Adolescent risk taking behaviour in an era of HIV/AIDS infection:

A case study of youth in KwaZulu-Natal Province, South Africa

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DECLARATION

This dissertation represents original work by the author and has not been submitted in any other form to any other university. Where use has been made of the work of others, it has been acknowledged and referenced. The views expressed in this paper are that of the author and do not represent that of the institutions or individuals involved in the "Transitions to Adulthood in the Context of HIV/AIDS" study.

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Abstract:

In light of the current HIV/AIDS epidemic, the sexual risk taking and health seeking behaviour of South African adolescents is of extreme interest to researchers and programme implementers. Using a database of adolescents between the ages of 14 and 22 from Durban Metro and Mtunzini Magisterial District in KwaZulu-Natal Province, this paper seeks to investigate which antecedents impact most on adolescent sexual behaviour. Risk taking behaviour of interest is whether or not a condom was worn at last intercourse. The analysis also seeks to test the impact of Life Skills education in school on this behavioural outcome.

Although much of the literature has pointed to more distal factors having greater influence on adolescent health seeking and risk taking behaviour, this analysis has showed that issues relating more closely to levels of communication within a relationship, attitudes towards the use of condoms, and previous health seeking behaviour, have the greatest impact on condom use. Those adolescents who wore a condom the first time they had sex, who feel they could confidently convince their partner to use a condom and who maintain high levels of communication with their partner, were found most likely to have used a condom they last time they had intercourse.

1. Introduction

The growing and devastating impact of HIV/AIDS around the world is becoming clearer each day. Estimates made by UNAIDS indicated that at the end of 1999, a total of 34.3 million people were living with HIV/AIDS around the world, with 5.4 million new infections occurring that year. To date, sub-Saharan Africa is the worst affected region, containing 71 per cent of all people living with HIV/AIDS. Within this region, South Africa is the one of the worst affected countries. The current estimated rate of infection of 19.9% amongst adults has resulted in approximately 4.2 million South Africans presently infected with the virus, the largest number from any one country (UNAIDS:2000).

Adolescents who are entering their reproductive years are particularly vulnerable to contracting HIV/AIDS. Although many social customs dissuade sexual activity before marriage, premarital sex is widespread in many developing countries. The growing delay of marriage along with the falling age of menarche has resulted in a greater number of years spanning these two events, leading to more sexually active, unmarried adolescents than has been experienced before (Bongaarts and Cohen:1998, Blanc and Way:1998, Gage-Brandon and Meekers:1993). With unwanted (in particular teen) pregnancy being one of the most concerning consequence of this trend, the arrival of HIV/AIDS has added a new danger to the transition to adulthood for adolescents.

Not surprisingly in a country that has high rates of teenage pregnancy (30% of 19 year olds have already given birth (SADHS:1999)) and high HIV/AIDS prevalence rates, South African youth represent one of the greatest 'at risk' groups to HIV/AIDS infection, with prevalence rates estimated to be between 23-27 per cent for females aged 15-24 and 8-15 per cent for males of the same age (UNAIDS:2000). Transmission of HIV/AIDS within this age group is predominately through heterosexual intercourse (Flisher et al.:1993), with prevention from transmission being encouraged through one of three ways: delaying the initiation of sexual intercourse, or abstaining if already active; being in a monogamous relationship; or consistent and proper condom use with every sexual encounter. Clearly, to date a large

proportion of South African youth are not opting for either of these options and are putting themselves at risk of contracting the HI-virus.

The National Department of Health, in it's "HIV/AIDS & STD Strategic Plan for South Africa: 2000-2005", has highlighted youth to be one of the main target groups for its intervention strategies. Prevention strategies aimed at youth are to be focused on: increasing the treatment of sexually transmitted diseases (STDs); increasing the use of condoms by sexually active women; and increasing the number of children leaving primary school who are aware of the causes and methods of transmission of HIV/AIDS (p.12).

Although knowledge of the causes and transmission of HIV/AIDS is already high, the acquisition of such information may not necessarily lead to action or changes in behaviour. This article will focus on one of the three health seeking options available to adolescents, the use of condoms, and will do so in the context of exposure to HIV/AIDS education programmes. Two key questions will be asked, namely; "what are the distinguishing characteristics of adolescents who use condoms compared with those who do not?", and secondly; "does exposure to life skills education in schools have any impact on condom use?"

Using data collected in KwaZulu-Natal Province, South Africa, this paper seeks to analyse and explain the health seeking behaviour of adolescents in the province. Before the discussion on the data collection methods and the interrogation of data through logistic regression models, the context of adolescent risk taking and health seeking behaviour will be explored, from both an international and national perspective.

2. Adolescent Risk Taking Behaviour in the Era of HIV/AIDS: An International Review

Much of the international literature and research around adolescent sexual behaviour has been motivated by the concerns of the adverse effects of teenage pregnancy. Only in the last decade have concerns for HIV/AIDS infection amongst adolescents become a focus of research. Most of the comprehensive and large-scale research undertaken on adolescent sexual behaviour has occurred in developed countries,

whilst research in developing countries has mainly been focused on issues of fertility. However, although much of the literature may refer to teen pregnancy as the adverse outcome and not HIV/AIDS infection, it points to the same high risk behaviour: adolescents who have unprotected sex.

Social factors, particularly what is considered to be normative to one's peer group has been found to be highly associated with sexual initiation and subsequent behaviours. Parents who maintain high levels of communication and a close relationship with their children by creating a connected and supportive environment are more likely to have children who delay the onset of intercourse. Adolescents who have low educational aspirations and do not do well at school are also more likely to become sexually active at an earlier age. Research on American teenagers found substantial patterns of non, or irregular, contraceptive use. The main antecedents to this were lower social class, non-attendance at college and fundamental Protestant affiliation. It was also found that knowledge [of contraceptives] was an essential but inadequate determinant of contraceptive use. Communication of sexual knowledge, opinions and beliefs between parents and their children were shown to have an influence on adolescent attitudes towards sexuality. However, permissive behaviour was found to be more closely associated with very strict parental discipline than with parents who maintained moderate discipline. Conversely, adolescents from households that were lacking in discipline and parental rules were also considered to be at greater risk of teen pregnancy. Configuration of the family has also been found to be important with the sexual behaviour of older siblings influencing that of their younger siblings. Younger children who had sexually active older siblings were more likely to be active themselves than if their siblings were virgins. Marital disruptions were also found to be an influencing factor, as was the role of religion. Youth who attended church frequently and who placed a high value on religion in their lives were found to hold less permissive attitudes and were less likely to be sexually active (Brooks-Gunn and Furstenberg:1989 White and DeBlassie: 1992 Resnick et al.:1997, Manlove et al.:2000, Brooks-Gunn et al.:1988, Morrison:1989, Stout and Rivara:1989).

In perhaps one of the most comprehensive analyses on adolescent sexual risk-taking, pregnancy and childbearing, Kirby (1999) analysed more than 100 antecedents taken from over 200 studies on the initiation and frequency of sex, the number of sexual partners, the use of condoms or other forms of contraception, pregnancy and childbearing. Conclusions he drew were that antecedents affecting the above behaviours were predominately non-sexual in nature and more distal. Again, he confirmed that adolescents are influenced by a whole range of factors, not just one or two simple issues that could be easily targeted in an education or intervention programme[1]. He identified no less than 13 clusters of antecedents[2] that were found to be significant in influencing adolescent risk taking and health seeking behaviour.

In one study that looked directly at the sexual activity and condom use of 6962 secondary students in Peru (Magnani et al.:2000) it was again found that contextual factors such as region of residence, family structure and economic position, communication with parents, the behaviour of peers, self esteem and working for pay were the key factors that differentiated risk taking adolescents from non-risk taking adolescents, and not knowledge of pregnancy and sexually transmitted diseases.

Schwab Zabin and Kiragu (1998), in a extensive analysis of the health consequences of adolescents in sub-Saharan Africa, identified a number of additional characteristics more particular to the African setting. Factors that influence an adolescent's risk taking behaviour, especially in light of the HIV/AIDS epidemic are particularly burdensome upon female adolescents, who experience a disproportionate share of HIV infections. Social convictions of male dominance and female sexual submissiveness result in high levels of sexual violence and in the inability of females to refuse sexual relations. Also social acceptance of

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[1] The premise that no single intervention can be completely effective was also found by the CDC AIDS Community Demonstration Projects Research Group, 1999.

