

**Youth Health and Wellbeing:  
Risk and protective factors in school-going adolescent's  
sexual behavior in KwaZulu-Natal, South Africa.**

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## Abstract

**Background:** In South Africa, engaging in age disparate relationships (partner up with someone five or more years older, woman is usually the younger) is very common. Several studies have linked age disparate relationships with the high prevalence of HIV in young women. Age disparate relationships has also been linked to other risky behaviors, like unprotected sex and exchange of gifts/money for sex.

**Research objectives:** Analyzing risky sexual behavior among adolescents in South Africa. Sexual risk is measured by engagement in age disparate relationship, transactional sex and condom use at last sex. This study looks at associations between sexually risky behaviours and how other factors in adolescents' surroundings might influence risk behaviour.

**Data Material and Methods:** This study is a cross-sectional, quantitative study using secondary data collected for a longitudinal study from HEARD in 2015. Variables included the main independent variable: engagement in age disparate relationship, and school connectedness. The dependent variables: engagement in transactional sex, and condom use at last sex. Control variables: gender, location, highest education level of caregiver. The study sample consisted of  $N=577$  sexually active males ( $n=415$ ) and females ( $n=161$ ) between the age of 12-22 years, from KwaZulu-Natal, South Africa.

**Findings of the study:** There was a significantly higher prevalence of adolescent girls engaging in age disparate relationships than adolescent boys. Females also had a slightly lower prevalence condom use at last sex than males. Engaging in age disparate relationships was significantly associated with engaging in transactional sex and unprotected sex. Males scored over all higher on school connectedness than females. Highest education level of caregiver was the variable with highest odds ratios predicting transactional sex and condom use.

**Conclusion:** At a very young age a significant number of females in the sample was involved in age disparate relationships putting them at risk of contracting HIV early on in life. Based on the result of these research, this study has two recommendations: Focus on increasing boys' and girls' school connectedness, to make them stay in school longer and consider cash transfer programs to combat engagement in transactional sex and age disparate relationships.

**Keywords:** sexually risky behaviour, age disparate relationship, transactional sex, condom use, school connectedness, South Africa, adolescents, Sub-Saharan Africa, KwaZulu-Natal, HIV.

# **1. Introduction**

## **1.1. Background**

Risky sexual behavior is an important driver of HIV. This research is looking at risky sexual behavior among adolescent boys and girls in KwaZulu-Natal, South Africa. The purpose of this study is to examine the adolescent's everyday surroundings like school, community, family and potentially look for risk and protective factors that might increase or decrease risky sexual behavior. Since adolescent girls and young women (AGYW) between the ages of 15 and 24 years are the most prone to risk of HIV infection in Southern Africa (Birdthistle et al., 2018), this study will compare boys and girls to find where in adolescent girls and young women's life there can be needed intervention to potentially strengthen factors protecting them from risky behavior.

The target demographic of this research is adolescent males and females between the ages of 12 and 22 years. In comparison to boys of the same age, girls are three to five times more likely to be infected by the HIV epidemic. In sub-Saharan Africa, 71 % of all new HIV infections occur to girls within that age bracket (Birdthistle et al., 2018). Actual figures of infected AGYW was estimated at a devastating 450,000 in 2015 with a staggering 102,000 cases being South African (Mabaso et al., 2018). Majority of AGYW infections occur through unprotected sexual intercourse. The shocking statistic is furthered by patriarchal social norms which make it difficult for women to negotiate safer sex against their male counterparts (Mabaso et al., 2018).

### **Health promotion in adolescents**

Working preventative is a key concept of health promotion, by educating the population on healthy behaviour, people will by exerting healthy behaviour experience increased control over their own health outcome. WHO uses health promotion among its strategies targeting adolescent's health behaviour by working to prevent leading causes of death, disease and disability among six categories of behaviour. One of them is to prevent sexual behaviour that cause unintended pregnancies and diseases (WHO, 2019b).

Engaging in risky sexual behaviour is common in South Africa (Street, Reddy, & Ramjee, 2016; Zembe, Townsend, Thorson, & Ekström, 2013). Sexual risk behaviours considered in this thesis are: exchanging sex for gifts, having a partner five or more years older than yourself, engaging

in unprotected sex. These are risk factors because they have been linked to HIV and other STDs as well as domestic violence. By researching the risk behaviour among adolescents as well as looking into their surroundings, it can prove effective for health promotion interventions to know where to put emphasis. The theoretical model of the ecological system of the child by Bronfenbrenner (1999) is the framework of this research. It allows to look at multiple factors in the adolescent's lives influencing the adolescent's health behaviour.

School belonging has been emphasized as a possible risk reducer since earlier studies has shown that feeling connected to school can reduce risk behaviours in youth (Bond et al., 2007; Govender et al., 2013). Promoting school connectedness is part of WHO global school health initiative (WHO, 2019b) and claim it to be one of the most cost-effective investments a nation can make. School connectedness as well as highest education level of caregiver is part of the analysis of this thesis to see how it influences risk behaviour. In view of the above, HEARD undertook in 2013/2014 a research study called "Youth Health and Prevention Project (Y-HAPP)", data from that research will be used as secondary data for this study. HEARD stands for Health Economics and HIV and AIDS Research Division. It is a research institution based at University of KwaZulu-Natal, South Africa. HEARD is a division of University of KwaZulu-Natal and a UNAIDS Collaborating Centre, funded by Swedish International Cooperation Development Agency (SIDA) and NORAD. The objective of the organization is to work to advance health equity in Africa. HEARD conducts research on the African continent regarding these four topics: sexual reproductive health and rights, gender equality and health, health governance and finance, and health systems strengthening.

## **1.2.Purpose of study**

The purpose of this study is to examine the adolescent's sexual risk behaviour defined as engaging in age disparate relationship, engaging in transactional sex and engaging in unprotected sex, as well as examining the surroundings of the adolescent like education of family, location and feelings of school connectedness. The analysis can potentially look for risk and protective factors that might increase or decrease risky sexual behavior. This study wants to examine some of the interacting and reciprocal influences of risk and protective processes of multiple microsystems surrounding adolescents (education of family, and school), as well as the influence of mesosystems (family-school) and the community-level factors (location) (macrosystem). The micro-, meso- and macro- systems make up the bioecological model

developed by Urie Bronfenbrenner and forms the theory framing of this research, which will be explained more thoroughly under the theoretical framework section. By looking at the influence on adolescents' sexual behaviours, this study can thereby, hopefully, provide a more complex and nuanced understanding of how risk and vulnerability factors – their interactions and effects – coalesce in adolescents' lives.

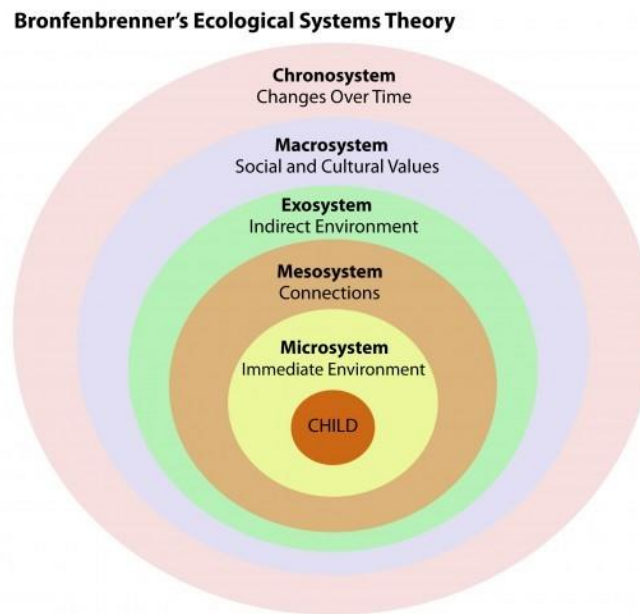
## **2. Theoretical framework**

The two theoretical frameworks of this thesis are the determinants of sexual behavior and the ecological model by Bronfenbrenner. This study aims to adopt health promotion theories to understand adolescent's behaviour regarding their engagement in age disparate relationships, transactional sex and condom use.

(WHO, 2019a) defines social determinants of health to consist of these components: the social and economic environment, the physical environment and the person's individual characteristics and behaviour. Social determinants of health are about the conditions the person has grown up in, lives under, works and ages (WHO, 2019a). Under social determinants of health is determinants of health behavior. An individual's determinants of health behaviour derives from their family, education, sosio-economic status, workplace, neighborhood, community, city, country, everything that surrounds the individual. Health lifestyle is coerced on the individual (microlevel) level but are influenced and shaped on the meso- and macro level (WHO, 2019a). To understand how these levels interact between health behaviours is seen as very important for changing behaviours. Therefore, the guiding theoretical framework of this thesis is the Ecological model by Bronfenbrenner.

### **2.1 Ecological systems theory**

Ecological systems theory was formed to explain how the inherent personality of a child and his environment interact to influence how he will grow and develop (Bronfenbrenner, 1999). Bronfenbrenner made an emphasis on the importance of studying a child's development through multiple environments, also known as ecological systems, to learn how an individual is socialized in a culture. Multiple environments mean several systems from the nearest surroundings of the child to the furthest away, as illustrated below.



*Figure 1:* Bronfenbrenner's ecological systems theory (Psychology Notes HQ, 2013)

The framework of this research involves the first two systems of the model; the microsystem and the mesosystem. The microsystem encompasses smallest and immediate environment in which the child lives. As such, the microsystem comprises the daily home, school or daycare, peer group or community environment of the child. It involves interactions with family, teacher, and peer groups. How these individuals interact influence how the child develops further ("Psychology Notes HQ", 2013). The mesosystem encompasses the interaction of the different microsystems which the developing child finds himself in. It is a system of microsystems and involves linkages between home and school, between peer group and family, or between family and church ("Psychology Notes HQ", 2013).

The microsystems surrounding adolescents such as their peers, families, self-esteem and school environments can drive or moderate risky behavior. This study looks into how connected the adolescents are to their school, the education level of caregivers and if they live in urban or a rural area. To see how these micro and mesosystem might influence the drives of risk. Interventions into other areas of the adolescent's lives, not only at school (Life Orientation) might produce bigger gains in fighting HIV. To combine school-based intervention and intervention into other areas can prove to have more effect. Several academics (DiClemente,



Salazar, & Crosby, 2007); (Perrino, González-Soldevilla, Pantin, & Szapocznik, 2000) have said that the use of an ecological approach to HIV prevention might be effective, since interventions will be implemented into multiple microsystems or contexts in adolescents' lives.

### **3. Literature review**

To find literature for this study research was made on google scholar and the university library search bar; Bibsys and Oria. The search terms used were “South Africa and sexual risky behaviour”, “Age disparate in South Africa”, “transactional sex”, “condom use”, “adolescents and sexual risky behaviour in South Africa”, “school connectedness among adolescents”.

There is already substantial investigation into the literature that show that there is some relationship between adolescent's risk behaviour and school connectedness as well as relationships between engagement in age disparate relationships and other sexual risk behaviours. There are factors in the adolescent's environment, surroundings, school and community that might shape their risk profile as well as work as protection. This literature review will present some of these factors both social norms, school connectedness, age disparate relationship, transactional sex and community as well as the gender aspect.

1. Sexual risk behaviour
  - a. Age disparate relationships
    - i. Prevalence and risks

Age disparate relationship is defined as having a partner five or more years older for females. And having a partner five or more years younger for males (Nydegger, DiFranceisco, Quinn, & Dickson-Gomez, 2017)

A large proportion of young women in South Africa are involved in age disparate relationships (Street et al., 2016).

The prevalence of HIV has proven to be more common in young women engaging in age disparate partnerships than in young women with similar age partners.(Dellar, Dlamini, & Karim, 2015); (Maughan-Brown, Evans, & George, 2016); (Schaefer et al., 2017); (de Oliveira et al., 2017).

In a study among female and male gang members in USA between 14-19 years old on age disparate partnership and risky sex, found that age disparate sexual relationships were significantly associated with intimate partner violence, gang rape and group sex. Female gang members in age disparate relationships were more likely to had had a past pregnancy, males in age disparate relationships were more likely to had been involved in rape. ((Nydegger et al., 2017)).

A longitudinal study from 2003-2006 done on 1960 young adolescents (16-26 years) in age disparate relationships in Cape Town, South Africa they found that age disparate sex was high among their study sample. Age disparate relationships prevalence was around 36 % among black women and 28% among coloured women. At sexual debut 16 % of black women were engaged in an age disparate relationship while 20% of coloured women were. As for the males, the prevalence in age disparate increased with age 37% in black men and 39% in coloured men at 25-26 years of age. At sexual debut, only 1% of black men and 0% of coloured men were engaged in age disparate relationships (Beauclair, Kassanjee, Temmerman, Welte, & Delva, 2012).

Age disparate relationships and its association with HIV. Engaging in age disparate relationship has proven to be a strong risk factor for HIV in young women in Sub-Saharan Africa, due to older men are more likely to give them the virus since HIV in men increases with age (Beauclair, Kassanjee et al. 2012). A study showed that women who reported age-disparate partnerships were significantly more likely to have HIV than women who only reported age similar partnerships (Maughan-Brown et al., 2018). Frequency of HIV was 12 % points higher in women who reported to be in an age disparate relation. They also found that age disparate male partners were more likely to be HIV positive (Maughan-Brown et al., 2018).

