

THE RELATIONSHIP BETWEEN SELF-ESTEEM AND UPTAKE OF HIV
COUNSELLING AND TESTING AMONGST YOUNG WOMEN IN SOUTH
AFRICA

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A mini-thesis submitted in partial fulfilment of the requirements for
the degree of Master in Public Health at the School of Public Health,
University of the Western Cape

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2018

DECLARATION

I declare that “*The relationship between Self-esteem and Uptake of HIV Counselling and Testing among young women in South Africa*” is my own work that it has not been submitted before for any degree or examination in any other university and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Name: **Thokozile Budaza** **14 December 2018**



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DEDICATION

Dedicated to my one and only child, Ndalo uHuru Budaza.



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ACKNOWLEDGEMENTS

A special thank you to my supervisors; Prof Lucia Knight and Mamothena Mothupi for the push, the guidance, the patience and building my confidence. This would not have been possible without you.

All the MPH lectures at UWC who were part of this journey. Thank you.

To Prof Nicola Christofides, thank you for your additional guidance and believing that I could do this since 2010.

To the Third National HIV Communication Survey steering committee, thank you for allowing me to do this and trusting me with your baby. A special mention to Lusanda Mhlasela for availing yourself to answer my questions of clarity on data.

To Athenkosi Nkombi, for taking care of me when I got so absorbed and forgetting to eat.

To my son, Ndalo for sacrificing your mother and precious time. I love you.

To my whole family and friends, thank you for always cheering me on and willing to sacrifice me to education. A special thank you to Dr. Vicci Tallis and Zukiswa Wanner for the editing.

To Sisonke Msimang, Dean Peacock and Andrew Levack, you were the first people to introduce me to the idea of an MPH many years ago. Thank you for planting the seed.

The class of UWC MPH 2016 Comrades, thank you for all your support throughout the entire course and for the constant check-ins.

The MPH coordinators; Corrine and Janine, thank you for always being there and your help in making sure we reached the end.

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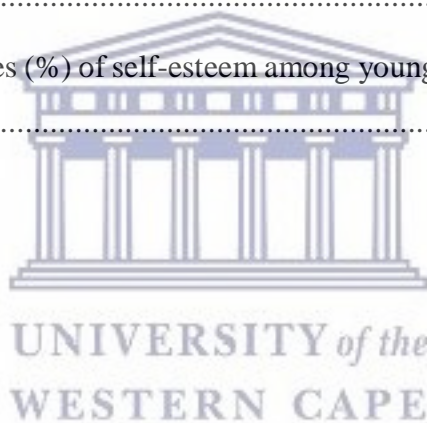
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KEY WORDS

Adolescents

Association

HIV Counselling and Testing (HCT)

HIVAIDS

National Communications Survey (NCS)

Prevalence

Prevention

Self-Esteem

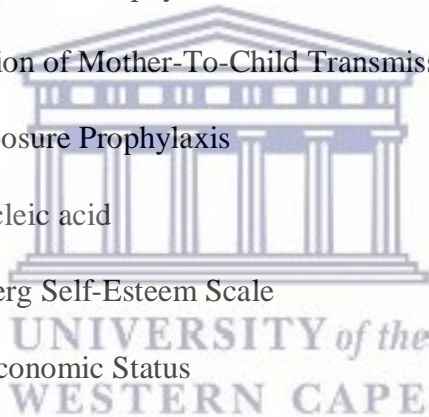
Young Women



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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-retroviral Therapy
AU	African Union
DNA	Deoxyribonucleic Acid
HCT	HIV Testing and Counselling
HIV	Human Immunodeficiency Virus
NCS	National HIV Communication Survey
PEP	Post-exposure Prophylaxis
PMTCT	Prevention of Mother-To-Child Transmission
PrEP	Pre-Exposure Prophylaxis
RNA	Ribonucleic acid
RSES	Rosenberg Self-Esteem Scale
SES	Socio-economic Status
UNAIDS	United Nations Joint Programme on HIV/AIDs
UNICEF	United Nations Children Fund
USA	United States of America
UTT	Universal Testing and Treatment
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organisation
PICT	Provider Initiated Counselling and Testing
CICT	Client-initiated counselling and testing
HBHCT	Home-based HIV Counselling and Testing



MHCT	Mobile HIV Counselling and Testing
HIVST	HIV Self-Testing

DEFINITIONS OF OPERATIONAL TERMS

HIV Counselling and Testing (HCT): HIV testing services, which include different types of voluntary and provider, initiated HIV counselling.

Young Women: Female participants aged 20 to 24 years.

Self-Esteem: a subjective assessment of one's worth and is linked to how a person feels about themselves.

Adolescents: Individuals aged 10 to 19 years (UN definition). This study is confined to female adolescents aged 16 to 19 years.

Youth: Individuals aged 15 to 24 years (UN definition). This study is confined to female youth aged 16 to 24 years.



ABSTRACT

High HIV incidence among young women is a global public health concern with the potential for a huge impact on their lives. Several interventions have been identified to help reduce HIV incidence among young women, including HIV Counselling and Testing (HCT). Lack of knowledge of HIV status is a major barrier to HIV prevention, care and treatment efforts. Therefore, HCT uptake among young women needs to be up-scaled. Early detection and treatment can help cushion the impact of AIDS on the lives of young women. There are various factors that negatively influence young women's HCT uptake, including psychosocial characteristics. Studies have linked self-esteem to HCT and high levels of HIV risk behaviour practices among young women. The aim of this study was to assess the relationship between self-esteem and HCT uptake among young women (16 to 24 years) in South Africa using data from the 2012, Third National HIV Communication Survey (NCS).

This was a quantitative secondary data analysis of cross-sectional data from the 2012 NCS. The participants of this study were young women (n =1922) from all provinces in South Africa. The independent variable was self-esteem and the dependent variable was ever testing for HIV and testing in the last 12 months, with a number of socio-demographic characteristics as covariates. Data was analysed using STATA statistical software (version 13.0, STATA Corp., College Station Texas, USA). Socio-demographic characteristics were described through descriptive statistics. The relationship between independent variables and HIV testing was analysed with Chi-squared tests of association. Logistic regression models were used to examine the relationship between self-esteem and HCT uptake when controlling for confounders.

The study found that 65.1% of young women had ever tested for HIV. The study also found that among those who had tested for HIV, 70.4% had tested in the last 12 months. The main reasons for HIV testing was desire to know HIV status (71.9%) and pregnancy (27.6%). The main reasons for not testing for HIV were sexual inactivity (59.4%) and feeling healthy (15.4%). The majority of the participants had high self-esteem (79.1%). The study found an association between self-esteem and ever testing for HIV. Participants with low self-esteem were 31% less likely to ever test for HIV (aOR=0.69, 95% CI 0.50-0.95) than participants with high self-esteem. There was no association between self-esteem and HIV testing in the last 12 months ($p>0.05$). Socio-demographic characteristics associated with HIV testing were age,

employment, education and settlement ($p < 0.05$). This study identifies being an adolescent, being a student, lower education attainment and residing in urban informal or rural settlements as socio-demographic barriers to HCT uptake among young women in South Africa. These barriers should be used to inform current HIV testing uptake programmes in this population. This study also identifies self-esteem as an important factor in the uptake of HCT by young women (16 to 24 years) in South Africa. More studies are needed to explore the relationship between HCT uptake and self-esteem among young women in South Africa.



CHAPTER 1: INTRODUCTION

1.1 Background

Young women and adolescent girls aged 15 to 24 years are at a high risk of HIV infection globally (UNAIDS, 2016b). This worrying trend prompted the United Nations General Assembly Political Declaration on Ending AIDS, adopted in June 2016, to set a specific target to reduce new HIV infections among adolescent girls and young women aged 15 to 24 years to fewer than 100 000 per year by 2020 (UNAIDS, 2016). Young women accounted for 20% of new HIV infections globally and 25% of new HIV infections in sub-Saharan Africa in 2015 (UNAIDS, 2016a). South Africa is following the same trend. Almost a quarter (24%) of all new HIV infections occurred among adolescents and young women aged 15 to 24 years in 2012, and this was four times higher than among adolescent boys and young men of the same age group (Shisana et al., 2012) and three times higher among young women than among young men in 2017 (Human Sciences Research Council, 2018).

HIV counselling and testing (HCT) is the key entry point within the care cascade for HIV prevention and treatment initiatives, yet very few young women are aware of their HIV status. The World Health Organisation (WHO) (2016) estimates that only about 40% of the 36.7 million people living with HIV globally at the end of 2015 knew their HIV status. While an estimated 2.2 million adolescents (10 to 19 years) globally were estimated to be living with HIV in 2012, most of them were unaware of their HIV status (UNICEF, 2012). In sub-Saharan Africa, only 15% of adolescent girls and young women aged 15 to 24 years were aware of their HIV status in 2013 (UNAIDS, 2014). South Africa is seen as one of the few countries that is successful in achieving relatively high take up of HCT with 50.6% of young people reporting ever being tested for HIV (Shisana et al., 2012).

Studies have linked self-esteem with risky sexual behaviour. Higher self-esteem was mostly associated with reduced likelihood of having unprotected sex and having sex with multiple partners (Sterk et al., 2005) and low frequency of anal sex (Ramiro et al., 2013), lower risk behaviours. A study in Limpopo, South Africa found a strong association between low self-esteem and teenage pregnancy (Mothiba et al., 2012). This may have important implications for HIV intervention programs. Self-esteem defines how people feel about or value themselves, and is related to healthy behaviours (McBride & Bell, 2011). Low self-esteem has been linked to negative health outcomes such as smoking (Joffer et al., 2014) and heavy drinking (Blank et al., 2016). High self-esteem has been linked to positive health outcomes such as lower risk for

developing depression (Orth et al., 2016) and symptom reduction of more than 50% for eating disorders (Dingemans et al., 2016).

Studies conclude that consideration of self-esteem as one of the factors that may be useful in helping programmers design strategies and programs aimed at preventing HIV that are better adapted to the characteristics of adolescents (Ramiro et al., 2013). A study suggested that increasing self-esteem as an intervention for adolescents engaging in risky behaviour can be effective if aimed at the family and school domains (Wild et al., 2004). If low self-esteem is linked to negative sexual health outcomes, it could be hypothesized that high self-esteem is linked to positive sexual health outcomes, such as HCT uptake. There are too few studies to date that have explored self-esteem as a factor affecting HCT uptake, especially among young people. This study will explore self-esteem as a factor for HCT uptake among young women, in South Africa.

1.2 Problem Statement

There is low uptake of HCT among young women globally and programmes to improve uptake in this age group need to be scaled up (UNICEF, 2012; WHO, 2016; UNAIDS, 2014). This lack of uptake leads to poor outcomes in HIV incidence and anti-retroviral therapy (ART) initiation, contributing to increased morbidity and mortality (Sam-Agudu1 & et al., 2016; Johnson et al., 2015; UNAIDS, 2016a). Improving uptake would require adopting different approaches and breaking down barriers that prevent young women from accessing HCT services (UNAIDS and UNICEF, 2015). A study in South Africa found that both perceived stigma and observed enacted stigma significantly reduced the odds of young women having had an HIV test (Maughan-Brown & Nyblade, 2014). The finding of another South African study suggests that young people are afraid of stigma and discrimination, hence they do not test (MacPhail et al., 2008). A study in Cape Town, South Africa showed that young women who changed their risk perceptions were more likely to test for HIV (Tenkorang, 2016). Offering an additional nuance to HIV testing and perceived risk among young women, a study in rural Malawi showed that young women's testing decisions were more strongly influenced by perceptions of a partner's risk for HIV, than their own. (Conroy, 2015). In order to break down barriers and improve access to HCT services, it is vital to continue to explore and address other factors related to their uptake.

1.3 Purpose of the Study

The purpose of this study is to assess the role of self-esteem as an important factor in the uptake of HCT by young women (16 to 24 years) in South Africa. This knowledge may help the development of more holistically targeted HCT programmes for young women as an important HIV prevention and treatment strategy. Thus, the South African Department of Health and non-governmental organisations may use this information in developing appropriate HCT programmes for young women. Information generated from this study may assist funders, concerning factors they need to consider when funding HIV prevention programmes for young women. The findings of the study may spark interest for research institutions, academics and students for further exploration of self-esteem as a factor in HCT uptake among young women, since inadequate work has been done in this area.

1.4 Aim and Objectives

1.4.1 Aim

The aim of the study is to assess the relationship between self-esteem and HCT uptake among young women (16 to 24 years) in South Africa using data from the 2012, Third National HIV Communication Survey (NCS).

1.4.2 Objectives

To describe HCT uptake among young women aged 16 to 24 years in 2012 in South Africa;

- To assess self-esteem among young women aged 16 to 24 years in 2012 in South Africa using a modified Rosenberg Self-Esteem Scale (RSES);
- To determine whether there is an association between ever testing for HIV and self-esteem; and
- To determine whether there is an association between testing for HIV in the last 12 months and self-esteem.

1.5 Outline of Thesis

The thesis is divided into six chapters. Chapter two, a literature review, will explore existing research into HCT uptake among young people and different definitions and measurements of self-esteem. The chapter will also present a summary of the literature on the relationship between self-esteem, HIV testing and risky sexual behaviour.

Chapter three will describe the research methodology of the dissertation. Chapter four will present the study findings. The study findings will then be discussed in detail in Chapter five

with reference to the literature and along with a discussion of the study limitations. Chapter six will comprise of the conclusions and recommendations.



CHAPTER 2: LITERATURE REVIEW

2.1 HIV Counselling and Testing

HIV Counselling and Testing (HCT) is the first link to the HIV care continuum (Bradley et al., 2014). The continuum includes identifying HIV infected people through HIV testing, linking them to care, retaining them in care, putting them on antiretroviral therapy (ART), virally suppressing them and giving them prevention counselling to improve HIV-related risky behaviour (Bradley et al., 2014; Mugavero, 2016). In addition to ART, HCT can help link people to other interventions such as voluntary medical male circumcision (VMMC), prevention of mother-to-child transmission (PMTCT), pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) (WHO, 2015). In HIV testing, blood samples are used to detect HIV-specific antibodies only or a combination test is used to detect both antibodies and antigens or viral RNA/DNA (Gökengin et al., 2014).

Historically in Africa, HIV counselling was a way to provide psychological support for the terminally ill from AIDS and their families (Simbaya & Moyer, 2013). The scope has since grown to be a strategy to encourage and reinforce safer sexual choices and behaviour change for those testing negative and people living with HIV (Simbaya & Moyer, 2013). HIV counselling also aims to break down stigma, encourage disclosure and treatment adherence (Nguyen, 2013). HIV testing must include pre- and post-counselling and must be accurate and sufficient to address the needs and risks of the HCT clients (National Department of Health, 2015; Strode & van Rooyen, 2013). A South African study observed a 41% HIV risk reduction following HCT among youth in high prevalence settings and this effect could be sustained for 4.5 years (Rosenberg et al., 2013).

ART is important for prevention. The HPTN052 trial covering nine countries, including South Africa found a reduction in HIV transmission by 96% in sero-discordant couples with use of ART (Cohen et al., 2011). In addition, studies found a decrease in HIV incidence (Montaner et al., 2014; Phillips et al., 2015), viral suppression (Iwuji et al., 2016; Kalichman et al., 2018) and decreased morbidity and mortality (Montaner et al., 2014) with use of ART. In addition to ART, studies have recommended universal testing and treatment (UTT) as part of a comprehensive HIV prevention package, which offers repeated HIV testing at community level with immediate initiation to treatment once found HIV positive despite viral load or clinical stage (Hayes et al., 2014; Hayes, Sabapathy, & Fidler, 2011; Orne-Gliemann et al., 2015). A study in South Africa predicated the elimination of HIV epidemic through a 90% coverage of

UTT in South Africa (Hontelez et al., 2013). A study in four Zambian communities found increased HCT uptake and ART uptake after one year of implementing UTT, with lower overall coverage among young people (Hayes et al., 2017). Despite these advantages, 14.3% of South Africa's young people (15 to 24 years) had access to ART in 2012 (Shisana et al., 2012).