[2] The 13 clusters of antecedents identified by Kirby were: community disadvantage and disorganisation; attachment to school; attachment to religious institutions; structural and economic advantage of the teenagers' families; family dynamics and attachment; parent beliefs and communication about sexuality; peer attitudes and behaviours; having a partner and partner characteristics; sexual abuse; biological antecedents; ethnicity; engagement in other problem or risk-taking behaviours and emotional distress; and sexual psychosocial antecedents.

"sugar daddies" link older more experienced men (and therefore more likely to be infected) with younger females. The fear of contracting HIV/AIDS has further exacerbated this, resulting in older men specifically seeking relations with young virgin girls.

In another comprehensive survey of the literature on adolescent sexual decision making in developing countries, Gage (1998) goes to considerable length to "unpack" the various complex costs and benefits that influence an adolescent's decision to engage in non-marital sex, to use contraception and to use a condom. One issue of concern, particular to sub-Saharan Africa, has been the erosion of traditional practices and beliefs that incorporated controls over premarital sexual behaviour. In particular a decline in the role of the grandmother who provided adolescent girls with premarital instructions and advice on appropriate behaviour has been noted. This decline has been attributed not only to an increase in education, and therefore, the removal of direct controls, but also to a general rejection by adolescents of their traditional norms and values. The removal of traditional practices, in particular the selection of a spouse by one's parents, was identified by Letamo and Bainame (1997) as contributing to the justification of multiple partners in Botswana, as adolescents sought to find their own life mate.

Also noted by Gage (1998), is the rational way in which adolescents make irrational decisions. By this, she means that although knowledge about contraception and the causes of STDs may be high, adolescents persist in high-risk behaviours that appear irrational. Often many adolescents have a feeling of infallibility and the known dangers of their actions do not seem relevant to themselves personally. The influences of societal, cultural and familial norms have a very strong impact on decision making. In sub-Saharan Africa, where polygamous relationships are common, boys are encouraged to seek a number of sexual partners simultaneously, whilst girls, in their desire to secure a husband accept this behaviour and hope that they will be chosen amongst the many. In some cultures where there is a high value placed on fertility, where childbearing aids a woman's social status, and when marriage is not considered a necessary precursor to childbearing, the decision not to have protected sex becomes rational.

Similar conclusions were drawn by Kalunde (1997) who examined the sexual behaviour of youth in Zambia where it was also found that regardless of the race, sex or educational background of the respondents, they did not believe HIV/AIDS to be a personal threat to their own lives. As a result they had not altered their own sexual behaviour. She blamed socio-cultural beliefs and norms, as well as current economic conditions for the level of high risk taking behaviour in Zambian youth.

One other important factor evident in the risk taking behaviours of adolescents in developing countries is the level of violence and coercion that exists within relationships. The economic and social inequality as well as the age disparity between partners creates a situation of unequal power within a relationship. This effectively reduces a girl's ability to negotiate whether or not intercourse will take place and whether or not contraception or condoms will be used. This again increases the risk of pregnancy and HIV/AIDS infections that many adolescent girls in the developing world experience.

This overview of the international literature on adolescent sexual behaviour has highlighted both the similarities and differences that exist among young people throughout the world. However there is evidence of a growing convergence of a global youth culture in the expectations and hopes that adolescents have for their sexual and romantic relationships throughout the world (Caldwell et al.:1998). For many young people in developing countries, this may result in added stress as they come to terms with the conflict between traditional gender expectations, western ideals, and the move towards a global society.

3. Adolescent Risk Taking Behaviour in the Era of HIV/AIDS: A South African Review

A review of South African literature reveals similar trends and issues experienced by South African youth. However, there is a shortage of any large-scale, national based research of South African adolescents that offers any comprehensive understanding of how adolescents have or have not altered their behaviour in

light of the HIV/AIDS crisis. Existing small scale and locally based research shed important light in trying to understand the behaviour of South African youth.

Research undertaken in the Eastern Cape on adolescent sexuality asked 934 school learners between the ages of 14 and 20 what was the strongest influence on their sexual activities. Interestingly girls nominated "religious beliefs", followed by their "mother" and "fear of AIDS", whilst boys stated that "friends", "sexual partner" and "religious convictions" respectively had the greatest influence. Both boys and girls ranked "magazines" and "school" as having the least influence. Although school was nominated as having little affect on their sexual activities, many learners noted that they would like an opportunity to practice life-skills, such as handling peer pressure and decision making. They also noted that they would like both teachers and parents to provide more information on sexual issues, especially birth control methods and HIV/AIDS (Oliver: 1996).

In a similar study undertaken in the same region, a small sample of high school girls nominated peers, relatives and teachers as their greatest source of sexual knowledge. Many stated that their parents, and in particular their mothers had not discussed any matters regarding sexuality. Except for menstrual discussion with their mothers, most did not discuss sex with their parents (Mayekiso and Twaise:1993).

Although knowledge of the HI-virus and its transmissions was high, when asked what they thought their chances of becoming infected were, only 17% replied "a lot" or "very much". This ranged from 13% in a rural site in KwaZulu-Natal to 25% in a Northern Cape Township. This was despite the fact that 82% believed that HIV is a threat to South African society (Kelly:2000). Regardless of increases in rates of infection that have occurred over the last decade, it appears that time has done little to change this perception. A study undertaken in 1990 of university students reveal that 17.7% of sexually active students believed then that they were at risk of contracting HIV (Friedland et al.:1991). These results appear to confirm youths' sense of infallibility to unknown dangers (Gage:1988).

School-youth focus group discussions on condom usage revealed that many South African youths hold a particular disdain towards the use of condoms, despite their awareness of the dangers of unprotected sex. Although for some there was a lack of knowledge as to where condoms could be obtained, the view held by many males was that the use of condoms reduces sexual pleasure and to many they were seen to be a challenge to the male ego and were incompatible with manliness. In addition, suggesting the use of condoms within committed relationships was seen as sign of unfaithfulness. As condoms were also known to be distributed at STD clinics, the use of a condom with ones partner could also be interpreted as having an STD (Abdool Karim et al.:1992a). Friedman et al. (1991) also found a general negative attitude toward condom use in a study of sexual behaviour of youth in the former Transkei. Although two-thirds of the sexually active boys in the sample had used a condom at least once, 57 per cent said they did not enjoy using them (Buga et al.:1996).

Even when there is acceptance of the need to use condoms, gaining access to them, and familiarity with their use has been an obstacle to adolescents in the past. One study undertaken by Abdool Karim et al. (1992b & 1992c) highlighted a number of difficulties adolescents faced in going to clinics to obtain condoms. Some clinics were difficult to locate and adolescents were embarrassed to ask directions to a 'family planning' clinic. Once there, they were often not offered any privacy and the young people did not feel comfortable asking for condoms in front of other patients. Very seldom were any verbal instructions given on how to use condoms, even when asked, as the clinic staff believed that the attached written instructions were sufficient. Only on a few occasions did any of the staff offer information and advice on HIV/AIDS. Condoms were perceived as an inferior and unsafe method of contraception and their use was discouraged.

Another impediment to changing adolescent risk taking behaviour, particularly for black South African females, is conflict between the desire to fall pregnant versus the need for protection against HIV

infection. As explained by Preston-Whyte and Zondi (1991), given the high value placed on fertility within many African cultures, women fear being branded as 'barren' and are pressured to prove their fertility. This is not necessarily within the confines of marriage. For men, to impregnate a woman is a sign of virility. This conflict between the desire to fall pregnant and the risk of HIV has been termed by Preston-Whyte as the "fertility conundrum" (1999) and poses another dilemma to South African adolescents.

Violence is a critical issue within the context of adolescent sexual relationships within South Africa, and is an important determinant in whether or not condoms are used. As in other African countries, males dominate most relationships and, given their general disdain for condoms, a request from a female for her partner to wear a condom may well lead to a violent reaction. He may feel accused of not being faithful to his partner or the request may lead him to be suspicious that his partner has other lovers. Women are also often reliant upon their partners for their basic economic needs and personal protection, thus making it even more difficult to negotiate safe sex (Preston-Whyte:1999).

As evidence to the high and seemingly acceptable levels of violence within relationships, it was found by Buga et al. (1996) in a sample of youth from the former Transkei, that whilst boys nominated proof of normality, peer pressure and self-gratification as the means for initiating sexual activity, one quarter of the female sample stated that they commenced their sexual activity under duress.

