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Investigating the acceptability of unsupervised/private HIV self-testing among young male students at the University of KwaZulu-Natal

By

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ABSTRACT

Globally only 84% of individuals knew that they were living with HIV by 2020 (UNIAIDS, 2021; WHO, 2021). Young people are a growing proportion of individuals living with HIV who do not know their status and there is a growing need for innovative HIV testing methods such as the HIV Self Test (HIVST). Unlike traditional testing methods, HIVST offers privacy for patients, low cost and thus it is a much-needed method to increase youth testing and knowledge of their HIV status.

This study investigated the knowledge and acceptability of male student's unsupervised HIVST at the University of KwaZulu-Natal. The study utilized a cross-sectional quantitative methodology, and the theory of Planned behaviour guided the study analysis and discussions. This research study used numerous scales to measure participant's attitudes towards HIVST, subjective norms and perceived behavioural control towards the HIVST. In this investigation, 99 male students from the University of KwaZulu-Natal were sampled using time location sampling.
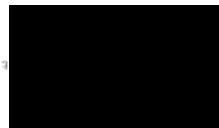
The findings of this study suggest that perceived behavioural control with (positive correlation of .289 with a p-value of .004 at an alpha level of .001) and attitude with (positive correlation of .310 with a P-value .002 at an Alpha level of .001) are the most influential factors for young male youth to use the HIVST. At the same time, the subjective norm is not statistically significant (negative correlation and P-value .067) in influencing the intention to use the HIVST. Younger males aged between 18-21 years were much less likely to test for HIV in general than older youth males above the age of 21 years, who were more likely to be tested or test for HIV in general.

DECLARATION

I, Sanele Mhlongo, declare that:

1. The report in this research study is my own work unless otherwise stated.

2. No other university has received this study for credit or examinations.

3. Unless expressly stated, this research study does not contain data, photos, graphics, or other content from other people.

4. Texts by other authors are not included in this research unless it is made clear that they were used as a source by the researchers. Where sources were consulted, the following has been done:

   4.1 Their words have been paraphrased in a manner that preserves the general knowledge of the author.

   4.2 The publications are quoted and cited when the author's precise words are utilized.

   4.3 No material, pictures, or tables were lifted from the Internet and put into this research study without proper citation.

Signed: ██████████………………

SANELE MHLONGO

Date…29/09/2022…….

DEDICATION

Dedication of this work is to my family, especially my parents, my father iNgobela eyadla ezinye izingobela, uBhekinkosi kaNombunge kaMakhedama wena waseLangeni (may your soul rest in peace) and my mother indlovukazi umaNantuli kaMhlongo, uGodile, umphemba kaSompisi, wena wasemaBheleni who have supported me in my academic journey.

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LIST OF ABBREVIATIONS AND ACRONYMS

HIV- Human immune virus

HIVST- Human immune virus self-testing

AIDS- Acquired Immunodeficiency Syndrome

WHO- World health organization

UKZN- University of KwaZulu-Natal

GPP- Good Pharmacy Practice

VCT- Voluntary counselling and testing

TPB- Theory of Planned Behaviour

TRA- Theory of Reasoned Action

SPSS- Statistical Package for the Social Sciences

ATHIVST- Attitude towards HIVST scale

SNTHIVST- Subjective norm toward HIVST scale

PCTHIVST- Perceived behavioural control toward HIVST

CHAPTER ONE: INTRODUCTION

Globally, HIV and AIDS continue to have devastating health effects, with more than 36.3 million HIV / AIDS-related deaths and more than 37.7 million living with HIV by 2020 (Marsh, Eaton, Mahy, Sabin, Autenrieth, Wanyeki, Daher and Ghys, 2019; Andrew, Bhuiyan, Mawson, Buxbaum, Sung and Shahbazi, 2018; WHO, 2021 and UNAIDS, 2021). According to UNIADS, if global leaders do not address inequities over the next decade, the globe might face 7.7 million AIDS-associated deaths (UNIAIDS, 2021). This chapter introduces the study through eight sections: background and context, research problem statement, rationale, and study significance. Furthermore, the aim and objectives, concept clarification, study location and dissertation structure are introduced lastly in this section.