There are other advantages for HIV prevention related to HIV testing. A study in Mozambique found that people who were unaware of their HIV positive status were less likely use HIV risk reduction strategies to decrease transmission to their sexual partners (Dokubo et al., 2014). A South African study found that HCT leads to consistent condom use in HIV-discordant couples (Rosenberg, et al., 2013). A meta-analysis of studies reported a decrease in the number of sexual partners and increased odds of condom use among people who received HCT compared to those who had not received in developing countries (Fonner et al., 2012). A recent study in sub-Saharan Africa reported reduced sexual risk-taking among adolescents and youth who knew their HIV-positive status and were accessing HIV support groups (Toska et al., 2017).

2.1.1 HCT testing modalities

Most developing countries routinely use HIV rapid tests (Alemnji, Nkengasong, & Parekh, 2011) and they are mostly used by trained healthcare providers (Wong et al., 2014). New HIV testing trends include improved rapid testing technology and detection of acute HIV infection, self-testing expansion, and partner notification (Peter Cherutich, Bunnell, & Mermin, 2013). The World Health Organisation (WHO), (2018) supports the introduction of HIV self-testing and partner notification to expand HIV interventions. HCT in sub-Saharan Africa is voluntary and mostly client-initiated (Baisley et al., 2012). Since 2007, there has been a move towards more widespread provider-initiated HCT policies (WHO & UNAIDS, 2007; UNAIDS, WHO & UNICEF, 2011).

In South Africa, HIV testing modalities are facility- and community-based. Facility-based modalities include provider initiated counselling and testing (PICT) and Client-initiated counselling and testing (CICT) (National Department of Health, 2015). Community-based modalities include stand-alone HIV testing sites, Home-based HCT (HBHCT), Mobile HCT (MHCT) and HIV self-testing (HIVST) (National Department of Health, 2015).

Studies have found that young people or adolescents (<20 years) are more likely to be first-time HIV testers compared to older people (Parker et al., 2015; van Rooyen et al., 2013). A study in South Africa found that rural and urban mobile units reached more first-time testers

(Mabuto et al., 2014). A systematic review and meta-analysis in sub-Saharan Africa found a higher percentages of first-time testers from MHCT modalities than from clinic-based modalities (Sharma et al., 2015). A cluster-randomised trial in rural Lesotho found that HBHCT reached more adolescents who were first-time testers than MHCT (Ehmer et al., 2014). These findings are collaborated by a study in rural Swaziland which found that a higher proportion adolescents were tested through HBHCT than MHCT(Parker et al., 2015). A systematic review and meta-analysis in sub-Saharan Africa found that HBHCT and HIVST reached a higher proportion of young adults than other HIV testing modalities (Sharma et al., 2015).

Generally, community-based testing programme have been found to increase HCT uptake among young people (Parker et al., 2015; Sharma et al., 2015). A community randomized trial conducted in Tanzania, Zimbabwe and Thailand looking at young people (16 to 32 years) detected 3.6 times more HIV infected clients in communities where CHCT was implemented compared to communities implementing clinic-based HCT (Sweat et al., 2011). The same study found higher HIV testing among young people aged 16 to 17 years in communities where CHCT was implemented compared to communities implementing clinic-based HCT (Sweat et al., 2011). MHCT services reported a higher numbers of clients younger than 25 years and first-time testers in a study in KwaZulu-Natal in South Africa (Maheswaran et al, 2012). In contrast, a study in Cape Town in South Africa concluded that a lower number of young people utilised mobile services (Meehan et al., 2014).

A study looking at HTC strategies for children and adolescents (5 to 19 years) in sub-Saharan Africa found higher proportions of acceptance and yield of HCT with PITC to inpatients and outpatients (Govindasamy et al., 2015). A systematic literature review seeking to identify interventions that increase either rates of HIV testing or intentions to seek HIV testing among young people (10 to 24 years) found that PITC increased HIV testing among this group (Bumgarner et al., 2017).

A systematic review in Sub-Saharan Africa reported improved linkage to care among HIV infected young people (15 to 24 years) utilising HBHCT, HIVST and MHCT (Mavegam et al., 2017). An HBHCT programme in Malawi aimed at identifying and linking HIV-infected children (1 to 5 years) and young people (15 to 24 years) to care in Malawi tested at least one child or young person in 75.4 % households and enrolled 76.7% of those newly diagnosed with HIV to HIV services (Ahmed et al., 2017).

2.2 HCT Uptake among Young People

There is low uptake of HCT among young women globally (UNICEF, 2012; WHO, 2016; UNAIDS, 2014). Only one in every three adolescent girls in sub-Saharan Africa reported having ever being tested for HIV and having received the results between 2008 and 2012 (Idele et al., 2014). Another study looking at HIV testing among adolescents in sub-Saharan Africa reported a range of 0% to 49% for those who had sex in the last year and who were tested for HIV during that period and knew their results (Baisley et al., 2012). A more recent study in sub-Saharan Africa found low HCT uptake among adolescents compared to adult women (Staveteig et al., 2017).

A study in Ghana looking at HIV testing among undergraduate university students found that over 90% of the students knew where to access HCT services but only 45% had tested (Asante, & Asante, 2013). These findings were consistent with findings of a study in Nigeria, also looking at undergraduate university students where 95% of the students knew where to access HCT, but only 30.4% had tested for HIV in the preceding six months (Oppong & Oti-Boadi, 2013). Women in Kenya, who were ≥ 35 years old were more likely to have tested versus women 15 to 19 years (Cherutich, Kaiser, & Galbraith, 2012). A South African study reported that women (> 23 years) had higher odds of HIV testing (Venkatesh et al., 2011). As an exception, a study reported that three-quarters of youth in Uganda tested for HIV compared to youth from Congo (31.4%), Mozambique (45.3%), and Nigeria (24.7%) (Asaolu et al., 2016; Center et al., 2016).

Lack of knowledge of HIV status is a major barrier to HIV prevention, care and treatment efforts (Sam-Agudu et al., 2016). Young women and adolescent girls are missing out on ART access because they do not know their HIV status (UNAIDS & AU, 2015). Global AIDS-related deaths declined by 30% among all ages but increased by 50% among adolescents between 2005 and 2012 (UNICEF, 2014). According to the WHO (2014), AIDS is the second leading cause of death among adolescents globally and the number one killer among adolescents in Africa. In 2012, AIDS-related deaths among young people (15 to 24 years) accounted for about 6% of total adult AIDS-related deaths globally (UNAIDS, 2012). UNICEF (2014) reported 120,000 adolescent deaths due to AIDS-related illnesses in 2013. The majority of adolescents who die due to AIDS-related illness, die without knowing their HIV status (UNICEF, 2015). Idele et al. (2014) partially attribute increased AIDS-related deaths among adolescents to low levels of HIV testing.

In 2013 it was estimated that only 14% of young people aged 15 to 24 years living with HIV accessed ART in South Africa (Zanoni et al., 2016). This is confirmed by Shisana et al. (2012), who found a 14.3% ART exposure rate among HIV-infected youth aged 15 to 24 years in South Africa. A study in Zambia found lower ART coverage among young women compared to older age groups (Hayes et al., 2017).

2.2.1 Barriers to HCT Uptake among Young People

Studies have identified a number of factors that prevent HCT uptake among young people in sub-Saharan Africa. Stigma is a common barrier to HIV testing among young people. A study in Ghana among private university students identified fear of stigmatisation as a barrier to HIV testing (Ajuwon et al., 2011). A Nigerian study looking at utilization of HCT services among students of a tertiary institution reported that 8.6% of the participants did not test due to stigma (Onyeonoro et al., 2014). In Tanzania, a study reported that only 36.1% of youths had taken an HIV test and most of those who did not test feared stigmatisation (Kitara & Aloyo, 2012). A South African study looking at HIV testing found that adolescents were deterred against HIV testing by the threat of HIV-related stigma from friends, family and the community (Strauss, George, & Rhodes, 2017). Shining a spotlight on young women, a South African study found that perceived and observed enacted stigma decreased the chances of testing. (Maughan-Brown & Nyblade, 2014).

Many studies cite perceived risk of infection as a barrier to HIV testing among young people. A study in Zambia concluded that self-perceived risk of being HIV positive was the only significant factor associated with low HIV testing among the young people (Fylkesnes & Siziya, 2004). In a Kenyan study about 50% of sexually active youth reported that they had never been tested because they perceived that they were not at risk (Kabiru et al., 2011). With a sharper focus on female youth, the results of a study in Cape Town, South Africa showed that young women who changed their risk perceptions were more likely to test for HIV (Tenkorang, 2016). Offering an additional nuance to HIV testing and perceived risk among young women, a study in rural Malawi showed that young women's testing decisions were more strongly influenced by perceptions of a partner's risk for HIV than their own (Conroy, 2015).

Other barriers to HIV testing identified among young people are perceived lack of confidentiality (Strauss, George & Rhodes, 2017; Michaels-Igbokwe et al., 2015; Ajuwon et al., 2011), financial costs (Musheke et al., 2013; Kurth et al., 2015), HIV testing policies and national guidelines regarding consent and guardianship for adolescents (UNICEF, 2013; Kurth

et al., 2015; Kranzer et al., 2014) and distance to HCT services (Gatta & Thupayagale-Tshweneagae, 2012; Onyeonoro et al., 2014).

2.2.2 Determinants of HCT among Young People

There are factors known to have a positive association with HCT uptake among young people. Knowledge of HIV is one of those factors. A South African study found that HIV knowledge is associated with testing for HIV (Peltzer & Matseke, 2014). A Malawian study also corroborates this and found that knowledge about HIV was associated with HIV testing among both girls (Mkandawire, 2017). In Vietnam, a study among young people found increased HIV knowledge to be associated with HCT (Ngo et al., 2013). Other studies also found a positive association between higher education levels and HCT uptake among young people. A study in Nigeria found that young people who have at least secondary education were about 1.8 times more likely to take an HIV test (Ibrahim, Ipadeola, Adebayo, & Fatusi, 2013). A study among secondary school students in Tanzania concluded that HCT uptake was mainly influenced by educational levels (Sanga et al., 2015). Malawian and Ethiopian studies support this finding, having concluded that having secondary education was associated with HIV testing (Mkandawire, 2017; Addis et al., 2013).

Other factors positively associated with HCT uptake among young women is pregnancy (Kabiru et al., 2011; Aninanya et al., 2015), use of contraceptives (Center et al., 2016) and knowledge about contraceptives (Baisley et al., 2012). A South African study found that antenatal HIV testing partially explains the HIV testing differences between young women and young men (Johnson, Rehle, Jooste, & Bekker, 2015b). Conversations about HIV with parents encourage young people to test for HIV (MacPhail et al., 2009; Rawitscher et al., 1995). Knowing someone with HIV also seems to have a positive association with HIV testing among young people (MacPhail et al., 2009; Rosa et al., 2001).

Young people also have issues with access to HIV testing service centers. Many studies suggest that when young people know where to test they are more likely to test for HIV (Ibrahim et al., 2013). Based on a study in Uganda, young people expressed the desire to have HIV testing service more accessible in terms of cost, time and quality of pre- and post-test counselling (Råssjö, Darj, Konde-Lule, & Olsson, 2008). Young people in South Africa would prefer shorter testing times and expressed that time, location, the type of test, and who conducts the test were most important for them (Strauss et al., 2017). A US study corroborates these findings, where young people aged 18–24 years reported that HIV tests in which results can be

received rapidly and confidentially would encourage them to test (Peralta, Deeds, Hipszer, & Ghalib, 2007). In South Africa, studies found that mobile HIV testing units attract young people (van Rooyen et al., 2013; Maheswaran et al., 2012).

Other factors associated with uptake of HCT among young people include availability of counselling services (Indravudh et al., 2017), availability of support systems, including family, friends and the community at large (Strauss et al., 2017), deteriorating health status (Onyeonoro et al., 2014; Musheke et al., 2013), availability of ART (Musheke et al., 2013) and incentives (Chikwari, Dringus, & Ferrand, 2018).

Socio-demographic characteristics have been associated with increased HIV testing among young people. Gender has been found to have a significant association with HCT. Studies have reported higher HCT uptake among young women than young men (Asaolu et al., 2016; Abiodun, Sotunsa, Ani, & Jaiyesimi, 2014). Studies have found that older young people (≥ 20 years) are more likely to take an HIV test than those who are younger (15 to 19 years) (Abiodun et al., 2014; van Rooyen et al., 2013; Oginni, Obianwu & Adebajo, 2014). A study in Ghana contradicts these findings, where they found that young people between aged 17 to 20 years and had knowledge of two routes of HIV transmission were more likely to have taken an HIV test than those who identified a single or three routes of HIV transmission (Oppong Asante, 2013). A Malawian study reported that older young women (20 to 24 years) were less concerned with service confidentiality compared to male respondents and those aged 15 to 19 years (Michaels-Igbokwe et al., 2015). Other socio-demographic characteristics that are determinants of HV testing among young people include employment (Oginni et al., 2014), household income, with HIV testing lower among youth from poor households (Oginni, Obianwu & Adebajo, 2014), religion, with HCT uptake higher among Christians (Baisley et al., 2012; Oginni, Obianwu & Adebajo, 2014) and settlement, with HCT uptake higher among youth from urban areas compared to youth from rural areas (Ibrahim et al., 2013).

2.3 Definitions of Self-esteem

Self-esteem is one of the most commonly studied personality traits (Luhtanen & Crocker, 1992; Boyle, 2015) and concepts used in the field of psychology (Mruk & Skelly, 2017). Self-esteem is defined in the literature as a subjective assessment of one's worth and is linked to how a person feels about themselves (Boyle, 2015; Neff, 2011; Krueger, Vohs & Baumeister, 2008; Walker & Knauer, 2011). "Global self-esteem is thus seen as the central evaluative component of the self and is regarded as a fundamental psychological construct" (von Soest, Wichstrøm

& Kvaalem, 2016:3). A person's beliefs of worth and value translate into to high self-esteem regardless of external validation (Trzesniewski et al., 2013). Zeigler-Hill & Besser (2011) agree that self-esteem is characterised by a solid and realistic basis of feelings of self-worth and does not require constant validation. High global self-esteem is characterised by thoughts of attractiveness, being good at sports and popularity among peers among youth of Mexican origin in the USA (Harris et al., 2018). On the other hand, low self-esteem is characterized by a lack of spontaneity, shyness, feeling lonely and alienated from others (Sowislo & Orth, 2013; Chung et al., 2017). Researchers argue that people always strive to achieve and maintain high self-esteem levels and fight threats against their self-esteem (Kemigisha et al., 2018). Self-esteem is a complex, multidimensional and dynamic concept (Walker & Knauer, 2011; Kemigisha et al., 2018).

2.4 Measurements of Self-esteem

It is common practice among researchers to use self-reported scales as instruments to measure self-esteem (Donnellan, Trzesniewski, & Robins, 2015; Pimentel et al., 2018). There are many scales used to measure self-esteem such as the Janis-Field Feelings of Inadequacy Scale, the Texas Social Behaviour Inventory, the Self-Liking/Self-Competence Scale, Description Questionnaire, the Self-Perception Profile for Children, and the Self-Perception Profile for Adolescents, Implicit Association Test and the Name-Letter Test (Buhrmester, Blanton, & Swann, 2011; Donnellan et al., 2015; Sowislo & Orth, 2013; Zeigler-Hill, 2010). The Rosenberg Self-Esteem Scale (RSES) is the most widely used self-reporting scale measure for global self-esteem (Supple & Plunkett, 2011; Mullen, Gothe & McAuley, 2013).

2.5 Self-esteem and HCT

Only one study globally was found that explored self-esteem and HIV testing. A study among Ugandan youth (mean age =14.9) across five secondary schools found an association between self-esteem and HIV testing. Unfortunately, the study does not show results of this association for further exploration (Hampana, Ybarra, & Bull, 2014).