In an even more disturbing article, Leclerc-Madlala, (1997) who interviewed a number of Zulu youth in the Durban Township of Umlazi, exposed the phenomenon of a fatalistic response to the AIDS epidemic. After coming out of an era of political violence and unrest prior to 1994, the threat of the HIV/AIDS virus was seen as just another part of the challenges of growing up. There was a general feeling among the youth that eventually they would become infected, if they were not already, and their greatest fear was dying alone. "Infect one, infect all" was the cry of many youth who did not want to know their HIV status

but believed they should all die together. This was encouraging youth to engage in unprotected sex, with a deliberate choice not to use condoms. Leclerc-Madlala also noted that the desire of some men to spread the virus to as many women as possible may be related to reported increases in rapes.

Varga (1997), who undertook qualitative research on adolescents from KwaZulu-Natal, also found all of the above mentioned issues to be important factors in explaining the high rate of risk taking behaviour amongst adolescents in the province. Her research showed that levels of communication within relationships were very poor, especially around issues of HIV/AIDS. In fear of violent retribution, few females felt that they could broach the topic with their partners. Instead, they hoped that their partners were behaving responsibly with other partners. Again, these adolescents displayed low levels of perceived risk towards contracting the virus. Condoms were also perceived as reducing pleasure and were rarely used in regular relationships. This led Varga to conclude that for black adolescents from KwaZulu-Natal:

> "sexual negotiation and decision-making were influenced, and in many cases overridden, by a complex set of social and cultural factors which far outweighed the potential threat of HIV infection" (p58).

4. Theory and Positions

As mentioned earlier, the main purpose of this paper is to investigate the risk taking behaviour of adolescents within KwaZulu-Natal. The main question being explored is what determinants or antecedents are driving such behaviour. In this case, the dependent variable to be tested is condom use, and specifically condom use at last intercourse. This paper also intends to test whether or not exposure to life-skills education in school is having any impact on this behaviour.

Given the setting of the research (adolescents in KwaZulu-Natal) and the high HIV prevalence rates within the province (reported to be 33 per cent in 1998 (South African Department of Health, 1999)), it is expected that race will be a significant determinant of one's likelihood of using a condom at last

intercourse, with African respondents being least likely to have used one. Other individual characteristics expected to have an impact are age, residence, and economic status. Female South African adolescents generally commence and maintain sexual relations with partners who are a number of years older than themselves. Because of this, and because of the dominant positions that males hold in this society, it is expected that younger females will be less able to negotiate the use of condoms within a relationship. Consequently it is expected that age will be a significant determinant in the use of condoms. It is also hoped that the older the adolescent, the more exposure they may have had to AIDS education and awareness.

Many adolescents who live in rural KwaZulu-Natal live in tribal authorities and are more influenced by traditional practices and beliefs than that of their urbanised counterparts. Within these areas, polygamy is still practised and the traditional roles of women are very much upheld. Access to health services is more limited and staff are more likely to know adolescents and their families personally. Therefore, it is anticipated that adolescents from rural areas will be less likely to have used a condom at last intercourse.

Debates and discussions around the spread of HIV/AIDS in South African have identified the high levels of poverty, inequality, and migrancy as one of the driving forces of the epidemic. It is also expected that economic status of the households that adolescents come from will also impact upon condom use. However, contrary to other composite indicators of adolescent risk taking behaviour, the author does not believe that adherence to religious beliefs will be a strong determinant of condom use. Firstly, despite high levels of "Christianisation" of many southern African countries, this has not impacted upon high levels of acceptance of sexual permissiveness. If adolescents held strongly to the tenets of their faith (South Africa is predominately Christian), then adolescents, unless married, would not be engaging in sexual intercourse, and as a result only those who consider religion to not be important will be engaged in premarital sexual activity.

Although other research has linked delinquency and other deviant behaviours with sexual permissiveness, it is not expected that within the South African context, connectedness to ones environment, such as to the family, school and community, will play a significant role in determining one's likelihood of wearing a condom. The HIV/AIDS epidemic in South Africa is at such high generalised levels, especially among youth, that risk taking behaviour does not appear to be undertaken only by those dwelling on the fringes of society and who feel outcast from the family, school and community. The high prevalence rates indicate that generally accepted and practised sexual behaviour, which was also in place well before the epidemic, is driving the current crisis.

It is anticipated that exposure to life skills education will have little impact on adolescent risk taking and health seeking behaviour in South Africa. The official Life Skills and HIV/AIDS programme was only introduced in South African schools in 1998. The programme is not compulsory and the Department of Education has not provided any additional funds for the programme. As a result the likelihood of a school having a life skills or other sex education programme will be a reflection of the resources available to the school, and therefore the level of wealth existent in the families that learners come from. Consequently, those adolescents most in danger of contracting the virus are probably least likely to receive life skills education in school.

Secondly, it needs to be questioned as to whether the classroom environment is conducive to the acquisition of necessary "life" skills. Often teachers are not confident themselves in the material they are presenting and may in fact hold views contrary to what they are expected to teach. Adolescents may also divorce the actions of their personal lives outside of school from their formal education setting and may see classes as just another subject that they must take. The formal setting of schools also makes it more difficult for learners to ask questions of a personal nature, especially in front of their peers. Fear of ridicule and the desire to be accepted is often a much stronger determinant of behaviour than weighing up the pros and cons of one's decisions.

Thirdly, it is likely that traditional values towards sex, the use of condoms, and the expected roles of women within relationships still hold strong. Although Life Skills education may be encouraging youth to take a more modern attitude towards relationships and the opposite sex, these traditional views, even in urban areas still predominate.

Adolescents in South Africa appear to hold similarities to other adolescents around the world with regards to their belief in their "infallibility". The general widespread denial of the HI-virus, the stigma attached, and the general attitude that "it is somebody else's problem" indicates that adolescents' perception of risk ofcontracting the virus within South Africa is generally low. This, combined with resistance to more modern views of relationships, as discussed above, is most likely a significant driving force in the spread of the virus.

Finally, in terms of general attitudes and beliefs towards the use of condoms held by adolescents in the province, it is predicted that the general displeasure toward the use of condoms is still widespread. This is most likely one of the most immediate influences on an adolescent's decision to wear a condom at the point when it is most crucial, just before intercourse. The denial of the epidemic, and individuals' beliefs that they or their partner are not "dirty" justifies the lack of discussion within relationships around the possibility that they may not have been faithful to their partner, or have had partners in the past that may have been infected. Issues of inequity and violence within relationships also influence the level of discussion and negotiation that takes place. Because of this, and other factors discussed, it is hypothesised that those adolescents who used a condom the first time they had sex, are most likely to have used one the last time. A general acceptance of one's risk to the HI-virus, the prior belief in one's ability to use a condom and to discuss such issues with one's partner, before the onset of sexual intercourse, is most likely to be one of the strongest determinants of one's ability to maintain such behaviour throughout one's sexual life.

5. Data and Methods

Data for this analysis is taken from the first wave of the "Transitions to Adulthood in the Context of HIV/AIDS" study, a longitudinal research project being undertaken by the Universities of Natal and Tulane (New Orleans) and the Population Council. The main objectives of the study are to:

- Demonstrate the impact of life skills curricula and other programmes on adolescents' knowledge, attitudes and perceptions towards HIV/AIDS transmission, personal risks, attitudes towards people living with AIDS, as well as health seeking and risk taking behaviours associated with the spread of STDs and HIV.

- To record key events and activities that define and impact on the adolescents' transition to adulthood including sexual initiation and relationships, school leaving, pregnancy, and marriage.

- To gather further information about external factors which influence the timing and incidence of the above mentioned events. Of interest is the quality of school experiences, presence of violence in communities and relationships, access to employment opportunities, peer relationships and the reproductive health environment (May et al.: 2000).

Two districts within KwaZulu-Natal were purposively chosen for the study site, Durban Metro and Mtunzini Magisterial District, as they represented urban, transitional and rural areas of the province. A modified multi-stage cluster sampling method was used with enumerator areas (EA's) from the 1996 Census serving as the primary sampling unit. The first stage of sampling involved the random selection of 120 EA's from all possible EA's that existed within the two districts. The second stage involved the division of EA's into sections of approximately equal predetermined sizes. One segment was then

randomly selected and fieldworkers were instructed to visit every household within the section and interview every willing adolescent between the ages of 14 and 22. Heads of households were also interviewed in a separate household questionnaire that collected information about household demographics, quality of housing, access to services, household expenditure and general attitudes towards HIV/AIDS and other related areas. Three attempted visits were required to get adolescents at home, although in many instances more visits were made. No households were replaced as the sampling methodology incorporated an expect rate of refusals.

