gold standards. It seeks, where possible, to suggest methods of school based peer HIV prevention programming and implementation that recognize and work from the realities and limits that exist.

Application and Testing of Different Theoretical Approaches

Many have criticized the peer education approach for its lack of a theoretical basis (Milburn, 1995; Turner & Shepherd, 1999; Woldehanna, 1999). Few, however, have rigorously or systematically applied or tested any one of the potentially applicable theories. This is especially true with respect to HIV prevention with youth. It is not surprising in the HIV prevention peer education literature to find reference made to studies with such diverse design and implementation practices inclusive of working hypotheses based on potentially unrealistic goals and promises of grandiose outcomes (Rhodes, Leviton, Hergenrather, & Collins, 2000; Woldehanna, 1999). There is still a need for further thought on how existing theories relate and can be applied and validated.

Lack of a concrete theoretical basis has been noted to contribute to peer education interventions being implemented, with limited understanding of the operational terms involved in peer education interventions and the social processes and networks of the youth involved in such interventions. A good starting point, then, may be to explicitly

define the term 'peer' within the intervention context in which one is working. In this study, the term peer supporter could be operationalized as a select group of pupils trained to be leaders within their respective schools and communities who assist in the school wide delivery of HIV prevention by providing HIV/AIDS related information and general health awareness to pupils.

Theories used in HIV prevention have also been criticized for their emphasis on individual, rational, decision-making with respect to sexual health and HIV risk reduction behaviour change (UNAIDS, 1999). In addition to Social Learning and Diffusion of Innovation theories, theories such as Paulo Friere's Educational Theory, Social Network Theory, Social Identity Theory, and Social Capital Theory, are worth integration and further exploration as all attempt in some way to provide an understanding of behavioural change in relation to social networks and the social processes that occur within them in a given environment. More importantly, they see knowledge, attitudes, norms and behaviours as being rooted in relationships and social experiences. Any attempt to change these, either on the individual or community levels, will then be influenced by social and environmental factors. There has been little testing of sociologically based theories within developing countries (UNAIDS, 1999b).

In both choosing and applying such theories, however, thought must be given to the nature and scale of targeted change. For example, this study, in its design and application, focused on influencing change at the school level. Thus, a theoretical model with tenets that provide insight and understanding of change at the community or societal, as opposed to individual, level may have been more applicable. Future programming of PSABH might benefit using aspects of the aforementioned theories to better inform their programming. This could include, for example, training and activities that focus on raising the critical consciousness of pupils, including peer supporters, gauging pupil access to social capital within their schools and communities, and exploring the interplay among peer supporters, pupils, teachers and other community members.

What needs to be recognized is the possibility that existing programmes become implemented and by their very nature, and through careful planning, contain elements to which existing theoretical models could apply. Although PSABH was not built based on

a more sociological theory, its emphasis on the 'school' as an HIV prevention community, its training of both teachers and community leaders which included sessions on community awareness and development, its incorporation of participatory and community related activities and events, and its in-depth qualitative work with pupils, teachers and community members, all suggest implementation of tenets put forth by sociological theories. Explicit in PSABH's mandate, yet not openly stated within a defined theoretical framework, is that in order to influence pupils to change, attention must be paid to the communities in which, and community members through which, youth live and learn.

Assumptions of Peer Education

Health related peer education interventions are often premised on the theoretical notion that peer educators, by degree of similarity, will influence those in their social networks to change their behaviour. Little attention has been given to examining the extent to which this is a valid assumption. In addition, it is often assumed that a peer who advocates for healthier norms will help persuade those in their social network to adopt the same norms. Efforts to assess how a peer supporter can influence peer group norms are lacking. Finally, it is often rationalized that peer networks share a common language and mode of communication and therefore network members are better able to relate to and comprehend discussions with those in the network. There have been few attempts, however, to assess if and how communication between peer supporters and their contacts can actually influence norms and consequently knowledge, attitudes and behaviours (i.e. the mechanisms through which this occurs). Gaining a better sense of how peer educators execute their respective roles within their schools and communities with particular attention to the types of contacts they make could be a starting point.

School-based HIV prevention

The ongoing debate about whether peer education works is fueled by the mixed results of peer education interventions (Forrest, Strange, & Oakley, 2002; Mellanby et al., 2001; Woldehanna, 1999). Perhaps a shift should be made, then, towards testing different methods by which peer educators can be utilized within school based HIV prevention curricula. This includes particular attention to potential areas that are best dealt by peers,

those best dealt with by teachers and those dealt with best by other members of the school community.

Selection, Training and Support of Peer Educators

Numerous guidelines for selection, training, and support of peer educators exist (see a summary of these guidelines in Maticka-Tyndale & Brouillard-Coyle 2005). . These commonly vary by depending on the context in which the peer education intervention is going to be implemented (e.g. schools, health clinics, youth centers). In the context of schools specifically, information on how best to incorporate HIV prevention related peer education initiatives is lacking. In addition, it is difficult to discern from descriptions of comprehensive school-based HIV prevention programmes how peer educators are actually selected, trained and supported. Systematic reviews of past and present programmes of this kind would aid in further development of future programmes.

Selection

Involving potential programme beneficiaries and stakeholders in the peer supporter selection process is recommended in the literature (UNAIDS, 1999). Nomination techniques and social network analysis are currently concrete and popular methods of accomplishing this. In a school-setting, this would mean selection of peer supporters by having both teachers and pupils nominate peer educators or conducting research to pinpoint noted leaders among different peer networks in the selected schools. In this study, teachers nominated pupils to attend peer educator training. This was for both political (i.e. teachers needed to be given control in order to sustain their cooperation) and practical (i.e., to insure selection of pupils who had demonstrated leadership skills and not merely the most popular youth) reasons. Whether and how this selection influenced programme implementation or effect, however, is unknown. Future research might benefit from documenting the different methods to select peer educators especially as they relate to programme effects.

Peer Supporter Adult Partnership

Ideally, peer supporters should receive on-going mentoring and support from someone older in age, experienced in working with youth and trained in the delivery of HIV prevention. In a school-based setting, a teacher represents a good candidate. In

schools, however, time constraints experienced by, and authoritative supervision styles of teachers can potentially lead to support and supervision which undermines peer educator confidence and credibility as well as dictates programme content and degree of implementation (Boler, Ibrahim, Adoss, & Shaw, 2003; James-Traore, Finger, Ruland, & Savariaud, 2004). For example, Campbell & MacPhail (2002) in their observations of school-based HIV peer education in South Africa reported that teachers responsible for peer educators restricted the content of messages delivered by peer educators (e.g. abstinence only messages) and limited the time and classroom space requested by peer supporters to conduct activities. Noting the above, it is difficult to expect optimum mentoring and support of peer supporters by teachers alone. Enabling teachers to better assist peer supporters might include sending them with peer supporters to training.

In this study, one teacher was sent to the one-week training (i.e. from each peer supporter school). Training included some sessions where both peer supporters and teachers participated together and others that divided these two groups and had them participate in different types of activity and discussion. Research on the extent to which these teachers were affected by the training, as well, show it helped or hindered their subsequent mentoring and support of peer supporters this would have been most informative. Evidence from focus group discussions with peer supporters suggested a range of support from trained teachers. In one case, peer supporters reported having to initiate their own health club and question box in the absence of assistance from a teacher. In another case, peer supporters described doing these things in collaboration with a trained teacher. The above discussion of support and mentoring for those peer educators suggests that further research is required to fully explore who and how to best train mentors for peer supporters.

Message Content and Delivery

Attempts to deliver HIV prevention have become associated with a number of what can be called 'messages'. Ideally, such messages, if properly designed and delivered, can facilitate behaviour change provided repeated exposure. Messages range in form and depth, however, from general and slogan-like messages –i.e. 'AIDS Kills' to specific, constructive and prescriptive messages –i.e. 'Show you care for your partner.

Use a condom'. The latter have proven more successful in reshaping attitudes and behaviour in a positive manner (Kelly, 2004).

In an HIV endemic area such as Kenya, however, multiple messages regarding HIV and AIDS abound. Some of these are based on biomedical truth –i.e. 'Condoms are effective in preventing HIV infection' while other are based on myth or false beliefs –i.e. 'AIDS is witchcraft'. This has made it difficult for both prevention programmers and implementers whose goal is to deliver and have participants adopt fact-based and prescriptive messages because they have to compete with all of the existing messages. It has also been the case that programme participants also suffer in that they are left confused about how to act due to the sheer magnitude of different messages they are bombarded with.

In relation to this and other peer based prevention programmes, there is recognized need to know how peer supporters understand and subsequently deliver messages to their peers (Ott, Evans, Halpern-Felsher, & Eyre, 2003). To date, there has been limited knowledge of how trained peer educators understand the messages delivered to them in training, how they integrate these messages with pre-existing ones, and how they integrate and consequently disseminate these messages to those within their social networks. Currently, research on how messages can best be created and delivered by and to young people is scant (Wolf & Bond, 2002); however, there is burgeoning interest in pursuing it further.