Young women in age disparate relationships reported more unprotected sex, then women in relationship with men on same age (Maughan-Brown et al., 2016). Men in age disparate relations are more likely to have concurrent partners, that way they connect young women into wider sexual networks where transmission of STDS are more likely (Maughan-Brown, Evans et al. 2016).

In a cross-sectional study consisting of 1306 young women 15-24 years old, the majority (68%) where between 20-24 years form KwaZulu-Natal, South Africa found that 34 % of the women reported to be in an age disparate relationship. Women in age disparate

partnerships reported to have had sex more often for the past 12 months than women in similar age partnership, having had sex more than ten times the past 12 months (George et al., 2019).

b. Transactional sex

i. Prevalence and risks

Transactional sex is defined as relationships constructed on the basis of material gain. (Leclerc-Madlala, 2003, 2008). It is usually a woman that benefits materially from these relations due to African patriarchal culture and its tradition with mixing materialistic gains and sexual relationships (bride wealth), as will be described further below. A woman will engage in a sexual relationship with a man who can provide her with money and gifts. The man is usually much older, an age disparate relationship can often be transactional in nature (Leclerc-Madlala, 2003, 2008).

Transactional sex is widespread in sexual relationships in South Africa and described as normal. In a study among 16545 men in the age range of 18-49, from both rural, urban and farmers, 66% reported of at having at least one on-going relationships involving transactional sex (Zembe et al., 2013).

A study on transactional sex done among Nigerian university students, with 630 respondents, 17.9% had given and 23.8% had received money or gifts for sex. They also found that students from polygamous families had higher incidence of reporting that they had been involved in transactional sex, However, individuals that received more family support had had 56 % lower odds of engaging in transactional sex (Ajayi & Somefun, 2019)

Adolescents and young women engagement in transactional sex is estimated to range between 2.1 % to 52 % in many African countries (UNAIDS, 2018). Young women and adolescents' girls living in Sub-Saharan Africa who have engage in transactional sex are 50 % more likely to be infected with HIV than those who have never been involved in transactional sex (UNAIDS, 2018).

Population services International (PSI) an international non-governmental organization has run health programs to stop age disparate relationships in at least eight sub-Saharan

countries. In 2012, KwaZulu-Natal provincial Department of Health in South Africa started a campaign called “Sugar Daddies Destroy Lives” with the goal of making cross generational sex a taboo, especially targeting women from 14-25 years to reduce HIV infection (Harling et al., 2014).

Transactional sex typically starts between a young woman and an older richer male. This male is referred to as sugar daddy. Since many African societies are quite patriarchal, transactional sex with a sugar daddy can limit a woman’s possibility to negotiate safer sex with the older male partner and also put her at risk of intimate partner violence (Zembe, Townsend et al. 2013).

Women’s motivation to engage in a transactional sexual relationship can be linked to globalism. The combined effect of dismantled apartheid laws and the adoption of a liberal market economy moved the black population from socio-economic isolation to a sudden exposure to commodities, consumerism and a global lifestyle. Due to this history, it might be that commodities are more important to the black population than for other populations (Zembe, Townsend et al. 2013). Fashionable clothes and alcohol were the local definitions of modernity for many young women (Zembe, Townsend et al. 2013).

Sometimes a young woman could have same age boyfriend while simultaneously engaging in a transactional relationship with a sugar daddy. That I turn made her to finally support her same age sexual partner, transforming this transactional sex to not only making her a beneficiary but also a benefactor in a sexual exchange relationship (Zembe, Townsend et al. 2013). Transactional sex may have flourished in the later years due to the emergence of the cash economy which led every resource to become a commodity. In that kind of environment, a woman’s sexuality also became a commodity (Wamoyi, Fenwick, Urassa, Zaba, & Stones, 2011).

Frequent change of partner. Transactional sex encourage to frequent change of partner since the relations is usually more beneficiary in the beginning when its new. While declining in excessive gift giving over time, Women do benefit more by constantly searching for new relationships (Wamoyi et al., 2011; Wamoyi, Wight, Plummer, Mshana, & Ross, 2010).

Mimic the traditions of bride wealth. Traditionally, women have been cut off from wage economy which has made them economically depended on men and therefore vulnerable. Transactional sex mimics the traditions of bride wealth where men paid for the sexual right to a woman, it was paid for by the man's family in the form of cattle to the woman's family (Wamoyi et al., 2011; Wamoyi et al., 2010).

A transactional sexual relationship was the easiest way to get a girl, if she were given money, she could not say no to sex according to some male respondents (Wamoyi et al., 2011) Most male participants in a study said that this practice of transactional sex could never be changed, if so, rape would instead be more common, since no woman should give away her body for free without anything in return. They thought men would rather force themselves on the women. Some women even felt powerful engaging in transactional sex. It gave them a sort of power to exploit a man for his money (Wamoyi et al., 2011; Wamoyi et al., 2010).

c. Condom use

i. Prevalence and risks

South Africa is still a patriarchal society. Fifty percent of young people in South Africa are sexually active by age 16. Between 50 to 60% of adolescents report not using condom at all (Eaton, Flisher, & Aarø, 2003). Due to this, South African are at risk of HIV infection, unwanted pregnancies and other STIs. In some South African studies, up to 45 % of males have claimed that condom use waste sperm. Condom use could also make that person be viewed as someone promiscuous, having an STD or perhaps being HIV positive (Eaton, Flisher et al. 2003).

Condom use at last sex is the indicator for condom use in this analysis it, is also the indicator for breakthrough towards the Development Millennium Goal (MDG) to eliminate HIV/AIDS (Beksinska, Smit, & Mantell, 2012). The South African Human Researches Counsel has conducted HIV surveys in 2002, 2005 and 2008. Condom use at last sex in youth (age 14-24 years) reported an increase in condom use for young males, from 57% to 84%, as well as an increase for females, 46% to 73% (Beksinska, Smith et al. 2012).

In the study among 16-24-year-old black African women in South Africa (Maughan-Brown, Evans et al. 2016) Condom use was less in use in age disparate relationship. Unprotected sex was 11 % points higher in rural areas and 8 % point higher in urban areas for females.

For males they found that age disparate partnerships were more likely to involve unprotected sex than with similar age partners. Unprotected last sex was 21 % points higher in rural areas, and 19 % points higher in urban areas.

## 2. Association between age disparate relationships and other sexually risky behaviours

### i. Transactional sex

In a study sample conducted in 2012 of representative data from South Africa on partnerships, consisting of 16-24 years old black African women and men in partnerships with women within that age range, they found strong positive association between age disparate and transactional sex in urban areas. Transactional sex in age disparate relationships was 15 % significantly greater in urban settings than rural for males in particular (Maughan-Brown, Evans et al. 2016). The same study found no significant association between age disparate relationship and transactional sex for females, it did not differ significantly between rural and urban areas either.

### ii. Condom use

In a study done on women in Cape Town, South Africa, they found that Black African women in age disparate relationships were more likely to report of STI symptoms in the past 30 days. Coloured women in age disparate relationship reported less condom use at their last intercourse, only 19 %, while 33 % used a condom of those not in age disparate relationship (Beauclair et al., 2012).

A study done on women found that age disparate relationships was associated with inconsistent condom use (George et al., 2019).

### 3. School connectedness

#### a. Association with sexual risk behavior

It can be hard for women to negotiate sexual safety in an environment where patriarchal structures and male dominance is the norm. However, there are factors that have proven as protective barriers against risky behavior for both boys and girls equally. School connectedness has been viewed to provide a protective environment for the social, psychological, and physical wellbeing of the learners (Bond et al., 2007).

School connectedness as defined by Goodenow is “the extent to which students feel personally accepted, respected, included and supported by others in the school social environment (Goodenow, 1993:80). (Goodenow, 1993)

In a study done by Springer, Baumer, Parcel, and Ross in El Salvador, evidence showed that students with high perceptions of school social cohesion reported lower rates of health risk behaviours than their counterparts (Springer, Parcel, Baumler, & Ross, 2006).

Research done by Govender, et al (2013), sought to investigate the association between four health risk behaviours (risky sex, substance abuse, suicide ideation and violence) and perceptions of school connectedness as a protective factor, in a sample from learners from two South African secondary schools. They found that girls had higher perceived school connectedness than boys had, also that stronger perceptions of school connectedness were associated with lower levels of exposure to health risk behavior. Their research concluded with that high levels of attachment and belonging to the school environment were associated with reduced risk behaviours, with special emphasis on a supportive relationship between teachers and peers.

Young women with more absence at school and who dropped out of school reported more often to be in an age disparate relationship. Young women who had dropped out of school reported also to have had more partners (Stoner et al., 2017).

Education can reduce women’s vulnerability towards HIV. Compared to peers with less education, women with more education has a higher probability of postponing marriage and pregnancy, they have fewer children, earn more money and have bigger decision-making power in relationships (Pettifor et al., 2008). In 17 African countries and 4 Latin-American countries it was found that women with higher education were older

when first sexual intercourse and they used condom more often. Women in Zambia with more education were less likely to be HIV-positive than women with less education. A decrease in HIV infection rates from 1995 to 2003 was highest among women with more education. In Uganda, the HIV transmission decreased the most in women with secondary education (Pettifor, Levandowski et al. 2008). A study found that women who didn't complete High school was more likely to be HIV-positive than those women who had completed High school (Pettifor, Levandowski et al. 2008).

Another study found that male students were less likely to be HIV infected than male non-students. To attend school was associated with less risky sexual behavior, and among young men associated with lower frequency of HIV. (Hargreaves, 2010). School attendance may reduce risk of HIV for young people (Hargreaves 2010).

There are certain mechanisms that can have a protective effect in attending school when it comes to risk of HIV. To attend school, risk of HIV infection can be reduced through sexual network structures. Young women that attend school were less likely to have an older partner, than if they did not attend school. They had less frequent sex, and they used condom more often. To attend school can influence communication between sexual networks, it can improve confidence and help to adopt a safer, more protective behavior. School can also encourage the development of social groups with a higher level of social capital and a more positive outlook, perspectives and expectations on the future that can support the adoption of protective behavior (Hargreaves 2010).

#### 4. Family

- a. Family factors: SES/maternal education association with
  - i. Sexual risk behaviours in general

It is not only school connectedness that works as an important protective factor against risk behaviour, but the community surrounding the adolescent can also contribute positively, as well as family. Youngblade (2007) examined the simultaneous associations between family, community and school promotive factors with several aspects of both positive and negative adolescent development. What they found was that adolescents living in contexts providing positive resources like support from peers and family, feeling of belonging and inclusion, were less likely to engage in problem



behavior like substance use and risky sex, and also more likely to engage in socially competent and health-promotion behavior. The study supports a notion in youth development theory that leans towards an ecological approach introduced by Urie Bronfenbrenner and takes into account not just the individual but the surroundings of the individual as well, like community- school- and family-closeness, connection, communication and engagement. The findings in this study add support to the growing assumptions that stresses the importance of interpersonal resources and connections for youth. The study suggests that the most productive way to combat problem behaviour is to include multiple contexts: both in the adolescent's close circle, like family as well as towards the adolescent's school and community environment.

Harrison (Harrison et al., 2016), advocates for gender-focused interventions in school targeting adolescents to prevent HIV and unwanted pregnancies. This is especially important in South Africa regarding the high levels of gender inequality and gender-based violence among young people and the links between these outcomes and HIV infection. The importance of changing unequal beliefs and values on gender-related attitudes and social norms in South Africa will protect the will of the uninfected to remain so and avert easy submission risky sexual behavior.

## ii. Transactional sex

Parents were positive towards their kids engaging in transactional sex. Due to the socio-economic changes, sex had been commodified, because of an increase in money supply from when they themselves were young. Many said that the majority of young women would continue to engage in transactional sex even after receiving support from parents. This was because the women viewed their bodies as a commodity. Transactional sex was not the same as prostitution. Prostitution was rather rare, and if discovered, the young woman would be punished and might had to leave the community. Most transactional sex relations happened within some kind of relationship. The transactions contained usually money, but could also be things like soap, clothes, shoes, school books and food (Wamoyi et al., 2011).

A woman's right to transactional sex. Most parents reported that they tried to give their children enough. Some parents viewed transactional sex as a lust for commodities, while

other saw it as a woman's right. They viewed the woman's body as a butcher's shop, equating it with meat, "none can get meat for free". Transactional sex was motivated by the fact that the sexual aspect of a woman could not be given for free. Young women liked to have snacks at school, fashionable clothing, and a lot of families could not afford to provide those things for their kids. Transactional sex is accepted among parents and young people, it is rather the absence of a transaction that is viewed upon as demeaning to women (Wamoyi, Fenwick et al. 2011).