1.1 Background and context

The fight against HIV / AIDS poses significant challenges worldwide, raising the fear that success may be too difficult or impossible to achieve (Okware, Opio, MIIIusinguzi and Waibale, 2001). Even before the outbreak of the novel coronavirus disease in the 2019 (COVID-19) epidemic, the World Health Organization (WHO) issued a warning that the global HIV response was worsening (Pillay and Johnson, 2021). Evidence indicates that the outbreak of coronavirus infection has significantly impaired HIV response internationally, with UNAIDS reporting major interruptions in programs relating to HIV testing and disbursement of antiretroviral therapy (Rao, Rucinski, Jarrett, Ackerman, Wallach, Marcus, Adamson, Garner, Santos, Beyrer and Howell, 2021; UNAIDS, 2021; De Lay, Benzaken, Couto, Aliyu, Amole, Dieffenbach Ayala, Chang, Clayton, Karim and Chalkidou, 2021).

A significant milestone in global efforts to combat HIV and AIDS came in 2014 when the United Nations joint Programme on HIV/AIDS and its partners established the 90-90-90 objective. The target was to test 90% of all people living with HIV. Of those tested, 90% should

be on treatment. Lastly, 90% should know their status (UNAIDS, 2021). In 2015, UNAIDs started receiving reports from numerous countries and continents on their progress in achieving the 90-90-90 goal using UNIAIDS standards and methods (UNAIDS, 2021). However, UNAIDS (2021) argued that despite the progress made in Africa to curb the spread of HIV infection, significate gaps and challenges still remain, which will have to be resolved to achieve the new goal of 95% of people being aware of their HIV infection status; 95% of people who are aware of their HIV status initiating HIV treatment and 95% of people on the HIV treatment to live with a suppressed viral load by 2025 and putting Africa on a path to eliminating the AIDS epidemic by 2030.

Africa is the continent that is mainly affected by HIV, with southern and east parts of the continent being severely impacted by the pandemic (Buve', Bishikwabo-Nsarhaza and Mutungadura, 2002; Oster, 2012; WHO, 2021 and UNAIDS, 2021). African Region in 2018 had 25.7 million individuals living with HIV and a 1.1 million infection rate (WHO, 2021). Despite having just 10% of the global population, Sub-Saharan Africa has reported more than 85% of the global AIDS-related mortality (UNAIDS, 2002; Simbayi, Kalichman, Cain, Cherry, Mfecane and Jooste, 2004). The meeting by SADC and UNAIDS held in Lesotho in May 2006 identified multiple partners relationship and low integration of men in the prevention of HIV as one of the driving forces in the high HIV prevalence in nations located in the Southern African regions (Halperin and Epstein, 2007). Therefore, Southern African countries need to develop innovative strategies to curb the spread of HIV.

South Africa is amongst nations highly affected by the HIV epidemic in the Southern region, with the overall amount of individuals living with HIV increasing from an estimated 4.25 million in 2002 to 7.8 million by 2020 (UNAIDS, 2021; Akullian, Vandormael, Miller, Bershteyn, Wenger, Cuadros, Gareta, Bärnighausen, Herbst and Tanser, 2021). HIV prevalence among the youth aged 15-24 has dropped to 5.5% by 2018 from 6.7% in 2002

(Statistic South Africa, 2018). Although the decline is a step in the right direction, more still needs to be done to overcome the pandemic. HIV self-testing was introduced to increase the testing rate by addressing HIV testing and counselling barriers such as stigma, lack of confidentiality and difficulty assessing health facilities (Spyrelis, Abdulla, Frade, Meyer, Mhazo, Taruberekera, Taljaard and Billy, 2017; Hlongwa, Mashamba-Thompson, Makhunga, and Hlongwana, 2020).