Conclusion

The aims of HIV prevention are ambitious, especially in a country where HIV is of an epidemic proportion. If the methods used to combat HIV are not youth-friendly or if they instill fear and apprehension among youth, then hope for significant behavioural change or reduction of HIV infection weakens. While trained peer leaders can play a role in influencing behavioural change among their peer groups, they are only one influence. Effective HIV prevention needs to contact and interact with youth from each of the environments they encounter on a daily basis (i.e. family, church, school, community/village/town, government). When it comes to the planning, monitoring and evaluation of such prevention, care must be taken to ensure that a balance is struck between what is ideal and what is feasible. Both of these take time and energy, with

change often gradual and slow to evidence. Finally, while theoretically derived, best practice and gold standard manuals exist to fuel peer education initiatives related to HIV prevention, each initiative essentially by its implementation within a specific context comprised of select populations writes its own manual. There is still much to be documented and learned about the diversity of those peer education initiatives that effect behavioural change among youth.

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APPENDIX A

TIMELINE FOR STUDY AND DATA COLLECTION SAMPLE SIZES

Table A1

Monitoring and Evaluation Research Timeline for PSABH programme

Date	ACTIVITY	Details
November 2001	Data collection – wave 1 Nyanza	Teachers and Pupils in 80 control and 80 target schools in Nyanza complete self-completion surveys (TSC and PSC respectively).
March 2002		Interviews and focus groups conducted in 8 control and 8 target schools & communities in Nyanza. Zonal Inspectors collect pregnancy data in 80 control and 80 target schools in Nyanza.
April 2002	Course A Training - Nyanza	Teachers and community representatives from 80 Nyanza target schools complete Training Course A.
July 2002	Data collection – wave 1 Rift	Wave 1 data collected in 20 control and 20 peer supporter schools in Rift.
August 2002	Interim data collection and Course A and B Training	Zonal Inspectors complete School (SRS) and Community (CRS) Responsiveness Surveys in all participating schools & communities in Nyanza. Teachers and community representatives from 80 Nyanza target schools complete Training Course B. Teachers and community representatives in 20 Rift Peer Supporter schools complete Course A.
September 2002	Creation of variations	Schools assigned to 8 variations: Additional Teacher, Health Worker, Church Leader, Nyanza Basic Target, Rift Peer Supporter Target, Rift Teacher Target, Rift Control, Nyanza Control
October 2002	Data collection – wave 1 Rift	Qualitative data collected in 6 (3 target, 3 control) Rift Valley schools.
December 2002	Peer Supporter Training	Peer supporters and teacher advisors from 80 Nyanza target schools complete training.
February 2003	Wave 2 data collection Nyanza	Teachers and pupils in 80 control and 80 target schools in Nyanza complete self-completion surveys (TSC and PSC) and interviews and focus groups are conducted in 4 target communities.
	Training for variations and Course B Rift	Training of additional teachers, health workers, church leaders and teacher only variations in Course A. Course B and peer supporter training for 20 Rift peer supporter schools.

Date	ACTIVITY	Details
March 2003	Interim data collection	Zonal Inspectors collect pregnancy data in 80 control and 80 target schools in Nyanza. Zonal Inspectors conduct School (SRS) and Community (CRS) Responsiveness data collection in Rift control and peer supporter schools.
June 2003	Training	Course A training of final group of church leaders completed. Course B for additional teachers and teacher only variations.
August 2003	Interim data collection	Zonal Inspectors complete School (SRS) and Community (CRS) Responsiveness Surveys in 80 target and 80 control schools & communities in Nyanza.
October 2003	Data collection – wave 3	Teachers and pupils in all participating schools in Nyanza Province and Rift Valley complete self-completion surveys (TSC and PSC) and interviews and focus groups conducted in 10 communities.

Table A2

Research Timeline for this study

Date	Activity	Details
July 2002	Data collection – pre-programme	Pre-programme data collected in 20 target (N = 1201 pupils) and 20 control (N = 586 pupils)
October 2002	Data collection – qualitative	Qualitative data collected in 6 (3 target, 3 control) Rift Valley schools.
February 2003	Training of and data collection from peer supporters	Training of 75 peer supporters and administration of pre and post-training peer supporter surveys
October 2003	Data collection – post-programme	Pupils in 20 target (N = 1645 pupils) and 12 control (N = 734) schools complete self-completion surveys Pupil in 4 target schools participate in focus groups
October 2003	Data collection – peer supporters post-programme	69 peer supporters attend a refresher course and fill out nine-month post training surveys.

APPENDIX B

STUDENT SURVEY

PUPILS' POST PSABH SURVEY (RIFT VALLEY) **Serial No.** ☐☐☐☐☐

FOR SCHOOLS WITH PEER SUPPORTER TRAINING

CLASS - BASED INTERVIEWS

Q1 What is the name of your school? **(PLEASE WRITE IN)**_____ ☐☐☐

Q2 What Standard are you in?
(PLEASE TICK ONE BOX ONLY)

☐ Standard 6 ☐ Standard 7

Q3 What is your date of birth? **(PLEASE WRITE IN)** **Day** **Month** **Year**

☐☐/☐☐/☐☐☐☐

Q4 What is today's date? **(PLEASE WRITE IN)** **Day** **Month** **Year**

☐☐/☐☐/☐☐☐☐

Q5 Are you a boy or girl?**(PLEASE TICK ONE BOX ONLY)**

☐ Boy ☐ Girl

Q6 What tribe (ethnic group) are you?
(PLEASE TICK ONE BOX ONLY)

☐ Luo ☐ Kalenjin
☐ Kisii ☐ Other **(Write In)**
☐ Luhyia _____ ☐☐
☐ Kuria
☐ Kikuyu

Q7a. What religion or church do you go to?

Catholic..... ☐
Muslim..... ☐
Protestant..... ☐
If Protestant, which one ☐ _____ ☐☐
Others..... ☐ _____ ☐☐

Q7b.Did you attend this school in 2002

Yes. ☐ No. ☐

Let us talk about your home where you live.

Q10a.What is the roof mainly made of? (PLEASE TICK ONE BOX ONLY)

- ☐ Iron sheets
- ☐ Grass/Thatch/Weeds
- ☐ Tiles
- ☐ Other (WRITE IN)_____ ☐☐

Q10b. What is the main source of lighting that you use? (PLEASE TICK ONE BOX ONLY)

- ☐ Electricity
- ☐ Generator or solar
- ☐ Pressure lamp
- ☐ Taya (Ordinary lamp)
- ☐ Nyagile (Traditional lamp)
- ☐ Don't use anything, we use the fire for cooking
- ☐ Other (WRITE IN)_____ ☐☐

Q10c. Where do you get the water you use from? (PLEASE TICK ONE BOX ONLY)

- We have piped water indoors..... ☐
- There is a tap outside but inside our compound.. ☐
- We get it from the river/dam..... ☐
- We have a well/borehole outside..... ☐
- There is a well/borehole but it is not in our home ☐
- Public tap/ common tap used by everyone..... ☐
- Water sellers..... ☐
- Others (WRITE IN) _____ ☐☐

Q10d. What type of latrine or toilet do you have at home? (PLEASE TICK ONE BOX ONLY)

- Our own flush toilet..... ☐
- Shared flush toilet..... ☐
- Traditional pit latrine..... ☐
- Ventilated Improved pit latrine.. ☐
- We do not have a toilet/ latrine.. ☐

Q10e. What is the floor at home mainly made of? **(PLEASE TICK ONE BOX ONLY)**

- Mud/ dung/ sand ☐
- Wooden ☐
- Cement ☐
- Others **(WRITE IN)** ☐ _____ ☐☐

Q11 Below is a list of statements young people your age have made. How much do you agree or disagree with each statement?
(PLEASE TICK ONE BOX ONLY FOR EACH STATEMENT)

	1 Definitely yes	2 I am not sure, but I think yes	3 I do not know at all	4 I am not sure but I think no	5 Definitely No
1 I think that God plays a big role in my life	☐	☐	☐	☐	☐
2 I believe I can say "no" to sex	☐	☐	☐	☐	☐
3 I think when a girl says "no" she means "no"	☐	☐	☐	☐	☐
4 It is always necessary to pressure or persuade a girl to have sex	☐	☐	☐	☐	☐
5 If a girl says "no" she means "yes"	☐	☐	☐	☐	☐
6 I am able to have a boyfriend or girlfriend for a long time and not play sex with them	☐	☐	☐	☐	☐
7 I can tell my boyfriend or girlfriend that I will only have sex after marriage	☐	☐	☐	☐	☐
8 I can talk to my boyfriend/girlfriend about using a condom	☐	☐	☐	☐	☐
9 If I must play sex I can make sure we use a condom	☐	☐	☐	☐	☐

Q14 In which subject or subjects have you received information on HIV and AIDS?