### iii. Condom use

In studies from Nigeria and Kenya, education level of caregiver/parent was associated with more openness and more communication about sexuality and HIV/AIDS between caregiver and child (Adeyemo & Brieger, 1994; S. Bastien, Kajula, & Muhwezi, 2011; Musa, Akande, Salaudeen, & Soladoye, 2008; Opara, Eke, & Akani, 2010; Poulsen et al., 2010). Studies from both Tanzania, South Aric (Mawikeng) and Ghana showed that student who communicated about sexuality with their parents tended to be older adolescents. A multicited study in Tanzania and South Africa, found that communication between caregiver and children about HIV, sexuality was rather low and the communication was almost non-existent when it came to condoms (S. Bastien et al., 2011; Namisi et al., 2009) another study form Nigeria confirmed the previous study, that of all the topics related to sexuality, contraception was the least discussed. (Adeyemo & Brieger, 1994; S. Bastien et al., 2011). Another study from Kenya confirmed it again that discussion of contraceptives and condoms were rarely discussed in many families (Bastien et al. 2011)

When it comes to gender differences, in studies conducted both in Ghana and Nigeria, more female students reported communication with family regarding sexuality subjects than males (Adu-Mireku, 2003; S. Bastien et al., 2011; Musa et al., 2008).

A study in South Africa, found the same, that more males reported non-communication from their parents about HIV/AIDS and condoms compared to females (Sheri Bastien, T Leshabari, & Klepp, 2009). While in Tanzania, it was the opposite, more females reported no communication on sexuality compared to males (Bastien, T Leshabari et al. 2009).

5. Community factors: urban/rural association with

i. Sexual risk behaviors in general

There isn't much research on risk behaviors and living conditions. To understand how locality effects sexual risk behaviors can be of importance to future health promotional policies targeting youth (Gutiérrez & Atienzo, 2011).

A study found that there was more communication between young people and their parents about sex in rural areas than urban as cited in, attending school and having a higher socio-economic status also proved to (Bastien, T Leshabari et al. 2009).

ii. Transactional sex

The periods with colonization and apartheid has had an influence on the configurations of sexual relationships in South Africa through the migrant working systems and through laws that prohibited black women from going to the urban areas. It forced men to leave apart from their wife's for long periods of time. This separation from their wife's created a new commercial sex work industry in the urban areas. It advanced the behaviour linked to transactional sex by starting a gift exchange for sex. A man used to view his masculine success in the way he could save money for ilobola (bridewealth), build a house out in the rural area and have kids. These days, with a high unemployment rate, marriages in the local community is rarer, instead men have pursued other methods to show their success; concurrent partners and transactional sex (Zembe et al., 2013).

In a study in South Africa they found that transactional sex was significantly greater in urban settings than rural among males (Maughan-Brown et al., 2016).

iii. Condom use

In a study in sexual behaviours of men and women in an age disparate partnership in South Africa, they found that unprotected last sex was 21 % points in age disparate relationships in rural areas and 19% in urban areas among males (age 20-24 years). For females in age disparate partnerships, condom use was less common with unprotected

sex at 11 % points higher in rural areas, and 8% point higher in urban areas (Maughan-Brown, Evans et al. 2016).

Research on urban/rural sexual behaviour found that those individuals living in urban areas have more frequent regular sex partners and has had more partners, but they also tended to use condom more often , this can be due to a more availability of condoms in urban areas (Maughan-Brown, Evans, George, 2016).

A study done In Mexico found that condom use was more prevalent in larger localities, but only among adolescents at a lower socioeconomic level (Gutiérrez & Atienzo, 2011).

#### 6. Gaps in the literature:

There is not much research on both males and females within as young as 12-15 years old regarding sexual risk behaviour in South Africa.

## **4. Research questions**

1. What is the prevalence/distribution of various risky sexual behaviours among sexually active adolescents in KwaZulu-Natal, South African sample?
2. Does sexual risk behaviour prevalence vary with gender?
3. To what extent is engagement in age disparate relationship associated with engagement in sexually risky behaviour?
4. To what extent is engagement in age disparate relationship associated with engagement in sexually risky behaviours when factoring in other social aspects like school connectedness, caregiver education level and location?

## **5. Methods**

### **5.1. The epistemological foundations of the study**

The philosophical approach proposed in this study is the postpositivist worldview (epistemologies). The approach holds a deterministic worldview determined by cause and

effects or outcomes. (Creswell, 2014). A postpositivist believe that there are laws and theories that governs the world and these needs to be tested and verified. In postpositivist method one starts with a theory, then collects data to test if the sample verifies or discard the claimed theory. Much what is being done in a quantitative design. A positivistic approach rings most true for quantitative research. It is called post-positivism because it challenges the belief in the absolute truth. When studying human behaviour one can never be positive about the absolute claim of knowledge (Creswell 2014).

## **5.2. Research design**

This study is a cross-sectional quantitative study analysing dependent and independent variables at one point in time. The study uses secondary data to quantify the analysis. The research was conducted by HEARD, and data obtained, in two different geographical areas to examine adolescent's sexual behaviour in relation to different risk and protective factors.

The research will investigate the relationships between variables measuring different kinds of behaviour identified as sexually risky. The purpose of the research is to look at the association between engagement in age disparate relationship and sexually risky behaviours, as well as how engagement in age disparate relationship, school connectedness and other control variables might predict sexually risky behaviour.

## **5.3. Dataset and Data collection method**

This research will use secondary data collected for a longitudinal, (i.e., Youth HIV/AIDS Prevention Project, Y-HAPP) survey-based study by HEARD from 2015.

The study used questionnaires distributed to the selected participants at the schools. The schools had to give them permission in order to interview the learners. A letter was sent to the parents/caregivers of the learners to inform them about the study that would contain the option for them to refuse participation of their child in the study. An 'opt out' informed consent method was used where parents/caregivers were advised that should they not return the informed consent forms with their children, their children would be automatically included in the study,

provided that the children consented themselves to participation in the study. Hence, informed consent was also retrieved from learner participants.

The interviews were conducted during breaks or after school. It was conducted in a such a way that one research fieldworker from HEARD would first distribute the questionnaire to all the learners and then stand in front of the class and go through each question with the learners, the learners would then fill out their answer for each question themselves.

## **5.4. Sampling**

The collection of data is sampled in schools from two different geographical areas in KwaZulu-Natal, South Africa.

A sample of schools were randomly selected from these two areas. Five schools from one urban region (Durban Central education circuit) and seven schools from one rural region (uKhahlamba Local Municipality – Bergville Education). Department of Basic Education suggested that the study should include both rural and urban schools to get a more representative sample, given that 60% of schools in South Africa are located in rural areas. A primary consideration when choosing the geographical areas is that they needed to include a large number of schools (preferably more than 10 schools) in order to oversample on schools and learners. Selection of the sample areas took into account variation in socio-economic status, race groups and exposure to violence to identify how risk and protective influences may differ between adolescents of different circumstances. The uKhahlamba Local Municipality in the Northern Drakensberg area is chosen due to the norms and values governing the area regarding dating and relationships among the youth. Parents seem to be acceptive of adolescents having their boy or girlfriend sleeping over, arrange marriages and other practises that might lead to early debut and/or unsafe sexual activity. The uKhahlamba area is characterised by lower income, rural, Black African families. Whereas more racially diverse communities and higher socio-economic status characterizes Durban central circuit. It also contains a higher number of reported murders, attempted murders, sexual offences, public robbery, residential burglary and aggravated robbery compared to crime statistics reported in the uKhahlamba Local Municipality.

The study sample consisted of ( $N=1574$ ) adolescents from urban schools. The urban schools included in the sample was Bonela Secondary, Durban Girls Secondary, Hillgroe Secondary,

Overport Secondary, Northwood Boys High School. The other half of the study sample consisted of ( $N=1130$ ) adolescents from rural schools. The rural schools included in the sample was Ekwaluseni High School, Nqobile High School, Ntathakusa, Maqoqa, Mthende, Meadow Sweet High, Tshanibeswe High.

The chosen participants were grade 8 and grade 10 students. Grade 8 and grade 10 students were chosen because of the particular age most students would be around when in grade 8 and 10 but also due to practical reasons regarding sample collections and time. The original project by HEARD was a repeated measure design with Time 1 and Time 2. Grade 11 who would become grade 12s at time 2 would be difficult to access in their matric year for data collection. Grade 12s would be out of school at Time 2. The age of the students ranges between 12 to 22 years, with a mean age of 15.92 years ( $SD=1.817$ ).

### **This study:**

Of the 2704 respondents in the dataset, the sexually inactive learners were excluded from the further analysis of this research. Only the sexually active boys and girls is included by using the variable number of partners linked to the question “how many sex partners have you had”? Those that reported 0=none is selected out and excluded in the new dataset for sexually active boys and girls. The new number of total respondents of sexually active adolescents are  $n=577$ . Of the 577 sexually active adolescents, 161 were girls ( $n=161$  girls) and 415 were boys ( $n=415$ ).

## **5.5. Measures and variables**

### **5.5.1. Dependent variables: Transactional sex and condom use**

These two variables (transactional sex and condom use), are based on the 18-items sexual risk scale reviewed by (Mattson et al., 2010; Ssewanyana, Mwangala, van Baar, Newton, & Abubakar, 2018; Toska et al., 2017). This study measures sexual risk behaviour using these two items and looks for participants sexual past and present sexual experiences: sexual safety/condom use and transactional sex.

These items merit as being used because previous epidemiologic research have proven they were risk factors for HIV:

Transactional sex: (Dunkle et al., 2004).

Variable	How it was asked in the survey	Response category
Transactional sex	Have you ever received or given a gift in exchange for sex?	0 = No 1 = Yes
Condom use	The last time you had sexual intercourse, did you or your partner use a condom?	0 = No 1 = Yes

The 18-item sexual risk scale has previously demonstrated very good reliability with a Cronbach's alpha of 0.87 (Mattson, et al, 2010).

### 5.5.2. Independent variable: Age (+5) disparate relationship

This variable (age disparate), is one item taken from an 18-items sexual risk scale developed by Mattson CL et al, (2010). This study measures sexual risk behaviour using this item and looks for participants sexual past and present sexual experiences. This item merit as being used because previous epidemiologic research has proven they were risk factors for HIV (Evans et al, 2016). The age disparate relationship item is chosen because it is a common practice in South Africa where the study sample for this research was collected, and it poses as huge risk for STDs and domestic violence towards adolescent girls and young women in particular (de Oliveira et al., 2017; Maughan-Brown et al., 2016; Maughan-Brown et al., 2018; Schaefer et al., 2017; Street et al., 2016).

Variable	How it was asked in the survey	Response category
Age disparate (5+) relationship	Have you ever had a boyfriend or girlfriend that was more than five years older than you?	0 = No 1 = Yes

### 5.5.3. Independent variable: School connectedness

School connectedness is measured by using a revised scale of the original Perceived sense of school membership scale PSSM-18 (Goodenow, 1993). The instrument assesses adolescent's school belonging, like inclusion, acceptance and encouragement in the form of a five-point Likert scale (1= not at all true, 5= completely true).



The Perceived sense of school membership scale PSSM-18 has been validated several times before and its internal consistency estimates have been acceptable to good ( $\alpha = 0.76$  to  $.84$ ) across a number of studies (Basterfield, Rardon, & Govender, 2014; Cho, Hallfors, & Sánchez, 2005; Govender et al., 2013).

Cowden, et al (2016), explored the factor structure and psychometric properties to see if the PSSM-18 could be revised to fit a South African context. Its internal consistency was  $\alpha = 0.72$ . The results suggest the PSSM-SA is a valid and reliable measure of school belonging (Cowden, Govender, Oppong Asante, Reardon, & George, 2018).

Examples of items in the PSSM-18 scale are:

1. I feel like a part of my school.
2. People here notice when I'm good at something.

(See appendices for all 18 questions)

**5.5.4. Control variables:** Location, highest education level of caregiver, gender.

Variable	How it was asked in the survey	Response category
Location	Filled out by field work staff only. Area: Durban central circuit or Bergville circuit	1 = Rural 2 = Urban
Highest education level of caregiver	What level of education does your primary caregiver have? (please tick the highest level of education your caregiver has achieved)	1 = Did not attend school/ did not complete primary school  2 = Completed primary school  3 = Completed high school (Grade 12)  4 = Completed secondary school and some tertiary education (university or Technikon)
Gender	What gender are you?	1 = Male 2 = Female

## **5.6. Data analysis**

All analyses are conducted in IBM SPSS 25.

### **5.6.1. Screening, cleaning and manipulating data**

Exclusion/inclusion: The participants in the surveys are limited to males and females that reported having ever been sexually active. This is done by using a question in the survey called number of partners, the question is as follow; how many sexual partners have you had? The response category 0 = no one, was used as exclusion criteria. those that answered this category is excluded from the further study. This reduced the study sample from 2600 to 577 study participants.

Recoding: The variables transactional sex, condom use, and age disparate relationship is recoded to only two categories. The category “I haven’t had sex” is taken out. The participants who reported, “I haven’t had sex” in the transactional sex variable is moved into the category “No”. In the age disparate relationship item, there were no participants in the category “I haven’t had sex”, so it is removed as a category.