For the adolescents, data was collected in the form a structured questionnaire that was administered in their home. The questionnaire took from 50 minutes to one and a half-hours to administer. Fieldwork took place from September to November 1999. A total of 3 096 adolescent and 2 008 household questionnaires were completed. Response rates varied according to geographic areas and predominant race of the enumerator area. For urban Africans, a response rate of 92.5% was recorded for all known eligible adolescents. For urban Asians, the response rate was 88.4% and for urban whites, the response rate was 80.7%. The rural sample, which was predominately African, recorded a response rate of 97.4%.

Due to the extensive nature of the questionnaire, the data permits the testing of the impact of various socio-demographic characteristics and socio-economic conditions on the use of condoms at last sexual intercourse in the twelve months before the survey (here after referred to as condom use). This analysis will comprise of five different models, which test different groups of variables considered to have an important impact on adolescent decision making in regards to risk taking behaviour. The five models constructed include: individual characteristics; school, family and community experiences, exposure to life skills education; risk perception; and sexual experiences, communication & condom use, beliefs and attitudes. After this, a model containing all significant variables will be constructed to determine which factors most influence an adolescent's health seeking and risk taking behaviour.

As this paper is focusing on two main variables, condom use and exposure to life skills education, the analysis will only include a subset of the total sample. In the questionnaire, adolescents were asked if they had attended school in the last 21 months prior to the interview. If they had, then they were asked a series of questions in regard to having recalled a number of life skills topics being discussed at school (see footnote 3 for a list of these topics). Negative and positive responses to having had these topics taught were then grouped to form a variable that indicated high, medium or low exposure to life skills education.

In another section of the questionnaire, data was gathered on the most recent three sexual partners that adolescents had had in the last twelve months. One question asked "The last time you had sex with him/her, did you or your partner use a condom?" The answer to this question, for the most recent partner, is used in this analysis as the dependent variable. As a number of adolescents had not been at school in the last 21 months prior to interview, and/or had not had sexual intercourse in the last 12 months, or due to missing data, the final sample size for this analysis is 814.

6. Results

Table 1 shows the distribution of the dependent variable, condom use at last intercourse. Here it can be seen that the split between those who wore a condom and those who did not was almost equal. Table 2 illustrates the frequencies of all the independent variables used in the five different models. It also shows a univariate analysis, using logistic regression, of these same variables with the dependent variable, illustrating both the significance and odds ratios[3] of these variables individually with the dependent variable. See Appendix 1 for an explanation of the variables used in the analysis.

Table 1: Distribution of Respondents by Use and Non-Use of Condoms at Last Intercourse: Dependent Variable

Variable: Condom Use	*Distribution as Percentage*
Did not use condom (n=413)	50.8
Did use condom (n=401)	49.2

[3] Odds ratios refer to the likelihood of an event occurring, which is defined as the ratio of the probability that the event will occur to the probability that it will not.

Table 2: Distribution of Respondent by Independent Variable Categories and their Impact on Condom Use – Logistic Regression Models

Variable (N=814)	*Categories*	*Distribution as Percentage*	*Univariate Analysis*	
			Significance	*Odds Ratio*
Sex	Male (n=426)	52.3	.0041	1.4837
	Female (n=388)	47.7		1.0000
Age at last birthday	14-15 (n=56)	6.9	.4217	1.2652
	16-19 (n=548)	67.3	.0537	1.3599
	20-22 (n=210)	25.8		1.0000
Population Group	Non-African (n=80)	90.2	.0020	2.2480
	African (n=734)	9.8		1.0000
Location	Urban (n=629)	77.3	.0649	1.5239
	Rural (n=185)	22.7		1.0000
Household per capita Expenditure	Lowest Quintile (n=190)	23.3	.0000	.3243
	Second Lowest Quintile (n=199)	24.4	.0003	.3939
	Middle Quintile (n=176)	21.6	.0281	.5534
	Second Highest Quintile (n=152)	18.7	.1425	.6563
	Highest Quintile (n=97)	11.9		1.0000
Importance of Religion	Not important (n=190)	23.3	.5686	1.0920
	Somewhat or very important (n=624)	76.7		1.0000
Birth Mother Still Alive	Birth mother alive (n=738)	90.7	.0019	2.1909
	Birth mother not alive (n=76)	9.3		1.0000
Birth Father Still Alive	Birth father alive (n=590)	72.5	.0012	1.6506
	Birth father not alive (n=224)	27.5		1.0000
Work Experience	Has not worked in last 12 months (n=696)	85.5	.5225	.8806
	Has worked in last 12 months (n=118)	14.5		1.0000
Connectedness to Family	Low Connectedness (n=59)	7.2	.3540	.7664
	Medium Connectedness (n=143)	17.6	.3074	.8327
	High Connectedness (n=612)	75.2		1.0000
Connectedness to Community	Low Connectedness (n=115)	14.1	.3408	.8138
	Medium Connectedness (n=387)	47.5	1.0000	1.0000
	High Connectedness (n=312)	38.3		1.0000
Belongs to at least one sporting or social group	Does not belong to any (n=324)	39.8	.0242	.7263
	Belongs to at least one (n=490)	60.2		1.0000
Connectedness to School	Low Connectedness (n=38)	4.7	.0047	.3000
	Medium Connectedness (n=247)	30.3	.6273	1.0771
	High Connectedness (n=529)	65.0		1.0000
Access to All Textbooks	Did not have access to all textbooks (n=435)	53.4	.0000	.4943
	Did have access to all textbooks (n=379)	46.6		1.0000
Exposure to All Lifeskills Topics	Low exposure (n=201)	24.7	.0098	.6469
	Medium exposure (n=204)	25.1	.0854	.7431
	High exposure (n=409)	50.2		1.0000
Exposure to Core Lifeskills Topics	Low exposure (n=206)	25.3	.0609	.7314
	Medium exposure (n=165)	20.3	.1106	.7467
	High exposure (n=443)	54.4		

Table 2: Distribution of Respondent by Independent Variable Categories and their Impact on Condom Use – Logistic Regression Models (Continued)

Variable (N=814)	*Categories*	*Distribution as Percentage*	*Univariate Analysis*	
			Significance	*Odds Ratio*
Perception of Risk of Contracting HIV/AIDS	Considers self to be at no or low risk (n=664)	81.6	.0000	2.2363
	Considers self to be at moderate or high risk (n=150)	18.4		1.0000
Knows someone with HIV/AIDS	Does not know someone with HIV/AIDS (n=691)	84.9	.7650	.9494
	Does know someone with HIV/AIDS (n=123)	15.1		1.0000
Number of Partners in Last 12 Months	One partner (n=596)	73.2	.0942	1.2848
	Two or more partners (n=218)	26.8		1.0000
Condom Use at First Sex	Did not use condom (n=601)	73.8	.0000	.0817
	Did use condom (n=213)	26.2		1.0000
Ever Been Physically Forced to Have Sex	No (n=762)	93.6	.0749	1.7127
	Yes (n=52)	6.4		1.0000
Talk with Partner about Avoiding Sex	No (n=376)	46.2	.0000	.3834
	Yes (n=438)	53.8		1.0000
Talk with Partner about Condom Use	No (n=247)	30.3	.0000	.0579
	Yes (n=567)	69.7		1.0000
Talk with Partner about Avoiding HIV/AIDS	No (n=242)	29.7	.0000	.1663
	Yes (n=572)	70.3		1.0000
Talk with Partner about Avoiding STDs	No (n=324)	39.8	.0000	.1694
	Yes (n=490)	60.2		1.0000
Confident can Convince Partner to Use Condom	Fairly or very confident (n=600)	73.7	.0000	5.3185
	Not confident (n=214)	26.3		1.0000
Believes Condoms Reduces Pleasure	Disagreed (n=543)	66.7	.0004	1.6730
	Agreed (n=271)	33.3		1.0000
Believes Using Condoms is a Sign of Not Trusting Partner	Disagreed (n=577)	70.9	.0000	1.5812
	Agreed (n=237)	29.1		1.0000

The first multiple logistic regression model constructed using SPSS (Statistical Package for Social Sciences) considers the individual characteristics of the respondents. Table 3 shows the results of a multiple logistic model that measures the influence of all the above mentioned individual characteristics, on the dependent variable: condom use at last intercourse.