Studies have classified self-esteem as a psychosocial factor (Jeffers, Benotsch, & Koester, 2013; Kwakkenbos et al., 2012; Lemmens, Valkenburg, & Peter, 2011). Due to limited research linking HCT and self-esteem, the researcher explored results of studies looking at HCT and other psychosocial characteristics. One study was found looking at HIV testing and psychosocial variables (stigma, knowledge and self-efficacy). Data from two cross-sectional surveys of the Malawi BRIDGE Project looking at participants aged 12 to 88 years. The study

reported a positive association between HIV-related knowledge and ever testing for HIV or desire to test. The study also reported a positive association between higher perceived self-efficacy and HIV testing or desire to test. The study reported a negative association between stigma and HIV testing or desire to test (Berendes & Rimal, 2011).

2.6 Self-Esteem and Risky Sexual Behaviour

HIV is mostly a sexually transmitted disease (Workowski & Bolan, 2015; Ng et al., 2011) and transmitted mostly through heterosexual sex (Dellar et al., 2015). Globally, it is estimated that 50% of the people living with HIV were infected sexually in their youth (<25 years) (Patton et al., 2010). In Southern Africa, HIV infection among young women often happen in conjunction with sexual debut, five to seven years earlier compared to young men (Dellar et al., 2015). In sub-Saharan Africa, young people often sexually debut at ≤ 15 years of age (Idele et al., 2014). An analysis of national survey data from 24 countries in sub-Saharan Africa reported that a high number adolescents were sexually active, having multiple sexual partners and not using condoms and therefore at risk of contracting HIV (Doyle et al, 2012). Safe sex practices remain the most effective HIV transmission prevention method in sub-Saharan Africa (Uchudi, Magadi, & Mostazir, 2012).

Sexual transmission of HIV in young women is influenced by a number of factors including biological and epidemiological factors such as a more pronounced cervical ectopy, presence of sexually transmitted infections (STIs), ease of transmission from men to women, Acute HIV infection, with increased semen viral load, in conjunction with concurrent partnerships (Chersich & Rees, 2008; Kalichman, Pellowski, & Turner, 2011; Ng et al., 2011). Known indicators of sexual HIV risk in sub-Saharan Africa for young women include low and inconsistent condom use, early sexual debut intercourse before the age of 15, early marriage, multiple sexual partnerships, sex with a partner ≥ 10 years older, gender based violence (Awotidebe, Phillips, & Lens, 2014; Doyle et al., 2012; Idele et al., 2014; Jewkes & Morrell, 2010). Combating these behaviours has always been the most important agenda in HIV prevention for all age groups, especially young women (Dimbuene & Defo, 2011; Catalano et al., 2012).

Studies have linked self-esteem to risky sexual behaviour among young women as an important indicator for high risk of HIV acquisition. A US study of 155 sexually active adolescent females found that lower self-esteem at baseline was associated with reported early sexual debut (Ethier et al., 2006). A review looking to identify factors influencing adolescent

pregnancies in sub-Saharan Africa, identified low self-esteem as one of the individual-level risk factors (Yakubu & Salisu, 2018). In a cross-sectional household survey investigating factors associated with sexual violence among South African female youths it was reported that low self-esteem was associated with having experienced sexual violence (Seutlwadi, Matseke, & Peltzer, 2015). In contrast a study in Kenya among 12 to 22 years old found that more young women with low self-esteem experience early sexual debut than those with high self-esteem (Marston et al., 2013). In a study among Dutch adolescents with a mean age of 13.9 years, high self-esteem resulted in less experience with sexual behaviours (Reitz & Deković, 2015). There is antagonistic relationship between self-esteem and sexual behaviour among young people (Ethier et al., 2006).

2.7 Self-esteem among Young People

Studies looking at the life-span and self-esteem indicate that self-esteem increases from adolescence to young adulthood (Bleidorn et al., 2016; Erol & Orth, 2011; Orth, Robins, & Widaman, 2012). Birkeland et al. (2012) found that self-reported global self-esteem was high and stable during adolescence. In contrast, Oğuz & Körükçü (2010) in Turkey found that university students' age did not cause a difference on their self-esteem levels.

Gender differences in self-esteem are reported in many studies with boys reporting higher self-esteem than girls (Bachman, O'Malley, Freedman-Doan, Trzesniewski, & Donnellan, 2011; Diseth, Meland, & Breidablik, 2014; Moksnes & Espnes, 2012, 2013). In contrast, a study in South Western Uganda reported higher scores of self-esteem for girls compared to boys (Kemigisha et al., 2018). While a study among university students in Pakistan found no gender differences on self-esteem (Zafar, Saleem, & Mahmood, 2012). This was corroborated by a longitudinal community-based study in South Africa and Malawi which found no significant differences in self-esteem scores between boys and girls (Hensels et al., 2016).

Many studies have found race and ethnic differences in self-esteem among young people. A US large-scale school survey reported African-American students had the highest scores of self-esteem, with White students scoring slightly higher than Hispanic students, and Asian Americans scoring the lowest self-esteem scores (Bachman et al., 2011). A Canadian study concluded that Caucasian females presented the lowest self-esteem compared to non-Caucasian students (Morin et al., 2011). A US and South African study reported higher self-esteem levels for African-Americans and Caribbean Blacks compared to Whites in the US; in South Africa,

the study reported higher levels of self-esteem for Whites versus Africans, Coloureds, and Indians (Williams et al., 2012).

Studies have linked low- self-esteem to several health outcomes among young people such as severe stress symptoms (Schraml et al., 2011), depression (Babore et al., 2016; Sowislo & Orth, 2013). Onset of paranoid episodes (Thewissen et al., 2011). Low wellbeing (depressive symptoms, low self-esteem, health problems) was found to be related to cigarette smoking and alcohol use (Brook et al., 2011). Damaged self-esteem was related to increased levels of depressive symptoms, suicidal ideation, and loneliness (Creemers et al., 2012). Among white adolescent boys in South Africa, higher self-esteem was related with lower levels of prescription drug misuse. (Broman, Miller, & Jackson, 2015).

Other factors related to high self-esteem among young people were higher parental socioeconomic status (Nguyen & Hale, 2017), personality characteristics (less neurotic, more extraverted, open to experiences, agreeable, and conscientious) (Wagner et al., 2013), better health (Erol & Orth, 2011), life satisfaction (Moksnes & Espnes, 2013), social networks: updating profile, viewing profile and being focused on strong ties during social network use (Gonzales & Hancock, 2011; Wilcox & Stephen, 2013), participating in school based extracurricular activity (Kort-Butler & Hagewen, 2011) and more advanced pubertal development. Low life satisfaction was related to low self-esteem (Gatti et al., 2014; Barker & Bornstein, 2010).

2.8 Summary

To describe HCT uptake among young women; studies show that very few young people are testing in sub-Saharan Africa, with a few exceptions like Uganda. Studies identify many barriers to HCT among young people in sub-Saharan Africa including; stigma, perceived risk of infection, perceived lack of confidentiality, financial costs, HIV testing policies and national guidelines regarding consent and guardianship for adolescents and distance to HCT services. Studies also identify; HIV knowledge, pregnancy, use of contraceptives, conversations about HIV with parents and knowing someone with HIV as determinants for HCT among young women in sub-Saharan Africa.

Studies describe self-esteem as a concept that defines how people feel about or value themselves. Studies also describe different types of self-esteem and measurements. Many studies show an increase in self-esteem from adolescence to young adulthood. Low self-esteem

has been shown to have a negative association with several health outcomes including severe stress symptom, depression, suicidal ideation, and loneliness.

To describe the relationship between self-esteem and HIV, despite the extensive literature review, there was only one study found that linked HCT to self-esteem. Another study identified a relationship between HCT and other psychosocial variables in Malawi. To further illustrate the importance of self-esteem to HIV prevention in general among young women, studies were found that showed low-self-esteem was linked to risky sexual practices thereby contributing to the vulnerability of young women to HIV. On the other hand, HCT uptake has been shown to reduce risky sexual behaviour, decreasing the vulnerability of young women to HIV. The motivation of this study is therefore based on the inverse hypothesis that high self-esteem could be linked positive sexual health outcomes such as HCT uptake.



CHAPTER 3: METHODOLOGY

3.1 Study Design

This was a quantitative secondary data analysis of data from a cross-sectional observational survey, the 2012 Third National HIV Communication Survey (NCS). Cross-sectional studies are appropriate to study associations between exposures and health-related outcomes at a specific point in time (Levin, 2006). The NCS was undertaken by Johns Hopkins Health and Education in South Africa (JHHESA), LoveLife, Soul City, Health and Development Africa (HDA), The Johns Hopkins Bloomberg School of Public Health Center for Communication Programmes (JHU-CCP) and Freshly Grounds Insights (FGI). The study's aim was to assess the impact of the HIV Communication Programmes (HCPs) on improving knowledge and reinforcing positive beliefs, norms and attitudes relating to HIV prevention, care, support and treatment (Johnson et al., 2012). Although HCT uptake was not the primary outcome of the NCS, several questions on HCT uptake were included in the questionnaire. In this mini-thesis study, associations between HCT and self-esteem patterns were examined among all young women (16 to 24 years) who participated in the NCS.

3.2 Population and Sampling

The NCS was designed to be representative of 16 to 55 year olds across all population groups in South Africa and can be used to draw inferences about this population (Magni et al., 2015; Johnson et al., 2012). Data was collected from random sample of 10,034 respondents (n = 4,065 men and n = 5,969 women) across all nine provinces in South Africa, including urban, peri-urban and deep rural areas (Magni et al., 2015).

The NCS used a multi-stage cluster sampling approach to draw 400 primary sampling units. The primary sampling units were drawn from a sampling frame list of 3971 of all electoral wards in South Africa. Households were sampled randomly within the wards. On average there were 25 households included in each sampled ward in order to achieve the desired sample size of 10,000 households (Johnson et al., 2012). A random walk method was used to select the actual households to include in the sample from each ward. In each of the sampled households one person was surveyed. The respondents were selected from one of two age groups, namely:

- a. 16 to 24 years (n =3,399) and
- b. 25 to 55 years (n =6635) (Johnson et al., 2012)

The sample for this study is of all young females from the study sample aged 16 to 24 years old (n=1922). Young women and adolescent girls aged 15 to 24 years are at a high risk of HIV infection globally (UNAIDS, 2016b). In South Africa, new HIV infections are three times higher among young women than young men in 2017(HSRC, 2018). In 2017, HIV incidence decreased by 26 % among young women but increased by 11 % among young men. HIV infected young men were less aware of their HIV status in the last 12 months compared to young women (HSRC, 2018). This shows that young men are now also as much at risk of acquiring HIV as young women. However, young women are a key population and HIV prevention efforts to reduce new HIV infections among young women (15 to 24 years) by 2020 have been set which include increasing HCT uptake (UNAIDS, 2016). In addition, gender differences in self-esteem are reported in many studies with young men reporting higher self-esteem than young women (Bachman et al., 2011; Diseth et al., 2014; Moksnes & Espnes, 2012, 2013). This forms the bases of the justification for the population of interest for this study.

The United Nations defines youth as encompassing the age range of 15-24 years and adolescents as encompassing the age range 10-19 years old (UNAIDS, 2014;WHO, 1986). NCS only captured data for the age range of 16-24 years (Johnson et al., 2012).

3.3 Data Collection

The NCS was conducted for a period of four months between February and May 2012. Data was collected using a structured interviewer-administered questionnaire. The interviews were conducted face-to-face at the household level (Johnson et al., 2012). Trained interviewers matched as far as possible to the demographics of the respondent used computer assisted personal interviewing (CAPI) to administer the questionnaire. Interviews were conducted in English or the vernacular and lasted 90-minutes on average (Johnson et al., 2012). The questionnaire was piloted in Gauteng, KwaZulu-Natal and Eastern Cape. The final post-piloted questionnaire was then translated from English to South Africa's other ten official languages (Magni et al., 2015).

For this study, the researcher requested data from the NCS steering committee, subsequently the link for the database was received via the Dropbox application (see appendix 2). The database was received in STATA. The data was requested on the 26th of June 2017 and received on the 18th of July 2017. The communication between the NCS steering committee regarding questions of clarity on the data was between the 3rd of July 2018 and 5th of July 2018. In

summary, data collection for this study happened over a period of 13 months (26 June 2017-5 July 2018).

3.4 Data Management

The researcher checked the dataset for any incongruent values, missing data, extreme outliers, illegal and inconsistent values and obvious data entry errors (Joubert & Ehrlich, 2007). The researcher did not find any. The database received was already cleaned and coded. The researcher maintained communication with the NCS steering committee for clarity on data (see appendix 3).

3.4.1 Socio-demographic Characteristics

The socio-demographic characteristics analysed in this study were age, race, education, employment, socio-economic status, cohabitation and settlement. The relevant variables were extracted, analysed, categorised and some variables with broader categories collapsed into narrower categorical variables and some variables expanded to more than one category. The following variables were changed:

- **Age:** age was a discrete quantitative variable with a skewed distribution. The median and interquartile range were reported (see table 1). The researcher changed age from a discrete quantitative variable in the NCS into a categorical variable which consisted of two categories; adolescents (16 to 19 years) and young women (20 to 24 years). Both stages, adolescents and young women, refer to two different developmental stages of a young person (Sawyer et al., 2012) and many studies on HIV prevalence and testing among this age group use these two categories (Boyer et al., 2017; Dellar et al., 2015; Schaefer et al., 2017).
- **Race:** the race variable had five categories; Black, Coloured, White, Indian and Other categories. The variable was collapsed into two categories; Black and Other.
- **Education:** education had five categories; no schooling, up to primary, up to grade 11, matric and tertiary. There were only six participants who had no schooling. No schooling category was combined with the up to primary school category and the name of the category remained as up to primary which resulted in four categories for the education variable.
- **Employment:** employment variable was left unchanged with three categories employed, unemployed and student.

- **Socio-economic Status (SES):** the NCS measured the socio-economic status variable using the living standards measure (LSM), based on ownership of household items (Johnson et al., 2012). The LSM scale was developed by The South Africa Advertising and Research Foundation to measure the socio-economic status of a group (Martins, 2007; SAARF, 2017). The NCS does not show how it calculated and categorised SES into high, low and medium SES. The variable was left unchanged for the purposes of this study.
- **Cohabitation:** cohabitation was left unchanged with two categories; cohabiting and not cohabiting.
- **Settlement:** settlement had five categories; urban formal, urban informal, peri-urban, rural and farming. The variable was collapsed into three categories; urban formal, urban informal and rural. The NCS questionnaire is clear that peri-urban mostly consist of informal or small holdings (see appendix 5), in light of this the peri-urban category was combined with the urban informal settlements. The farming category was combined with the rural category.

The NCS used a random multi-stage cluster sampling approach with over sampling in the Northern Cape province (Johnson et al., 2012). In this kind of sampling, “equal weighting of observations would bias the model’s parameter estimates” (Thomas & Heck, 2001:521). Weighted percentages takes “into account unequal probabilities of selection resulting from the sample design, nonresponse, and no coverage” (Flegal et al., 2012: 492). To address the clustered sampling design, analyses were weighted and STATA’s *svy* commands were utilized to calculate frequencies and proportions through cross tabulations. The researcher adopted the sample weights used in the NCS. The researcher will use weighted percentages to present results. These are presented in the results section using tables (see table 1).

3.4.2 Dependent Variable

The outcome variable (dependent variable) of interest in this study was HCT uptake. It was measured through questions based on history of HCT (see appendix 1). The history of HCT in the study was measured using two binary variables:

- Those who had ever tested; and
- Those who had tested in the last twelve months.