There is a clear need to introduce new innovative methods such as HIVST to attract people who do not test if Sub-Saharan Africa (SAA) is to meet the 95-95-95 target. Sabapathy (2012:2) argued that "despite some progress, knowledge of HIV status remains low in Sub-Saharan Africa where HIV prevalence is highest". HIV self-testing is a new innovative approach with the possibility of high HIV reduction effect, low expense and empowerment of those less likely to test, such as men (Figueroa, Johnson, Verster and Baggley, 2015). WHO recently defined HIV self-testing as a process in which individual testing conducts the testing procedure by collecting the sample or specimen, testing the sample, read and interpret the test result alone (WHO, 2013). Numerous countries worldwide have already announced or are considering incorporating HIVST to their existing comprehensive testing strategy to reach hard-to-reach populations (Figuerace et al., 2015). The introduction of HIVST kits has generated much debate globally regarding their pros and cons. More research is needed to assess ways to attract youth and men to test.

Men have consistently shown little interest and low uptake of HIV testing compared with their female counterparts (Hlongwa, Mashamba-Thompson, Makhunga and Hlongwana, 2020; Jobson, Khoza, Mbeng, Befula, Struthers, Kerongo and Peters, 2019; Sabapathy, 2012). Young adults aged 15-24 account for one of the high-risk groups infected by HIV. About "15% of young women and almost 5% of young men aged 15-24 years were infected with HIV by 2003"

(Hendriksan, Pettifor, Lee, Coates and Helen, 2007:25). Therefore, more studies are needed to target the 18-24 population to develop methods and strategies that meet their needs.

1.2 Problem statement

Although university students may be primarily viewed as a population which is less susceptible to HIV transmission due to access to prevention information, evidence indicates that students are also largely affected by the HIV pandemic (Duncan, Harrison, Toldson, Malaka and Sithole, 2005; Mthembu, Maharaj and Rademeyer, 2019). Kruger, Lebesa, Lephalo, Mahlangu, Mkhosana, Molise, Segopa and Joubert (2020) argued that although students are more knowledgeable about HIV/AIDS and modes of transmission compared to other population groups, they were still not utilizing established HIV-prevention methods and continuing engaging in high-risk sexual behaviour which makes them more susceptible to HIV infection.

Research is limited on student acceptability and knowledge of HIVST. "HIV and AIDS epidemic can be lessened substantially by increasing the number of HIV positive persons who are aware of their status" (Marks, Crepaz and Janssen 2006:1447). Similary, Giguère, Eaton, Johnson, Johnson, Ehui, Jahn, Mahy, Wanyeki, Mbofana, Bakiono and Marsh (2021) emphasized that HIV positive who are knowledgeable of their HIV status and are on HIV treatment such as ARVs with suppressed viral load will not contribute to the infection and transmission of HIV. Thus, it is increasingly evident that prevention programmes should focus on young adults, such as university students, to decrease their susceptibility to HIV infection (Duncan et al., 2005). Lack of attention to the impact of HIV on students and young people will have a critical impact on the country's workforce and holds many adverse effects on economies and societies (Kruger et al., 2020). HIV testing is offered at most government public health care facilities through universal voluntary counselling and testing (UVCT), which is a "process confirming an informed testing decision and subsequent behavioural serostatus"

(Havlir, Lockman, Ayles, Larmarange, Chamie, Gaolathe, Iwuji, Fidler, Kamya, Floyd and Moore, 2020:6).

However, countries have unanimously reported low use of UVCT by at-risk populations, such as the youth (Munga, Urassa, Kisoka and Mutalemwa, 2019; Kusumaningrum, Rohmawaty and Selena, 2021). Although the majority of South Africans are aware of the availability of UVCT services and only one in five UVCT-aware South Africans tested for HIV between 2003-2012 (Bassett, Giddy, Nkera, Wang, Losina, Lu, Freedberg and Walensky, 2007; van Rooyen, McGrath, Joseph, Chirowodza, Fiamma, Richter, Gray and Coates, 2013; Kalichman and Simbayi, 2003). Greg, Kingsley, June, Kayode and Rosekate (2013) added that in South Africa, the low uptake of facility-based HIV counselling and testing, predominantly among adults, has largely restricted access to effective HIV treatment and preventive approaches.