Table 3: Impact of Individual Characteristics on Condom Use: Odds Ratios from Logistic Regression

Variable	*Significance*	*Odds Ratio*
Sex		
Male	.0103**	1.4585
Female		1.0000
Age	.3021ns	
14-15	.3358ns	.7386
16-19	.4584ns	1.1353
20-22		1.0000
Race		
African	.9931ns	1.0030
Non-African		1.0000
Residence		
Urban	.0705*	1.3859
Rural		1.0000
Household Expenditure	.0296**	
Lowest Quintile	.0732*	.5458
Second Lowest Quintile	.0641*	.5395
Middle Quintile	.1894ns	.6455
Second Highest Quintile	.9134ns	1.0356
Highest Quintile		1.0000
Religion		
Religion Important	.7430ns	.9452
Religion Not Important		1.0000
Mother Alive		
Mother Alive	.1972ns	1.3865
Mother Not Alive		1.0000
Father Alive		
Father Alive	.8664ns	.9726
Father Not Alive		1.0000
Worked		
Worked in last 12 months	.7399ns	.9293
Not work in last 12 months		1.0000
Nagelkerke R^2	0.061	

Significance Levels: p<.01***, p<.05**, p<.10* ns= not significant

Table 3 sheds important light on what individual characteristics drive adolescent behaviour in KwaZulu-Natal, with the most significant variables being sex of the respondent. The sex variable indicates that male

respondents are 46% more likely to use a condom than females. Whilst this is most likely because of the power differential that exist between the sexes, it must also be accepted that in some cases females may not have reported the use of condoms as they were not the one wearing them. The expenditure variable shows interesting and expected results. Those in the lowest income quintile compared with the highest quintile were significantly less likely to use a condom. As individuals moved up the expenditure scale, the odds ratio approaches one, indicating little difference in behaviour between higher expenditure groups and the highest expenditure group. The adolescents' area of residence appeared to have some impact on behaviour, with those living in urban areas being more likely to use a condom than their rural counterparts. However, these two variables are only significant at a 90% level and need to be treated with caution. Further research is required to confirm whether these variables do impact upon condom use.

What is of greatest surprise is the fact that within this model, the race of the respondent is not significant. However, it is important to note is that within the expenditure distribution all of those in the lowest quintile and second lowest quintile were African (data not shown). What this may be suggesting is that while the race of the respondent, compared with other races is not significant, intra-African differences may exist based on household expenditure.

Table 4: Impact of Connectedness to Family, Community and School on Condom Use: Odds Ratios from Logistic Regression

Variable	*Significance*	*Odds Ratio*
Family Connectedness	.7775ns	
Low Connectedness	.7717ns	1.0867
Medium Connectedness	.5451ns	.8918
High Connectedness		1.0000
Community Connectedness	.8138ns	
Low Connectedness	.5554ns	1.1455
Medium Connectedness	.9952ns	1.0009
High Connectedness		1.0000
Belongs to Group		
Belongs to at least one group	.4270ns	.8892
Does not belong to any group		1.0000
School Connectedness	.0183**	
Low Connectedness	.0051***	.3176
Medium Connectedness	.4022ns	.8747
High Connectedness		1.000
Access to textbooks		
Did not have access to all textbooks	.0008***	.6193
Had access to all textbooks		1.0000
Nagelkerke R^2	.040	

Significance Levels: p<.01***, p<.05**, p<.10* ns= not significant

Table 4 seeks to measure the extent to which the family, community and school environment in which adolescents live impact upon their behaviour. The connectedness variables are a composite of different questions that were asked to ascertain how close the adolescent felt to a nominated family member, how they perceived the cohesiveness and desirability of the community in which they live, and how much adolescents enjoy and participate in school. Positive responses to a number of questions were then grouped into high, medium and low levels of connectedness. An attempt to measure the quality of schooling was also undertaken through asking respondents if they had access to all of the required textbooks. The respondents were also asked if they belonged to a sport, music, religious or other group outside of school.

The regression model shows that only connectedness to school and having access to all of the required textbooks were significant determinants of condom use. Adolescents that did not feel positively towards their school environment and had a low degree of connectedness were significantly less likely to have

worn a condom at last intercourse, compared with those who experienced a high degree of school connectedness. Those that did not have access to all of their textbooks were also found to be significantly less likely to have worn a condom at last intercourse. It is quite likely though, that access to textbooks is a reflection of household wealth.

Table 5: Impact of Exposure to Life Skills Education on Condom Use: Odds Ratios from Logistic Regression

Variable	*Significance*	*Odds Ratio*
All Life Skills	.2176ns	
Low Life Skills Exposure	.0856*	.4562
Medium Life Skills Exposure	.4845ns	.8310
High Life Skills Exposure		1.0000
Core Life Skills	.3045ns	
Low Life Skills Exposure	.2746ns	1.6280
Medium Life Skills Exposure	.7302ns	.9078
High Life Skills Exposure		1.0000
Nagelkerke R^2	0.11	

Significance Levels: p<.01***, p<.05**, p<.10* ns= not significant

As mentioned previously, understanding the extent to which life skills education in school influences adolescent risk taking behaviour is one of the key aims of this paper. Respondents were questioned as to whether they recalled thirteen[4] different life skills topics being discussed at school. Eight of these thirteen topics were nominated as 'core[5] topics' - those considered to be the minimum required knowledge in order for adolescents to safely negotiate their transition to adulthood, in South Africa's HIV/AIDS era.

Table 5 shows that those who have had low levels of exposure to all life skills education topics are less likely to wear a condom than those who have had high levels of exposure to all life skills topics. However, this is only at significant at the 90% level and should be interpreted with caution. Again, further research would be required to confirm this possible positive relationship.

[4] Respondents were asked if they recalled the following topics being discussed in class in the last year: a) Human growth & development; b) Reproductive biology; c) Understanding sexuality; d) Contraception; e) HIV/AIDS - transmission and prevention; f) HIV/AIDS - looking after people with AIDS; g) STDs - symptoms and prevention; h) How to use a condom; i)Why and when to use a condom; j) Relationships - communication & negotiation; k) Self-esteem; l) Violence and sexual abuse; m) Drugs and alcohol.

Table 6: Impact of Risk Perception on Condom Use: Odds Ratios from Logistic Regression

Variables	*Significance*	*Odds Ratio*
Risk Perception		
No or Low Risk	0.0013***	1.8144
Moderate or High Risk		1.0000
Knows someone with HIV		
Does not know someone with HIV/AIDS	.7829ns	1.0558
Knows someone with HIV/AIDS		1.0000
Nagelkerke R^2	.017	

Significance Levels: p<.01***, p<.05**, p<.10* ns= not significant

As shown in table 6, an individual's perception of whether or not they consider themselves to be at no or low and moderate or high risk of contracting HIV/AIDS in the next twelve months was found to be significantly related to whether or not they wore a condom the last time they had sex. Those who believed that they were at no or low risk of contracting HIV/AIDS were almost twice as likely to have worn a condom at last intercourse as those who considered themselves to be at moderate or high risk. This may indicate that adolescents in this sample are equating their own personal risk of contracting HIV with their use or non use of condoms, perhaps indicating that a sense of infallibility is not necessarily driving behaviour. Alternately this may indicate a degree of fatalism in South Africa's youth, such that they believe that have little control over their own lives, having grown up in the politically unstable environment of South Africa, and consequently see little point in attempting to avoid contraction of the HI-virus.

A variable which considers whether the respondent knows someone with HIV was included in the model to test whether knowing someone personally who has contracted the virus affects their individual behaviour. In this case, the variable was not significant.