### **5.6.2. Descriptive statistics**

Descriptive analysis is conducted for sociodemographic characteristics of the study sample. Characteristics are geographical location, current grade, highest education level of caregiver, number of study participants, number of females, number of males and age.

Descriptive analysis is conducted for the dependent and independent variables. Frequencies of engagement in age disparate relationship, transactional sex and use of condom, as well as descriptive analyses of how the prevalence varied with gender.

Descriptive analysis is conducted for the continuous independent variable, mean in school connectedness.

### **5.6.3. Bivariate analysis**

To measure the association between the independent variable (age disparate relationship) and the dependent variables (transactional sex and condom use), a chi-square test for independence

with Yates Continuity Correction are conducted, both full sample and stratified by gender, following (Pallant, 2016).

A t-test for independence is conducted to measure the difference between males and females school connectedness

A point-biserial correlation was run to determine the relationship between school connectedness and age disparate relationship, transactional sex and condom use.

An independent-samples t-test is conducted to compare the school connectedness score for two groups of study participants; urban and rural location

A chi-square test for independence (with Yates Continuity correction) is conducted to determine the relationship between location (urban/rural) and each variable; age disparate relationship, transactional sex and condom use

A chi-square test for independence is conducted to look for an association between highest education level of caregiver and the variables; age disparate relationship, transactional sex and condom use.

#### **5.6.4. Regression analysis**

The different control variables of the hierarchical logistic regression analysis are put in the order of the microsystem and the mesosystem of the ecological model theory by Bronfenbrenner. Where factors in close proximity to the individual comes first, with age disparate relationship as model 1 due to it being the main variable of this research, the gender of the individual comes second, while school connectedness comes third, these three variables makes up the immediate environment of the individual, named the microsystem. While education of caregiver and location comes last due to it being further apart from the individual's immediate environment and making up the mesosystems, the mesosystem is made up of external impact that influences which again influences the microsystem.

A direct logistic regression is conducted, following Pallant (2016), to assess the relationship between independent variables and the dependent variable of transactional sex. Four models are run. The method used in SPSS's default is the enter method. Cox and Snell R-square and Nagelkerke R-squared explains the variance in the models. Model 1 contains one variable; age disparate relationship. Model 2 contains two variables; age disparate and gender. Model 3

contains age disparate, gender and highest education level of caregiver. Model 4 contains age disparate, gender, highest education level of caregiver and location.

A direct logistic regression is conducted, following Pallant, (2016), on the dependent variable condom use. Five models are run. The method used in SPSS`s default was the enter method. Cox and Snell R-square and Nagelkerke R-squared explains the variance in the models. Model 1 contains one variable; age disparate relationship. Model 2 contains two variables; age disparate and gender. Model 3 contains age disparate, gender and school connectedness. Model 4 contains age disparate, gender, school connectedness and highest education level of caregiver. Model 5 contains age disparate, gender, school connectedness, highest education level of caregiver and location.

## **5.7. Ethical considerations**

Ethical clearance for the research study was granted full approval from the Human Social Science Research Ethics Committee at the University of KwaZulu-Natal and the Department of Basic Education.

## **6. Results**

### **6.1. Demographic characteristics**

#### **Descriptive results of socio demographic characteristics**

Initial descriptive analysis of sociodemographic characteristics was run on the study sample ( $N=577$ ). Table 1 shows descriptive results for the full sample and by gender of geographical location, current grade and highest education level of caregiver. There are 415 (72%) males, and 161 (28%) females in the study. From rural region there were 301(52.2%) participants, while urban region had 276 (47.8%) participants. As for highest education level of caregiver, most of the study participants had a caregiver that have only completed primary school, with a frequency of 186 (33,3%).

Table 1

*Descriptive analysis of sociodemographic characteristics of study sample. Frequency of gender, location, grade and highest education level of caregiver.*

Variable	Full sample N=577(100%)	Male N=415(71.9%)	Female N=161(27.9%)
<b>Geographical location:</b>			
Rural	301 (52.2%)	219 (52.8%)	81 (50.3%)
Urban	276 (47.8%)	196 (47.2%)	80 (49.7%)
<b>Grade:</b>			
8	168 (29.1%)	139 (33.5%)	29 (18%)
10	409 (70.9%)	276 (66.5%)	132 (82%)
<b>Highest education level of caregiver:</b>			
No schooling/didn't complete primary school	87 (15.1%)	61 (14.7%)	26 (16.1%)
Completed primary school	186 (32.2%)	129 (31.1%)	56 (34.8%)
Completed High school	141 (24.4%)	102 (24.6%)	39 (24.2%)
Completed secondary school/some tertiary	145 (25.1%)	110 (26.5%)	35 (21.7%)
Missing	18 (3.1%)	13 (3.1%)	5 (3.1%)

### **Descriptive results of the age of study participants.**

Minimum age of the study sample is 12 years old, while maximum age is 22 years old. The mean age is  $M=15.92$  years with a standard deviation of  $SD=1.75$ . Mean age for males is  $M=15.81$  years with a standard deviation of  $SD=1.83$ . Mean age for females is  $M=16.21$  years with a standard deviation of  $SD=1.5$ .

## **6.2. Main independent variable**

### **Age disparate relationship**

Table 2 shows descriptive results for ever having engaged in age disparate relationship with a partner five or more years older for the full and gender stratified sample.

In full sample ( $N=575$ ), 400 (69.6%) of the study participants answered *No* while approximately 175 (30.4%) of the study participants had a girlfriend/boyfriend who was more than 5 years older. The frequency of males ( $n=414$ , 1 missing) reporting *No* was 308 (74.4%), while 106 (25.6%) males reported *Yes*, they have been in a relationship where their girlfriend was five

years older. The frequency for females ( $n=160$ , 1 missing) reporting *No* was 91 (56.9%). Frequency for females reporting *Yes* was 69 (43.1%), they have been in a relationship with a partner five or more years older.

Table 2

*Frequency of sexual risky behaviours, with chi-square test for independence result.*

Variable	Full sample ( $N=577$ )	Male ( $N=415$ )	Female ( $N=161$ )	$X^2$ (df)
<b>Age disparate (5+) relationship</b>				
No	400 (69.3%)	308 (74.2%)	91 (56.5%)	15.9***(1)
Yes	175 (30.3%)	106 (25.5%)	69 (42.9%)	
Missing	2 (0.3%)	1 (0.2%)	1 (0.6%)	
<b>Transactional sex</b>				
No	494 (85.6%)	349 (84.1%)	144 (89.4%)	1.785 (1)
Yes	72 (12.5%)	57 (13.7%)	15 (9.3%)	
Missing	11 (1.9%)	9 (2.2%)	2 (1.2%)	
<b>Condom use</b>				
No	204 (35.4%)	140 (33.7%)	64 (39.8%)	1.44 (1)
Yes	359 (62.2%)	264 (63.6%)	94 (58.4%)	
Missing	14 (2.4%)	11 (2.7%)	1 (1.9%)	

$X^2$  = Chi square test for independence (with Yates' Continuity Correction, association between gender and sexual risk variables.

### 6.3. Dependent Variables

#### Transactional sex

Table 2 shows frequency of engagement in transactional sex. The frequency of both male and female ( $n= 566$ , 11 missing) reporting *No* were 494 (87.3%). While 72 (12.7%) reported *Yes* to have been engaging in transactional sex. The frequency of males ( $n=406$ , 9 missing) reporting *No* was 349 (86%), while 57 (14%), reported *Yes* to have engaged in transactional sex. The frequency of females ( $n=159$ , 2 missing) reporting *No* was 144 (90.6%), while 15 (9.4%) reported *Yes* to have engaged in transactional sex.

## **Condom use**

Table 2 shows frequency of condom use last time they engaged in sex.

Frequency of both males and females ( $n=563$ , 14 missing) reporting *No* was 204 (36.2%). Frequency of males and females reporting *Yes* was 359 (63.8%). Frequency of males ( $n=404$ , 11 missing) reporting *No* was 140 (34.7%). Frequency of males reporting *Yes* was 264 (65.3%). Frequency of females ( $n=158$ , 3 missing) reporting *No* was 64 (40.5%), while 94 (59.5%) reporting *Yes* to having used a condom last time they had sex.

## **6.4. Bivariate results**

### **Does sexual risk prevalence vary with gender?**

A chi square test for independence (with Yates' Continuity Correction) was performed to assess the association between gender and each variable; age disparate relationship, transactional sex and condom use (Table 2).

The chi-square test indicated a significant association between gender and age disparate relationship, ( $n=574$ ) = 15.9,  $p= .000$ ,  $phi= .171$ . The proportion of males involved in age disparate relationship was significantly different from the proportion of females involved in age disparate relationship. There was no significant association between gender and transactional sex, ( $n=565$ ) = 1.785,  $p= .182$ ,  $phi= -.062$ . The proportion of males engaged in transactional sex is not significantly different from the proportion of females engaged in transactional sex. There was no significant relationship between gender and condom use, ( $n=562$ ) = 1.44,  $p= .23$ ,  $phi = -.055$ . The proportion of males who used a condom was not significantly different from the proportion of females that used a condom.

## **6.5. Continuous Independent Variable**

### **School connectedness**

Table 3 below shows descriptive statistics for the continuous variable of school connectedness. Minimum value for males and females ( $n=464$ ) is 1.72, maximum value is 4.33, with a mean  $M$  of 3.066 and a standard deviation  $SD$  of .509. Minimum value for males ( $n=333$ ) is 1.72, maximum value is 4.33, with a mean of  $M=3.118$  and a standard deviation of  $SD=.498$ .

Minimum value for females ( $n=130$ ) is 1.72, maximum value is 4.06, with a mean of  $M=2.931$  and a standard deviation of  $SD=.514$ , (Table 3).

Table 3

*Descriptive analysis of school connectedness for the full and gender-stratified sample*

	Gender	N	Minimum	Maximum	Mean	Std. Deviation
School Connectedness	Both (male & female)	464	1,72	4,33	3,0665	0,50925
Valid N (listwise)		464				
School Connectedness	Male	333	1,72	4,33	3,118	0,49834
Valid N (listwise)		333				
School Connectedness	Female	130	1,72	4,06	2,9312	0,51468
Valid N (listwise)		130				

### Independent-samples t-test

An independent -samples t-test was conducted to compare school connectedness scores for males and females. There was a significant difference in scores for males ( $M= 3.118$ ,  $SD= .498$ ) and females ( $M=2.931$ ,  $SD=.514$ );  $t(453) = 3.59$ ,  $p = .000$ , two-tailed (Table 4).

Table 4

*Independent-samples t-test for equality of means, difference between males and females' sense of school membership.*

Sex				t	Df	95% Confidence Interval of the Difference	
Male (n=333)		Female (n=130)				Lower	Upper
M	SD	M	SD				
3.118	.498	2.931	.514	3,59***	461	0,085	0,289

\*\*\* $p \leq .001$  (2-tailed).



**The association between school connectedness and urban/rural location.**

An independent-samples t-test was conducted to compare the school connectedness score for two groups of study participants; urban and rural location. There was a significant difference in scores for urban ( $M = 2.919, SD = 0.487$ ) and rural ( $M = 3.197, SD = 0.493; t(462) = 6.052, p = .000$ , two-tailed, Table 5). Rural had a higher mean score in school connectedness than urban.

Table 5

*Independent-samples t-test for equality of means, association between school connectedness and location.*

Rural (n= 247)		Urban (n=217)		t	df	95% C. I. of the Difference	
M	SD	M	SD			Lower	Upper
3.195	.493	2.919	.487	6,05***	462	0,187	0,366

\*\*\* $p \leq .001$  (2-tailed).

**Chi-Square Test for independence.**

Association between age disparate relationship and transactional sex, and age disparate relationship and condom use.

A chi-square test for independence (with Yates Continuity Correction) was performed to assess potential associations between age disparate relationship and each of transactional sex, and condom use. There was a positive significant association between age disparate relationship and transactional sex,  $X^2(n=565) = 10.3, p = .001, phi = .14$  (Table 6). There was a negative significant association between age disparate relationship and condom use,  $X^2(n=561) = 12.6, p = .000, phi = -.15$  (Table 6).

Table 6

*Chi-square test. Association between age disparate relationship and transactional sex, and age disparate relationship and condom use.*

	Transactional sex			Condom use		
	N	X <sup>2</sup>	df	N	X <sup>2</sup>	df
Age disparate relationship	565	10.34***	1	561	12.63***	1

\*\*\*  $p \leq .001$  (2-tailed).

### Chi-square test stratified by gender (male/female)

A chi-square test for independence (with Yates` Continuity Correction) was run to determine an association between age disparate relationship and transactional sex stratified by gender (male/female), and age disparate relationship and condom use stratified by gender (male/female). The test indicated a positive significant association between age disparate relationship and transactional sex for males,  $X^2 (n = 406) = 12.724, p = .000, phi = .185$  (Table 7). However, there was no significant relationship between age disparate relationship and transactional sex for females,  $X^2 (n = 158) = .391, p = .532, phi = .072$  (Table 7). The chi-square test indicated a negative significant association between age disparate relationship and condom use for males,  $X^2 (n = 403) = 4.759, p = .021, phi = -.021$  (Table 7). There was also a negative significant relationship between age disparate relationship and condom use for females,  $X^2 (n = 157) = 6.568, p = .010, phi = -.218$  (Table 7).