HIV self-testing (HIVST) in South Africa has the prospective to attract more men to test as it can overcome economic and psychosocial discrepancies in HIV testing availability and usage by men (Figueroa, Johnson, Verster and Baggaley, 2015). While several studies are conducted on the acceptability of HIVST, very few, have targeted the young men population considered less likely to test. In addition, UVCT uptake remains inadequate in resource-poor settings like under-developed and developing countries (Mavedzenge, Baggaley and Corbett, 2013). Therefore, more research is needed to assess the benefits of implementing HIVST in underdeveloped areas.

Low testing rates with the UVCT technique are a result of stigmatizing attitudes about HIV and AIDS and the accompanying worries of discrimination (Kalichman and Simbay, 2003; Viljoen, Bond, Reynolds, Mubekapi-Musadaidzwa, Baloyi, Ndubani, Stangl, Seeley, Pliakas, Bock and Fidler, 2021; MacLean and Wetherall, 2021). Therefore, the privacy and low cost of the HIVST method is a much-needed approach to increase youth knowledge of their status.

However, there is limited information on whether the young male population would want to engage in HIVST as a method of choice. For this reason, more research on young men's HIV testing methods is vital and relevant in reducing HIV rates in developing countries.

Unawareness of one's HIV status or refusal to accept it is the main hindrance to HIV prevention HIV and treatment (Mayosi, Lawn, van Niekerk, Bradshaw, Karim and Coovadia, 2012; Tarkang, Lutala and Dzah, 2019). "Yet, efforts to understand men's health-seeking behaviour are poorly understood in the AIDS epidemic and encouraging men to get tested and treated is a major challenge, but one that is poorly recognized" (Mills, Beyer, Birungi and Dybull, 2012:1).

Therefore, there is an increasing need for research to target men as subjects of the studies to isolate areas that are blind spots to increase men's HIV testing rates. Thus, understanding men's perceptions of masculinity and related stigmatization could be vital in preventing HIV in men and increasing testing (Mills et al., 2012). The research on young men's HIV testing method could be the starting point in understanding how men or self-perceived masculinity, gender standards or norms and expressions of masculinities that are not in line with actions that promote health play a role in spreading HIV, especially in developing countries.

Thus, it is crucial to encourage testing in males by understanding if ingrained gender norms that promote the idea that healthcare-seeking and healthcare venues are predominantly the realms of women contribute to men avoiding HIV testing. (Brown, Getahun, Ayieko, Kwarisiima, Owaraganise, Atukunda, Olilo, Clark, Bukusi, Cohen and Kamya, 2019). Moreover, it becomes crucial to understand which method of HIV testing they are comfortable using. This study becomes fitting in the study of men and HIV because, in essence, it aims to investigate the acceptability of unsupervised/private HIV self-testing among young male students at the University of KwaZulu-Natal.

1.3 Aims and objectives of the research study

Aims

The aim of this study was to investigate the acceptability of unsupervised/private HIV self-testing among young male students at the University of KwaZulu-Natal.

The objectives of the study were to:

- Investigate young male student's social health behaviour and knowledge of the HIV self-test.

- Determine young male student's attitudes towards HIV self-test

- Determine young male student's subjective norms towards HIV self-test

- Determine the young male student's perceived behaviour control toward using the HIV self-test method

- Determine if knowledge influences the predictor variable (attitude, subjective norm, perceived behavioural control) of HIVST

1.4 Research questions

- What are young male student's social health behaviour and knowledge of the HIV self-test?

- What are young male student's attitudes towards HIV self-test?

- What are young male student's subjective norms towards HIV self-test?

- What are young male students perceived behaviour control toward using the HIV self-test method?

- Does knowledge influence the predictor variable (attitude, subjective norm, perceived behavioural control) of HIVST?