(PLEASE TICK ONE BOX IN EACH ROW)

	A lot	A little	Nothing
Home Science	☐	☐	☐
Physical Education	☐	☐	☐
GHC	☐	☐	☐
Religious Education	☐	☐	☐
HIV and AIDS Lesson	☐	☐	☐
English	☐	☐	☐
Kiswahili	☐	☐	☐
Music	☐	☐	☐
Other (PLEASE WRITE IN)_____	☐	☐	☐

☐☐

Q15 Still thinking about the lessons you have received about HIV and AIDS at school, we would like to know how much you agree or disagree with the following statements?

(PLEASE TICK ONE BOX ONLY FOR EACH STATEMENT)

Statements: The lesson I have had on HIV and AIDS.....	**Definitely Yes**	**I do not know at all**	**Definitely No**
1. Have been very useful	☐	☐	☐
2.Have told me everything I feel I need to know	☐	☐	☐
3.Have been difficult to understand	☐	☐	☐
4.Were a bit shameful	☐	☐	☐
5. Were very boring	☐	☐	☐
6.Will help me make the right decisions about..... when to have sex	☐	☐	☐
7. Will help me to protect myself from diseases.... transmitted by sex.	☐	☐	☐

Q16 Which of the following have you ever done? (PLEASE TICK ONE BOX ONLY ON EACH LINE)

I have	1 YES	2 NO	3 I AM NOT SURE
Asked a question about HIV and AIDS in the school question box	☐	☐	☐
Asked a teacher a question about HIV and AIDS	☐	☐	☐
Talked to a parent about HIV and AIDS	☐	☐	☐
Helped a person living with AIDS	☐	☐	☐
Taken part in a competition or performance on the theme of HIV and AIDS	☐	☐	☐
Helped a friend avoid a situation that might lead to sex	☐	☐	☐
Read about HIV and AIDS in the school information corner	☐	☐	☐
Talked about HIV and AIDS at the school health club	☐	☐	☐

Q17. In your school, which of the following have been talked about?

	Yes	No	Don't Know
How to resist playing sex	☐	☐	☐
How to control natural urges	☐	☐	☐
How to abstain even when your friends push you to play sex	☐	☐	☐
How to keep away from playing sex even when your boyfriend or girlfriend wants to..	☐	☐	☐
How to avoid playing sex with a man or woman	☐	☐	☐

Q20 Who have you spoken to or asked a question about sex? (PLEASE TICK ONE BOX ONLY)

	I have spoken to: Yes	No	
Mother	☐	☐	
Father	☐	☐	
Older sister	☐	☐	
Older brother	☐	☐	
Aunt	☐	☐	
Uncle	☐	☐	
Grandmother	☐	☐	
Grandfather	☐	☐	
Friends at home	☐	☐	
Schoolmates	☐	☐	
Teacher	☐	☐	
Priest, pastor, Religious Leader	☐	☐	
Local healer	☐	☐	
Someone else (PLEASE WRITE IN)_____	☐	☐	☐☐☐☐
No one	☐	☐	

The next questions are about playing sex. By 'playing sex' we mean having sexual intercourse. It also means the same as 'having sex'.

Q22 Some people of your age may have already played sex, while others may not have. Have you, yourself, ever played sex? **(PLEASE TICK ONE BOX ONLY)**

Yes ☐ ☐ No

Q23a Thinking about the first time you played sex, how old were you at the time? **(IN YEARS)**

Years ☐☐ I have never played sex ☐

Q23b How old was the person you first played sex with?

- Under 11 years..... ☐
- 11-14 years..... ☐
- 15-16 years..... ☐
- 17-18 years..... ☐
- 19-20 years..... ☐
- 21-25 years..... ☐
- Over 25 years..... ☐
- I have never played sex..... ☐

Q23c. Where did you know the person you first had sex with?

	Yes	No
From school.....	☐	☐
From family.....	☐	☐
From village.....	☐	☐
I have never played sex.....	☐	☐

Q23d. The first time you played sex, did you want to or were you forced?

- I wanted to..... ☐
- I was forced..... ☐
- I have never played sex..... ☐

Q23e. Young people speak of ways in which playing sex happens for them. Which of these experiences have you had?
I have had this experience:

	Yes	No
My body felt desire, it was pushing me to play sex.....	☐	☐
My friends were pushing me to play sex.....	☐	☐
Older people were telling me I should play sex.....	☐	☐
My boyfriend wanted to play sex.....	☐	☐
My girlfriend wanted to play sex.....	☐	☐
I played sex to get a gift or money.....	☐	☐
Someone else had arranged for me to play sex.....	☐	☐
I didn't know how to resist playing sex.....	☐	☐
Someone physically held me down to play sex with me	☐	☐
I watched someone else play sex.....	☐	☐

Q23f. I have played sex because of this...

	Yes	No
My body felt desire, it was pushing me to play sex.....	☐	☐
My friends were pushing me to play sex.....	☐	☐
Older people were telling me I should play sex.....	☐	☐
My boyfriend wanted to play sex.....	☐	☐
My girlfriend wanted to play sex.....	☐	☐
I played sex to get a gift or money.....	☐	☐
Someone else had arranged for me to play sex.....	☐	☐
I didn't know how to resist playing sex.....	☐	☐
Someone physically held me down to play sex with me	☐	☐
I watched someone else play sex.....	☐	☐

Q24a Have you ever been forced to play sex?
(PLEASE TICK ONE BOX ONLY)

Yes..... ☐
No..... ☐

Q24b. Have you forced someone to play sex with you?

Yes, I have forced someone..... ☐
No, I have never forced anyone... ☐

Q25a Have you played sex in the last three months? (PLEASE TICK ONE BOX ONLY)

Yes..... ☐
No..... ☐

Q25b. How old was the person you most recently played sex with?

Years ☐☐
I have never played sex..... ☐

Q25c. Where did you know them from?

	Yes	No
From school.....	☐	☐
From family.....	☐	☐
From village.....	☐	☐
I have never played sex.....	☐	☐

Q25d. All together, since the first time you played sex, how many different people have you played sex with?

Number of People ☐☐
I have never played sex ☐

If you are a boy go to question 26 then continue to question 28
If you are a girl go to question 27 then continue to question 28

Q26 **(Boys Only)** The last time you played sex did you use a condom?
(PLEASE TICK ONE BOX ONLY)

☐ Yes
☐ No → **NOW GO TO QUESTION 28**
☐ I do not know
☐ I have never played sex

Q27 **(Girls Only)** The last time you played sex did the person you were with use a condom?
(PLEASE TICK ONE BOX ONLY)

Yes..... ☐
No..... ☐
I don't know..... ☐
I have never played sex..... ☐

Q30. **In the past three months,** have you been faced with a situation where you could have played sex but you refused?

Yes..... ☐
No..... ☐
Situation has not occured... ☐

Q31. After you refused, did you play sex anyway?

Yes ☐ ☐ No

Q32a In the last month, have you chosen not to go somewhere because you were afraid someone might ask you to play sex? **(PLEASE TICK ONE BOX ONLY)**

Yes..... ☐
No..... ☐
Situation has not occured ☐

Q32b. **(If answered YES,)** What is the place that you chose not to go?

_____ ☐☐☐

Q33 Is there anything a person can do to protect themselves from getting HIV and AIDS?
(PLEASE TICK ONE BOX ONLY)

☐ Yes **If you said 'yes' go to question 34**
☐ No **If you said 'no' go to question 35**
☐ I am not sure **If you are 'not sure' go to question 35**

Q34 Do you think people can prevent themselves from getting infected with HIV and AIDS if they do the following things?
(PLEASE TICK ONE BOX ONLY FOR EACH STATEMENT)

	1 YES	2 NO	3 I AM NOT SURE
Avoid having sex	☐	☐	☐
Don't wear the clothes of someone sick with AIDS	☐	☐	☐
Eat a good diet	☐	☐	☐
Have fewer sexual partners	☐	☐	☐
Avoid having sex with thin people	☐	☐	☐
Don't share razor blades	☐	☐	☐
Avoid sharing a plate of food with an infected person	☐	☐	☐
Use a condom correctly when playing sex	☐	☐	☐
Be faithful to one uninfected partner	☐	☐	☐
Avoid being bitten by mosquitoes or other insects	☐	☐	☐
Make sure any injections are done with a clean needle	☐	☐	☐
Avoid shaking hands with someone sick with AIDS	☐	☐	☐
Make sure that each boy is circumcised with a sterile instrument	☐	☐	☐

Q34b. Below are some statements. Please indicate whether each statement is true or false by ticking the appropriate box.