Table 7

*Chi-square test for independence, association between age disparate relationship and transactional sex stratified by gender, and association between age disparate relationship and condom use stratified by gender.*

	Gender	Transactional sex			Condom use		
		N	X <sup>2</sup>	df	N	X <sup>2</sup>	df
Age disparate relationship	Male	406	12.724***	1	403	4.759*	1
	Female	158	.391	1	157	6.568**	1

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$  (2-tailed).

### Point-biserial correlation

A point-biserial correlation was run to determine the relationship between the continuous variable school connectedness and each categorical variable age disparate relationship, transactional sex and condom use. There was no correlation between school connectedness and age disparate relationship ( $r_{pb} = -0.079, n = 463, p = 0.088$ ), (Table 8). There was no correlation between school connectedness and transactional sex. ( $r_{pb} = 0.001, n = 461, p = 0.982$ ), (Table 8). There was a small, positive correlation between school connectedness and condom use, (meaning the higher school connectedness score one reported, one were also more likely to have used a condom at last sex) which was statistically significant ( $r_{pb} = .095, n = 452, p = 0.043$ ), (Table 8).

Table 8

*Point-biserial correlation between school connectedness and age disparate relationship, transactional sex and condom use.*

	<b>School connectedness</b>
Age disparate relationship	-.079
Transactional sex	.001
Condom use	.095*

\* $p \leq .05$  (2-tailed).

### Chi-square test

Chi square test. Association between location and each variable; age disparate relationship, transactional sex and condom use.

A chi-square test for independence (with Yates Continuity correction) was performed to determine the relationship between location (urban/rural) and each variable; age disparate relationship, transactional sex and condom use. The chi-square test indicated a positive significant relationship between location and age disparate relationship,  $X^2 (n = 575) = 31.868$ ,  $p = .000$ ,  $phi = .239$  (Table 9). There was no indication of a significant relationship between location and transactional sex,  $X^2 (n = 566) = .2$ ,  $p = .655$ ,  $phi = .024$  (Table 9). There was a negative significant relationship between location and condom use,  $X^2 (n = 563) = 4.871$ ,  $p = .027$ ,  $phi = -.079$  (Table 9).

Table 9

*Chi-square test for independence. Association between location (rural/urban) and each variable; age disparate relationship, transactional sex and condom use.*

	Age disparate relationship			Transactional sex			Condom use		
	<i>N</i>	$X^2$	df	<i>N</i>	$X^2$	df	<i>N</i>	$X^2$	df
Location (rural/urban)	575	31.868***	1	566	.2	1	563	4.871*	1

\* $p \leq .05$ , \*\*\* $p \leq .001$  (2-tailed).

### Association between highest education level of caregiver and sexual risk variables

A chi-square test for independence was performed to look for an association between highest education level of caregiver and the variables; age disparate relationship, transactional sex and condom use.

The Pearson chi-square test indicated a significant association between highest education level of caregiver and age disparate relationship,  $X^2(1, n = 557) = 10.802, p = .013$ , Cramer's  $V = .139$  (Table 10). There was no significant association between highest education level of caregiver and transactional sex,  $X^2(1, n = 548) = .956, p = .812$ , Cramer's  $V = .042$  (Table 10). There was no significant association between highest education level of caregiver and condom use,  $X^2(1, n = 545, p = .076$ , Cramer's  $V = .112$  (Table 10).

Table 10

*Pearson chi-square test, association between highest education level of caregiver and age disparate relationship, transactional sex and condom use.*

	Age disparate relationship			Transactional sex			Condom use		
	<i>N</i>	$X^2$	df	<i>N</i>	$X^2$	df	<i>N</i>	$X^2$	df
Highest education level of caregiver	557	10.802**	3	548	.956	3	545	.076	3

\*\* $p \leq .01$

## 6.6. Logistic regression

### Dependent variable: Transactional sex

Direct logistic regression was performed to assess the impact of a number of factors on the likelihood that respondents would report being engaged in transactional sex.

Model 1 contained one independent variable (age disparate relationship). The full model 1 containing all predictors was  $x^2(1, N = 546) = 9.976, p = .002$ , indicating that the model was able to distinguish between respondents who reported and did not report engagement in transactional sex. The model as a whole explained between 1.8 % (Cox and Snell R square) and 3.4% (Nagelkerke R squared) of the variance in engagement in transactional sex, and correctly

classified 87.2% of cases. Age disparate relationship did make a unique statistically significant contribution to the model ( $p < .001$ ) The odds ratio was 2.30. This indicate that respondents who said they had been involved in an age disparate relationship were twice as likely to report having engaged in transactional sex (Table 11).

Model 2 contained two independent variables (age disparate relationship and gender). The full model 2 containing all predictors was statistically significant  $\chi^2(2, N= 546) = 14.892, p < .001$ , indicating that the model was able to distinguish between respondents whom reported and did not report having been engaged in transactional sex. The model as whole explained between 2.7% (Cox and Snell R square) and 5.0% (Nagelkerke R squared) of the variance in transactional sex status, and correctly classified 87.2% of cases. Both age disparate ( $p < .001$ ) and gender ( $p = .035$ ) made a unique statistically significant contribution to the model. The strongest predictor of reporting being involved in transactional sex was having been involved in an age disparate relationship with an odds ratio of 2.56. (Table 11).

Model 3 contained three independent variables (age disparate relationship, gender and highest education level of caregiver; no schooling/didn't complete primary school, completed primary school, completed high school, completed secondary school/some tertiary). The full model containing all predictors was statistically significant  $\chi^2(3, N = 546) = 17.393, p = .004$ , indicating that the model was able to distinguish between respondents who reported or not reported being engaged in transactional sex. The model as a whole explained between 3.1% (Cox and Snell R square) and 5.9% (Nagelkerke R squared) of the variance in transactional sex status and correctly classified 87.2% of cases. Only Age disparate relationship ( $p < .000$ ) and gender ( $p = .03$ ) made a unique statistically significant contribution to the model. The strongest predictor of reporting involvement in transactional sex was engagement in age disparate relationship, recording an odds ratio of 2.742, meaning those engaged in age disparate relationship were more likely to engage in transactional sex. The odds ratio of gender was .483, (Table 11).

Model 4 contained four independent variables (age disparate relationship, gender, highest education level of caregiver; no schooling/didn't complete primary school, completed primary school, completed high school, completed secondary school/some tertiary, and location urban/rural). The full model containing all predictors was statistically significant,  $\chi^2(4, N=546) = 17.404, p < .008$ , indicating that the model was able to distinguish between respondents who reported and who did not report being engaged in transactional sex. The model as a whole explained between 3.1% (Cox and Snell R square) and 5.9% (Nagelkerke R squared) of the

variance in transactional sex status, and correctly classified 87.2 percent of the cases. Only age disparate relationship ( $p < .000$ ) and gender ( $p < .028$ ) made a statistically significant contribution to the model. The strongest predictor of reporting being engaged in transactional sex was age disparate relationship with an odds ratio of 2.723. Another strong predictor was completed primary school, with an odds ratio of 1.148, indicating that students with a caregiver with very little formal education was 15% more likely to report being involved in transactional sex (Table 11).

Table 11

*Logistic regression. Dependent variable: Transactional sex.*

	B	S.E.	OR	95% C.I. OR	
				Lower	Upper
<b>Model 1:</b>					
Age disparate relationship (ref. = No, did not engage in age disparate)					
Yes, did engage in age disparate	.833	.26	2.3***	1.381	3.831
<b>Model 2:</b>					
Age disparate relationship (ref. = No, did not engage in age disparate)					
Yes, did engage in age disparate	.94	.266	2.6***	1.519	4.314
Gender (ref. = Male)					
Female	-.685	.324	.504*	.267	.951
<b>Model 3:</b>					
Age disparate relationship (ref. = No, did not engage in age disparate)					
Yes, did engage in age disparate	1.009	.272	2.742***	1.608	4.676
Gender (ref. = Male)					
Female	-.728	.326	.483*	.255	.915
Education of caregiver (ref. = no/incomplete primary education)					
Education of caregiver, 1	.146	.396	1.157	.533	2.511
Education of caregiver, 2	.013	.414	1.013	.45	2.281
Education of caregiver, 3	-.399	.432	.671	.288	1.566

Model 4:

Age disparate relationship  
(*ref. = No, did not engage in age disparate*)

Yes. Did engage in age disparate	1.002	.28	2.723***	1.573	4.715
Gender ( <i>ref. = Male</i> )					
Female	-.728	.326	.483**	.255	.915
Education of caregiver ( <i>ref.= no/incomplete primary education</i> )					
Education of caregiver, 1	.138	.401	1.148	.523	2.522
Education of caregiver, 2	.003	.425	1.003	.436	2.307
Education of caregiver, 3	-.418	.468	.659	.263	1.648
Location ( <i>ref. = Rural</i> )					
Urban	.031	.295	1.031	.579	1.838

Education of caregiver 1=completed primary school.

Education of caregiver 2=completed High school.

Education of caregiver 3=completed secondary school /some tertiary.

\* $p \leq .05$  \*\* $p \leq .01$  \*\*\* $p \leq .001$

### Dependent variable: Condom use

Direct logistic regression was performed to assess the impact of a number of factors on the likelihood that respondents would report use of condom.

Model 1 contained one independent variable (age disparate relationship). The full model 1 containing all predictors was statistically significant,  $\chi^2(1, N= 439) = 8.341, p < .004$ , indicating that the model was able to distinguish between respondents who reported and did not report using a condom. The model as a whole explained between 1.9% (Cox and Snell R square) and 2.6% (Nagelkerke R square) of the variance in condom use, and correctly classified 62% of cases. Age disparate relationship ( $p < .004$ ) made a statistically significant contribution to the model. The odds ratio was .544, less than 1, indicating that respondents who reported being in an age disparate relationship was .544 less likely to report using a condom (Table 12).

Model 2 contained two independent variables (age disparate relationship and gender). The full model containing all predictors was statistically significant,  $\chi^2(2, N= 439) = 8.446, p < .015$ , indicating that the model was able to distinguish between respondents who reported and did not report using a condom. The model as a whole explained between 1.9% (Cox and Snell R square) and 2.6% (Nagelkerke R squared) of the variance in condom use, and correctly classified 62% of cases. Only age disparate relationship ( $p < .004$ ) made a statistically significant contribution

to the model. The strongest predictor of reporting use of condom was gender, recording an odds ratio of 1.075. This indicate that every boy and girl were 1 time more likely to report using a condom (Table 12).

Model 3 contained three independent variables (age disparate relationship, gender, and school connectedness). The full model containing all predictors was statistically significant,  $(3, N=439) = 11.426, p < .010$ , indicating that the model was able to distinguish between respondents who reported and did not report using a condom. The model as a whole explained between 2.6% (Cox and Snell R square) and 3.5% (Nagelkerke R squared) of the variance in condom use, and correctly classified 65.1% of cases. Only age disparate relations ( $p < .005$ ) made a statistically significant contribution to the model. The strongest predictor of reporting condom use was the variable school connectedness, recording an odds ratio of 1.413, indicating that respondents who reported using a condom were 1 time more likely to report a stronger sense of school membership (Table 12).

Model 4 contained four independent variables (age disparate relationship, gender, school connectedness, and highest education level of caregiver). The full model containing all predictors was statistically significant  $x^2 (4, N=439) = 22.574, p < .001$ , indicating that the model was able to distinguish between respondents who reported and did not report using condom. The model as a whole explained between 5.0% (Cox and Snell R square) and 6.8% (Nagelkerke R squared) of the variance in condom use, and correctly classified 62.2% of cases. Five of the independent variables made a unique statistically significant contribution to the model, age disparate ( $p < .002$ ), school connectedness ( $p < .05$ ), completed primary school ( $p < .007$ ), completed High school ( $p < .002$ ), completed secondary school/some tertiary ( $p < .007$ ). The strongest predictor of reporting condom use was completed High school, recording an odds ratio of 2.656. Second strongest predictor was completed secondary school /some tertiary, recording an odds ratio of 2.322 (Table 12).

Model 5 contained five independent variables (age disparate relationship, gender, school connectedness, highest education level of caregiver, and location urban/rural). The full model containing all predictors was statistically significant,  $x^2 (5, N=439) = 27.448, p < .000$ , indicating that the model was able to distinguish between respondents who reported and did not report using condom. The model as a whole explained between 6.1% (Cox and Snell R square) and 8.2% (Nagelkerke R squared) of the variance in condom use, and correctly classified 61.3% of cases. The age disparate, education and location variables all made a statistically significant



contribution to the model, age disparate ( $p < .010$ ), completed primary ( $p < .003$ ), completed High school ( $p < .001$ ), completed secondary school/some tertiary ( $p < .001$ ) and location ( $p < .028$ ). The strongest predictor for reporting condom use in model 5 was completed High school, recording an odds ratio of 3.160. Second strongest predictor was completed secondary school/some tertiary recording an odds ratio of 3.107. Third strongest predictor was completed primary school recording an odds ratio of 2.435 (Table 12).