[5] Core Life Skills topics refer to c, d, e, g, h, i, j & k from above

Table 7: Impact of Sexual Experiences, Communication & Condom Use, Beliefs and Attitudes on Condom Use: Odds Rations from Logistic Regression

Variable	*Significance*	*Odds Ratio*
Number of Partners in last 12 months		
One Partner	.1624ns	.7446
Two or more Partners		1.0000
Condom use at first intercourse		
Did not use Condom	.0000***	.1800
Did use Condom		1.000
Ever Been Physically Forced to have Sex		
No	.0771*	1.9337
Yes		1.0000
Talked with Partner about Avoiding Sex		
No	.8631ns	.9643
Yes		1.0000
Talked with Partner about Condom Use		
No	.0000***	.1577
Yes		1.0000
Talked with Partner about Avoiding HIV		
No	.4831ns	.7946
Yes		1.0000
Talked with Partner about Avoiding STD		
No	.0478**	.6016
Yes		1.0000
Confident can Convince Partner to Use Condom		
Fairly or Very	.0000***	4.1936
Not Confident		1.0000
Believe that Condoms Reduce Pleasure		
Disagreed	.0006***	1.9584
Agreed		1.0000
Believe that Condoms is a Sign of Not Trusting Partner		
Disagreed	.1480ns	1.3475
Agreed		1.0000
Nagelkerke R^2	.489	

Significance Levels: p<.01***, p<.05**, p<.10* ns= not significant

Table 7 considers the relationship between condom use and variables relating to sexual experiences, attitudes and communication levels in relationships. Having talked to one's partner about avoiding or delaying sex, having talked to one's partner about HIV/AIDS, and holding the view that using a condom is a sign of not trusting one's partner, do not appear to be significant determinants of condom use. In terms of variables relating to communication, those who had not talked to their partners about the use of condoms and avoiding STDs were also less likely to use a condom, whilst discussion around HIV/AIDS does not appear to influence condom use. This may be because adolescents still hold the topic of HIV/AIDS at a

distance and cannot directly broach it directly with their partner, whilst talking about STDs in general may possibly be easier.

The experience of violence within a relationship also appears to impact upon condom use. Those who had not experienced forced sex were found to be nearly twice as likely to have worn a condom at last intercourse than those who had. Adolescents who had only one partner in the last year were less likely to have worn a condom than those who had more than one partner. This may indicate that those who believe themselves to be in a monogamous relationship do not see the need for condoms, or that those who have multiple partners believe the use of condoms to be important.

Of most interest in this model are two other variables that appear to be a strong determinant of condom use. Those that believe they are confident that they could convince their partner to wear a condom are more than four times more likely to have worn a condom at last sex than those who did not. Whilst this could be interpreted as self evident, it still illustrates that good levels of communication and having the confidence to discuss issues and to influence decisions made within a relationship, have a large impact on the whether or not a condom is worn.

Finally, those who did not wear a condom the first time they had sex were found to be five times less likely to have worn a condom the last time they had sex, than those who did. This appears to indicate that health-seeking patterns established at the onset of sexual initiation will be much more easily maintained than introducing changes after relationships have already been established.

Table 8: Impact of Significant Variables on Condom Use: Odds Ratios from Logistic Regression

Variables	*Significance*	*Odds Rations*
Sex		
Male	.0001***	2.1937
Female		1.0000
School Connectedness	.0188**	
Low Connectedness	.0138**	.3245
Medium Connectedness	.3072ns	1.2330
High Connectedness		1.0000
Condom use at first intercourse		
Did not use Condom	.0000***	.1712
Did use Condom		1.0000
Talked with Partner about Condom Use		
No	.0000***	.1318
Yes		1.0000
Talked with Partner about Avoiding STD		.4883
No	.0012***	.4883
Yes		1.0000
Confident can Convince Partner to Use Condom		
Fairly or Very Confident	.0000***	3.4160
Not Confident		1.0000
Confident can Convince Partner to Use Condom		
Disagreed	.0000***	2.2453
Agreed		1.0000
Nagelkerke R^2	.505	

Significance Levels: p<.01***, p<.05**, p<.10* ns= not significant

The previous analysis has shown that a wide range of variables appears to influence an adolescent's decision to wear a condom. Such variables have only been considered within groups of similar variables. Those variables that were found to be significant in each of the five previous models were placed into one final model. The Forward:LR method was used to eliminate those significant variables that did not have any influence on the model, when considered in conjunction other particular variables. Table 8 presents the final model that portrays the best fit of all possible significant variables considered.

All of the variables selected for the final model, except for sex and school connectedness, refer to the actual nature of the relationship in which adolescents are involved. This models shows that being male, having a low reported connectedness to school, using a condom at first intercourse, talking with one's partner about condom use and avoiding STDS, being confident that one could convince one's partner to

wear a condom, and not believing that condoms reduce pleasure, were all significant determinants of condom use at last intercourse.

7. Discussion

The above analysis makes an important contribution to furthering our understandings of how South Africa's youth have responded to the current HIV/AIDS crisis. Most importantly, it has illustrated that, whilst more distal factors such as the social, economic and individual characteristics, impact upon adolescent behaviour, the actual nature of relationships that adolescents are engaging in, and how they perceive themselves within that relationship, appears to be the greatest driving force. Whilst the above analysis has been quantitative in nature, it confirms the findings of other qualitative data collected on South African youth and discussed in prior sections.

Holding other factors constant, the sex of the respondent continues to be an important determinant of risk taking behaviour. Males in this sample were reportedly more than twice as likely to have used a condom at last intercourse. Whilst it is possible that condom use may be under reported by the female respondents, most of this variance is explained by the dominant positions that South African men hold within adolescent relationships and that females cannot suggest condom use with their partners for fear of destroying such relationships (Varga:1997, Preston-Whyte:1999, Lecler-Madlala:1997).

An imbalance of power within relationships often results in young women not being able to ask their partner to wear a condom. Such a request may lead to a violent response and can be interpreted as a sign of unfaithfulness on behalf of the female partner, or an accusation that the male has not been faithful himself or has an STD. Research has shown that multiple partnerships is a common practice amongst African adolescents (Kalunde:1997, Letamo and Bainame:1997, Varga:1997, Buga et al.:1996). The paradox illustrated here is that, while many men may have multiple partners, boast about it in front of their

friends and see it as an indication of their masculinity, it is considered an insult to have their partner confirm this activity.

The final model has also illustrated that the schooling experiences of young people are an important determinant of condom usage. This factor has not been widely discussed in other South African literature and is indeed an unexpected result. It appears that those adolescents who experience low levels of connectedness to school, compared with those who experienced a high level of connectedness to school, were significantly less likely to have worn a condom at last intercourse.

This result calls for further research into how South African adolescents perceive their school environment and why this is impacting upon their behaviour. Given the nature of the questions asked, low connectedness to school does not necessarily reflect delinquent behaviour on behalf of the adolescent. However, the results may suggest that the school environment does affect current patterns of sexual behaviour.

This analysis has also illustrated that adolescents who did not use a condom at first intercourse were five times less likely to have used one at last intercourse. This result perhaps illustrates that those adolescents who have accepted their personal susceptibility to the HI-virus and who have sufficient skills to negotiate condom use prior to the onset of sexual activity, are more likely to be able to maintain such health seeking behaviour throughout their sexual lives.

As confirmed in research by Varga (1997), levels of communication within adolescent relationships are congruent to the level of sexual decision making and negotiation that takes place within a relationship. Those adolescents who have not discussed the use of condoms or avoiding STDs are less likely to have used a condom the last time they had intercourse. Whilst it can be argued that it is not surprising that those who have talked about condom use or avoiding STDs are more likely to have used a condom, it highlights

an important factor that is apparently missing from other relationships. The inability of many adolescents to even discuss such issues that directly impact upon their health is of utmost concern. Whether this is because violence may be a possible consequence of raising such issues, or because adolescents genuinely believe they are not at risk of contracting HIV, these results suggest that South Africa's youth do not have sufficient skills to communicate effectively with their partners.

In addition, it is also quite evident that even if some adolescents have accepted the need for condom use, they do not possess the confidence to convince their partner that they should be used. This again highlights not only the poor levels of communication that exists within relationships, it also illustrates the salient lack of negotiation skills that adolescents posses. The belief that condoms reduce pleasure (Abdool Karim et al.:1992a, Varga:1997), is confirmed to be significant determinant of condom use.

8. Conclusion and Recommendations

Using data collected on adolescents in KwaZulu-Natal, South Africa, this analysis has successfully identified a number of important determinants of risk taking behaviour, and in this particular case, condom usage. The alarmingly high levels of HIV prevalence within the province, particularly amongst adolescents, stresses the importance of identifying such key variables in order to better target intervention strategies. Variables found not be significant determinants of such dangerous behaviour may also help to indicate why previous or current strategies have not been successful.