	True	False	I'm not sure
A condom can slip off into a girl's body and make her sick	☐	☐	☐
Using a condom reduces the likelihood of becoming infected with HIV	☐	☐	☐
Sex between mutually faithful partners reduces the rsik of becoming infected with HIV	☐	☐	☐
Primary school children can get HIV	☐	☐	☐

Q35 Below are some things people have said about HIV and AIDS. Tick whether you agree or disagree with each statement?
(PLEASE TICK ONE BOX ONLY FOR EACH STATEMENT)

Statements	1 Agree	2 I am not sure	3 Disagree
1 If you have sexual intercourse you should use a condom to protect yourself from becoming infected	☐	☐	☐
2 If someone thinks they could be HIV positive then they should go for a test	☐	☐	☐
3 If a pupil in my school had HIV but was not sick I think he or she should be allowed to remain in school	☐	☐	☐
4 I feel I could talk openly to my teacher if I was worried about HIV and AIDS	☐	☐	☐
5 You should not sit next to someone in school who has HIV or AIDS	☐	☐	☐

The next questions are about how you learn about HIV and AIDS

Q36 Do you think your chances of getting AIDS are : **(PLEASE TICK ONE ONLY)**

- No chance at all ☐
- Small chance ☐
- Moderate chance ☐
- Great chance ☐

Q37 How much, if anything, have you learnt about HIV and AIDS from each of the following sources?
(PLEASE TICK ONE BOX ONLY ON EACH LINE)

	1 A lot	2 A little	3 Nothing
Radio/Television	☐	☐	☐
Newspapers/Magazines/Pamphlets	☐	☐	☐
School text books	☐	☐	☐
Story books	☐	☐	☐
Friends/Peers	☐	☐	☐
Teachers	☐	☐	☐
Pastor or Church leader	☐	☐	☐
Parents	☐	☐	☐
Another community member	☐	☐	☐

Q38 *The most useful information I have received on HIV and AIDS has come from ...*

_____(PLEASE WRITE IN) ☐☐

Q39 Here are some statements about people infected with the AIDS virus (HIV).
PLEASE TICK EACH AS "TRUE", "UNTRUE" OR "NOT SURE".

	1 True	2 Untrue	3 I am not sure
They can test negative after seeing a traditional healer	☐	☐	☐
They can test negative after sincere and devout prayers.....	☐	☐	☐
They can test negative in the window period.....	☐	☐	☐

Q40 Here are some statements about how the presence of a sexually-transmitted disease / infection (STD/STI) increases the risk of HIV being transmitted.
PLEASE TICK EACH AS "TRUE", "UNTRUE" OR "NOT SURE".

	1 True	2 Untrue	3 Not sure
Having an STD shows poor hygiene	☐	☐	☐
STDs often cause wounds or sores that make HIV easier to transmit..	☐	☐	☐
An untreated STD can automatically turn into HIV or AIDS.....	☐	☐	☐
The body's resistance to other diseases is reduced by having an STD.....	☐	☐	☐

	Yes	No
Q41a. Do you know someone in your village who is infected with HIV?.....	☐	☐
Q41b. Do you know someone in your village who has died of an AIDS related disease?.....	☐	☐

Q42. Does your school have a school health club? **(PLEASE TICK ONE BOX ONLY)**

☐ Yes
☐ No
☐ I am not sure

Q43. Does your school have a school question box? **(PLEASE TICK ONE BOX ONLY)**

☐ Yes
☐ No
☐ I am not sure

Q44. Does your school have an information corner? **(PLEASE TICK ONE BOX ONLY)**

☐ Yes
☐ No
☐ I am not sure

Q45 Which of these textbooks have you seen before?
(PLEASE TICK ONE BOX ONLY ON EACH LINE)

	1 Yes	2 No	3 I am not sure
'Let's talk about AIDS' Book II - Yellow class textbook	☐	☐	☐
'Let's talk about AIDS' Book III - Blue class textbook	☐	☐	☐
'Good health: facts about STDs and AIDS' - Blue class textbook	☐	☐	☐
Any of the small reading books - Green readers	☐	☐	☐
AIDS education for youth	☐	☐	☐

Q46 Which of the following things have peer supporters done in your school?

	Yes	No	Not Sure
Answered a question in the school question box	☐	☐	☐
Talked to a pupil about HIV and AIDS	☐	☐	☐
Set up an activity for other pupils	☐	☐	☐
Held a meeting of the school health club	☐	☐	☐
Talked about HIV and AIDS at the school health club	☐	☐	☐
Helped a pupil avoid playing sex	☐	☐	☐

Q47. Think about the peer supporters in your school that you have talked to. Below is a list of statements about those peer supporters. Do you agree or disagree with each statement.

	Definitely yes	Probably yes	Probably no	Definitely no	I have not talked to a peer supporter
The peer supporters know a lot	☐	☐	☐	☐	☐
The peer supporters are not like me	☐	☐	☐	☐	☐
I can talk to the peer supporters if I have a problem	☐	☐	☐	☐	☐
To keep myself safe from HIV infection I would do what the peer supporters do	☐	☐	☐	☐	☐
I wish I would act like the peer supporters do	☐	☐	☐	☐	☐

Q48. Which of the following have you ever done?

I have...

	Yes	No
Asked a peer supporter a question about HIV and AIDS	☐	☐
Talked to a peer supporter about a personal problem	☐	☐
Talked to a peer supporter about how to abstain from playing sex	☐	☐
Talked to a peer supporter about being forced to play sex	☐	☐
Participated in an activity that was led by a peer supporter	☐	☐
Went to a school health club meeting led by a peer supporter	☐	☐
Received information about condoms from a peer supporter	☐	☐
Learned how to use a condom from a peer supporter	☐	☐

Q49. Thinking about the peer supporters in your school, we would like to know how much you agree or disagree with each of the following statements.

	Strongly agree	Agree	Don't know	Disagree	Does not apply	I have not talked to peer supporters
The peer supporters have been very helpful	☐	☐	☐	☐	☐	☐
The peer supporters have taught me about HIV and AIDS	☐	☐	☐	☐	☐	☐
The peer supporters are difficult to understand	☐	☐	☐	☐	☐	☐
When I talk with a peer supporter about sex and HIV and AIDS it does not feel shameful	☐	☐	☐	☐	☐	☐
I find peer supporters boring	☐	☐	☐	☐	☐	☐
I have learned things from peer supporters that will help me protect myself from HIV and AIDS	☐	☐	☐	☐	☐	☐
I feel I can make better decisions about playing sex because I have spoken with a peer supporter	☐	☐	☐	☐	☐	☐

Q50. Think about the teacher or teachers in your school that you have talked to about HIV and AIDS. Below is a list of statements about them. Do you agree or disagree wth each statement.

	Definitely yes	Probably yes	Probably no	Definitely no
Teachers know a lot	☐	☐	☐	☐
The teachers are not like me	☐	☐	☐	☐
I can talk to the teachers if I have a problem	☐	☐	☐	☐
To keep my self safe from HIV infection I would do what the teachers do	☐	☐	☐	☐
I wish I could act like the teachers do	☐	☐	☐	☐

Q51. Thinking about the teachers in your school, we would like to know how much you agree or disagree with each of the following statements.

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
The teachers are helpful	☐	☐	☐	☐	☐
The teachers taught me about HIV and AIDS	☐	☐	☐	☐	☐
The teachers are difficult to understand	☐	☐	☐	☐	☐
When I talk with a teacher about sex or HIV and AIDS, it does not feel shameful	☐	☐	☐	☐	☐
I find the teachers boring	☐	☐	☐	☐	☐
I have learned things from the teachers that will help me protect myself from HIV and AIDS	☐	☐	☐	☐	☐
I feel I can make a better decision about playing sex because I have spoken with a teacher	☐	☐	☐	☐	☐

Q52 Which of the following have you ever done?

I have ...

	Yes	No	I am not sure
Asked a teacher a question about HIV and AIDS	☐	☐	☐
Talked to a teacher about a personal problem	☐	☐	☐
Talked to a teacher about how to abstain from playing sex	☐	☐	☐
Talked to a teacher about being forced to play sex	☐	☐	☐
Participated in an activity outside the classroom that was led by a teacher	☐	☐	☐
Went to a school health club meeting led by a teacher	☐	☐	☐
Received information about condoms from a teacher	☐	☐	☐
Learned how to use a condom from a teacher	☐	☐	☐

THANK YOU

APPENDIX C

PEER SUPPORTER SURVEY

Student Assessment of Peer Supporters and Teachers

1. Are there peer supporters in your school?
   a. Yes
   b. No

If yes, go to question 2.
If no, skip to question 6.

2. Think about the peer supporters in your school that you have talked to. Below is a list of statements about those peer supporters. Do you agree or disagree with each statement.