1.5 Rationale and significance of the study

Globally, 6.1 million people were unaware that they were living with HIV by 2020 (UNAIDS, 2021). Young people can be regarded as the growing proportion of a population group living with HIV who are unaware of their status (Shanaube, Schaap, Hoddinott, Mubekapi-Musadaidzwa, Floyd, Bock, Hayes, Fidler and Ayles, 2021; Myers, Wafoa, El-sadi, Zerbe and Branson, 2013). Recent research indicates low testing and HIV status trends in young people (Shanaube, Schaap, Hoddinott, Mubekapi-Musadaidzwa, Floyd, Bock, Hayes, Fidler and Ayles, 2021; Jooste, Mabaso, Taylor, North, Shean and Simbayi, 2021). Therefore, it is essential to further evaluate alternative testing methods (HIVST) as new innovative ways to attract people to test more, particularly the male population. The study has not only investigated HIV alternative testing methods but also focussed on the young male group, which has not reflected much on literature and research.

A systematic review concludes that more research on men-friendly testing methods and Future initiatives should explicitly target men in Sub-Saharan Africa by utilizing peers and their partners to encourage self-testing among males (Hamilton, Thompson, Choko, Hlongwa, Jolly, Korte and Conserve, 2021; Kitenge, Laxmeshwar, Bermudez Aza, Ford-Kamara, Van Cutsem, Gcwensa, Casas, Hlophe, Isaakidis & Ohler, 2022.). The comprehensive research on HIVST is limited in countries like South Africa, which is one of the hotspots of the HIV pandemic. Moreover, few data on HIVST have independently targeted young men as a population of interest. As a result, the potential for a better knowledge of the HIVST technique to assist policymakers in formulating and implementing HIV policies and programs is limited. The findings of this study will narrow the knowledge gap and inform policy developers. According to Hamilton, Thompson, Choko, Hlongwa, Jolly, Korte and Conserve (2021:1), "more efforts are needed to develop policies to implement HIVST programs targeting men in Sub-Saharan Africa, including a focus on linkage to care in sub-Saharan Africa".

Although HIVST may assist in addressing existing HIV testing rate disparities, especially among males, the diverse patterns of acceptability continue to be a cause for concern for the planning, design, viability of HIVST scale-up programs and policy formation. These concerns necessitate further research to understand how HIVST will be received by different population groups in society (Harichund et al., 2018). Numerous scholars and policymakers have raised concerns concerning the likelihood of HIVST leading to reductions in STI testing due to fewer visits to health centres and increases in risk behaviour or a more dominant partner coercing the less dominant partner to test, undesirable effect on welfare or relations, as well as violence between close partners (Witzel, Wright, McCabe, Gabriel, Wolton, Gafos, Ward, Lampe, Phillips, Trevelion & Collaco-Moraes, 2021)

The study aimed to investigate the knowledge and acceptability of male students' unsupervised HIV-self test method at the University of KwaZulu-Natal. It utilized the reasoned in action theory of reasoned action (Ajzen, 1985). The study examined how males' attitude toward HIVST influences their use of it. According to Ahmed-Little, Bothra, Cordwell, Powell, Ellis, Klapper, Scanlon, Higgins and Vivancos (2016:6), "little is known about attitudes towards the home/unsupervised sampling for HIV testing method as it is a newly developed service". Understanding attitudes toward the acceptability of self-HIV services can assist in creating measures to boost HIV testing outside of traditional testing settings and in high-risk HIV areas. (Witzel, Wright, McCabe, Gabriel, Wolton, Gafos, Ward, Lampe, Phillips, Trevelion & Collaco-Moraes, 2021).

Moreover, "socialisation would play a role in a particular sexual tradition" (Giménez-García et al., 2013:420). Socialisation influences people's subjective norms and choices to engage in a particular behaviour (Reynolds, Subašić and Tindall, 2015). The study used subjective norms to understand the influence of external traditional and cultural influences on participants' decisions to test using the HIVST method. This is due to HIV myths and the intense stigma

associated with it and sex, which has perpetuated a vicious cycle of silence, misinformation, and limited capability of HIV prevention programs.