3.4.3 Independent Variable

The independent variable (self-esteem) was measured by assessing respondent's statements on self-esteem (Section 6, appendix 1). The statements were placed on a four-level Likert-scale, which is used to scale responses in survey research or to quantify people's construct (Gliem & Gliem, 2003). Likert items are used to measure respondent's attitudes to a particular question or statement (Agresti & Kateri, 2011). The RSES is a 10-item scale for self-esteem assessment that uses a 4-point Likert scale format ranging from strongly agree to strongly disagree (Baumeister et al., 2013; Supple & Plunkett, 2011). It is separated into five positively worded statements and five negatively worded statements (Song et al., 2011). The RSES uses a score of 0-30 where a score less than 15 may indicate low self-esteem and scores above 15 indicate high self-esteem (Rosenberg, 1965; Barnett & Womack, 2015). The National Communication Survey uses RSES to measure self-esteem (see appendix 1; Rosenberg, 1965).

The self-esteem variable was a discrete quantitative variable and had a skewed distribution. The median and the interquartile range were reported in the results section. The researcher generated a self-esteem score by adding the four items together. Self-esteem score was then categorised into three categories; high (≥ 16), medium (≥ 13 to ≥ 15) and low (≤ 12) self-esteem. The RSES uses a scale of 0-30 where a score less than 15 may indicate low self-esteem and scores above 15 indicate high self-esteem (Rosenberg, 1965).

3.5 Data Analysis

“Data analysis is a process of bringing order, structure, and meaning to the masses of data collected” (De Vos et al., 2005:333). The researcher began the analysis by creating a new dataset consisting of only young women participants aged 16 to 24 years ($n = 1922$). The NCS questionnaire measured socio-demographic variables, exposure to HIV communication programmes and various HIV-related outcomes (Johnson et al., 2012). In this study, socio-demographic characteristics, HCT uptake and self-esteem among young women (16 to 24 years) were described. The relationship between self-esteem and HCT was analysed. The sections of the questionnaire with relevance to this study are included in Appendix 5.

Data was analysed using STATA statistical software (version 13.0, STATA Corp., College Station Texas, USA). Data analysis of this study took 10 months (1 February 2018 to 30 November 2018). Data was analysed at 95% Confidence Interval (Norusis, 2012). Analysis was in three parts, namely descriptive, bivariate (chi-squares) and regression analysis.

3.5.1 Descriptive Statistics

The data analysis used univariate analysis methods to describe the socio-demographic characteristics of the participants (categorical & discrete variables), the HCT uptake (categorical variable) and self-esteem scores (discrete numerical variable) among young women aged 16 to 24 years.

3.5.1.1 Independent Variable

To describe self-esteem among young women (16 to 24 years) proportions were calculated and presented in the results section a figure (see figure 5).

3.5.1.2 Outcome Variable

To describe HCT among young women (16 to 24 years) proportions were calculated and presented in the results section using tables (see figure 1 and 2). Reasons for HIV testing and not testing for HIV were described as per the questionnaire (see appendix 1). The researcher only presented responses $\geq 3\%$ and refused to answer. Responses $< 3\%$ were combined into the other category (see figure 3 and 4).

3.5.2 Bivariate Analysis

Chi-squared tests were used to determine associations between variables. An alpha level of 0.05 was used for the tests. To further describe HCT uptake among young women aged 16 to 24 years in 2012 in South Africa, the following associations were determined:

- Associations between socio-demographic characteristics and ever testing for HIV among young women 16 to 24 years (see table 2); and
- Associations between socio-demographic characteristics of young women (16 to 24 years) and HIV testing in the last 12 months (see table 3).

To determine whether there is an association between ever testing for HIV and self-esteem and between testing for HIV in the last 12 months and self-esteem, the following associations were determined:

- Associations between self-esteem and ever testing for HIV among young women 16 to 24 years (see table 4); and
- Associations between HIV testing in the last 12 months and self-esteem among young women 16 to 24 years (see table 5).

3.5.3 Regression Analysis

Multiple logistic regression models were used to test hypotheses. The researcher selected covariates (age, education, employment, socio-economic status, cohabitation and settlement) based on the results of the bivariate analysis. The p-value was examined and all variables associated with self-esteem and HCT were entered into the logistic regression model. The odds ratio and confidence intervals (CIs) were also examined. The results of the multiple logistic regression models are reported using adjusted odds ratios (aORs) and 95% CIs and presented in the results section using tables.

The following hypotheses were examined:

- That self-esteem is associated with ever testing for HIV among young women 16 to 24 years (see table 6); and
- That self-esteem is associated with HIV testing in the last 12 months among young women 16 to 24 years (see table 7).

3.6 Validity and Generalisability

To ensure validity, the NCS conducted a 10% validation check in person or telephonically to review the work of each interviewer. In addition, the NCS also had a proper definition of study population. A sample of 16-55 year olds, both male and female, were selected for the sample. The sampling frame is the list of 3971 electoral wards in South Africa, as at the October 2001 census, supplied by Statistics South Africa. The survey defined exclusion and inclusion criteria. All people residing in the selected households aged 16-55 years were eligible to be interviewed. People outside this age group were excluded. There were 400 wards sampled randomly out of the total number of 3971 wards. Households were sampled at random from each of the sampled wards, with the number of households included in a ward being proportional to the population size of the ward (Johnson et al., 2012).

Many studies have also successfully tested the validity of RSES with different groups and its validity was supported in various populations in the USA, Brazil and Chile (McMullen & Resnick, 2013; Rojas-Barahona, Zegers, & Förster, 2009). But the RSES can be unsuitable in certain contexts where alternative language versions have to be used. This was the case in South Africa and Burundi among university students and healthcare workers respectively (Fromont et al., 2017; Makhubela & Mashegoane, 2017) Thus the suitability of the RSES depends on context. However a study testing the validity of RSES among five groups of Black

(formal township and informal settlement), White, Indian, and mixed race adult residents of Greater Pretoria concluded that RSES was suitable for this setting (Westaway, Jordaan, & Tsai, 2015).

Studies have categorised self-esteem into low, medium and high self-esteem (Mcgee & Williams, 2000; Winter & Krämer, 2008). Dichotomising quantitative measures may result in loss of data and loss of effect power (Iacobucci et al., 2015; Maccallum et al., 2002). One way to deal with this is to categorise a variable into three categories (Winter & Krämer, 2008), hence the choice by the researcher to split self-esteem into three categories.

The NCS drew a national sample of South Africans to be representative of the national population (Johnson et al., 2012). This study is representative of the national population of South African young women between the ages of 16-24 years. The study is only concerned with this group and cannot be generalised outside of this group.

3.7 Reliability

The NCS study used a standardised questionnaire to reduce information bias. To deal with measurement bias, the NCS made sure that interviewers were trained on the questionnaire. Training was provided pre-piloting phase for interviewers and post-piloting phase and fieldwork errors were addressed during training. The questionnaire was piloted in Gauteng, KwaZulu-Natal and Eastern Cape and the questions were revised and phrased in a manner that could be understood by researchers and respondents. The questionnaire was translated into home languages of respondents and interviews were conducted in home language of respondents. The NCS self-reported recall period was “the past 12 months” (Johnson et al., 2012).

The primary study only measured four items on self-esteem. It is not clear why six other items from the scale were not measured (see appendix 3). This will be captured as a limitation of this study. Other studies have successfully used shorter versions of the RSES (Ackerman et al., 2011; Kemigisha et al., 2018; Steiger, Allemand, Robins, & Fend, 2014). In a study in Norway, Tambs & Røysamb (2014) demonstrated that shorted versions of the original psychometric can be used without losing more measurement precision.

Many studies have tested the reliability of the RSES and they reported Cronbach Alpha (α) greater than 0.7 which shows high reliability (Galanou et al., 2014; Barnett & Womack, 2015; Wojciszke et al., 2011; Brewer & Kerslake, 2015). The researcher calculated the Cronbach's alpha reliability coefficient to measure internal consistency reliability. This was done to check

the extent to which the four items measured the same construct (Bonett & Wright, 2015). The Cronbach's alpha reliability coefficient was equal to 0.93 which shows high internal consistency (Joo & Sang, 2013). It is with this in mind that the researcher treated the shorter version of the RSES as effective as the full version scale.

3.8 Ethical Considerations

Ethical approval for the NCS was obtained from the University of the Witwatersrand's Human Research Ethics Committee (Non-medical) and from the Institutional Review Board of the Johns Hopkins University Bloomberg School of Public Health. Several ethical issues were considered in the study design and in administering the survey. The University of the Witwatersrand provided guidance on participation of children under 18 years (Johnson et al., 2012).

For this study, the researcher sought permission from The National HIV Communication Survey (NCS), 2012 Steering Committee (see appendix 2). The researcher signed a User's Agreement for Information (see appendix 4). The researcher sought to maintain permission agreement terms with the steering committee by storing dataset on personal laptop with a password-protect document for a period of about two years after the publication of the study results. Only the researcher and academic supervisors have access the dataset. The dataset was only be used for the purposes of this study. The researcher also sought ethics clearance from the Humanities and Social Science Research Ethics Committee of the University of the Western Cape, which was granted from the 17 November 2017 – 17 November 2018 (see appendix 5).

3.9 Summary

In summary, STATA version 13 was used for data analysis, univariate and bivariate analytical methods were applied to describe study sample and determine associations between variables among young women aged 16 to 24 years. Multiple regression analysis was used to control for socio-demographic characteristic variables to ensure that any reported changes could be attributed to self-esteem not to other possible associated variables. The results are presented in chapter four using tables.

CHAPTER 4: RESULTS

In this chapter, the results of the descriptive, bivariate and regression data analysis will be presented. Socio-demographic characteristics, HCT uptake and self-esteem among young women aged 16 to 24 years will be described. The following associations among young women aged 16 to 24 years will be presented:

- Associations between socio-demographic characteristics and ever testing for HIV among young women 16 to 24 years;
- Associations between socio-demographic characteristics of young women (16 to 24 years) and HIV testing in the last 12 months;
- Associations between self-esteem and ever testing for HIV among young women 16 to 24 years; and
- Associations between HIV testing in the last 12 months and self-esteem among young women 16 to 24 years.

The results of the multiple logistic regression models will also be reported using adjusted odds ratios (aORs) and 95% CIs.

4.1 Socio-demographic characteristics

Table 1 is a description of the socio-demographic characteristics of young women aged 16 to 24 years in the study. The mean age is 20.4 years (SD = 2.4). The majority of the participants (60%) fell into the young women category (20 to 24 years), with 40% percent of the participants falling into the adolescent category. The majority of the participants (85.1%) were Black and 14.9 % were of other races.

Nearly half of the participants had completed Grade 11 (45.7%) followed by those who had completed matric (42.1%). A small number of participants had education up to primary school only (3.4%). Nearly half of the participants in this age group were unemployed (45.1%), only 11.8% of the participants were employed.

The socio-economic status of the participants was nearly evenly distributed across the three categories; high (34.5%), medium (34.2%) and low (31.3%). The majority of the participants were not cohabiting (87.9%). A majority of the study participants resided in urban informal (40.7%) and urban formal (37%) settlements.

Table 1-Socio-demographic characteristics of young women (16 to 24 years) from the 2012 NCS (n=1922)

Characteristics	Frequency (n)	Weighted Percentage (%)
Age group		
16 to 19 years	736	40.0
20 to 24 years	1186	60.0
Median Age (IQR: 75%-25%)	20 (8)	
Race		
Black	1636	85.1
Other	286	14.9
Education		
Up to primary	78	3.4
Up to grade 11	904	45.7
Matric	788	42.1
Tertiary	151	8.8
Employment	(missing = 27)	
Unemployed	918	45.1
Employed	211	11.8
Student	766	43.1
SES		
High	577	34.5
Medium	771	34.2
Low	574	31.3
Cohabitation Status		
Cohabiting	230	12.1
Not-cohabiting	1692	87.9

Settlement		
Urban formal	629	37.0
Urban informal	923	40.7
Rural	370	22.3

4.2 HCT uptake among young women aged 16 to 24 years in 2012 in South Africa

Figure 1 presents those who had ever tested for HIV among those participating in the study. The majority of the participants had tested in their lifetime (65.1%). Forty-three participants did not respond to the question (n = 43). Weighted percentages are used and should be representative of the population sample (Fincham, 2008).

Figure 1-Reported HIV ever testing among young women (16 to 24 years) from the 2012 NCS (n=1879)

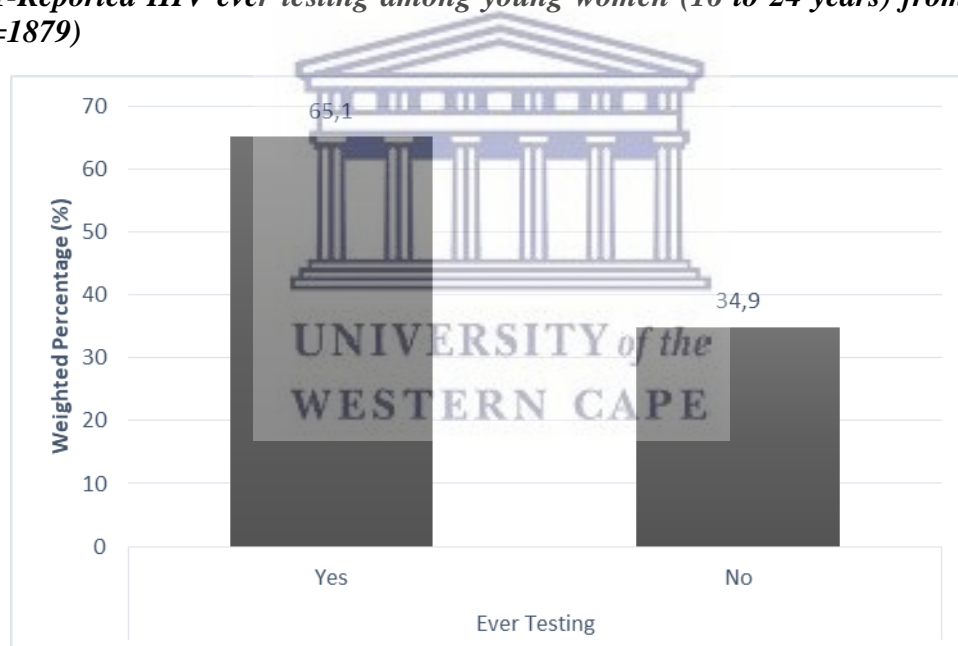


Figure 2 presents HIV testing in the last 12 months among study participants. Questions focused on 1262 participants who had tested and were eligible to respond to this question. A majority (70.4 %) of the participants who had tested, tested in the last 12 months.

Figure 2-Reported HIV testing in the past 12 months among young women (16 to 24 years) from the 2012 NCS (n =1262)

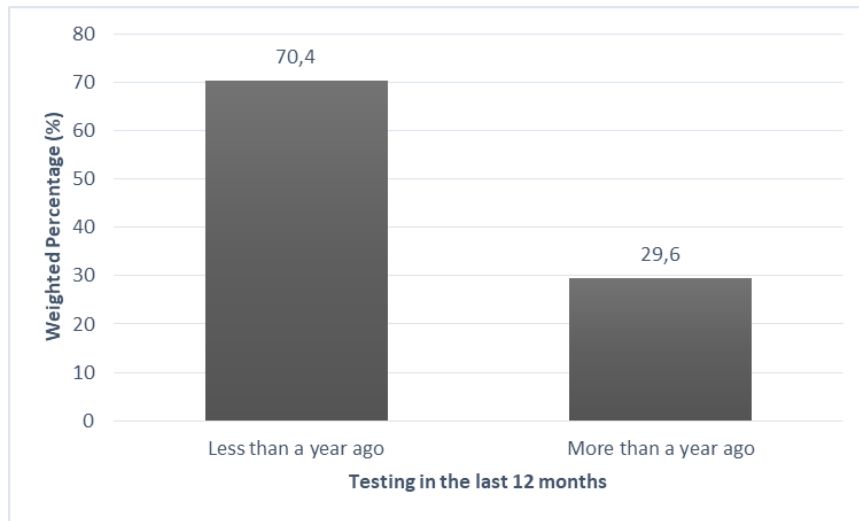


Figure 3 presents reasons for HIV testing. 1262 (65.5%) young women had tested and therefore were eligible to respond about their reason for testing. The majority (71.9%) of these young women took an HIV test because they wanted to know their HIV status. This was followed by 27.6%, who took the test because they were pregnant and 11.3% who had tested for other reasons.