Statements	Definitely Yes	Probably Yes	Probably No	Definitely No
1. The Peer Supporters know a lot				
2. The Peer Supporters are a lot like me				
3. I can talk to the peer supporters if I have a problem				
4. To keep myself safe from HIV infection I would do what the peer supporters do				
5. I wish I could act like the peer supporters do				

3. Which one of the following have you ever done?

I have...	Yes	No	I am not sure
1. Asked a peer supporter a question about HIV and AIDS			
2. Talked to a peer supporter about a personal problem			
3. Talked to a peer supporter about how to abstain from playing sex			
4. Talked to a peer supporter about being forced to play sex			
5. Participated in an activity that was led by a peer supporter			
6. Went to a school health club meeting led by a peer supporter			
7. Received information about condoms from a peer supporter			
8. Learned how to use a condom from a peer supporter			

4. Thinking about the teachers in your school, we would like to know how much you agree or disagree with each of the following statements.

Statements	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. The peer supporters have been helpful					
2. The peer supporters have taught me about HIV and AIDS					
3. The teachers are difficult to understand					
4. When I talk with a peer supporter about sensitive topics it does not feel shameful					
5. I found the peer supporters boring					
6. I have learned things from the peer supporters that will help me protect myself from HIV and AIDS					
7. I feel I can make better decision about when to play sex because I have spoken with a peer supporter					

5. Think about the teacher or teachers in your school that you have talked to about HIV and AIDS. Below is a list of statements about them. Do you agree or disagree with each statement.

Statements	Definitely Yes	Probably Yes	Probably No	Definitely No
1. The teachers know a lot				
2. The teachers are a lot like me				
3. I can talk to the teachers if I have a problem				
4. To keep myself safe from HIV infection I would do what the teachers do				
5. I wish I could act like the teachers do				

6. Which one of the following have you ever done?

I have...	Yes	No	I am not sure
1. Asked a teacher a question about HIV and AIDS			
2. Talked to a teacher about a personal problem			
3. Talked to a teacher about how to abstain from playing sex			
4. Talked to a teacher about being forced to play sex			
5. Participated in an activity that was led by a teacher			
6. Went to a school health club meeting led by a teacher			
7. Received information about condoms from a teacher			
8. Learned how to use a condom from a teacher			

7. Thinking about the teachers in your school, we would like to know how much you agree or disagree with each of the following statements.

Statements	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. The teachers have been helpful					
2. The teachers have taught me about HIV and AIDS					
3. The teachers are difficult to understand					
4. When I talk with a teacher about sensitive topics it does not feel shameful					
5. I found the teacher boring					
6. I have learned things from the teachers that will help me protect myself from HIV and AIDS					
7. I feel I can make better decision about when to play sex because I have spoken with a teacher					

APPENDIX D

PEER SUPPORTER PRE-TRAINING SURVEY

How comfortable are you in discussing the following topics with other pupils?

I am comfortable talking about...	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. How HIV is transmitted					
2. Playing sex					
3. AIDS					
4. Ways to abstain from playing sex					
5. Ways of showing you love someone without playing sex					
6. When to use a condom					
7. How to use a condom					
8. Where to get a condom					

Below is a list of things that some peer supporters can do. Do you feel that you can do each of these?

List	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. I can get information about HIV					
2. I can present accurate information about HIV and AIDS to other pupils					
3. I can talk to other pupils about playing sex					
4. I can help other pupils develop the skills they need to protect themselves from HIV					
5. I can explain to other pupils how a condom should be used					
6. I can teach other pupils how to care for people with AIDS					
7. I can help other pupils understand their risk for HIV and AIDS					
8. I can make presentations about HIV and AIDS					

APPENDIX E

PEER SUPPORTER POST-TRAINING SURVEY

How comfortable are you in discussing the following topics with other pupils?

I AM COMFORTABLE TALKING ABOUT...	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. How HIV is transmitted					
2. Playing sex					
3. AIDS					
4. Ways to abstain from playing sex					
5. Ways of showing you love someone without playing sex					
6. When to use a condom					
7. How to use a condom					
8. Where to get a condom					
9. Risks for HIV and AIDS					

Below is a list of things that some peer supporters can do. Do you feel that you can do each of these?

List	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. I can get information about HIV					
2. I can present accurate information about HIV and AIDS to other pupils					
3. I can talk to other pupils about playing sex					
4. I can help other pupils develop the skills they need to protect themselves from HIV					
5. I can explain to other pupils how a condom should be used					
6. I can teach other pupils how to care for people with AIDS					
7. I can help other pupils understand their risk for HIV and AIDS					
8. I can make presentations about HIV and AIDS					

The training has taught me how to...	Definitely	Somewhat	Not at all
1. Share my knowledge about HIV and AIDS with other pupils			
2. Discuss sensitive topics with other pupils			
3. Teach other pupils to abstain from playing sex			
4. Talk about condoms with other pupils			
5. Talk about abstinence with other pupils			
6. Teach other pupils how to use condoms			
7. Be a leader			
8. Help other pupils with problems they are having			
9. Give other pupils information about health and sexuality			
10. Give other pupils advice on how to care for and support people with AIDS			

How good were each of these training activities:	Excellent	Satisfactory	Poor
1. Lecture Sessions			
2. Group Discussions			
3. Role-plays			
4. Song and Dance			
5. Videos			
6. Outdoor Games and Activities			

Thinking about the peer supporter training you have received, we would like to know how much you agree or disagree with each of the following statements:

	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. The training was very useful					
2. The training taught me everything I need to know about being a peer supporter					
3. The training was difficult to understand					
4. Some topics covered in training made me feel shameful					
5. I found the training boring					
6. The training will help me protect myself from HIV and AIDS					
7. The training will help me protect other pupils from HIV and AIDS					

Is there anything else you would like to say about the training?

_____

_____

APPENDIX F

PEER SUPPORTER NINE-MONTH FOLLOW-UP SURVEY

How comfortable are you in discussing the following topics with other pupils?

I am comfortable talking about...	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. How HIV is transmitted					
2. Playing sex					
3. AIDS					
4. When to use a condom					
5. How to use a condom					
6. Where to get a condom					
7. Ways to abstain from playing sex					
8. Ways of showing you love someone without playing sex					
9. Risks for HIV and AIDS					

Below is a list of things that some peer supporters do. Do you agree that you can do each of these?

	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. I can get information about HIV					
2. I can present accurate information about HIV and AIDS to other pupils					
3. I can talk to other pupils about playing sex					
4. I can help other pupils develop the skills they need to protect themselves from HIV					
5. I can explain to other pupils how a condom should be used					
6. I can teach other pupils how to care for people with AIDS					
7. I can help other pupils understand their risk for HIV and AIDS					
8. I can make presentations about HIV and AIDS					

Which of the following have you ever done?

	Yes	No	I am not sure
Answered a question in the school question box			
Talked to a pupil about HIV and AIDS			
Set up an activity for other pupils			
Held a meeting of the school health club			
Talked about HIV and AIDS at the school health club			
Helped a pupil avoid playing sex			

Below are some things that may make it hard to be a peer supporter. What applies to you?

	Strongly agree	Agree	Don't Know	Disagree	Strongly disagree
1. I do not have enough time to set up activities for pupils					
2. I do not have enough training to be a peer supporter					
3. Teachers make it hard for me to do my peer supporter jobs					
4. Pupils are too shy to talk about HIV or AIDS					
5. Pupils are too shy to talk about playing sex					

APPENDIX G

STUDENT FOCUS GROUP DISCUSSION SCHEDULE

STUDENT FOCUS GROUP DISCUSSION
SCHOOLS IN THE PEER SUPPORTER TRIAL
Rift Valley
October 2003

Interviewer records
Name of school _____
Number of youth in focus group

A. INTRODUCTION

My name is ..... I am from a company called Steadman Research Services. You have been invited here today to take part in a discussion about issues related to AIDS and how the school is teaching you about AIDS. We are conducting several such discussions with young people. The discussion will take around 1 hour.

Please feel free to give your opinions because everything we will discuss is confidential. No one will know what we have discussed including your teachers. There are no wrong or right answers because this is not an exam it is just a discussion.

I am going to record this discussion on this small radio to enable me to listen again and remember what we have said. After that the tape will be destroyed. So do not be afraid to talk. It is important that everyone contributes to the discussion, but please talk one at a time to enable accurate recording.

WARM UP – 5 MINUTES

Moderator: Ask names (so can refer to participants by name), standard, whether in class together.

What is your favourite activity in school?

C. FEEDBACK ON PSABH PROGRAMME

Now we are going to talk about the lessons you have in school on HIV/AIDS.

What classes are the lessons in? (probe for all classes in which HIV/AIDS is being taught)
Other than learning about HIV/AIDS in classes, what other activities are going on in school as part of learning about HIV and AIDS?
Which of these activities have you taken part in?

D. QUESTION BOX

Do you have a question box in your school?

If yes: How often are questions answered?
Where are they answered?
Who answers the questions?
Which pupils are present when they are answered?
Can you give us some examples of questions that were in the question box?
What answers were given to these questions?
Do you think these are good answers?
If No: Why weren't they good answers?
Do you know of any questions that pupils have put in the box that were not answered?
If yes: What were these questions?
Why do you think they weren't answered?
If there was no mention of questions about condoms ask: Have there been any questions about condoms?
If yes: What were you told in answer to these questions?