According to Zhou, Majumdar and Vattikonda (2016), not only are individuals discouraged by fear of judgement, stigma and possible change in one's attitude after getting the result and gaining access to HIV information and assistance, but an atmosphere has also emerged in which HIV risk is misunderstood, downplayed, and ignored. Therefore, this study provided insight into influencing factors and barriers resulting in the low testing rate of males, thus understating how HIVST can fit in within the existing testing programmes to mitigate these factors and barriers.

Statistics point to the fact that men are less likely to test than females (Harichund, Moshabela, Kunene and Abdool Karim, 2019; Giguère, Eaton, Marsh, Johnson, Johnson, Ehui, Jahn, Wanyeki, Mbofana, Bakiono and Mahy, 2021). Therefore, this study intended to breach this gap and provide an understanding of what could attract men to test more. Jewkes and Morrell (2010:3) alluded that "understanding the difference between women and men is critical for HIV prevention". While biological sex variations in HIV susceptibility exist, the prevalence patterns have more complicated roots. Gender disparities in sexual socialization, rather than biology, are becoming increasingly crucial in determining testing rates and access to health treatments (Jewkes and Morrell, 2010). The study focused on the men's influences on the acceptance and utilisation of the HIVST method through unpacking the genderised socialisation factors.

1.6 Significance of the study in social work practice

The heterogeneousness of the HIV epidemic worldwide requires a strategy that enables spatial and population-based priority to achieve successful response planning and implementation (Musyoki, Bhattacharjee, Blanchard, Kioko, Kaosa, Anthony, Javalkar, Musimbi, Malaba,

Olwande and Blanchard, 2018). However, several subpopulation groups, such as men, are left behind in the planning and population-based strategies at both the policy and field levels. Increasing knowledge and data about these marginalised populations will allow for informed policy development that aligns with people at a grassroots level where social workers intervene.

The HIV epidemic affects many social work clients in South Africa, either directly or indirectly. "Southern Africa has the highest HIV rate globally, with over 8,2 million people living with HIV by 2021" (Statistic South Africa, 2021:6). To effectively contain the HIV pandemic in South Africa, all groups must be tested for HIV and linked to treatment, especially the most sexually active such as the youth. Nevertheless, with a National Strategic Plan for HIV/AIDS and Sexually Transmitted Infections (STI) targeting to have 95% of the public to be aware of their HIV status before the end of 2030, activists, health advocates and health service policymakers argue that non-invasive HIV self-testing ought to be included in nation's HIV Counselling and Testing program portfolio to meet this target. However, incorporating these measures needs to investigate any significant adverse psychosocial consequences. This study will inform social workers involved in the policy drafting and improvement process that make informed decisions.

Similar to other models that focus on community-oriented testing, HIVST offers the potential to overcome facility-based limitations by providing a convenient, discreet, and unsupervised HIV testing alternative for groups that do not currently have access to HIV testing (Kalibala, Tun, Cherutich, Nganga, Oweya and Oluoch, 2014). Social workers working in HIV-related fields and disadvantaged communities would be able to advocate for using HIVST to improve the testing of men and other subgroups. "Targeting men in prevention and treatment may have a large impact on mortality, new infections, and the economic impact of HIV/AIDS in Africa" (Millis:2012:1). Therefore, more research needs to be conducted to assess ways to increase people's awareness of their status. This study will help improve the body of knowledge about

young men's testing choices and views of the current and new testing methods. Knowing men's choice of testing for HIV is a starting point to increasing the testing rate in young men.