Figure 3-Reasons for HIV testing among young women (16 to 24 years) from the 2012 NCS (n =1262)

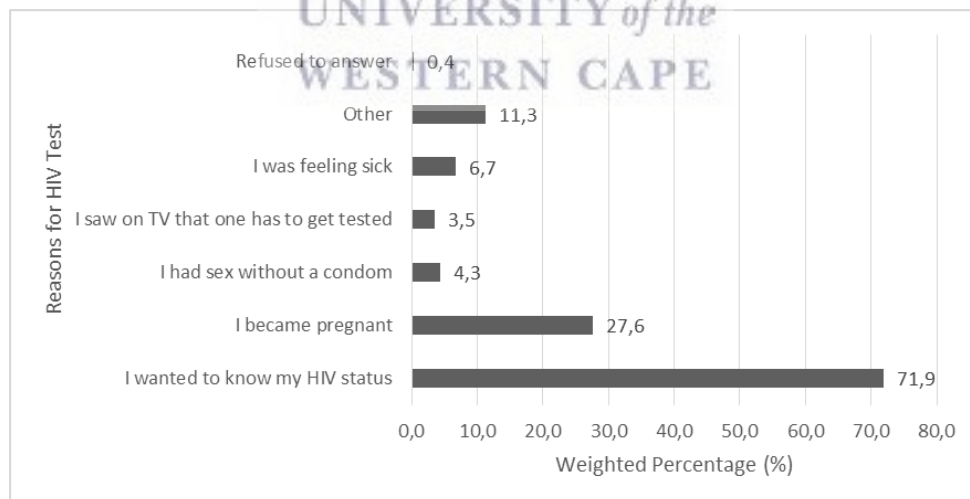
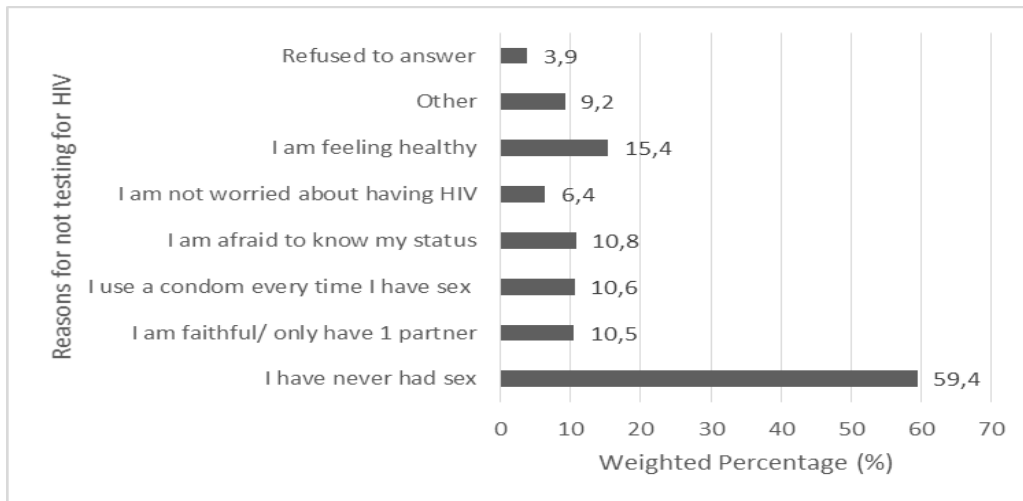


Figure 4 presents reasons why young women did not test for HIV. 660 (34.3%) young women had not tested and therefore were eligible to respond about their reason for not testing. The majority (59.4%) of participants did not test because they were not sexually active, 15.4% did not test because they were feeling healthy.

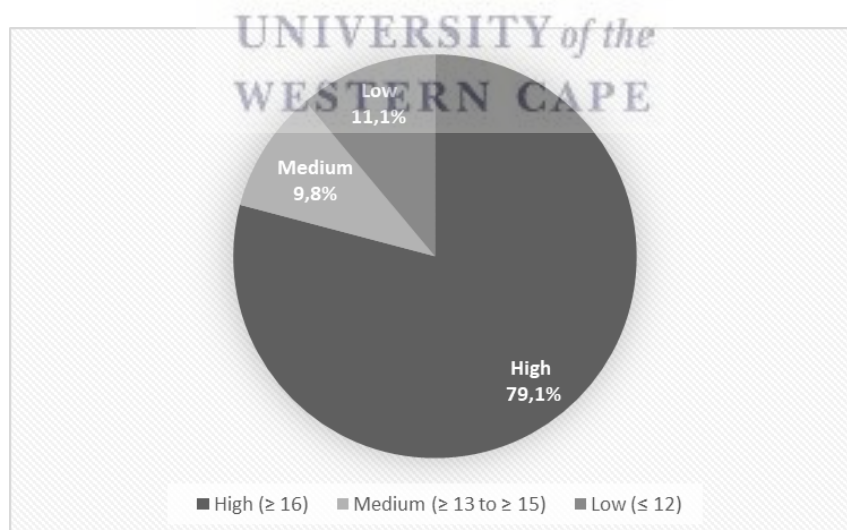
Figure 4-Reasons for not testing for HIV among young women (16 to 24 years) from the 2012 NCS (n =660)



4.3 Self-esteem among young women aged 16 to 24 years in 2012 in South Africa

Figure 5 describes self-esteem, the category was divided into high, medium and low self-esteem with a median self-esteem score of 16, IQR (16-16). The majority of the participants had high self-esteem (79.1%), followed by those with low self-esteem (11.1%).

Figure 5-Weighted Percentages (%) of self-esteem among young women (16 to 24 years) from the 2012 NCS (n=1922)



4.4 Relationship between sociodemographic characteristics and HIV testing

Table 2 shows the relationship between socio-demographic characteristics (independent variables) and ever testing for HIV (dependent variable). Age was associated with ever testing for HIV. The differences were statistically significant ($p < 0.001$). Young women (20 to 24

years) were more likely to have ever tested for HIV (79.1%) than adolescents (16 to 19 years) (48%).

Race and Education were not significantly associated with ever testing for HIV ($p > 0.05$).

Employment was associated with ever testing for HIV. The differences were statistically significant ($p < 0.001$). Unemployed (79.4%) participants were more likely to have ever tested for HIV compared to employed (77.9%) and student (50.2%) participants.

Socio-economic status was significantly associated with ever testing for HIV. The differences were statistically significant ($p < 0.05$). Participants from medium (69.7%) socio-economic status were more likely to have ever tested for HIV compared to participants from low (67.3%) and high (63.6%) socio economic statuses.

Cohabitation was associated with ever testing for HIV. The differences were statistically significant ($p < 0.05$). Cohabiting (79.9%) were more likely to have ever tested for HIV (79.1%) than not-cohabiting (65.4%) participants.

Settlement was not significantly associated with ever testing for HIV ($p > 0.05$).

Table 2-Associations between socio-demographic characteristics and ever tested for HIV among young women (16 to 24 years) from the 2012 NCS (n = 1879)

Characteristics	Yes n (%)	No n (%)	P-value
Age group			
16 to 19 years	346 (48.0)	375 (52.0)	< 0.001
20 to 24 years	916 (79.1)	242 (20.9)	
Race			
Black	1083 (67.6)	518 (32.4)	0.29
Other	179 (64.4)	99 (35.6)	
Education			
Up to primary	43 (59.7)	29 (40.3)	0.65
Up to grade 11	574 (64.5)	316 (35.5)	
Matric	529 (68.8)	240 (31.2)	
Tertiary	115 (78.2)	32 (21.8)	

Employment			
Unemployed	711 (79.4)	185 (20.6)	< 0.001
Employed	162 (77.9)	46 (22.1)	
Student	376 (50.2)	373 (49.8)	
SES			
High	354 (63.6)	203 (36.4)	0.02
Medium	530 (69.7)	230 (30.3)	
Low	378 (67.3)	184 (32.7)	
Cohabitation Status			
Cohabiting	183 (79.9)	46 (20.1)	0.02
Not-cohabiting	1079 (65.4)	571 (34.6)	
Settlement			
Urban formal	433 (71.1)	176 (28.9)	0.17
Urban informal	617 (67.8)	293 (32.2)	
Rural	212 (58.9)	148 (41.1)	

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Table 3 shows associations between socio-demographic characteristics (independent variable) of young women (16 to 24 years) and HIV testing in the last 12 months (dependent variable).

Age was associated with HIV testing in the last 12 months. The differences were statistically significant ($p < 0.001$). Adolescents (16 to 19 years) were more likely to have tested for HIV in the last 12 months (77.9%) compared to young women (20 to 24 years) (70.7%).

Education was associated with HIV testing in the last 12 months. The differences were statistically significant ($p < 0.05$). Participants with matric (75.2%) were more likely to have tested for HIV in the last 12 months compared to participants with up to grade 11 (74.4%), tertiary (68.7%) and up to primary (51.2%) levels of education.

Employment was associated with HIV testing in the last 12 months. The differences were statistically significant ($p < 0.05$). Students (77.7%) were more likely to have tested for HIV in the last 12 months compared to unemployed (72.4%) and employed (67.9%) participants.

Settlement was associated with HIV testing in the last 12 months. The differences were statistically significant ($p < 0.05$). Participants from rural (76.9%) settlements were more likely to have tested for HIV in the last 12 months compared to participants from urban informal (76.2%) and urban formal (67.9%) settlements.

Race, Socio-economic status and Cohabitation status were not significantly associated with HIV testing in the last 12 months ($p > 0.05$).

Table 3-Associations between socio-demographic characteristics and HIV testing in the past 12 months among young women (16 to 24 years) from the 2012 NCS (n=1262)

Characteristics	Tested for HIV in the last 12 months n (%)	Tested for HIV more than 12 months ago n (%)	P-value
Age group			
16 to 19 years	261 (77.9)	74 (22.1)	0.01
20 to 24 years	655 (70.7)	272 (29.3)	
Race			
Black	800 (73.9)	283(26.1)	0.41
Other	127 (71.0)	52 (29.0)	
Education			
Up to primary	22 (51.2)	21 (48.8)	0.004
Up to grade 11	427 (74.4)	147 (25.6)	
Matric	398 (75.2)	131 (24.8)	
Tertiary	79 (68.7)	36 (31.3)	
Employment			
Unemployed	515 (72.4)	196 (27.6)	0.042
Employed	110 (67.9)	52 (32.1)	
Student	292 (77.7)	84 (22.3)	
SES			
High	253 (71.5)	101 (28.5)	0.56
Medium	391 (73.8)	139 (26.2)	
Low	283 (74.9)	98 (25.1)	

Cohabitation Status			
Cohabiting	133 (72.7)	50 (27.3)	0.79
Not-cohabiting	794 (73.6)	285 (26.4)	
Settlement			
Urban formal	294 (67.9)	139 (32.1)	0.005
Urban informal	470 (76.2)	147 (23.8)	
Rural	163 (76.9)	49 (23.1)	

4.5 Relationship between self-esteem and HIV testing

Table 4 represents associations between self-esteem (independent variable) and ever testing for HIV (dependent variable) among young women 16 to 24 years. Participants with medium self-esteem more likely to have ever tested for HIV (71.1%), followed by participants with high self-esteem (67.8%). Participants with low self-esteem were the least likely to have ever tested for HIV (60.3%). Self-esteem was associated with ever testing for HIV. The differences were statistically significant ($p < 0.05$).

Table 4-Associations between ever tested for HIV and self-esteem among young women (16 to 24 years) from the 2012 NCS (n=1879)

	Yes n (%)	No n (%)	P-value
Self-esteem			
High	981 (67.8)	467 (32.2)	0.04
Medium	140 (71.1)	57 (28.9)	
Low	141 (60.3)	93 (39.7)	

Table 5 represents associations between self-esteem (independent variable) and HIV testing in the last 12 months (dependent variable) among young women 16 to 24 years. There was no association between self-esteem and HIV testing in the last 12 months ($p > 0.05$).

Table 5-Associations between HIV testing in the last 12 months and self-esteem among young women (16 to 24 years) from the 2012 NCS (n=1262)

	Tested for HIV in the past 12 months n (%)	Did not test for HIV in the past 12 months n (%)	P-value
Self-esteem			
High	720 (73.4)	261 (26.6)	0.99
Medium	103 (73.6)	37 (26.4)	
Low	104 (73.8)	37 (26.2)	

4.6 Multiple Logistic Regression Models: HIV testing, Self-esteem and Sociodemographic Characteristics

Table 6 shows the results of a multiple logistic regression model testing the hypothesis that self-esteem is associated with ever testing for HIV among young women 16 to 24 years. The model is being used to control for possible confounders, which are socio-demographic characteristics. The socio-demographic characteristics found to be associated with ever testing for HIV and therefore included in the model were age, employment, socio-economic status and cohabitation status.

After controlling for potential confounders in the logistic regression model, self-esteem remained significantly associated with ever testing for HIV ($p < 0.05$). Medium self-esteem was not associated with ever testing for HIV ($p > 0.05$) and low self-esteem was significantly associated with ever testing for HIV ($p < 0.05$). Participants with low self-esteem were 31% less likely to ever test for HIV (aOR=0.69, 95% CI 0.50-0.96) than participants with high self-esteem.

The following socio-demographic characteristics remained associate with ever testing for HIV ($p < 0.001$) ($p < 0.05$) in the logistic regression model:

- **Age:** adolescents were 64% less like to have ever tested for HIV (aOR=0.36, 95% CI 0.29-0.46) than young women.

- **Employment:** Students were 58% less likely to have ever tested for HIV (aOR=0.42, 95% CI 0.32-0.53) than unemployed participants.

Table 6-Multiple Logistic Regression analysis testing the hypothesis that self-esteem is associated with HIV testing ever among young women (16 to 24 years) from the 2012 NCS (n 1879) controlling for possible confounders

Variable	Odds Ratio	Std. Err.	z	P>z	95% Conf Interval
Self-esteem					
High	Ref				
Medium	1.18	0.21	0.88	0.377	0.82-1.67
Low	0.69	0.11	-2.27	0.025	0.50-0.96
Age					
16 to 19 years	0.36	0.04	-8.35	0.000	0.29-0.46
20 to 24 years	Ref				
Employment					
Unemployed	Ref				
Employed	0.83	0.15	-0.96	0.338	0.57-1.21
Student	0.42	0.05	-6.94	0.000	0.32-0.53
SES					
High	Ref				
Medium	1.21	0.16	1.47	0.143	0.94-1.56
Low	1.08	0.14	0.55	0.585	0.82-1.41
Cohabitation Status					
Cohabiting	Ref				
Not-cohabiting	0.87	0.16	-0.74	0.460	0.61-1.25
Constant	5.13	1.05	8.00	0.000	3.44-7.65

Table 7 shows a multiple logistic regression model testing the hypothesis that self-esteem is associated with HIV testing in the last 12 months among young women 16 to 24 years. The model is used to control for potential confounders, which are socio-demographic characteristics. The socio-demographic characteristics found to be associated with testing for

HIV in the last 12 months and therefore included in the model were age, education, employment and settlement.

After controlling for potential confounders in the logistic regression model, self-esteem remained not significantly associated with testing within the preceding 12 months for HIV ($p > 0.05$).

The following socio-demographic characteristics remained associate with HIV in the last 12 months ($p < 0.001$) ($p < 0.05$) in the logistic regression model:

- Education:** Participants with up to grade 11 level of education were 2.94 times likely to have tested for HIV in the last 12 months (aOR =2.94, 95% CI 1.53-5.64) than participants with up to primary level of education. Participants with matric were 3.49 times likely to have tested for HIV in the last 12 months (aOR=3.49, 95% CI 1.79-6.80) than participants with up to primary level of education. Participants with tertiary level of education were 2.74 times more likely to have been tested for HIV in the last 12 months than participants with up to primary level of education (aOR=2.74, 95% CI 1.28-5.89).
- Settlement:** Participants from urban informal settlement were 41% more likely to have been tested for HIV in the last 12 months (aOR=1.59, 95% CI 1.19-2.11) than participants from urban formal settlements. Participants from rural settlements were also 41% more likely than participants from urban formal settlements (aOR = 1.59, 95% CI 1.08-2.33).