E. HEALTH CLUB

Is there a health club in your school?
If yes: Are any of you part of the school health club?
How many teachers help out with the health club?
Are there peer supporters or pupils who lead the health club?
What activities are there in the school health club related to HIV and AIDS?
Are these activities interesting?
Are they useful?
If yes: How are they useful?
What activities would you like to have the school health club do with respect to HIV and AIDS?

F. STAYING SAFE

What have you learned about staying safe from HIV/AIDS?
Is this something young people your age can do?
Where have you learned this?
What else have you learned about staying safe from HIV/AIDS?
Is this something young people your age can do?
Where have you learned this?
What else have you learned about staying safe from HIV/AIDS?
Is this something young people your age can do?
Where have you learned this?
What do you think is the best way for you to stay safe from AIDS?

G. ABSTAINING FROM SEX

Many young people have told us that it is difficult to abstain from sex.
Do you think it is difficult?
If yes: What makes it difficult?
If no: What makes it easy – especially when so many say it is difficult?
Have you talked about these difficulties in school?
If yes: What have you talked about?
If no: Do you think you should talk about this in school?
In school have you talked about ways to deal with or overcome the difficulties that young people have in abstaining from sex?
If yes: What was said?
If no: Do you want to talk about these things in schools?
What do young people your age do if they want to abstain?

In the questionnaire some young people who said they had already played sex also said that they will be virgins when they finish school.
What do you think they mean when they say they will be a virgin when they finish school?
How can someone who has played sex be a virgin?

H FORCE

Some young people say they are forced to play sex. What do they mean when they say this?
Have you talked about or done any activities in school about being forced to play sex?
If yes: Where was this? (Was it in class or health club?)
What was talked about?
Do you think that young people your age can avoid being forced?
If yes: How can they avoid being forced?
If no: Why not?
Do you think young people your age can resist being forced?

If yes: How can they resist being forced?
If no: Why not?
Do you have any other ideas about what to do if someone is forcing you?

I. CONDOMS

Have any teachers spoken to you about condoms?
If yes: What have they said?
What do you think about this?
If no: Is this something you want teachers to talk to you about?
What would you like them to tell you?
Has anyone else spoken to you in school about condoms?
If yes: What have they said?
What do you think about this?
If no: Is this something you want to have talked about in school?
What would you like to have talked about?
Have community members spoken to you about condoms?
If yes: What have they said?
What do you think about this?
If no: Is this something you want community members to talk to you about?
What would you like them to tell you?
Have your pastors or church leader spoken to you about condoms?
If yes: What have they said?
What do you think about this?
If no: Is this something you want your pastor or church leaders to talk to you about?
What would you like them to tell you?
Have your parents spoken to you about condoms?
If yes: What have they said?
What do you think about this?
If no: Is this something you want your parents to talk to you about?
What would you like them to tell you?
Have your older brothers or sisters spoken to you about condoms?
If yes: What have they said?
What do you think about this?
If no: Is this something you want your older brothers or sisters to talk to you about?
What would you like them to tell you?
Has anyone else spoken to you about condoms?
If yes: Who was this?
What did they said?
What do you think about this?
If no: Is this something you want people to talk to you about?
What would you like them to tell you?

There are so many different things that have been said about condoms.
Which of these do you think is right?

J. HEALTHWORKERS AND CHURCH LEADERS

Did a doctor, nurse or health worker come to visit your school in the past year?
If yes: Did they talk about HIV or AIDS?
If yes: What did they say?
Do you agree with what they said? Why or why not?
What would you like a doctor, nurse or health worker to talk about?

Did someone from the church come to visit your school to talk about HIV and AIDS in the past year?
If yes: What did he/she say?
Do you agree with what they said? Why or why not?
What would you like people from the church to talk to you about?

K. PEER SUPPORTERS

Several pupils in this school were trained as peer supporters to help pupils in HIV and AIDS learning. Do you know who the peer supporters are in your school?
If yes: How many peer supporters are there?
What roles do peer supporters play with respect to HIV prevention? Probe for several
What activities are they leading? Probe for several
Have you spoken to a peer supporter?
If yes: What have you asked the peer supporter?
How did they answer your question?
Was this a good answer?
How did the answer help you?
If no: Why didn't you ask the peer supporter a question?
How do peer supporters help pupils change their behavior?
What are some things you like about the peer supporters?
What are some things that you don't like about the peer supporters?
If no: Why do you think there are no peer supporters in your school?
Would you like to have peer supporters in your school? Why or why not?

L. SUCCESSES AND CHALLENGES

What do you think is the best part about the HIV and AIDS programme in your school? Why?
What do you think could be better/ why?
What have you learned the most about?
What else would you like to learn about HIV and AIDS?

APPENDIX H

PEER SUPPORTER FOCUS GROUP DISCUSSION SCHEDULE

STUDENT FOCUS GROUP DISCUSSION WITH PUPILS TRAINED AS PEER SUPPORTERS
Rift Valley
October 2003

Interviewer records
Number of youth in focus group _____
Girls or boys _____

A. INTRODUCTION

My name is ..... I am from a company called Steadman Research Services. You have been invited here today to take part in a discussion about issues related to AIDS and your work as peer supporters in your schools. The discussion will take around 1 hour.

Please feel free to give your opinions because everything we will discuss is confidential. No one will know what we have discussed including your teachers. There are no wrong or right answers because this is not an exam it is just a discussion.

I am going to record this discussion on this small radio to enable me to listen again and remember what we have said. After that the tape will be destroyed. So do not be afraid to talk. It is important that everyone contributes to the discussion, but please talk one at a time to enable accurate recording.

B. WARM UP – 5 MINUTES

Moderator: Ask names (so can refer to participants by name), standard, whether in class together.

What schools are you from?
What is your favourite activity in school?

C. PEER SUPPORTER TRAINING

You were trained earlier this year as peer supporters.
What was the most important part of the peer supporter training?
How did the training help you in your role as peer supporter?
What was another important part of training?
What kind of things did the training teach you about HIV and AIDS?
Why is it important to know these things?
Probe for 3 areas of knowledge
Are there things about being a peer supporter which you feel you need more training on?
If yes: What are these things?

Why do you feel these areas are important for you to have additional training?

D. PEER SUPPORTER ACTIVITIES

What are the most important things about being a peer supporter?
Why are these important for you?
What are the most difficult things about being a peer supporter?
Why were these difficult?
What kind of activities do you lead as a peer supporter?
Probe for several answers – especially answers from different schools
Which activities do you feel are most successful? What makes them most successful?
Probe for several answers – especially answers from different schools
Which activities do not work well? What is it about these activities that do not work well?
Probe for several answers – especially answers from different schools
Are there activities that you didn't learn about in the peer supporter training that you have done with your peers?
Can you describe these?
Probe for several answers – especially answers from different schools
How well do they work?
What makes them work well or poorly?
Do you speak to any pupils individually about HIV and AIDS? Is this the same in all the schools?
If yes: What do you most often speak about?
If no: What keeps you from speaking with pupils individually?
What activities are going on in school as part of learning about HIV and AIDS?
Which of these activities have you taken part in?

E. QUESTION BOX

Do you have question boxes in your schools?
In the following questions, probe for answers from several schools with: "Is that the same in other schools?"
If yes: How often are questions answered?
Where are they answered?
Who answers the questions?
Do you help with answering these questions?
If yes: Is this a difficult task? Do you enjoy this task? Does anyone help you – if yes, who?
Which pupils are present when they are answered?
Can you give some examples of questions that have been in the question box in your school?
What answers were given to these questions?
Do you think these are good answers?
If No: Why weren't they good answers?

Do you know of any questions that pupils have put in the box that were not answered?

If yes: What were these questions?

Why do you think they weren't answered?

If there was no mention of questions about condoms ask: Have there been any questions about condoms?

If yes: What are some examples of these questions?

How would you answer them?

What were you told in answer to these questions?

F. HEALTH CLUB

Are there any clubs in your school where HIV or AIDS are talked about?

In the following questions, probe for answers from several schools with: "Is that the same in other schools?"

If no one says yes: Go to section G

If yes: What are the names of these clubs?

How long have you had these clubs in your schools?

Are any of you part of these clubs?

How many teachers help out with these clubs?

Do you lead these clubs or any of the activities in these clubs?

If yes: Tell me about the activities that you lead?

What activities are there in the clubs related to HIV and AIDS?

Are these interesting?

Are they useful?

If yes: How are they useful?

What activities would you like to have the club do with respect to HIV and AIDS?

G. STAYING SAFE

What do you tell other pupils about staying safe from HIV/AIDS?

Is this something young people your age can do?

What else can you tell others about staying safe from HIV/AIDS?

Is this something young people your age can do?

Is there anything else you can tell them about staying safe from HIV/AIDS?

Is this something young people your age can do?

What do you think is the best way for young people your age to stay safe from AIDS?