Table 12

*Logistic regression. Dependent variable: Condom use*

	B	S.E.	OR	95% C.I.OR	
				Lower	Upper
<b>Model 1:</b>					
Age disparate relationship ( <i>ref. = No, did not engage in age disparate</i> )					
Yes, did engage in age disparate	-.609	.211	.544***	.36	.822
<b>Model 2:</b>					
Age disparate relationship ( <i>ref. = No, did not engage in age disparate</i> )					
Yes, did engage in age dispaarte	-.623	.215	.537***	.352	.818
Gender ( <i>ref. = Male</i> )					
Female	.072	.223	1.075	.694	1.665
<b>Model 3:</b>					
Age disparate relationship ( <i>ref. = No, did not engage in age disparate</i> )					
Yes, did engage in age disparate	-.61	.216	.543***	.356	.829
Gender ( <i>ref. = Male</i> )					
Female	.132	.227	1.141	.731	1.781
TOT School	.345	.201	1.413	.953	2.094

Model 4:					
Age disparate relationship ( <i>ref. = No, did not engage in age disparate</i> )					
Yes, did engage in age disparate	-.674	.221	.51***	.33	.787
Gender ( <i>ref. = Male</i> )					
Female	.177	.231	1.193	.758	1.877
TOT School	.403	.206	1.496*	.999	2.240
Education of caregiver ( <i>ref.=no/incomplete primary education</i> )					
Education of caregiver, 1	.789	.295	2.2***	1.235	3.920
Education of caregiver, 2	.977	.321	2.656***	1.416	4.980
Education of caregiver, 3	.843	.312	2.322***	1.261	4.277
Model 5:					
Age disparate relationship					
	-.583	.226	.558**	.359	.868
Gender ( <i>ref. = Male</i> )					
Female	.168	.232	1.183	.75	1.864
TOT School	.295	.212	1.343	.886	2.035
Education of caregiver ( <i>ref.=no/incomplete primary education</i> )					
Education of caregiver,1	.89	.3	2.435***	1.352	4.386
Education of caregiver, 2	1.150	.333	3.16***	1.644	6.074
Education of caregiver, 3	1.134	.341	3.107***	1.591	6.067
Location ( <i>ref. = Rural</i> )					
Urban	-.52	.237	.594*	.374	.946

Education of caregiver 1=completed primary school.

Education of caregiver 2=completed High school.

Education of caregiver 3=completed secondary school /some tertiary.

TOT School =Total school connectedness /sense of school membership scale.

\* $p \leq .05$  \*\* $p \leq .01$  \*\*\*  $p \leq .001$

## 7. Discussion

### Summary of results

The study sample consisted of urban and rural adolescent boys and girls between the age of 12 and 22 from KwaZulu-Natal in South Africa. The aim of study was to look at adolescents' sexual risk behavior making up three sexual risk behavior variables; age disparate, transactional sex and condom use. School connectedness and other control variables were included to look

for predictors of sexual risk. The study found that girls had a higher frequency of engagement in age disparate relationship and reported to less use of condom at last sex, while boys reported more engagement in transactional sex. Engaging in age disparate relationships was significantly associated with transactional sex and condom use in final adjusted models. Education level of caregivers had the highest odds ratio of predicting involvement in transactional sex and unprotected sex.

## **Discussion of findings**

*What is the prevalence/distribution of various risky sexual behaviours among sexually active adolescents in KwaZulu-Natal, South African sample?*

### Age disparate relationship

The result of this research showed that 30.4% of the study sample (577 sexually active adolescents between 12-22 years) had been in an age disparate relationship.

This study sample had most males, 415 males and 161 females. Since criteria for sample was that one had to be sexually active, evidence showed that more males than females were sexually active within the sample of 577 sexually active adolescents out of the full sample of 2600 adolescents scattered among different rural and urban schools. While more males were sexually active, more females responded to have been engage in age disparate relationship in relative to the number of females. A total of 25.6% out of 414 males responded to have been engage in age disparate, while 43.4% out of 160 females. The proportion of females engaging in age disparate relative to the full amount of sexually active females is larger than the proportion of males engaging in age disparate relative to the full amount of sexually active males. It rings true with the literature pointing out that a large proportion of young women in South Africa are engaged in age disparate relationships (Street et al., 2016). One longitudinal study from Cape Town (Beauclair et al., 2012) on 16-26 year olds, found that adolescent females are more likely than males of the same age to be engaged in age disparate relations while the males engage in age disparate first when they are much older, in the study from Cape Town they were around 25-26 when prevalence of age disparate engagement increased. This can be explained by the fact that males in their twenties engage in age disparate relationships with adolescents' females.

The fact that women engage in age disparate relations at an earlier age than males, studies have shown that many females also have their sexual debut is in an age disparate relationship. In (Beauclair et al, 2012) study, 16% of black women and 20% of coloured women debuted sexually in an age disparate relationship while only 1% of black men and 0% of coloured men debuted sexually in an age disparate relation.

In this research male mean age at sexually active was a year younger than females. Mean age for males in this research was 15.81 years while mean age for females was 16.21 years. This show that males were on average sexually active at a younger age than the females. Considering the literature on age disparate and sexual debut, males tend to debut with females around same age while more females tend to debut sexually with older males in an age disparate relationship. This show that females are introduced to age disparate relationship and probably sexual networks at a much younger age than boys. Could this be an explanation for why females tend to be transmitted with HIV at a younger age than males? The literature has pointed out that men in age disparate relationship tend to have multiple partners, and on average both men and women has respondent to have more unprotected sex while in an age disparate relationship (Maughan-Brown, Evans et al. 2016). Many studies point to the fact that women acquire HIV at an earlier age than men. Research show that engaging in age disparate relationship have proven to be huge risk factor for HIV and other STDs in young women (Beauclair et al., 2012; de Oliveira et al., 2017; Dellar et al., 2015; Maughan-Brown et al., 2016; Schaefer et al., 2017). In one study they found that frequency of HIV was 12% point higher in women engaging in age disparate relationship (Maughan-Brown et al., 2018).

#### Transactional sex

The total of 566 adolescents responded to the transactional sex question, if they ever had given ore received a gift in transaction for sex, 12.7 % responded to have engage in transactional sex. Of the 406 males, 14% had engaged in transactional sex. Of the 159 females, 9.4% had engaged in transactional sex. In this study the number of men and women engaging in transactional sex is not high, In another study in South Africa, the number of men in transactional sexual relationships was high, where over 60% said to be in at least one transactional sexual relationship (Zembe et al., 2013), but the age of those men were 18-49 years. Although the number of men and women engaging in transactional sex in Africa is said to range from around 2% to over 50% (USAID, 2018).

## Condom use

Total of 563 of males and females responding to the question if they had used a condom at last sex, 36.8% denied using a condom. Of the males (total 404) 37% denied using a condom, of the females (total 158) 40.5% denied using a condom at last sex. Almost half of the women had not used a condom, while more of the males relative to the total number of males had used a condom at last sex. This tells us that the sexually active women in this study sample might be engaging with older partners which might make it more difficult to negotiate safe sex, at least according to Maughan-Brown, Evans et al. (2016), which found that young women in age disparate relationship reported more unprotected sex. In this research the respondents are in favor of using condom, both more males (65.3%) and females (59.6%) did report to have used a condom at last sex. From a study in 2003 (Eaton et al., 2003), it was found that 50-60% of South African adolescents reported to not use condom at all, and several studies have claimed that up to 45% of south African said “condom waste sperm” (Eaton, Flischer et al. 2003). However, a newer longitudinal study done in 2002, 2005 and 2008 found that condom use had increased among south African youth (Beksinska et al., 2012). From the result of this study women relative to total number of females, use less condom than males relative to total number of males. As previous studies have reported, men are the decision makers when it comes to may aspect of sexual encounter in South Africa, meaning that men are the ones that make the decision of using a condom or not (Sayles et al., 2006).

*To what extent is engagement in age disparate relationship associated with engagement in sexually risky behaviour?*

This study found a significant positive relationship between age disparate relationship and transactional sex and a significant negative relationship between condom use and age disparate relationship, confirming existing literature that age disparate relationship tend to involve more unprotected sex (George et al., 2019; Maughan-Brown et al., 2018). Several studies have found strong positive associations between age disparate relationship and transactional sex (Maughan-Brown et al., 2018; Wamoyi et al., 2011; Wamoyi et al., 2010).

When looking at associations between the risky sexual variables stratified by gender, there was a strong positive association between age disparate and transactional sex for males, but no significant association for females. However, there was a significant negative relationship

between age disparate and condom use for both genders. This study showed no significant association between age disparate and transactional sex for females.

### **The regression models**

#### Transactional sex

When looking at what factors predict transactional sex, with the models of all the predictors: age disparate, gender, highest education level of caregiver (no schooling/didn't complete primary school, completed primary school, completed high school, completed secondary school/some tertiary) and location (rural/urban). The strongest predictor was age disparate relationship. Another strong predictor was completed primary school. The third strongest predictor was completed High school. This explains that adolescents who had caregivers with lesser to medium level of schooling were more likely to engage in transactional sex compared with adolescents with caregivers who had no or incomplete primary schooling. This might show that adolescents coming from less affluent home can be engaging in transactional sex out of need, since caregivers with less education most likely earn less, and even if they are able to cover the basic needs of their kids, they might not be able to keep up with providing anything besides that. This might give adolescents a bigger incentive to engage in transactional sex for the purpose of achieving luxury goods and status that they might not else would have been able to achieve. A study using household survey data of young men and women between 14-24 years from 2001 in KwaZulu-Natal, South Africa found that living in a household with low wealth were associated with higher rates of receiving goods, gifts and money in exchange for sex, whilst in a household with higher wealth the odds of exchanging sex for goods were much lower (Hallman, 2005). Another thing that needs to be taken into consideration is the fact that South African blacks have not been granted to higher education until recently, apartheid dissolved 25 years ago. Most black South Africans adolescents today do not have caregivers with higher education, that's why the predictions of transactional sex falling on the intermediate levels of education of caregivers might just be a coincidence and not a cause, since the majority of black South Africans do fall within that education cohort. However, even when parents could meet the basic needs of their kids, they might engage in transactional sex anyway, to receive other goods like snacks at school, soap, scented body lotion and more luxury kind of goods in order to look cool for their peers and gain higher status among them (Wamoyi et al., 2011). From a study in Tanzania, peer pressure was among the reasons young women chose to have sex for

exchange of money, they were competing against each other over who had better clothes, and other goods (Wamoyi et al., 2010). It seems to be an easy solution to conclude that only adolescent from poorer homes would engage in transactional sex and that the solution would be to support poorer homes with some sort of cash transfer because according to Wamoyi et al (2011) transactional sex wouldn't stop anyway since it is such an ingrained part of the African mentality and culture. Interviews with men in Tanzania concluded that transactional sex should not stop, that modern transactional sex could be equated with traditional bride wealth, that in African societies sex and women bodies had always been viewed as a commodity that could be bought (Wamoyi, Fenwick et al. 2011). However, a study of 1926 adolescent girls in South Africa found that receiving cash transfer reduced incidences transactional sex as well as age disparate relationships, but for girls only, for boys no change in risky behaviours were shown (Cluver et al., 2013)

### Condom use

When looking at what factors predict condom use, with the models of all the predictors: (age disparate relationship, gender, school connectedness, highest education level of caregiver, and location urban/rural). All the variables were statistically significant in the models, however, the strongest predictor of reporting to have used a condom at last sex was the highest education level of caregiver (completed High school), another almost as high predictors was “completed secondary school/some tertiary”, the third strongest predictor was “completed primary school”. These results show that the education level of caregiver had an effect on the adolescents' ability to exercise sexual safety and engage in protected sex.