The impact of the Life Skills education is of particular interest. Although life skills education in school did not appear to be a determinant of condom use, this does not necessarily infer that such programmes cannot meet their objectives. Instead, this research highlights the need to move beyond the transference of information to the actual acquisition of life "saving" skills. South African youth do not currently appear to have the confidence or the self-esteem to establish or maintain heath-seeking behaviour as far as condom use is concerned. It is recommended that such interventions need to redirect their focus.

Firstly, such interventions and any others that seek to alter adolescent sexual behaviour in South Africa, must target males in a more vigorous and creative way than has been seen before. Clearly male behaviour is different to that of females, and such groups can not be treated as generic entities. The traditional roles and views that men hold towards women in South Africa appear to account for a significant proportion of the spread of the disease. Whilst social norms and customs cannot be changed overnight, the education sector can be a starting point for influencing the normalisation of equality and respect across the sexes.

Although not stated explicitly, these results also appear to indicate that levels of self-esteem, particularly amongst females, are low. Whilst knowledge of how the virus is contracted and its end consequences is high, such information is still not sufficient to protect adolescents from engagingin such unhealthy relationships. Even if relationships commence under more desirable pretences, when relationships deteriorate, adolescents still do not appear to have the ability to leave. This would seem to indicate that any transference of "life skills" must also entail the belief in one's value as an individual, outside of one's sexual functioning, and the importance of self-respect. The acquisition of such beliefs would certainly be most effective if they are obtained prior to the onset of sexual activity.

The introduction of such an intervention strategy by the Department of Education, or any other entity, will require the courage to adopt possibly unconventional or controversial approaches that may result in disapproval from the public. However, in light of the current crisis, it would appear that any less of a response may be compromising the future of thousands of South Africa's adolescents.

Appendix One: Explanation of Variables

The following tables include all of the variables that were used in the analysis. Questions that were taken from the questionnaire and used to construct variables appear as they do in the questionnaire.

'ariable	*Categories*	*Question(s) Asked to Respondent*	*Variable Construction*
ex	Male Female	Record Sex of Respondent	
ge at last birthday	14-15 16-19 20-22	How old were you at your last birthday?	
opulation Group	Non-African African	Record race of respondent	Non-Africans include 'Whites', 'Coloureds' and 'Asians'.
ocation	Urban Rural		Constructed post field based on the geographic location of E.A
ousehold per capita xpenditure	Lowest Quintile Second Lowest Quintile Middle Quintile Second Highest Quintile Highest Quintile	In the past month, what was the amount spent by this household on food and non-regular items? In the past year what was the amount spent on other items bough infrequently?	All household expenditure was added to create an equivalent total monthly expenditure. This amount was divided by the number of household members and grouped into quintiles.
nportance of Religion	Not important Somewhat or very important	How important is religion to you?	Answers "not at all important" and "not very important" were collapsed together, as were "somewhat important" and "very important".
irth Mother Still Alive	Birth mother alive Birth mother not alive	Is your birth/natural mother alive?	
irth Father Still Alive	Birth father alive Birth father not alive	Is your birth/natural father alive?	
'ork Experience	Has not worked in last 12 months Has worked in last 12 months	Have you done any such work [to earn money] during the last 12 months?	
onnectedness to Family	Low Connectedness Medium Connectedness High Connectedness	After nominating one family member the respondent felt closest to, they were asked to agree or disagree to the following questions: He/she talks with me a lot; The two of us argue a lot; He/she is very demanding; I can talk to him/her about my problems; I am able to talk to him/her about boyfriends/girlfriends; I can talk to him/her about issues regarding sex; I trust him/her; He/she would strongly disapprove of me getting pregnant/getting a girl pregnant when I am/was still in school; It is/was important to him/her that I finish(ed) school; It is/was important to him/her that I continue(d) study after high school; I feel very close to him/her; I would like to be like him/her	Negatively phrased questions were re-coded in a positive direction and one point awarded per positive answers. Points were summed and grouped into three categories. "Low" connectedness reflected a score of 0-3, "Medium" 4-8 and "High" 9-12 points.

'onnectedness to 'ommunity	Low Connectedness Medium Connectedness High Connectedness	Respondents were asked to agree or disagree to the following questions regarding their community: I have many friends in my community; I feel safe walking around my community during the day; The adults in my community will help other families when they are in trouble; There is a lot of crime in my community; There is a lot of violence among young people in my community; I would be much happier if I lived in another community; People in my community trust one another.	Negatively phrased questions were re-coded in a positive direction and one point awarded per positive answers. Points were summed and grouped into three categories. "Low" connectedness reflected a score of 0-2, "Medium" 3-5 and "High" 6-7 points.
elongs to at least one ɔorting or social group	Does not belong to any Belongs to at least one	Do you belong to one of the following organisations? Savings group; community garden; sewing; sports; study; dancing/singing, music or choir; religions; religious youth group; any other?	Those that did not belong to any group were coded into the first category and those that belonged to at least one group were coded into the second category.
'onnectedness to School	Low Connectedness Medium Connectedness High Connectedness	Respondents were asked to agree or disagree to the following questions regarding school: I have many friends at this school; The teachers at this school care about the students; The principal at this school cares about the students; There is a teacher at this school that I can talk to if I have a problem; I participate in school activities outside of class; I would be much happier if I attended another school; there is a lot of fighting and violence among students at my school; I feel safe at school; Sexual harassment is a problem at this school.	Negatively phrased questions were re-coded in a positive direction and one point awarded per positive answers. Points were summed and grouped into three categories. "Low" connectedness reflected a score of 0-2, "Medium" 3-6 and "High" 7-9 points.
ccess to All Textbooks	Did not have access to all textbooks Did have access to all textbooks	Did you have access to copies of all required textbooks, some of the required textbooks or none of the required textbooks?	Answers for some and none were coded into the first category and answers to all were coded into the second.

xposure to All Lifeskills opics	Low exposure Medium exposure High exposure	Do/did you recall the following subjects being discussed in class during this school year/your last year at school? Human growth & development; reproductive biology; understanding sexuality; contraception; HIV/AIDS – transmission and prevention; HIV/AIDS – looking after people with AIDS; STDs – symptoms and prevention; how to use a condom; Why and when to use a condom; Relationships – communication & negotiation; Self-esteem; violence and sexual abuse; drugs and alcohol.	One point was awarded for each topic that the respondent recalled being discussed in class. Points were summed and grouped into three categories. "Low" exposure reflected a score of 0-4, "Medium" 5-9 and "High" 10-13 points.
xposure to Core ifeskills Topics	Low exposure Medium exposure High exposure	Core life skills topics taken from the above question included: Understanding sexuality; Contraception; HIV/AIDS – transmission and prevention; STDs – symptoms and prevention; How to use a condom; Why and when to use a condom; Relationships – communication & negotiation; Self-esteem; Violence and sexual abuse.	One point was awarded for each topic that the respondent recalled being discussed in class. Points were summed and grouped into three categories. "Low" exposure reflected a score of 0-2, "Medium" 3-5 and "High" 6-7 points.
erception of Risk of ontracting HIV/AIDS	Considers self to be at no or low risk Considers self to be at moderate or high risk	Do you think you have no risk, a small risk, a moderate risk or a great risk of getting the AIDS virus in the next 12 months?	Respondents who answered no or low risk were grouped together, as were those who answered moderate or high risk.
nows someone with IV/AIDS	Does not know someone with HIV/AIDS Does know someone with HIV/AIDS	Do you personally know anyone who is infected with HIV/AIDS?	
umber of Partners in ast 12 Months	One partner Two or more partners	With how many partners have you had sex in the last 12 months?	Those with only one partner were grouped together and as were those with two or more partners.
ondom Use at First Sex	Did not use condom (=0) Did use condom (=1)	The first time you had sexual intercourse, did you use contraception to prevent pregnancy/disease? Which one did you use?	Two questions were asked, one for pregnancy and one for diseases. The answers for both were checked and all that mentioned condoms in either answer were grouped together.
er Been Physically rced to Have Sex	No Yes	Have you ever had sexual intercourse when somebody was physically forcing you, hurting you, or threatening you?	
lk with Partner about oiding Sex	No Yes	Have you ever talked to him/her [most recent partner] about: Avoiding or delaying sex?	
lk with Partner about ondom Use	No Yes	Have you ever talked to him/her [most recent partner] about: Use of condoms?	
lk with Partner about oiding HIV/AIDS	No Yes	Have you ever talked to him/her [most recent partner] about: Avoiding HIV/AIDS?	
lk with Partner about oiding STDs	No Yes	Have you ever talked to him/her [most recent partner] about: Avoiding sexually transmitted diseases?	