Table 7-Multiple Logistic Regression analysis testing the hypothesis that self-esteem is associate with HIV testing in the last 12 months among young women (16 to 24 years) from the 2012 NCS (n=1262)

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.
Self-esteem					
High	Ref				
Medium	1.03	0.22	0.14	0.888	0.68-1.56
Low	1.05	0.23	0.21	0.836	0.69-1.60
Age					
16 to 19 years	1.35	0.23	1.76	0.078	0.97-1.89
20 to 24 years	Ref				

Education					
Up to primary	Ref				
Up to grade 11	2.94	0.98	3.24	0.001	1.53-5.64
Matric	3.49	1.19	3.69	0.000	1.79 -6.80
Tertiary	2.74	1.07	2.59	0.010	1.28-5.89
Employment					
Unemployed	Ref				
Employed	0.85	0.16	-0.86	0.392	0.58-1.24
Student	1.18	0.20	1.00	0.319	0.85-1.63
Settlement					
Urban formal	Ref				
Urban informal	1.59	0.23	3.20	0.001	1.19-2.11
Rural	1.59	0.31	2.35	0.019	1.08-2.33
Constant	0.61	0.21	-1.41	0.159	0.31- 1.21

4.7 Summary of Results

The results of this study are represented using seven tables and five figures. The analysis looked at young women (16 to 24 years) from the 2012 NCS (n =1922). The results explore the socio-demographic characteristics, HIV testing trends, reasons for HIV testing, self-esteem and characteristics of self-esteem among participants. A multiple logistic regression model was used to assess relationship between self-esteem and HCT uptake in presence of other independent variables. Chi-square tests were used to explore associations between HIV testing and socio-demographic characteristics. No association was found between HIV testing in the last 12 months and self-esteem even in the multiple logistic regression model. An association between HIV testing ever and self-esteem was found in the Chi-square and multiple logistic regression model. The results will be discussed in detail in chapter five.

CHAPTER 5: DISCUSSION

The study sought to assess the relationship between self-esteem and HIV counselling and testing (HCT) uptake among young women (16 to 24 years) in South Africa using data from the 2012, National HIV Communication Survey (NCS). This section discusses the results of this study presented in chapter four. In this chapter the relationship between HIV testing in the last 12 months, ever testing for HIV and self-esteem will be discussed as per the findings of this study and in light of literature. Limitations of the study are also discussed.

5.1 HCT uptake among young women aged 16 to 24 years in 2012 in South Africa

The findings of the study show that 65.1% of young women who participated in the study had tested in their lifetime and 70.4% of them had tested less than a year ago. These findings are consistent with a South African cross-sectional population-based household survey done in 2011 which reported that 60.1% of young women (18 to 24 years) reported ever testing for HIV and 75.3% of young women (18 to 24 years) reported HIV testing less than a year ago (Peltzer & Matseke, 2014). The literature attributes high rates of HIV testing in South Africa during this period to a robust national HCT campaign that started in April 2010 and ended in June 2011 (Johnson et al., 2012; Maughan-Brown et al., 2016; Shisana et al., 2012). The campaign saw around 13.7 million test for HIV (Mbengashe et al., 2012), 50.6% were youth aged 15 to 24 years (Shisana et al., 2012).

5.1.1 *Reasons for HIV testing*

The majority of young women took an HIV test because they wanted to know their HIV result. This finding was similar in Pettifor et al. (2010), who reported from a study in Johannesburg with young participants (mean age: 24.5) that 32.8% of women reported having tested because they wanted to know their HIV status., In their study 26.2% of women reported they were tested during pregnancy, a very similar result to the one in this analysis. These results are not surprising given the successful Prevention of Mother-To-Child-Transmission of HIV (PMTCT) programme in South Africa, which boasts a 95% HIV testing uptake in public health facilities (Goga et al., 2016). In addition, South Africa has a high adolescent pregnancy rate. A study in South Africa found a 19.2% adolescent pregnancy rate (12 to 19 years) among female youth (Mchunu et al., 2012). This suggests that many young women access HIV testing through PMTCT services.

5.1.2 Reasons for not testing for HIV

A majority of the participants in this study did not test because they were not sexually active. It makes sense that young women who were not sexually active would not test for HIV and studies support this finding. A study among Kenyan youth reported that 43% of females did not test because they were not sexually active (Kabiru et al., 2011). In a South African study, Venkatesh et al. (2011) found higher odds of HIV testing among women who ever had vaginal sex. Studies report a mean age of first test for women in South Africa at 16.8 years (Pettifor et al., 2011). A study of sexual behaviour among South African youth reported that 35.1% of women started having sex at 16 years and below (Zuma et al., 2010).

In line with the findings of this study, which found that 15.4% did not test because they were feeling healthy, further studies have found that people including young people test because they are feeling ill (Jürgensen et al., 2012; Majelantle, et al., 2014; Musheke et al., 2013). Jürgensen et al. (2012) in a study in Zambia looking at HTC among female and participants aged 17 to 54 years found that HCT was not viewed as a preventative tool which leads to people using it as a diagnostic tool. In a study in Botswana among leaners aged 10 to 19 years, Majelantle et al. (2014) found that lack of understanding of HIV infection was linked to leaner's misunderstanding HIV signs and symptoms. A systematic review of studies in sub-Saharan Africa linked this finding to perceived risk of infection (Musheke et al., 2013).

5.1.3 Socio-demographic characteristics and ever testing for HIV

Findings of this study are consistent with studies that have found that older young people (≥ 20 years) are more likely to take an HIV test than those who are younger (15 to 19 years) (Abiodun et al., 2014; van Rooyen et al., 2013; Oginni, Obianwu & Adebajo, 2014). The age differences may be explained by a number of issues including; age of consent barriers faced by adolescents in HIV testing (Oginni et al., 2014) and HIV testing policies and national guidelines regarding consent and guardianship for adolescents as a barrier to HIV testing (UNICEF, 2013; Kurth et al., 2015; Kranzer et al., 2014). Adolescent girls have been found to be more anxious about HIV testing services confidentiality than young women (Michaels-Igbokwe et al., 2015). In addition, the threat of HIV-related stigma from friends, family and the community remains a concern for adolescents (Strauss et al., 2017). Lack of HIV knowledge may also present challenges for HIV testing among adolescents (Mkandawire, 2017; Ngo et al., 2013; Peltzer & Matseke, 2014).

Education level was associated with HIV testing in the last 12 months. Supporting the findings of this study, several studies around Africa found a positive association between higher education levels and HCT uptake among young people (Addis et al., 2013; Doyle et al., 2012; Ibrahim et al., 2013; Mkandawire, 2017; Sanga, Kapanda, Msuya, & Mwangi, 2015). Higher education has been linked to increased basic information and positive attitudes about HIV and AIDS (Baker, Leon, & Collins, 2011). In turn, HIV knowledge has been found to increase HIV testing among young people (Mkandawire, 2017; Ngo et al., 2013; Peltzer & Matseke, 2014). In addition, in school young people receive skills based health and sex education and sometimes services (Lindberg et al., 2012; WHO, 2014).

Findings of this study are consistent with other studies (Oginni et al., 2014; Venkatesh et al., 2011) that found lower odds of HIV testing among students compared to employed young people. In South Africa there are still ethical and legal concerns regarding the provision of HCT in schools, which has led to HIV testing in schools to be on hold until policies are in place (Lawrence, Struthers, & Van Hove, 2015, 2016). However some non-governmental organisations have been providing HCT in schools where it is allowed by the school governing bodies (Lawrence et al., 2016). Legal, ethical and counselling guidance for testing children and adolescents is provided for in the Children's Act 38 of 2005 and in the National HIV Counselling and Testing Policy Guidelines and the 2012 Implementation Guidelines and these create complexities for service providers, researchers, children and parents (Van Rooyen, Strode, & Slack, 2016).

This study found lower odds of testing among young women residing in urban informal settlements. Studies have also found high HIV testing rates among urban informal settlements in South Africa than other locality types, which supports the findings of this study (Shisana et al., 2012; Wabiri & Taffa, 2013). Shisana et al. (2012) found that participants in urban informal settlements had a higher risk perception compared to urban formal and rural formal settlement participants in 2012, in South Africa. In addition, Shisana et al. (2012) found that urban informal settlement dwellers were more likely to know the location of the closest HCT centre compared to urban formal dwellers in 2012, in South Africa.

In this study, young women residing in rural settlements were less likely to test compared to young women residing in urban formal settlements. Studies in Africa have found differences in HIV testing between rural and urban settlements, with more HCT uptake in urban settlements than rural settlement (Doyle et al., 2012; Ibrahim et al., 2013; Oguegbu, 2016). The issue of health inequality in South Africa is well documented, which is characterised by

differences in access to health services between rural and urban settlements (Coovadia et al., 2009; Mayosi et al., 2012). A study in Namibia found that lower odds of HIV testing among participants who reported that they had no clinic in their locality versus those who had a clinic (Creel & Rimal, 2011). In particular the study found an association between HIV testing and availability of HIV testing clinic and community counselling services (Creel & Rimal, 2011). This also raises issues about quality of HCT services. A study in Kenya looking at young people (12 to 22 years) found that HCT services with qualified staff increased HIV testing (Kabiru et al., 2011).

5.2 Self-esteem among young women aged 16 to 24 years in 2012 in South Africa

This study found that 11.1% of young women (16 to 24 years) had low self-esteem. A previous study in South Africa looking at young women (18 to 24 years) reported that 3.6% of young women had low self-esteem (Mchunu et al., 2012). Another study in South Africa reported 4% low self-esteem young women (18 to 24 years) (Seutlwadi et al., 2015). Both these studies used the same measuring tool as this study (RSES), however their score for low self-esteem was ≤ 14 while this study uses ≤ 12 . An important point to note is that the population of both studies is two years older than the population of this study and that the studies were done in four out of nine provinces covered in this study. These studies do not support the findings of this study. This study shows much higher levels of low self-esteem among young women in South Africa. The differences between studies might have contributed to the differences in low self-esteem.

79.1 % of young women reported high self-esteem. Another study in South Africa found that adolescents (16 to 19 years) scored high in self-esteem ($M = 29.82$, $SD = 5.467$, range 0–40) (Hendricks et al., 2015). The study also used the RSES, but was done in a poor community in Cape Town. The study also concentrated on both male and female adolescents, while this study concentrates on young women only. In light of the differences, this previous study cannot be used to support the findings of this current study. Despite an extensive review of literature, this was the only study found in South Africa that reported on high self-esteem.

This study reported relatively higher self-esteem among young women. Studies looking at the trajectory of self-esteem found that self-esteem increases during adolescence into middle adulthood (Erol & Orth, 2011; Wagner et al., 2013). This increase could explain high self-esteem among this age group.

A surprising result is that young women report high self-esteem despite the challenges that they face in Southern Africa such as poverty, gender inequality, lack of access to education and health services, lack of water and sanitation services which increases their vulnerability to HIV (UNAIDS & AU, 2015; UNAIDS, 2014, 2016b, 2016c, UNICEF, n.d., 2012). This shows that young women are resilient and hopeful despite the odds. This resilience can be explored to strengthen HIV programmes in the country. Researchers agree that self-esteem plays an important role in shaping human behaviour and influences human growth and development (Wagner et al., 2013; Gruenenfelder-Steiger, Allemand & Robins, 2014). Orth, Robins and Widaman, (2012) cross-lagged analyses suggested that self-esteem has significant prospective impacts on real-world life experiences. Mruk & Skelly (2017) agree that self-esteem plays a central role in core concepts of growth, well-being, and self-actualisation. This study shows that there is a clear gap in studying self-esteem among this age group. More studies are needed to evaluate self-esteem among young women, in order to draw consensus on the levels of low self-esteem among this group.

5.3 Associations between HIV testing and self-esteem among young women (16 to 24 years) in 2012 in South Africa

The study found no association between self-esteem and HIV testing in the last 12 months using both chi-square test and the regression model. The study did find an association between self-esteem and ever testing for HIV in both the chi-square test and the regression model ($p < 0.05$). Participants with low self-esteem were less likely to have ever tested for HIV than participants with high self-esteem. A study among Ugandan youth (mean age =14.9) across five secondary schools found an association between self-esteem and HIV testing. In support of the findings of this study, the study found an association between self-esteem and ever testing for HIV (Hampananda et al., 2014). Unfortunately, the study offers no further details on this finding. Hampananda et al. (2014) offer further nuances which could explain the lower odds of ever testing for HIV testing among participants with low self-esteem, the study found an association ($p < 0.05$) between positive self-esteem measures used in this study such as “I feel I have a number of good qualities” and “It is likely I will have a bright future” and believing a health centre would treat one with respect among Ugandan youth (mean age =14.9).

This study shows that low self-esteem is a barrier to access to HIV testing among young women among other barriers identified in other studies such as; stigma, perceived risk of infection, perceived lack of confidentiality, financial costs, HIV testing policies and national guidelines regarding consent and guardianship for adolescents and distance to HCT services (Ajuwon et

al., 2011; Gatta & Thupayagale-Tshweneagae, 2012; Kranzer et al., 2014; Kurth et al., 2015; Maughan-Brown & Nyblade, 2014; Michaels-Igbokwe et al., 2015; Musheke et al., 2013; Strauss et al., 2017; Tenkorang, 2016; Onyeonoro et al., 2014; UNICEF, 2013).

HCT is a proven HIV prevention method (Cohen et al., 2011; Fonner et al., 2012; Montaner et al., 2014; Rosenberg, Pettifor, et al., 2013; Toska et al., 2017). Any barriers to HCT must be broken down, including low self-esteem. Many studies have also linked low self-esteem to risky sexual behaviour such as early sexual debut, having had risky partners and pregnancy among young women (Ethier et al., 2006; Mchunu G et al., 2012; Yakubu & Salisu, 2018). Programmes that improve adolescent girls' self-esteem have been shown to help them refuse unwanted sex, and resist coerced sex (Chandra-Mouli, Camacho, & Michaud, 2013).

The strengths of this study is that it is a cross-sectional national survey with the sample size large enough to achieve a statistical power required to detect statistical differences observed in the study. The results of this study can be generalisable to all young women (16 to 24 years) in South Africa. This speaks to the significance of studies and its major contribution in studying this relationship. Given the lack of literature on self-esteem and young women, this study is a makes a major and ground breaking contribution to the body of literature on self-esteem and HIV testing. The findings of this study therefore form the bases of a call to researchers and students to explore this relationship further as it pertains to HIV programming among young women.

5.4 Limitations of the study

The study relied on self-reported measures for HIV testing and self-esteem. There were no means of independently verifying the reports. Self-reported measures are vulnerable to recall and social desirability bias. Collecting information pertaining to HIV and sexual behaviour is sensitive. The NCS show consistent results from the various methods used which does not support any lack of validity due to self-report in this survey (Johnson et al., 2012). The NCS does not show how it categorised SES into high, low and medium SES. A shortened version of the Rosenberg Self-Esteem Scale (RSES) was used in the study. This does not invalidate the results because shorter versions of RSES have been successfully used before without losing measurement precision (Ackerman et al., 2011; Kemigisha et al., 2018; Steiger et al., 2014; Tambs & Røysamb, 2014). In addition, the instrument showed the Cronbach's alpha reliability coefficient was equal to 0.93 which shows high internal consistency (Joo & Sang, 2013). However, it is not clear how the shortened version of the scale might have impacted the results

of this study. The cross-sectional nature of the study did not allow for exploration of causal relationships between variables, however it gives a very good picture of the current situation and suggests future work is needed to explore self-esteem and HIV testing among young women.