When looking for an association between education level of caregiver and each variable age disparate, transactional and condom use. There was a statistically significant relationship between age disparate and highest education level of caregiver, but there were no association between education level and transactional sex nor condom use. However though, the regression models did show a strong association when accounting for all variables together, that education of caregivers had a high impact on engagement in transactional sex and condom use. In general education seem to have an impact on whether the adolescent will engage in risky sexual behavior or not. This shows that socioeconomic status is an important component within health inequity. Parents' or caregivers' education level can pose an important factor in health and wellbeing of child/adolescent. According to Youngblade (Youngblade et al., 2007), both

family, community and school can pose a protective factor against risk behavior. Youngblade (2007) examined the simultaneous associations between family, community and school and he found that adolescents living in contexts that provided support from family and peers and feelings of inclusion and belonging were less likely to engage in risky sex and problem behavior. The theory of this research, the ecological model by Bronfenbrenner operates with this simultaneous levels or systems of different influencers in a young person life; how family, school and community might work as a driver or protector against risk behavior. In this study, family and education has proven to be the strongest protective factors. When it comes to the adolescents own schooling, how well they feel included and connected to their school there was a slightly positive significant association between school connectedness and condom use. When looking at males and females' sense of school connectedness there was a significant difference in school connectedness between males and females, with males scoring higher on the school connectedness scale. That is in contrast to Govender's finding in 2013 (Govender et al., 2013), in a sample from learners from two secondary schools on South Africa he found that girls were more school connected than boys. While the findings in this research found that boys had higher perceived sense of school membership. In Govender's study, it was also evidence of that school connectedness were associated with lower levels of health risk behaviours. Did males in this study have a lower health risk behavior than females? When looking if prevalence of risk behaviours vary by gender, it was found that the proportion of males involved in transactional sex was not significantly different from the proportion of females involved in transactional sex. Same with condom use, proportion of men using a condom was not different from the proportion of females. However, when it came to engagement in age disparate relationship, the proportion of males in age disparate was significantly different from the proportion of females, there were significantly more females (43.1%) relative to the total number of females involved in age disparate relationship than males (25 %) relative to the total number of men. This goes hand in hand with findings that show a significant higher number of females involved in age disparate relationships in adolescent years than males of same age (Beauclair, Kassanje et al. 2012) While there is no significant difference in transactional sex and use of condom between males and females, males (14%) were more involved in transactional sex than females (9.4%). Females are slightly riskier when it comes to condom use, 34.7% males reported no use of condom at last sex while 40.5% females reported no use of condom. Condom use can be a tricky thing to negotiate for women. Especially in age disparate relationships (which more women in this sample showed to be engaged in) as several studies has implied, there is less use of condom in age disparate relationships (Maughan-Brown, Evans et al. 2016). In some South African



studies, up to 45 % of males have claimed that condom use waste sperm. Condom use could also make that person be viewed as someone promiscuous, having an STD or perhaps being HIV positive (Eaton et al., 2003). Many South African men believe that abstinence from sex will lead to ill health due to suppressed sexual desire (Eaton, Flisher et al. 2003). This form of abstinence implicates patriarchal supremacy in that men who feel restrained from fathering children will lure girls to risk of infection thereby compelling girls to prove love and fertility by conceiving for the men (Eaton, Flisher et al. 2003).

Studies reveal that many heterosexual relationships in certain communities in South Africa involve sexual coercion and violence towards the female partner, where young girls are physically forced or bullied into having sex (Eaton, Flisher et al. 2003). The girl is supposed to show faithfulness, but the same does not apply to the man. Men, predominantly black South Africans, claim the right to have multiple partners. This pressures young men to show manliness by having multiple partners to raise manly status and admiration (Eaton et al, 2003). There are two themes that comes up when relating to male sexuality: the biologically determined “need”, and sexual “rights”. Having unprotected sexual intercourse with multiple partners is quite common in South Africa (MacPhail & Campbell, 2001). When it comes to monogamy, men claim they need variety. It is in a man’s nature to want many partners and staying with just one woman goes against their very essence of being a man (Eaton, Flisher et al. 2003).

Condoms are according to several studies used at a higher rate in urban settings than rural (Doyle, Mavedzenge, Plummer, & Ross, 2012; Gutiérrez & Atienzo, 2011; Maughan-Brown et al., 2016). In this research there was a significant association between location and condom use, and between location and age disparate relationship. There was no significant association with transactional sex. In both male and female sample there were slightly more sexually active in the rural setting, however, with females it was almost the same total girls in both rural (81 females) and urban (80 females).

When looking at the association between school connectedness and urban/rural location, there was a significant difference in scores for urban and rural. The rural youth showed higher frequency of school connectedness than the urban youth.

## **8. Limitations and strengths**

### Strengths:

The study consists of relatively big sample with use of validated scales and items. It is an important contribution to research in the sense that the study sample was people between the ages of 12 -22 years, not much research can be found on sexual risk within these particular age range. It was also not only limited to females, which so many studies are, males were included as well. Both rural and urban representations were included in the sample. To look at several factors, surrounding the adolescent's life, school connectedness was included as a scale to find out if school connectedness has an impact on sexual risk behavior.

### Limitations:

The study is not sufficient enough when it comes to inclusion of other measures of sexual risk behaviours. The study has a limited amount of control variables. There is not an equal number of males and females in the study sample. The sample is highly skewed towards males. Males make up 72% of the sample with only 28% females, this may have had an effect on the results. For example, on the school connectedness scale where males scored higher than girls, there would might have been a different result if there was an equal, 50/50 representation of males and females in the sample. The sample is not representative in the sense that it is only representing adolescents from two geographical areas in KwaZulu-Natal, South Africa.

## **9. Conclusion**

In the sample of this study, adolescent girls engaged in more sexual risk behavior than boys of same age. Engaging in age disparate relationship was significantly associated with engagement in transactional sex and unprotected sex. There is a significantly higher prevalence of adolescent girls engaging in age disparate relationships than adolescent boys. Females also had a slightly lower frequency of condom use at last sex than males. Males scored over all higher on school connectedness than females.

Since females proved to being more at risk, targeting adolescent girls and young women is important. However, targeting boys is just as important. Two factors that contribute to HIV

among young women in age disparate relationships is that frequency of HIV increases drastically with age up to 40 years old, if young women do not choose HIV-negative older men, than an age disparate male partner is more likely to be HIV infected than a younger partner (Maughan-Brown et al., 2018) Females are more at risk earlier in life than males, but males catches up later on. Boys start later in their twenties engaging in age disparate relationships, the girls they then involve themselves with is the adolescent girls. Boys contract HIV later, and transmit the younger girls, both are part of the same evil circle. Therefore, this research recommends same interventions directed at both girls and boys.

The age range of these study sample was between 12 and 22 years, a very young age, already a significant number of females in the sample were involved in age disparate relationships putting them at risk of contracting HIV early on in life. This thesis concludes with that interventions into young girls and boys needs to be done early, before 12 years old and the onset of puberty.

Based on the result of these research, this study has some recommendations on two interventions based on the UNAIDS and African Union report (2015): Empower young women and adolescent girls; fast-tracking the end of the AIDS Epidemic in Africa:

1. Keep girls in school and put emphasis on increasing girls' (and boys') school connectedness. Girls in school are more likely to use contraceptives the longer they stay in school (UNAIDS, 2015). When comparing girls with at least six years of schooling compared to girls with no schooling, the latter were twice as likely to get HIV (UNAIDS 2015). Since education of parents/caregiver had the highest effect on whether adolescent would be sexually risky or not in this study, putting emphasis on making girls stay longer in school and improve the sense of belonging to school will benefit future generations as in educated caregivers is a protective factor against risk behavior.
2. Cash transfer programs has proven to effective. Young girls that receive cash transfer might be better able to stay out of transactional sexual relations with much older men (Schafer et al, 2017. If they receive a cash transfer from an organization, they might not be so tempted to engage in transactional sex. Cash transfer programs had been used all over Africa, in countries like Kenya, Malawi, South Africa, Uganda, Tanzania, Zimbabwe and Zambia (UN Development program 2014). Earlier literature has mentioned that many young women do not engage in transactional sex out of poverty, but rather for the want of a luxurious lifestyle to impress peers ((Leclerc-Madlala, 2003; Wamoyi et al., 2010). However, cash transfer is said to be one of the few HIV

interventions that have had a highly preventive effect (UNDP, 2014), and might make poorer young women engage in unsafe risk behavior out of desperation. It would also empower them, perhaps making them choosier of sexual partners and maybe more able to negotiate sexual safety since they will not be so in need of things as they can just buy it themselves.

## 10. Reference list

- Adeyemo, M., & Brieger, W. (1994). Dissemination of Family Life Education to Adolescents by Their Parents in Suburban Ibadan, Nigeria. *International Quarterly of Community Health Education*, 15(3), 241-252. doi:10.2190/5D3N-J0DF-YDM5-JE2D
- Adu-Mireku, S. (2003). Family communication about HIV/AIDS and sexual behaviour among senior secondary school students in Accra, Ghana. *African Health Sciences*, 3(1), 7-14.
- Ajayi, A., & Somefun, O. (2019). Transactional sex among Nigerian university students: The role of family structure and family support. *PLOS ONE*, 14(1), e0210349. doi:10.1371/journal.pone.0210349
- Basterfield, C., Rardon, C., & Govender, K. (2014). Relationship Between Constructions of Masculinity, Health Risk Behaviors and Mental Health Among Adolescent High School Boys in Durban, South Africa. *International Journal of Men's Health*, 13(2), 101-120. doi:10.3149/jmh.1302.101
- Bastien, S., Kajula, L., & Muhwezi, W. (2011). A review of studies of parent-child communication about sexuality and HIV/AIDS in sub-Saharan Africa. *African Journal of Reproductive Health*, 8(1), 25. doi:10.1186/1742-4755-8-25
- Bastien, S., T Leshabari, M., & Klepp, K.-I. (2009). Exposure to information and communication about HIV/AIDS and perceived credibility of information sources among young people in northern Tanzania. *African Journal of AIDS Research*, 8(2), 213-222. doi:10.2989/AJAR.2009.8.2.9.861
- Beauclair, R., Kassanjee, R., Temmerman, M., Welte, A., & Delva, W. (2012). Age-disparate relationships and implications for STI transmission among young adults in Cape Town, South Africa. *The European Journal of Contraception & Reproductive Health Care*, 17(1), 30-39. doi:10.3109/13625187.2011.644841
- Beksinska, M., Smit, J., & Mantell, J. (2012). Progress and challenges to male and female condom use in South Africa. *African Journal of Sexual Health*, 9(1), 51-58. doi:10.1071/SH11011
- Birdthistle, I., Schaffnit, S., Kwaro, D., Shahmanesh, M., Ziraba, A., Kabiru, C., . . . Floyd, S. (2018). Evaluating the impact of the DREAMS partnership to reduce HIV incidence among adolescent girls and young women in four settings: a study protocol. *BMC Public Health*, 18(1), 912. doi:10.1186/s12889-018-5789-7
- Bond, L., Butler, H., Thomas, L., Carlin, J., Glover, S., Bowes, G., & Patton, G. (2007). Social and School Connectedness in Early Secondary School as Predictors of Late Teenage

- Substance Use, Mental Health, and Academic Outcomes. *Journal of Adolescent Health*, 40(4), 357.e359-e318. doi:10.1016/j.jadohealth.2006.10.013
- Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In *Measuring environment across the life span: Emerging methods and concepts*. (pp. 3-28). Washington, DC, US: American Psychological Association.
- Cho, H., Hallfors, D., & Sánchez, V. (2005). Evaluation of a High School Peer Group Intervention for At-Risk Youth. *Journal of Abnormal Child Psychology*, 33(3), 363-374. doi:10.1007/s10802-005-3574-4
- Cluver, L., Boyes, M., Orkin, M., Pantelic, M., Molwena, T., & Sherr, L. (2013). Child-focused state cash transfers and adolescent risk of HIV infection in South Africa: a propensity-score-matched case-control study. *The Lancet Global Health*, 1(6), e362-e370. doi:10.1016/S2214-109X(13)70115-3
- Cowden, R., Govender, K., Oppong Asante, K., Reardon, C., & George, G. (2018). Validation of the Perceived Sense of School Membership Scale: A South African Version. *Journal of Psychoeducational Assessment*, 36(4), 411-417. doi:10.1177/0734282916678495
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods*. California, USA: SAGE Publications.
- de Oliveira, T., Kharsany, A., Gräf, T., Cawood, C., Khanyile, D., Grobler, A., . . . Karim, S. (2017). Transmission networks and risk of HIV infection in KwaZulu-Natal, South Africa: a community-wide phylogenetic study. *The Lancet HIV*, 4(1), e41-e50. doi:10.1016/S2352-3018(16)30186-2
- Dellar, R., Dlamini, S., & Karim, Q. (2015). Adolescent girls and young women: key populations for HIV epidemic control. *Journal of the International AIDS Society*, 18(2S1), 19408. doi:10.7448/IAS.18.2.19408
- DiClemente, R., Salazar, L., & Crosby, R. (2007). A Review of STD/HIV Preventive Interventions for Adolescents: Sustaining Effects Using an Ecological Approach. *Journal of Pediatric Psychology*, 32(8), 888-906. doi:10.1093/jpepsy/jsm056
- Doyle, A., Mavedzenge, S., Plummer, M., & Ross, D. (2012). The sexual behaviour of adolescents in sub-Saharan Africa: patterns and trends from national surveys. *Tropical Medicine & International Health*, 17(7), 796-807. doi:10.1111/j.1365-3156.2012.03005.x
- Dunkle, K., Jewkes, R., Brown, H., Gray, G., McIntyre, J., & Harlow, S. (2004). Transactional sex among women in Soweto, South Africa: prevalence, risk factors and association with HIV infection. *Social Science & Medicine*, 59(8), 1581-1592. doi:10.1016/j.socscimed.2004.02.003
- Eaton, L., Flisher, A. J., & Aarø, L. E. (2003). Unsafe sexual behaviour in South African youth. *Social Science & Medicine*, 56(1), 149-165. doi:10.1016/S0277-9536(02)00017-5
- Evans, M., Risher, K., Zungu, N., Shisana, O., Moyo, S., Celentano, D., . . . Rehle, T. (2016). Age-disparate sex and HIV risk for young women from 2002 to 2012 in South Africa. *Journal of the International AIDS Society*, 19(1), 21310. doi:10.7448/IAS.19.1.21310
- George, G., Maughan-Brown, B., Beckett, S., Evans, M., Cawood, C., Khanyile, D., . . . Kharsany, A. (2019). Coital frequency and condom use in age-disparate partnerships