H. ABSTAINING FROM SEX

Many young people have told us that it is difficult to abstain from sex.

Do you think it is difficult?

If yes: What makes it difficult?

If no: What makes it easy – especially when so many say it is difficult?

Have you talked about these difficulties with other pupils in school?

If yes: What have you talked about?

If no: Do you think you should talk about this in school?

Have you talked to other pupils about ways to deal with or overcome the difficulties that young people have in abstaining from sex?

If yes: What did you say?

If no: Do you think these things should be talked about in schools?

What do young people your age do if they want to abstain?

In the questionnaire some young people who said they had already played sex also said that they will be virgins when they finish school.

What do you think they mean when they say they will be a virgin when they finish school?

How can someone who has played sex be a virgin?

I. FORCE

Some young people say they are forced to play sex. What do you think they mean when they say this?

Have you talked to other pupils or done any activities in school about being forced to play sex?

If yes: Where was this? (Was it in class or a club?)

What was talked about?

Do you think that young people your age can avoid being forced?

If yes: How can they avoid being forced?

If no: Why not?

Do you think young people your age can resist being forced?

If yes: How can they resist being forced?

If no: Why not?

Do you have any other ideas about what to do if someone is forcing you?

J. CONDOMS

Have you spoken to any pupils about condoms?

If yes: What have you said? **Probe for several responses.**

Was this difficult?

If no: Is this something you feel you can talk to others about?

What would you like to tell them? **Probe for several responses.**

Has anyone else spoken to you in school about condoms?

If yes: What have they said? **Probe for several responses.**

What do you think about this?

If no: Is this something you want to have talked about in school?

What would you like to have talked about? **Probe for several responses.**

Have your pastors or church leader spoken to you about condoms?

If yes: What have they said?

What do you think about this?

If no: Is this something you want your pastor or church leaders to talk to you about?

What would you like them to tell you?

There are so many different things that have been said about condoms.
Which of these do you think is right?

K. SUCCESSES AND CHALLENGES

Probe for several answers – especially for different schools.
What do you think is the best part about the HIV and AIDS programme in your school?
Why?
What do you think could be better/ why?
What have you learned the most about?
What else would you like to learn about HIV and AIDS?

APPENDIX I

STEADMAN RESEARCH CONFIDENTIALITY FORM

Steadman Research Confidentiality Form

Discussions and data provision on this project will only be made to authorized staff at CfBT. Distribution of data to other parties will only be done on their instructions.

Any information made available to STEADMAN RESEARCH SERVICES (SRS) by client, either in writing or verbally will be treated in the utmost confidence by SRS staff.

SRS will not disclose any confidential information about the client's business to any 3rd party without the client's permission.

Disclosure of the Respondent's Identity

Steadman Research Services is a member of Market & Social Research Association of Kenya and adheres to the code of practice stipulated by the association. The code of practise clearly states that respondents' identity must in all circumstances be protected. SRS therefore undertakes:

To fully conceal the identity of the respondents on all the study materials.

Recording of the discussions will only be done with the respondent's consent and such tapes will be destroyed once the study is complete.

During discussions only the respondent's first names or nick names where applicable will be used.

Sharing of project data within Steadman Research Services will only be restricted to those involved in the study, being the project director and moderators/research executives. To conform to this transcribing of the discussions will only be done by the moderators.

Moderators must ensure that the respondents understand the confidentiality obligation on SRS part.

APPENDIX J

STUDENT AND PEER SUPPORTER SURVEY CONSENT FORM

Student and Peer Supporter Survey Consent Forms

To be read to students

You are being asked to complete a survey about HIV and AIDS. The questions ask what you know and think about it and what you are doing that might keep you safe from or place you in danger from HIV and AIDS.

This survey is part of a project called Primary School Action for Better Health. It is being conducted by the Centre for British Teachers and has been approved by the Ministry of Education, Science and Technology. Your answers to the questions on this survey will help the Ministry improve programmes related to HIV and AIDS in Kenyan schools and communities.

There are no right or wrong answers to these questions. It is important that you answer honestly. No one will know how you have answered any questions, not even your teachers. Some of the questions address private matters. While it is important that you answer as many questions as possible, so we can know how AIDS affects students like you, it is your choice whether you answer each question and you may skip questions which you do not wish to answer.

All your answers will be kept confidential (secret). Your name is not written down and no one will know how you have answered any of the questions.

If answering the questions on this survey or thinking about AIDS make you feel badly, please speak to me and I will help you find someone to talk to about your feelings.

If you have any questions about HIV and AIDS you can ask me privately at the end of the survey and I will do my best to answer them. If I cannot answer your questions, or if you prefer, you can write your questions on one of the papers I have here with your name and an address where the answer may be sent. I will make certain an answer to your question is mailed to you.

APPENDIX K

STUDENT AND PEER SUPPORTER FOCUS GROUP DISCUSSION CONSENT FORMS

Student and Peer Supporter Focus Group Consent Forms

Hello, my name is ____. I work for a company called Steadman Research Services. I am working with the Centre for British Teachers to help schools develop programs to teach young people about HIV and AIDS. You have been invited here today to take part in a discussion about issues related to AIDS. We are conducting several discussions with young people in Kenya about this topic and this is one of them. These discussions will help us learn what young people think, feel, are worried about and what actions they are taking with respect to AIDS.

We may talk about some private matters. Please feel free to give your opinions because everything we will discuss is confidential (secret). I want you to know that no one in your community will know what we have discussed, including your teachers. But if there are things you don't want to talk about, that is all right as well. Do not feel you have to talk if you do not wish to. There are no wrong or right answers because this is not an exam; it is just a discussion.

I am going to record this discussion on this small radio. When we are finished I will listen to what we said and write it down so that we can put it together with what other young people have said. After I have written what you have said I will destroy the tape so no one else will hear it.

If talking about AIDS make you feel badly, please speak to me and I will help you find someone to talk to about your feelings.

If you have any questions about HIV and AIDS you can ask me privately at the end of the survey and I will do my best to answer them. If I cannot answer your questions, or if you prefer, you can write your questions on one of the papers I have here with your name and an address where the answer may be sent. I will make certain an answer to your question is mailed to you.

APPENDIX L

SUMMARY DESCRIPTIVE STATISTICS FOR SAMPLE CHARACTERISTICS

Table L1: Overall Sample Size

Participant/Pupil Subgroup	Pre-Programme	Post-Programme
Control	567	694
Target	1168	1601
Peer Supporter	65	65
Total	1800	2360

Table L2: Gender

Participant/Pupil Subgroup		Boys		Girls	
		Pre-Programme	Post-Programme	Pre-Programme	Post-Programme
Control		50.1	46.7	49.9	53.5
	n	284	324	283	370
Target		44.7	44.7	55.3	55.3
	n	522	715	646	886
Peer Supporter		46.2	52.3	53.8	53.8%
	n	30	35	35	35

Table L3: *Standard*

Participant/Pupil Subgroup		% STD 6		% STD 7	
		Pre-Programme	Post-Programme	Pre-Programme	Post-Programme
Control		56.1	52.2	43.9	47.8
	n	318	362	249	333
Target		48.7	49.2	51.3	50.8
	n	569	787	599	814
Peer Supporter		48.1	47.8	48.9	52.2
	n	32	33	32	36

Table L4: Age

Participant/Pupil Subgroup	Pre-Programme Mean	Pre-Programme Median	Pre-Programme Range	Post-Programme Mean	Post-Programme Median	Post-Programme Range
Control	14.00	14.00	10-17	14.41	14.00	11-17
Target	13.75	14.00	10-17	13.98	14.00	10-17
Peer Supporter	13.43	13.30	11-16	13.99	14.04	11-17

Table L5: Ethnicity

Participant/Pupil Subgroup		% Pre-Programme Kikuyu	Kalenjin	Luo	Kisii	Luhyia	Kuria	Other
Control		92.1	1.2	1.6	1.4	1.6	-	2.1
	n	522	7	9	8	9	-	12
Target		56.1	21.1	7.0	2.6	8.9	-	4.4
	n	655	246	82	30	104		51
Peer Supporter		53.8	24.6	7.7	3.1	6.2	-	4.6
	n	35	16.5	5	2	4	-	3
		% Post-Programme						
Control		83.6	2.3	4.3	7.1	7.1	-	0.9
	n	580	16	30	49	49		6
Target		55.8	18.9	8.0	4.2	4.2	0.4	1.9
	n	893	303	128	67	67	6	31

Table L6: Religion

Participant/Pupil Subgroup		% Pre-Programme Religion Catholic	Protestant	Other	% Post-Programme Religion Catholic	Protestant	Other
Control		35.3	60.0	4.6	36.9	59.9	3.2
	n	200	340	26	256	416	22
Target		36.1	52.9	10.0	37.8	55.0	7.2
	n	422	618	117	605	881	115
Peer Supporter		46.2	53.8	-	-	-	-
	n	30	35				