Despite the identified limitations, this study offers valuable lessons which can be used by researchers, department of health, policymakers, donors and HIV programme managers in informing HIV prevention programmes for young women in South Africa.



CHAPTER 6: CONCLUSION

The NCS is one of the few national cross-sectional studies in South Africa that provided an important opportunity to explore the relationship between HCT and self-esteem. This study used the opportunity to not only contribute to the body of knowledge on self-esteem and HIV testing for young women, but also to generate information for the development of appropriate HIV prevention programmes.

The study shows that young women tested during this campaign, but that there are differences in terms of the socio-demographic characteristics of young women testing. This study shows that HCT campaign did not adequately reach certain groups including: adolescents, White and Indian young women, students, young women with lower education attainment and residing in urban informal or rural settlements. Despite limitations it is promising that the majority young women test because they want to know their HIV status. The success of Prevention of Mother-To-Child-Transmission of HIV (PMTCT) is amplified in this study, showing that many young women test through this intervention. It also promising that many young women are not sexually active.

The study also shows that young women have relatively high self-esteem in South Africa; this provides a window of opportunity to understand what this means for HIV programming for this age group in this country. The findings of this study on self-esteem could not be supported due to limited studies looking at self-esteem in South Africa and similar contexts. This therefore makes this a ground breaking study that stands as a call to assess self-esteem among this age group in order to reach consensus. Despite the high levels of self-esteem shown by this study, low self-esteem was identified as a barrier to HIV testing. There is a need to halt, reverse the spread of HIV and cushion the impact of HIV amongst young women. In order to do that we need to break down barriers that prevent young women from accessing health services sexual and reproductive health services, HIV testing and treatment services. This study therefore identifies self-esteem as an important factor in the uptake of HCT by young women (16 to 24 years) in South Africa. This study concludes that interventions designed to raise self-esteem can have beneficial consequences for young women in increasing HCT uptake and consequently reducing HIV incidence and deaths due among this age group.

6.1 Recommendations

The main findings of this study is that there is association between self-esteem and ever testing for HIV, however there is a glaring gap in studies that explore psychosocial variables including

self-esteem. More studies that explore HIV testing and psychosocial variables should be conducted in South Africa and Africa at large. This study offers a window to research institutions, academics and students to further exploration this area since very little work has been done. In addition, government and non-governmental organisations should consider using programmes that build self-esteem of young women in HCT programmes. Information generated from this study may assist funders, with regards to factors they need to consider when funding HIV prevention programmes for young women.

The study also found no association between self-esteem and HIV testing in the last 12 months. It is not clear why this is the case, given the limited studies available exploring self-esteem and HIV testing. More studies looking at particularly at recent HIV testing and self-esteem should be explored.

Nationwide HCT campaigns are working and do reach young women. The Department of Health should sustain and amplify these campaigns. The Department of Health could look into the recommended universal testing and treatment (UTT) as part of a comprehensive HIV prevention package, which offers repeated HIV testing at community level with immediate initiation to treatment once found HIV positive despite viral load or clinical stage.

These campaigns should ensure that all demographics of young women are reached through HIV programming given that the findings of this study demonstrates certain demographics of young women are not reached. This study showed that adolescents and students are less likely to test, this means that policies and guidelines that act as a barrier to HIV testing among adolescents and students should be revised, including finalising the policies regarding the provision of HCT in schools.

This study also shows that young women are testing through PMTCT. Campaigns should also make sure that specific attention is paid to young women who do not access antenatal care. This study highlights the fact that many young women are not sexual active and therefore HIV programming make sure this group is reached through HIV prevention messaging when they decide to be sexually active. It is worrying that many young women are basing their decision to test on feeling healthy. This highlights the need for HIV programming that continues to increase knowledge on HIV and addressing issues around perceptions of risk.

Self-esteem is a psycho-social construct that may need specialised research and programming approached. This means a multi sectoral approach to HIV prevention programmes for young women should always be considered. The approach should include but not limited to different

government departments, non-governmental organisations, corporate, mental health practitioners and community members. This study also showed that lower education attainment and residing in urban informal or rural settlements are barriers to HCT uptake among young women in South Africa. Issues of inequality and keeping girls in school should be part of the response to HIV, hence the need for a comprehensive approach.



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APPENDICES

Appendix 1- Questionnaire used in the Primary Study

THIRD NATIONAL COMMUNICATIONS SURVEY– 2012

ENGLISH VERSION

Post Pilot Version

QUESTIONNAIRE NUMBER

GEOGRAPHIC INFORMATION

THIS SECTION IS NOT TO BE ASKED OF THE RESPONDENT

A. Province	1=Eastern Cape	6= Mpumalanga	B. PSU/ Small Area number																		
	2=Free State	7= North West																			
C. Locale or settlement type	3=Gauteng	8= Northern Cape	D. Dominant housing type in AREA	1 = Formal housing		2 = Mostly formal housing		3 = Mostly informal housing		4 = Squatter housing/ impoverished area		5 = Traditional housing		6 = Hostels		55= Other (Specify)					
	4=KwaZulu- Natal	9= Western Cape																			
E. Area name			F. Household roster number																		
K. Name of fieldworker			L. Date of interview <i>[dd/mm/yy]</i>																		
M. Name of team leader																					

A1. The respondent is in the room with no others present except for the interviewer.	1=Yes 2=No	
A2. I have read the individual information sheet, statement of confidentiality and informed consent form	1=Yes 2=No	
A3. If the participant agreed to participate, did he/she sign the consent form?	1=Yes 2=No	
A4. If the participant is 16 or 17 years old, did his/her guardian sign the parental consent/assent form?	1=Yes 2=No	
A5. Has the participant retained a copy of the information sheet?	1=Yes 2=No	

SECTION 1: DEMOGRAPHICS

1.1	Sex of the respondent [DO NOT READ OUT LOUD]	1= Male 2= Female									
1.2	Race of the respondent [DO NOT READ OUT LOUD]	5. 1= Black 6. 2= Coloured 7. 3= White 4= Indian 55= Other (specify)									
1.3	PRESENT age of the respondent today	Years: _____									
1.4	Date of birth [dd/mm/yyyy]	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="width: 20px; text-align: center;">D</td> <td style="width: 20px; text-align: center;">D</td> <td style="width: 20px; text-align: center;">M</td> <td style="width: 20px; text-align: center;">M</td> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">Y</td> </tr> </table>	D	D	M	M	Y	Y	Y	Y	
D	D	M	M	Y	Y	Y	Y				
1.5	Were you born in South Africa?	1=Yes 2=No → SKIP TO Q1.10									
1.6	In which province were you born? [DO NOT READ OUT LOUD] [One response only]	1=Eastern Cape 2=Free State 3=Gauteng 4=KwaZulu-Natal 5=Limpopo 6= Mpumalanga 7= North West 8= Northern Cape 9= Western Cape									
1.7	Do you still live in that province?	1 = Yes → SKIP TO Q1.10 2 = No									
1.8	If no, how often have you moved between provinces in the past 10 years	1 = once 2 = twice 3 = trice 4 = four times 5 = five times 6 = more than five times									

1.9	Do you send money home to that province?	1 = Yes 2 = No	
1.10	How often do you sleep away from home?	1= At least once a week 2= At least once a month 3= 3 or 4 times a year 4 = Less often 5 = Never	
1.11	Which South African languages do you understand when they are spoken? <u>Include your home language!</u> [DO NOT READ OUT LOUD] [MORE THAN ONE RESPONSE POSSIBLE]	1 = isiZulu 2 = isiXhosa 3 = isiNdebele 4 = isiSwati 5 = English 6 = Afrikaans 7 = Sesotho sa borwa 8 = Sepedi 9 = Setswana 10 = Tshivenda 11 = Xitsonga	
1.12	Which South African language do you speak most of the time at home? [DO NOT READ OUT LOUD] [One response only]	1 = isiZulu 2 = isiXhosa 3 = isiNdebele 4 = isiSwati 5 = English 6 = Afrikaans 7 = Sesotho sa borwa 8 = Sepedi 9 = Setswana 10 = Tshivenda 11 = Xitsonga 55= Other (specify)	
1.13	What is your marital status? (Marital status referring to legal, traditional or common-law) [DO NOT READ OUT LOUD] [ONE RESPONSE ONLY]	1 = Single 2 = Not married or living together but in a steady sexual relationship lasting more than 3 months 3 = Not married, but living with sexual partner/boyfriend/girlfriend 4 = Married, living with husband/wife 5 = Married, NOT living with husband/wife 6 = Divorced/Widowed 55= Other (specify)	
1.14	What is your present employment status? [DO NOT READ OUT LOUD] [ONE RESPONSE ONLY]	1 = Unemployed, not looking for work 2 = Unemployed, looking for work 3 = Informal work (such as making things for sale, selling things or providing a service) 4 = Employed full-time [40 or more hours a week] 5 = Employed part-time [less than 40 hours a week] 6 = Full-time student / pupil / learner at SCHOOL 7 = Full-time student at COLLEGE / TECHNIKON / UNIVERSITY 8 = Pensioner 9 = Living on disability or other grant 55= Other (specify)	

<p>1.15</p>	<p>What is the HIGHEST grade of education you have completed?</p> <p>[DO NOT READ OUT LOUD]</p> <p>[ONE RESPONSE ONLY]</p>	<p>18 = No schooling 1 = grade 1 2 = grade 2 3 = grade 3 4 = grade 4 5 = grade 5 6 = grade 6 7 = grade 7 (Standard 5) 8 = grade 8 9 = grade 9 10 = grade 10 11 = grade 11 (Standard 9) 12 = grade 12 (Standard 10 / Matric) 13 =Diploma, certificate after Matric 14 = one to three years of university 15 = Bachelor's degree from a University 16 = Post graduate degree (eg. Honours, Masters) 17 =Doctoral degree (PhD) 55= Other (specify)</p>	
-------------	---	---	--



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1.16	In the PAST 12 MONTHS, how often have you gone without the following: [READ OUT LOUD]		
1.16.1	In the PAST 12 MONTHS, how often have you gone without <u>enough fuel (including electricity) to heat your home or cook food?</u>	1=Often 2=Sometimes 3=Rarely 4=Never	
1.16.2	In the PAST 12 MONTHS, how often have you gone without <u>enough clean water to drink?</u>	1=Often 2=Sometimes 3=Rarely 4=Never	
1.16.3	In the PAST 12 MONTHS, how often have you gone without <u>medicines or medical treatment that you needed?</u>	1=Often 2=Sometimes 3=Rarely 4=Never	
1.16.4	In the PAST 12 MONTHS, how often have you gone without <u>enough food to eat?</u>	1=Often 2=Sometimes 3=Rarely 4=Never	

1.17	Please tell me which of the following are presently in your household <u>that are in working order</u> [THIS HOUSEHOLD HERE] [READ OUT LOUD]		
1.17.1	Microwave oven	1=Yes 2=No	
1.17.2	Flush toilet in house or on plot	1=Yes 2=No	
1.17.3	Washing machine – automatic/ semi-automatic/ twin tub	1=Yes 2=No	
1.17.4	Built-in kitchen sink	1=Yes 2=No	
1.17.5	Water in home or on stand	1=Yes 2=No	
1.17.6	Electricity in the household	1=Yes 2=No	
1.17.7	One or more motor vehicles in household	1=Yes 2=No	

SECTION 6: SELF ESTEEM

How much do you agree with the following statements about yourself? READ OUT ALL			
6.1.1	I feel that I have a number of good qualities [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	

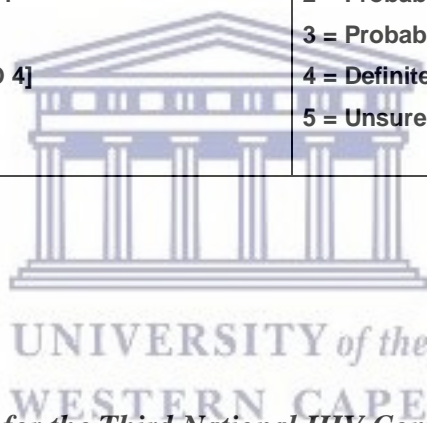
6.1.2	I am able to do things as well as most other people [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.1.3	I feel that I'm a person of worth, at least on an equal plane with others [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.1.4	I take a positive attitude toward myself [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	

SECTION 7: HIV COUNSELLING AND TESTING (HCT)

Interviewer read out loud: These questions will be about HIV counselling and testing.			
7.1	Have you ever been tested for HIV?	1= Yes 2= No ➔ SKIP TO Q7.9 98 = Refused to answer ➔ SKIP TO Q7.9	
7.2	What year did you have your first HIV test?	YEAR: _____	
7.3	How long ago did you have your last HIV test? READ OUT. ONLY ONE RESPONSE	1 = Less than 3 months ago 2 = 3-6 months ago 3 = 7-12 months ago 4 = More than 1 year ago, but less than 2 years ago 5 = More than 2 years ago	
7.4	How many times did you get tested for HIV in the past 12 months? [Write Number]	NUMBER: _____	
7.5	In total, how many times have you been tested for HIV? [Write Number – CANNOT BE LESS THAN Q.7.4]	NUMBER: _____	

7.6	<p>Where did you get tested the last time you had an HIV test?</p> <p>ONE RESPONSE ONLY</p> <p>[DO NOT READ OUT]</p>	<p>1 = At the hospital 2 = At the clinic 3 = At an HCT centre 4 = At traditional healer 5 = Private testing facility 6 = Family planning centres 7 = Chemist / Pharmacy 8 = At a mobile clinic 9 = At work 10 = At university 11 = At an NGO 12 = At a church/ Faith based organization 55 = Other (specify)</p>
7.7	<p>What were you recommended to do after receiving your test results?</p> <p>{DO NOT PROMPT}</p> <p>[MULTIPLE RESPONSES POSSIBLE]</p>	<p>1 = Nothing 2 = Start drug treatment for HIV 3 = Join a support group for HIV positive people 4 = Use condoms every time I have sex 5 = Remain faithful to one sex partner 6 = Get my CD4 checked 55 = Other (specify):</p>
7.8	<p>What were your reasons for having your most recent HIV test?</p> <p>[DO NOT PROMPT]</p> <p>[MULTIPLE RESPONSES POSSIBLE]</p> <p>SKIP TO INTENTION TO TEST (Q 7.10)</p>	<p>1= I wanted to know my HIV status 2 = I am planning to have a baby 3= I became pregnant 4 = I had sex without a condom 5 = I was/have been unfaithful 6 = I started a new sexual relationship 7 = My sex partner asked me to get an HIV test 8 = I saw in TV that one has to get tested 9 = I have had sex with many people 10 = I applied for an insurance policy or loan 11 = I was feeling sick 12 = My employer requested it 55= Other (specify) _____ 96= Don't know 98 = Refused to answer</p>

7.9	<p>What are your reasons for not having tested for HIV?</p> <p>[DO NOT PROMPT]</p> <p>[MULTIPLE RESPONSES POSSIBLE]</p>	<p>1 = I have never had sex 2 = I am faithful/only have one partner 3 = I use condoms every time I have sex 4= I don't know where to go 5 = I am afraid to know my status 6 = I am not worried about having HIV 7 = I am feeling healthy 8 = My spouse/partner will not let me 9 = I don't want people to know 10 = The clinic/hospital is too far 11 = I don't like the way I am treated at the clinic/hospital 55 = Other (specify): _____ 96= Don't know 98 = Refused to answer</p>
7.10	<p>Are you planning to get tested (tested again) in the next 12 months?</p> <p>[READ OPTIONS 1 TO 4]</p>	<p>1 = Definitely will 2 = Probably will 3 = Probably will not 4 = Definitely will not 5 = Unsure</p>



Appendix 2-Request for Data for the Third National HIV Communications Survey

From: Lusanda Mahlasela
Sent: Tuesday, 18 July 2017 15:15
To: Thoko Budaza <thokobudaza@soulcity.org.za>
Subject: RE: Request for permission to use the National Communications Survey Study-2012

Dear Thoko,

Please see link to the dataset. All the best.

https://www.dropbox.com/s/qw6g73pd6m5e0k3/NCS%20database_2012_Dec%2014.dta?dl=0

Regards
Lusanda

Dear Thoko,

Apologies for the delay. Sorry I “lost” your email in my inbox. I will send you a link to the dataset.