- involving women aged 15 to 24: evidence from a cross-sectional study in KwaZulu-Natal, South Africa. *BMJ Open*, 9(3), e024362. doi:10.1136/bmjopen-2018-024362
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, 30(1), 79-90. doi:10.1002/1520-6807(199301)30:1<79::AID-PITS2310300113>3.0.CO;2-X
- Govender, K., Naicker, S., Meyer-Weitz, A., Fanner, J., Naidoo, A., & Penfold, W. (2013). Associations Between Perceptions of School Connectedness and Adolescent Health Risk Behaviors in South African High School Learners. *Journal of School Health*, 83(9), 614-622. doi:10.1111/josh.12073
- Gutiérrez, J., & Atienzo, E. (2011). Socioeconomic status, urbanicity and risk behaviors in Mexican youth: an analysis of three cross-sectional surveys. *BMC Public Health*, 11, 900. doi:10.1186/1471-2458-11-900
- Hallman, K. (2005). Gendered socioeconomic conditions and HIV risk behaviours among young people in South Africa. *African Journal of AIDS Research*, 4(1), 37-50. doi:10.2989/16085900509490340
- Hallmann, K. (2004). *Socioeconomic disadvantage and unsafe sexual behaviors among young women and men in South Africa*.
- Hargreaves, J. R. a. H., Laura D (2010). Changes in HIV prevalence among differently educated groups in Tanzania between 2003 and 2007. 24(4), 755–761. doi:10.1097/QAD.0b013e328336672e
- Harling, G., Newell, M.-L., Tanser, F., Kawachi, I., Subramanian, S., & Bärnighausen, T. (2014). Do age-disparate relationships drive HIV incidence in young women? Evidence from a population cohort in rural KwaZulu-Natal, South Africa. *Journal of Acquired Immune Deficiency Syndromes*, 66(4), 443-451. doi:10.1097/QAI.0000000000000198
- Harrison, A., Hoffman, S., Mantell, J., Smit, J., Leu, C.-S., Exner, T., & Stein, Z. (2016). Gender-focused HIV and pregnancy prevention for school-going adolescents: The Mpondombili pilot intervention in KwaZulu-Natal, South Africa. *Journal of HIV/AIDS & Social Services*, 15(1), 29-47. doi:10.1080/15381501.2014.999183
- Kumi-Kyereme, A., Awusabo-Asare, K., & Tanle, A. (2007). Influence of social connectedness, communication and monitoring on adolescent sexual activity in Ghana. *African Journal of Reproductive Health*, 11(3), 133–136.
- Leclerc-Madlala, S. (2003). Transactional Sex and the Pursuit of Modernity. *Social Dynamics*, 29(2), 213-233. doi:10.1080/02533950308628681
- Leclerc-Madlala, S. (2008). Age-disparate and intergenerational sex in southern Africa: the dynamics of hypervulnerability. *AIDS*, 22(4), S17–S25. doi:10.1097/01.aids.0000341774.86500.53
- Mabaso, M., Sokhela, Z., Mohlabane, N., Chibi, B., Zuma, K., & Simbayi, L. (2018). Determinants of HIV infection among adolescent girls and young women aged 15–24 years in South Africa: a 2012 population-based national household survey. *BMC Public Health*, 18(1), 183. doi:10.1186/s12889-018-5051-3
- MacPhail, C., & Campbell, C. (2001). ‘I think condoms are good but, aai, I hate those things’: condom use among adolescents and young people in a Southern African township. *Social Science & Medicine*, 52(11), 1613-1627. doi:10.1016/S0277-9536(00)00272-0

- Mattson, C., Campbell, R., Karabatsos, G., Agot, K., Ndinya-Achola, J., Moses, S., & Bailey, R. (2010). Scaling Sexual Behavior or “Sexual Risk Propensity” Among Men at Risk for HIV in Kisumu, Kenya. *AIDS and Behavior*, *14*(1), 162-172. doi:10.1007/s10461-008-9423-z
- Maughan-Brown, B., Evans, M., & George, G. (2016). Sexual Behaviour of Men and Women within Age-Disparate Partnerships in South Africa: Implications for Young Women's HIV Risk. *PLOS ONE*, *11*(8), e0159162. doi:10.1371/journal.pone.0159162
- Maughan-Brown, B., George, G., Beckett, S., Evans, M., Lewis, L., Cawood, C., . . . Kharsany, A. (2018). HIV Risk Among Adolescent Girls and Young Women in Age-Disparate Partnerships : Evidence From KwaZulu-Natal, South Africa. *Journal of Acquired Immune Deficiency Syndromes*, *78*(2), 155–162. doi:10.1097/QAI.0000000000001656
- Musa, O., Akande, T., Salaudeen, A., & Soladoye, O. (2008). Family Communication On HIV/AIDS Among Secondary School Students In A Northern State Of Nigeria. *African Journal of Infectious Diseases*, *2*(1), 46-50. doi:10.4314/ajid.v2i1.42090
- Namisi, F., Flisher, A., Overland, S., Bastien, S., Onya, H., Kaaya, S., & Aarø, L. (2009). Sociodemographic variations in communication on sexuality and HIV/AIDS with parents, family members and teachers among in-school adolescents: A multi-site study in Tanzania and South Africa. *Scandinavian Journal of Public Health*, *37*(2), 65-74. doi:10.1177/1403494808086986
- Nydegger, L., DiFranceisco, W., Quinn, K., & Dickson-Gomez, J. (2017). Gender Norms and Age-Disparate Sexual Relationships as Predictors of Intimate Partner Violence, Sexual Violence, and Risky Sex among Adolescent Gang Members. *Journal of Urban Health*, *94*(2), 266-275. doi:10.1007/s11524-016-0068-3
- Opara, P., Eke, G., & Akani, N. (2010). Mothers Perception of Sexuality Education for Children. *Nigerian Journal of Medicine: Journal of the National Association of Resident Doctors of Nigeria*, *19*(2), 168-172. doi:10.4314/njm.v19i2.56513
- Pallant, J. (2016). *SPSS Survival Guide*. Berkshire, England: McGraw-Hill Education.
- Perrino, T., González-Soldevilla, A., Pantin, H., & Szapocznik, J. (2000). The Role of Families in Adolescent HIV Prevention: A Review. *Clinical Child and Family Psychology Review*, *3*(2), 81-96. doi:10.1023/a:1009571518900
- Pettifor, A., Levandowski, B., MacPhail, C., Padian, N., Cohen, M., & Rees, H. (2008). Keep them in school: The importance of education as a protective factor against HIV infection among young South African women. *International Journal of Epidemiology*, *37*(6), 1266-1273. doi:10.1093/ije/dyn131
- Poulsen, M., Miller, K., Lin, C., Fasula, A., Vandenhoudt, H., Wyckoff, S., . . . Forehand, R. (2010). Factors Associated with Parent–Child Communication About HIV/AIDS in the United States and Kenya: A Cross-Cultural Comparison. *AIDS and Behavior*, *14*(5), 1083-1094. doi:10.1007/s10461-009-9612-4
- Psychology Notes HQ (2013). Retrieved from <https://www.psychologynoteshq.com/bronfenbrenner-ecological-theory/>
- Sayles, J., Pettifor, A., Wong, M., MacPhail, C., Lee, S.-J., Hendriksen, E., . . . Coates, T. (2006). Factors Associated With Self-Efficacy for Condom Use and Sexual Negotiation

- Among South African Youth. *Journal of Acquired Immune Deficiency Syndromes*, 43(2), 226-233. doi:10.1097/01.qai.0000230527.17459.5c
- Schaefer, R., Gregson, S., Eaton, J., Mugurungi, O., Rhead, R., Takaruzza, A., . . . Nyamukapa, C. (2017). Age-disparate relationships and HIV incidence in adolescent girls and young women: evidence from Zimbabwe. *AIDS*, 31(10), 1461-1470. doi:10.1097/QAD.0000000000001506
- Springer, A., Parcel, G., Baumler, E., & Ross, M. (2006). Supportive social relationships and adolescent health risk behavior among secondary school students in El Salvador. *Social Science & Medicine*, 62(7), 1628-1640. doi:10.1016/j.socscimed.2005.08.018
- Ssewanyana, D., Mwangala, P. N., van Baar, A., Newton, C. R., & Abubakar, A. (2018). Health Risk Behaviour among Adolescents Living with HIV in Sub-Saharan Africa: A Systematic Review and Meta-Analysis %J BioMed Research International. 2018, 18. doi:10.1155/2018/7375831
- Stoner, M., Pettifor, A., Edwards, J., Aiello, A., Halpern, C., Julien, A., . . . Kahn, K. (2017). The effect of school attendance and school dropout on incident HIV and HSV-2 among young women in rural South Africa enrolled in HPTN 068. *AIDS*, 31(15). doi:10.1097/QAD.0000000000001584
- Street, R., Reddy, T., & Ramjee, G. (2016). The generational effect on age disparate partnerships and the risk for human immunodeficiency virus and sexually transmitted infections acquisition. *International Journal of STD & AIDS*, 27(9), 746-752. doi:10.1177/0956462415592325
- Toska, E., Pantelic, M., Meinck, F., Keck, K., Haghghat, R., & Cluver, L. (2017). Sex in the shadow of HIV: A systematic review of prevalence, risk factors, and interventions to reduce sexual risk-taking among HIV-positive adolescents and youth in sub-Saharan Africa. *PLOS ONE*, 12(6), e0178106. doi:10.1371/journal.pone.0178106
- UNAIDS. (2015). *Empower young women and adolescent girls: Fast-Track the end of the AIDS epidemic in Africa*. Retrieved from [https://www.unaids.org/sites/default/files/media\\_asset/JC2746\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/JC2746_en.pdf)
- UNAIDS. (2018). *Transactional sex And HIV risk: from analysis to action*. Retrieved from [https://www.unaids.org/sites/default/files/media\\_asset/transactional-sex-and-hiv-risk\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/transactional-sex-and-hiv-risk_en.pdf)
- UNDP. (2014). *Discussion Paper : Cash Transfers and HIV Prevention*. Retrieved from <http://www.cashlearning.org/downloads/undp-cash-transfers-and-hiv-prevention-web-final.pdf>
- Wamoyi, J., Fenwick, A., Urassa, M., Zaba, B., & Stones, W. (2011). "Women's Bodies are Shops": Beliefs About Transactional Sex and Implications for Understanding Gender Power and HIV Prevention in Tanzania. *Archives of Sexual Behavior*, 40(1), 5-15. doi:10.1007/s10508-010-9646-8
- Wamoyi, J., Wight, D., Plummer, M., Mshana, G. H., & Ross, D. (2010). Transactional sex amongst young people in rural northern Tanzania: an ethnography of young women's motivations and negotiation. *Reproductive Health*, 7(1), 2. doi:10.1186/1742-4755-7-2
- WHO. (2019a). About social determinants of health. Retrieved from [https://www.who.int/social\\_determinants/sdh\\_definition/en/](https://www.who.int/social_determinants/sdh_definition/en/)



- WHO. (2019b). School and youth health. Retrieved from [https://www.who.int/school\\_youth\\_health/en/](https://www.who.int/school_youth_health/en/)
- Youngblade, L., Theokas, C., Schulenberg, J., Curry, L., Huang, I., & Novak, M. (2007). Risk and Promotive Factors in Families, Schools, and Communities: A Contextual Model of Positive Youth Development in Adolescence. *Pediatrics*, *119*(1), S47-S53. doi:10.1542/peds.2006-2089H
- Zembe, Y., Townsend, L., Thorson, A., & Ekström, A. (2013). “Money talks, bullshit walks” interrogating notions of consumption and survival sex among young women engaging in transactional sex in post-apartheid South Africa: a qualitative enquiry. *Global Health*, *9*(1), 28. doi:10.1186/1744-8603-9-28

## 11. Appendices

The psychological sense of school membership among adolescents - scale (PSSM-18), developed by Goodenow (1993).

1. I feel like a part of my school
2. People at my school notice when I am good at something
3. It is hard for people like me to be accepted at my school
4. Other learners in my school take my opinions seriously
5. Most educators in my school are interested in me
6. Sometimes I feel as if I don't belong in my school
7. There is at least one educator or adult I can talk to in my school if I feel I have a problem
8. People at my school are friendly to me
9. The educators here are not interested in people like me
10. I am included in lots of activities at my school
11. I am treated with as much respect as other learners in my school
12. I feel very different from most other learners at my school
13. I can really myself at school
14. The educators at my school respect me
15. People at my school know that I can do good work
16. I wish I were in a different school
17. I feel proud to belong to my school
18. Other learners at my school like me just the way I am