Table L7: SES

Participant/Pupil Subgroup	Pre-Programme SES			Post-Programme SES		
	Mean	Median	Range	Mean	Median	Range
Control	61.2	59.1	36-95	61.8	59.1	36-100
Target	68.7	68.2	36-100	68.6	68.2	32-100
Peer Supporter	-	-	-	72.8	72.7	45-100

APPENDIX M

DESCRIPTIVE SUMMARIES OF KNOWLEDGE, ATTITUDES/BELIEFS AND BEHAVIOURAL INDICATORS ACROSS GROUPS AND TIME

Descriptive Summaries of Knowledge, Attitudes/Beliefs and Behavioural Indicators Across Groups and Time

HIV/AIDS Knowledge

Table M1: Peer Supporter Knowledge

Percentage who correctly responded when asked: Can people prevent themselves from getting infected with HIV/AIDS if they do the following things?	Pre-Training	Post-Training	Nine-month Post
		n = 65	
Avoid having sex	68	74	97
Don't wear clothes of someone sick with AIDS	66	70	68
Eat a good diet	39	41	62
Have fewer sexual partners	19	29	22
Avoid having sex with thin people	48	61	68
Don't share razor blades	81	70	92
Avoid sharing a plate of food with an infected person	74	64	77
Use a condom correctly when playing sex	51	41	40
Be faithful to one uninfected partner	62	55	73
Avoid being bitten by mosquitoes or other insects	60	53	68
Make sure injections are done with a clean needle	80	77	90
Avoid shaking hands with someone sick with AIDS	83	74	90
If you have sexual intercourse you should a condom	45	33	32
If someone thinks they could be HIV positive they should go for a test	77	83	89
Primary school children can get HIV	78	84	-
Using a condom can prevent HIV infection	37	23	31
If a pupil in my school had HIV but was not sick they should be allowed to remain in school	32	44	49
You should not sit next to someone who has HIV or AIDS	71	81	-
A person can test negative after seeing a traditional healer	54	61	69
A person can test negative after sincere and devout prayers	45	54	37
A person can test negative in the window period	19	41	31

Table M2: Pupil Knowledge

Percentage who correctly responded when asked: Can people prevent themselves from getting infected with HIV/AIDS if they do the following things?	Pre % Correct		Post % Correct	
	Control	Target	Control	Target
Avoid having sex	65	84	56	77
Don't wear clothes of someone sick with AIDS	54	57	52	56
Eat a good diet	41	42	54	49
Have fewer sexual partners	34	31	28	27
Avoid having sex with thin people	51	47	53	48
Don't share razor blades	59	77	47	67
Avoid sharing a plate of food with an infected person	48	60	58	63
Use a condom correctly when playing sex	65	62	45	56
Be faithful to one uninfected partner	40	56	50	61
Avoid being bitten by mosquitoes or other insects	46	54	52	54
Make sure injections are done with a clean needle	66	78	55	73
Avoid shaking hands with someone sick with AIDS	58	71	62	69
Using a condom reduces the likelihood of becoming infected with HIV	52	48	39	35
Primary school children can get HIV	61	71	62	61
If you have sexual intercourse you should use a condom to prevent HIV infection	57	52	42	49
If someone thinks they could be HIV positive they should go for a test	45	64	56	70
A person can test negative after seeing a traditional healer	43	46	48	45
A person can test negative after sincere and devout prayers	41	39	41	37
A person can test negative in the window period	31	24	27	30
Having an STD shows poor hygiene	30	31	40	32
An untreated STD can automatically turn into HIV/AIDS	32	28	35	25
STDs often cause wounds or sores that make the virus easier to transmit	40	56	50	61
The body's resistance to diseases is reduced by having an STD	39	37	37	36

Table M3: Summative Knowledge Scale

18-item Summative Knowledge Scale	Pre-Programme	Post-Peer Supporter training	Post-Programme
Control Pupils	5.24	-	4.96
Target Pupils	5.72	-	5.64
Peer Supporters	5.77	5.82	6.54
Total	5.62	5.82	5.48

Table M4: Attitudes/Beliefs

	Pre-Programme Control			Pre-Programme Target			Pre-Programme Peer Supporter		
	Mean	SD	n	Mean	SD	n	Mean	SD	n
sayno	3.20	1.66	564	3.45	1.73	1160	3.49	1.78	65
nonogirl	3.30	1.56	562	3.38	1.60	1162	3.28	1.67	65
gfbfnosex	-	-	-	-	-	-	3.95	1.51	65
canabst	-	-	-	-	-	-	4.46	1.12	65
tellusec	-	-	-	-	-	-	3.03	1.67	65
usec	-	-	-	-	-	-	3.57	1.59	65
pressgirl	-	-	-	-	-	-	3.68	1.59	65
noysgirl	-	-	-	-	-	-	3.71	1.51	65
	Post-Programme Control			Post-Programme Target			Post-Programme Peer Supporter		
	Mean	SD	n	Mean	SD	n	Mean	SD	n
sayno	3.34	1.63	676	3.75	1.68	1587	4.42	1.40	65
nonogirl	3.36	1.55	683	3.43	1.65	1578	3.86	1.49	65
gfbfnosex	3.60	1.53	684	3.86	1.56	1563	4.17	1.50	65
canabst	3.92	1.47	682	4.21	1.39	1571	4.74	0.94	65
tellusec	3.47	1.61	678	3.25	1.78	1578	2.55	1.69	65
usec	3.50	1.64	685	3.56	1.73	1577	3.40	1.72	65
pressgirl	2.77	1.61	682	3.47	1.65	1573	4.22	1.35	65
noysgirl	2.83	1.61	694	3.23	1.68	1601	3.63	1.61	65

NOTE: sayno =I can say no to sex; nonogirl =If a girl says no to sex she means no; gfbfnosex =I can have a boyfriend/girlfriend for a long time and not play sex; canabs = I can tell my boyfriend/girlfriend that I will abstain from sex until marriage; tellusec =I can tell my boyfriend/girlfriend to use a condom; usec =I can ensure that if I must play sex a condom is used; presgirl = It is always necessary to pressure or persuade a girl to play sex; noysgirl =When a girl says no to sex she really means yes.

APPENDIX N

MULTIVARIATE ANALYSIS ASSUMPTIONS

Tests for skewness as determined by dividing the skew statistic (s) by its standard error were greater than 2 for knowledge (s = -.143, $z_{skewness}$ = 3.18) and the majority of attitude/belief indicators (i.e. Can say no to sex, s = .910, $z_{skewness}$ = 14.68; When a girl says no she means no, s = .910, $z_{skewness}$ = 9.11; It is always necessary to pressure or persuade a girl to play sex, s = -.346, $z_{skewness}$ = 5.58; If a girl says no she means yes, s = -.220, $z_{skewness}$ = 3.54; I can tell my boyfriend/girlfriend about using a condom, s = .232, $z_{skewness}$ = 3.74, If I must play sex I can ensure that a condom is used, s = .639, $z_{skewness}$ = 10.31), level of pursuing information (s = -.196, $z_{skewness}$ = 3.84) and communication with female relatives (s = .418, $z_{skewness}$ = 0.50), male relatives (s = .910, $z_{skewness}$ = 14.68) and others (s = .910, $z_{skewness}$ = 14.68). In all cases, standard tests of normality (i.e. Shapiro-Wilks's W and Kolmogorov-Smirnow D test) were significant.

Skewness standards for normality have been questioned when the sample size is large, with some saying that there it is difficult in large samples to apply a specific criterion (Field, 2002). While many authors recommend using skewness and kurtosis for examining normality (Looney, 1995) others, (Wilkinson, 1999) have argued that skewness and kurtosis often fail to detect distributional irregularities in the residuals. Based on these observations additional examination of the data using graphical techniques were subsequently applied and indicated that non-normality was not a substantial problem in the case of knowledge and for the attitude/belief items pertaining to if a girl says no she means yes and I can make sure that a condom is used.

In this study violations of normality appeared to arise because the distributions of the dependent variables were themselves significantly non-normal. Nonlinear transformation of skewed variables were attempted however, these did not appear to significantly alter testing results (i.e. regressions were run and compared for both transformed and untransformed indicators but results were not significantly different). It did appear that problems of normality were genuine and it was hypothesized that the large sample size, the 5-point scale used to assess attitudes/beliefs, the mix of groups (i.e. target, control, peer supporters) and the sampling of different groups of pupils over time may have accounted for some of the non-normality seen in the data. For these reasons, the results for analyses performed using untransformed variables are being reported.

VITA AUCTORIS

Melanie Gallant was born in 1975 in Windsor, Ontario. She graduated from Assumption High School in 1994. From there she went on to the University of Windsor Ontario where she obtained a B.Sc. in Biology and a BA in Psychology in 1999. In the fall of 2001, she graduated with an MA in Applied Social Psychology. Currently she is a candidate for the Ph.D. degree in Applied Social Psychology at the University of Windsor and hopes to graduate in 2005.