Regards

Lusanda

From: Thoko Budaza [<mailto:thokobudaza@soulcity.org.za>]

Sent: 18 July 2017 11:56 AM

To: Lusanda Mahlasela

Subject: RE: Request for permission to use the National Communications Survey Study-2012

Dear Lusanda,

I would like to follow up on the request.

Best Regards,

Thoko Budaza



From: Lusanda Mahlasela

Sent: Tuesday, 27 June 2017 08:52

To: Thoko Budaza <thokobudaza@soulcity.org.za>

Subject: RE: Request for permission to use the National Communications Survey Study-2012

Dear Thoko,

Your request below refers.

Please find attached the data user’s agreement. Kindly complete and send back to me.

Regards

Lusanda N. Mahlasela

Director: Research, Monitoring and Evaluation



From: Susan Goldstein

Sent: 26 June 2017 02:56 PM

To: Lusanda Mahlasela

Subject: Fwd: Request for permission to use the National Communications Survey Study-2012



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Dear Lusanda

See request to use the NCS data below. Please let Thoko know directly.

Best

Sue

----- Forwarded message -----

From: "Thoko Budaza" <thokobudaza@soulcity.org.za>

Date: 26 Jun 2017 05:54

Subject: Request for permission to use the National Communications Survey Study-2012

To: "Sue Goldstein"

Cc:

Dear Sue,

I am currently doing my Masters In public at the University of the Western Cape. I am

currently doing my second year. Next Semester, I will be starting work on my thesis. I have chosen the following topic:

Describe association between self-esteem and HIV counselling and testing (HCT) amongst young women (16-24 years old) in South Africa using the Third National HIV Communication Survey (NCS)-2012.

I would like to ask for permission to use the study for my thesis. The benefit of this study is to contribute to the identification of self-esteem as an important factor to uptake of HCT by young women (16-24 years) in South Africa. Through such research, gaps in HCT programmes can be identified in order to underpin the development of more specifically targeted HCT programmes for young women as an important HIV prevention and treatment strategy. Department of Health and Non-governmental organisations may use this information in developing appropriate HCT programmes for young women. Information generated from this study may assist funders, with regards to factors they need to consider when funding HIV programmes for young women. The findings of the study may spark interest for research institutions, academics and students for further exploration, since very little work has been done in this area.

Should permission be granted, I would also like to request access to more information on the study, which is not available on the internet, such as the number of women who answered questions on HCT and Self-esteem.

I look forward to your favourable response.

Best Regards,



THOKO BUDAZA
Senior Manager: Provincial Programmes

☎ 011 341 0360 • 011 771 7934 (Direct)
☎ 062 320 9509
✉ thokobudaza@soulcity.org.za

1st Floor • Dunkeld West Centre • 281 Jan Smuts Avenue • Dunkeld West
www.soulcity.org.za
NPO 012 - 963

I. Request for a quick chat

Inbo x
x

II.



II. **Thoko Budaza <budazat@gmail.com>**

**Tue, Jul 3, 11:33
AM**

to Lusanda

Dear Lusanda,

I would like to request a quick chat with you regarding the NCS data. I hope its not a problem. Please let me know when you available.

My number is 0623209509

**Best Regards,
Thokozile Budaza**



III. **Lusanda Mahlasela**

**Wed, Jul 4, 5:59
PM**

to me

Hi Thoko,

It's a bit hectic. I hope that I will be able to help, although I am not so familiar with the actual data. We outsourced the data analysis. In the meantime please send an email so I can see what you need.

Regards

Lusanda.

From: Thoko Budaza [mailto:budazat@gmail.com]

Sent: 03 July 2018 11:33 AM

To: Lusanda Mahlasela

Subject: Request for a quick chat



IV. Thoko Budaza <budazat@gmail.com>

Wed, Jul 4, 6:06

PM

to Lusanda



So sorry to add to your hecticness

I have noticed that the self-esteem data has been cut. The questionnaire had 10 questions, a typical Rosenberg Scale. When I'm doing the analysis I find that only 4 questions were captured.

I was wondering if there is another data set that would have all the questions?



V. Lusanda Mahlasela

Thu, Jul 5, 9:50

AM

to me

Hi Thoko,

I have forwarded your message to one of the data analysts involved. She has since moved on, but I hope that she will be able to help. I will let you know soonest.

Regards

Lusanda

From: Thoko Budaza [mailto:budazat@gmail.com]

Sent: 04 July 2018 06:06 PM

To: Lusanda Mahlasela

Subject: Re: Request for a quick chat



VI. Thoko Budaza <budazat@gmail.com>

Thu, Jul 5, 9:52

AM

to Lusanda



Hi Lusanda,

Thank you so much. I will wait for your feedback.

Best Regards,



VII. Lusanda Mahlasela

Thu, Jul 5, 10:58

AM

to me

Hi Thoko,

Please see below Sarah's response. She says you are welcome to contact her if you need any more further clarity.

Regards,

Lusanda

From: Sarah Magni

Sent: 05 July 2018 10:00 AM

To: Lusanda Mahlasela

Subject: Re: FW: Request for a quick chat

Hi Lusanda,

I checked the questionnaire. The below are the questions from the questionnaire (there are only four on self-esteem and four on outlook on the future).



SECTION 6: SELF ESTEEM AND OUTLOOK ON THE FUTURE

6.1	How much do you agree with the following statements about yourself? READ OUT ALL
------------	---

6.1.1	I feel that I have a number of good qualities [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.1.2	I am able to do things as well as most other people [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.1.3	I feel that I'm a person of worth, at least on an equal plane with others [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.1.4	I take a positive attitude toward myself [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.2	I would like to know how you see your future, would you say.....?[READ OUT]		



6.2.1	I have many opportunities in life [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.2.2	I have a good idea of where I am headed in the future [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.2.3	I have a plan for the future [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
6.2.4	I am in control of what happens in my life [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	



I checked the database and it is complete (see below).

use "C:\Users\SarahM\Documents\Wits MSc\Database\Data & Questionnaire
 > es\NCS 2012_All respondents_Dec 13.dta"

. tab q6_1_1

i feel that i |
 have a number of |
 good qualities |

	Freq.	Percent	Cum.
strongly disagree	450	4.48	4.48
somewhat disagree	365	3.64	8.12
somewhat agree	1,045	10.41	18.54
strongly agree	8,174	81.46	100.00
Total 	10,034	100.00	

. tab q6_1_2

i am able to do |
 things as well as |
 most other people |

	Freq.	Percent	Cum.
strongly disagree	463	4.61	4.61
somewhat disagree	363	3.62	8.23
somewhat agree	1,160	11.56	19.79
strongly agree	8,048	80.21	100.00
Total 	10,034	100.00	

. tab q6_1_3

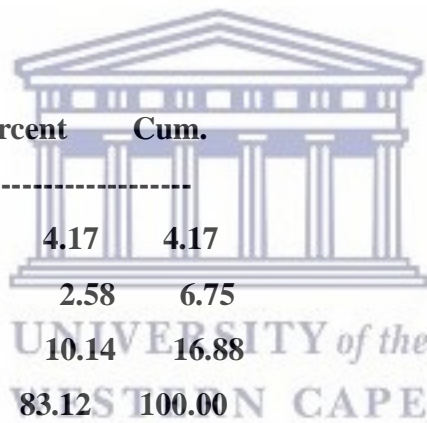
i feel that i am |
 a person of |



worth, at least on an equal plane with others	Freq.	Percent	Cum.
strongly disagree	435	4.34	4.34
somewhat disagree	388	3.87	8.20
somewhat agree	1,113	11.09	19.29
strongly agree	8,098	80.71	100.00
Total 	10,034	100.00	

. tab q6_1_4

i take a positive attitude toward myself	Freq.	Percent	Cum.
strongly disagree	418	4.17	4.17
somewhat disagree	259	2.58	6.75
somewhat agree	1,017	10.14	16.88
strongly agree	8,340	83.12	100.00
Total 	10,034	100.00	



. tab q6_2_1

i have many opportunities in life	Freq.	Percent	Cum.
strongly disagree	555	5.53	5.53
somewhat disagree	456	4.54	10.08
somewhat agree	1,142	11.38	21.46
strongly agree	7,881	78.54	100.00

-----+-----
Total | 10,034 100.00

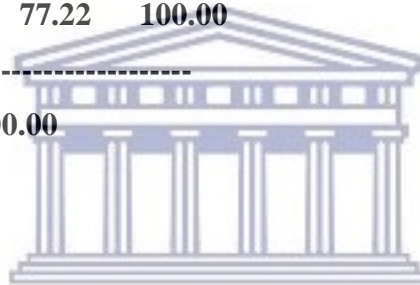
. tab q6_2_2

**i have a good |
idea of where i |
am headed in the |**

future | Freq. Percent Cum.

-----+-----
strongly disagree | 575 5.73 5.73
somewhat disagree | 464 4.62 10.35
somewhat agree | 1,247 12.43 22.78
strongly agree | 7,748 77.22 100.00

-----+-----
Total | 10,034 100.00



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. tab q6_2_3

i have a plan for |

the future | Freq. Percent Cum.

-----+-----
strongly disagree | 498 4.96 4.96
somewhat disagree | 390 3.89 8.85
somewhat agree | 1,123 11.19 20.04
strongly agree | 8,023 79.96 100.00

-----+-----
Total | 10,034 100.00

. tab q6_2_4

**i am in control |
of what happens |**

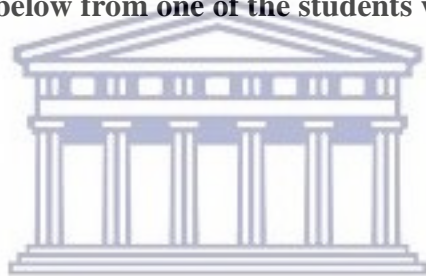
in my life | Freq. Percent Cum.

strongly disagree	478	4.76	4.76
somewhat disagree	454	4.52	9.29
somewhat agree	1,149	11.45	20.74
strongly agree	7,953	79.26	100.00
Total 	10,034	100.00	

On 5 July 2018 at 09:48, Lusanda Mahlasela wrote:

Dear Sarah,

I hope that you are well. I hate to bother you about a matter as old as the NCS 2012, but I have received the message below from one of the students who requested to use the data. Can you please help?



Warm regards

Lusanda

From: Thoko Budaza [mailto:budazat@gmail.com]

Sent: 04 July 2018 06:06 PM

To: Lusanda Mahlasela

Subject: Re: Request for a quick chat

So sorry to add to your hecticness

I have noticed that the self-esteem data has been cut. The questionnaire had 10 questions, a typical Rosenberg Scale. When I'm doing the analysis I find that only 4 questions were captured.

I was wondering if there is another data set that would have all the questions?

On Wed, 4 Jul 2018, 17:59 Lusanda Mahlasela, wrote:

Hi Thoko,

It's a bit hectic. I hope that I will be able to help, although I am not so familiar with the actual data. We outsourced the data analysis. In the meantime please send an email so I can see what you need.

Regards

Lusanda.

From: Thoko Budaza [mailto:budazat@gmail.com]

Sent: 03 July 2018 11:33 AM

To: Lusanda Mahlasela

Subject: Request for a quick chat

Dear Lusanda,

I would like to request a quick chat with you regarding the NCS data. I hope its not a problem. Please let me know when you available.

My number is 0623209509

Best Regards,

Thokozile Budaza



VIII. Thoko Budaza <budazat@gmail.com>

**Thu, Jul 5, 11:02
AM**

to Lusanda

**Thank you Lusanda. It makes sense now. I must have an outdated questionnaire.
Would you mind sharing final questionnaire.**

I really appreciate your help.

**Best Regards,
Thoko Budaza**



Appendix 4-Data User's Agreement for Third National Communication Survey-2012

DATA USER'S AGREEMENT Third National HIV Communication Survey: 2012

The National HIV Communication Survey (NCS), 2012 Steering Committee, encourages all interested users to request for Data/ Data Sets. Users are however required to read and sign the User's Agreement for Information, which stipulates the conditions for use of the Data /Data Sets before the requested Data /Data Sets is made available.

Please read the following agreement. All users Data Sets agree to the conditions listed below. If you accept these conditions, fill in the required information and sign at the appropriate place.

1. The User agrees that the NCS Steering Committee is the owner of the Data Set(s).
2. The use of these Data Sets in research communication, scholarly papers, journals and the like is encouraged, but the authors of these communications and documents are required to acknowledge/cite the NCS steering committee as the source of the Data. Data should be acknowledged using the following statement:

The data used in this paper are from the Third National HIV Communication Survey (NCS). The NCS is a collaborative survey undertaken by Johns Hopkins Health and Education in South Africa (JHHESA), loveLife and Soul City. The survey was managed by Health and Development Africa (HDA). The Johns Hopkins Bloomberg School of Public Health Center for Communication Programs (JHU-CCP) provided technical support and oversight at all stages of the study. Data were gathered by Freshly Ground Insights (FGI). This study was funded by the Department of Health, the United States Agency for International Development (USAID) through the President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund.

3. A copy of any document produced from the Data Set for publication or other forms of circulation should be submitted to the NCS steering committee.
4. The User agrees that any use of the Data or reliance by the User or any of the Data is at the User's own risk and that the NCS steering committee shall not be liable for any loss or damage howsoever arising as a result of such use.
5. The User agrees that he/she will not attempt to link nor permit others to attempt to link the records of persons in these Data Sets with personally identifiable records from any other source.

6. The User agrees that he/she will not attempt to use nor permit others to use the Data Sets to establish the identity of any person included in any set.
7. The User agrees that he/she will make no statement nor permit others to make statements indicating or suggesting that interpretations drawn are those of the NCS steering committee.
9. **PENALTY CLAUSE:** The user agrees that non-adherence to the above statements may result in the NCS steering committee not making available any datasets to the user in future.

The User agrees that his/her signature indicates his/her agreement to comply with the above-stated requirements (Points 1-9)

Please complete this form

Name	Thokozile Budaza
Organisation:	Soul City Institute for Social Justice
Purpose for which the data will be used (please provide sufficient detail)	Secondary Study analysis for Masters in Public Health mini thesis at the University of the Western Cape. Proposed Study Topic: Measure association between self-esteem and HIV counselling and testing (HCT) amongst young women (16-24 years old) in South Africa using the Third National HIV Communication Survey (NCS)-2012.
Anticipated timeframe for completing the analysis/study/project for which data are requested	12 Months
Anticipated timeframe for sharing the results of the analysis/study/project with the NCS Steering Committee	18 Months
Telephone:	011 341 0360 / 0623209509
Fax:	08661 07743
E-mail:	budazat@gmail.com / thokobudaza@soulcity.org.za
Signature:	
Study Supervisor: Name	Dr Lucia Knight

Supervisor Signature	<i>Knights</i>
Supervisor Contact No. & e-mail address	0219592243 lknight@uwc.ac.za
NCS steering committee Representative:	<i>[Signature]</i>
Date:	17/07/2017



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Appendix 5-Ethics Approval from the Humanities and Social Science Research Ethics

Committee of the University of the Western Cape



**OFFICE OF THE DIRECTOR: RESEARCH
RESEARCH AND INNOVATION DIVISION**

Private Bag X17, Bellville 7535
South Africa
T: +27 21 959 2988/2948
F: +27 21 959 3170
E: research-ethics@uwc.ac.za
www.uwc.ac.za

29 May 2018

Ms T Budaza
School of Public Health
Faculty of Community and Health Sciences

Ethics Reference Number: HS17/10/25

Project Title: The relationship between self-esteem and uptake of HIV Counselling and Testing amongst young women in South Africa.

Approval Period: 17 November 2017 – 17 November 2018

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

A handwritten signature in black ink that reads 'Josias'.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

PROVISIONAL REC NUMBER - 130416-049