Confident can Convince Partner to Use Condom	Fairly or very confident Not confident	How confident are you that you could convince him/her [most recent partner] that he or she should use a condom if you wanted to use one?	Answers to fairly and very were grouped together as were those who said they were not confident.
Believes Condoms Reduces Pleasure	Disagreed Agreed	Tell me if you agree or disagree with the statement: Using condoms reduces sexual pleasure?	
Believes Using Condoms is a Sign of Not Trusting Partner	Disagreed Agreed	Tell me if you agree or disagree with the statement: Using a condom is a sign of not trusting your partner?	

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Letter of Intention to Submit Research Paper as a Journal Article

This dissertation has been written in journal format, with the intention to submit the article to an international journal. The journal selected is "International Family Planning Perspectives". This journal is a peer-reviewed quarterly research journal based at the Alan Guttmacher Institute in New York City, New York, United States of America.

The current format of the above paper does not meet two of the criteria of journal, namely: word length and referencing system. This paper exceeds the required word limit of 6000 words stipulated by the journal. It was felt that for the purposes of submission for marking to the University of Natal, Durban, a shortened version of the paper would not demonstrate the extent of research and analysis that has been undertaken by the researcher. In regards to referencing, the Harvard system was applied, rather than the Council of Biology Editors citation-sequence system as stipulated in the instructions to author. This former system was applied, as this is what students at the School of Development Studies normally practise, and the journal states that for initial submissions, this system does not need to be adhered to.

A copy of the "Instruction to Authors" as it appears on the journal article follows.

INSTRUCTIONS FOR AUTHORS

International Family Planning Perspectives is a peer-reviewed quarterly research journal serving an audience that crosses professional specialties, educational backgrounds and developing-country boundaries. We define family planning broadly, and invite submissions from researchers, policymakers and program providers on such topics as contraceptive practice and research; fertility levels, trends and determinants; adolescent pregnancy; abortion; public policies and legal issues affecting family planning and childbearing; program operation, development and evaluation; information, education and communication activities; sexually transmitted diseases; and reproductive, maternal and child health.

We receive manuscripts with the understanding that they are not under consideration elsewhere and that the substance of the data or analysis has not been published previously. Submissions undergo a two-tiered review process. They are screened initially by the editorial staff for overall quality and interest; about 60% are rejected at this stage and the author notified within six weeks of submission. The surviving submissions undergo double-blind peer review by at least two experts in the field. Authors of articles sent for review can expect to receive critiques of their manuscript about three months after submission, with guidance from the editors as to whether to proceed with a revision or submit elsewhere.

Basic Requirements

We expect manuscripts to be double-spaced, with all pages numbered; only one copy is needed. The title page should include the names, titles and affiliations of all authors; we limit the number of authors to eight. (Multicenter clinical studies may have no more than 10 authors.) A word count is mandatory; we look unfavorably upon articles of more than 6,000 words (not including references). The text should be preceded by a data-based abstract of no more than 250 words.

Use active voice when writing the text. Stick to plain English and avoid the jargon known only to sociological, demographic, psychological and medical subspecialties. In particular, describe the study's methodology clearly and simply, keeping in mind that some readers may not be familar with specific statistical techniques. Dispense with arcane acronyms as well as brand names; if brand names are important to the research, give them on first mention in the methodology section, then return to generic designations.

Subheads to delineate the sections of the paper are welcome, but they must fit within one journal column. Clauses of no more than 30 characters for first-level subheads and 40 characters for second-level subheads will do so. Third-level subheads may be used if the text merits; these are run-in clauses, in italics and preceded by bullets.

The maximum number of tables and other graphic elements is eight. Tables and charts should not be interspersed within the manuscript; instead, number them and place each one on a separate page at the end of the text. All line graphs and charts should be accompanied by their respective data points so that they can be replicated on the journal's computers.

Care should be taken not to over-reference or under-reference articles. While all data and factual observations need a reference, references are not meant to be bibliographies. They should indicate that you are familiar with the literature relevant to the topic and have read something other than your own work. Because journal submissions come from an interdisciplinary audience that uses many different referencing styles, references in the initial submission need not be in any one particular format; however, if we are interested in the article, the correct referencing style must be incorporated with other requested revisions before it will be accepted or scheduled for publication.

International Family Planning Perspectives follows a reference style based on the citation-sequence system of the Council of Biology Editors. References are numbered consecutively in the text, and are listed in numerical order at the conclusion of the article. A text reference number may contain more than one citation. Do not list reference numbers twice; authors should use "ibid." or "op. cit.," as appropriate, when a source is cited more than once.

A typical journal reference would include, in the following order, the authors' surname and initials, the title of the article, name of the journal, the year, volume and issue numbers, encompassing page numbers and any additional information, such as table number. For example:

1. Singh S and Wulf D, The likelihood of induced abortion among women hospitalized for abortion complications in four Latin American countries, *International Family Planning Perspectives*, 1994, 19(4):134–141.

If there are more than three authors, list the first author and add "et al." References to books are similar, except that a location and publishing company must be included:

2. Hatcher RA et al., *Contraceptive Technology: Seventeenth Revised Edition*, New York: Ardent Media, 1998, p. 779.

Footnotes and references are separate elements and should not be intermingled. Used sparingly, footnotes are appropriate for parenthetical or explanatory information that cannot be smoothly accommodated in the text. To distinguish them from references, a system of symbols or letters may be used. Please do not use computer automatic numbering functions for either references or footnotes (i.e., do not "embed" them in the text); type them at the end or place them in a separate computer file.

Acknowledgments should include funding information, as well as the disclosure of any employment, appointments or financial arrangements that might be perceived as a conflict of interest. While a "thank you" or two is undoubtedly in order, acknowledgments should not be used to thank anonymous reviewers, study participants or long lists of coworkers who provided no out-of-the-ordinary technical or intellectual expertise.

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Upon acceptance of a manuscript, we will ask you to send a floppy disk containing an electronic version of the article and to assign copyright to the journal. Approximate time between acceptance of a manuscript and publication is six months. All manuscripts will be edited for grammar, conciseness, organization and clarity. The editing may be more extensive than at other journals, to make manuscripts suitable for an interdisciplinary and varied readership. You will have two opportunities to review edited galleys; galleys are sent by overnight delivery service, in hopes that they will be attended to expeditiously.

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Explanation of Researcher Involvement in the

"Transition to Adulthood in the Context of HIV/AIDS" Study.

Although not included in the initial conceptualisation of the "Transition to Adulthood in the Context of HIV/AIDS" study, the author has had considerable involvement in this longitudinal project. The study is a collaborative effort between Population and Poverty Studies Unit, School of Development Studies, University of Natal, the School of Public Health and Tropical Medicine, Tulane University, New Orleans, and the Population Council. The fieldwork component of the study was sub-contracted to a private development research organisation – DRA-Development, where the author works full-time as a senior researcher. The author was assigned as Project Manager – Fieldwork, for this project. The following timeline illustrates the various components of the study that the author actively participated in.

Date	*Activity*
June – July, 1999	• Participated in training and administration of the pilot adolescent and principal questionnaires. • Provided feed back of sampling difficulties and questionnaire problems.
August, 1999	• Managed the administration of the 'principals' questionnaire in 300 high schools. • Personally administered questionnaires in a number of high schools. • Recruited field workers for the adolescent and household phase of the research.
September – November, 1999	• Managed two week training component • Managed fieldwork component, which entailed ensuring that sampling methodology was adhered to, quality was maintained and monitored completion rates.
March – April, 2000	• Participated in a working group at Tulane University in New Orleans, undertaking data cleaning and first round of data analysis. • Wrote section on "Life Skills Education" for baseline report, which is still to be published.
April – November, 2000	• Undertook analysis of data looking at condom use and exposure to life-skills education, under the supervision of Dr Peter Ubomba-Jaswa.
October, 2000	• Presented preliminary findings of the analysis at the Joint Population Conference in Port Elizabeth, Eastern Cape.