Social workers working in HIV and AIDS and HIV-related fields provide emotional, psychological and social support to people who are both infected and affected with HIV (Julianne and Oktay, 1997). The findings of this study may add value to the provision of HIV counselling and support among university students by providing knowledge of the factors influencing men to test. In addition to this, the study will help clinical and general field social workers of HIV to understand the reasons for the low rate of HIV testing in men, thus improving their intervention technique

Throughout the world, social workers have been actively associated with the early detection, treatment and prevention of HIV and AIDS infection (Owens, Voorheis, Lester, Green, Herbenick, Dodge and Hubach, 2021). Given the tremendous effect of HIV/AIDS on people's social, psychological, and economic well-being worldwide, there is a growing demand for social workers to be equipped to handle these difficulties from both a clinical, research and social position. Social workers are required to work directly with HIV positive and those affected, the needs of their families and community, as well as to address the more severe social injustice that impact and affects HIV positive individuals, such as discrimination.

To make a meaningful impact, social workers must align their practice with global trends, such as empowering their clients with knowledge of new prevention and treatments. Since the pandemic outbreak, social workers and other professionals have played crucial organizational and Service delivery duties in HIV / AIDS prevention, therapeutic interventions, and treatment (Natale, Biswas, Urada and Scheyett, 2010). Despite breakthroughs in HIV therapy, AIDS is still a potentially fatal infection that necessitates timely, complicated, costly, and at times

challenging treatment plans that are susceptible to biological rejection and resistance due to mutation (Natale, Biswas, Urada and Scheyett, 2010).

Therefore, HIV prevention is critical for reducing treatment demands and lessening human suffering. Social workers have specific knowledge and abilities that can contribute to a multidisciplinary team that provides services in an ARV context. Future social workers will most likely witness the HIV epidemic and likely see it impact practically all areas of their practice. However, there is a continuous necessity for trainers to equip student social workers to overcome and eliminate the cultural, social and economic barriers to HIV prevention (Natale, Biswas, Urada and Scheyett, 2010). "Social workers must address three persistent challenges: stigma, poverty, and political and social power disparities concerning HIV prevention efforts" (Natale, Biswas, Urada and Scheyett, 2010:5). The research on alternative HIV testing which is central to this study, will provide the necessary information tools for the better execution of these roles in Social work practices.

1.7 Study location

The research was carried out on the Howard College campus of the University of KwaZulu Natal. This campus is located six km west of Durban central. In 2016, UKZN had 46 520 students enrolled, 13 064 of whom were postgraduate students. (UKZN glance: 2016). According to UKZN Annual Report (2020:27), "Overall, student numbers at UKZN grew from 49 646 in 2018 to 50 148 in 2019 and dropped to 46 925 in 2020. The proportion of African students has grown (2018 – 78%; 2019 – 80%; 2020 – 81%), while the proportion of female students grew from 57% in 2018 and 2019 to 58% in 2020". The University's large number of students provided the research with the power to have access to a multicultural and multiple background population for the study.

The location of the study was suitable because UKZN, by 2008, had an overall 2.8% HIV prevalence among university staff and students (HEAIDS: 2008). "Based on the stratified prevalence rates, it is projected that there are about 675 students, 15 academic staff and 240 admin/service staff living with HIV at UKZN and HIV prevalence was slightly higher in women than men (3.1% *vs* 2.6%)" (HEAIDS: 2008:5).

More than half (51%) of male students reported having multiple sexual partners, while only 26% of female students reported having multiple partners. Hence the investigation targeted male students from this university as they are more at risk because the province of KwaZulu-Natal is one of the hotspots of the HIV pandemic. Therefore, it is critical to understand mitigating factors that perpetuate the high rate of HIV among university students.

1.8 Key study concepts clarification

Attitude: TPB defines "attitude as the extent to which a person favourably or unfavourably evaluates the subject in question" (Ajzen, 2002b:5). Attitude toward various behaviours is thought to be a product of readily available ideas relating to the anticipated outcome of the behaviour (Ajzen, 2020).

HIV self-test: is a procedure whereby an individual takes a specimen, which might be an oral and body fluid such as blood or saliva, followed by carrying out the HIV test and evaluating the results, be it alone or with a trusted companion (World Health Organization, 2016).

HIV: Human immunodeficiency virus (HIV) is an infection that attacks the human immune system, more specifically, the CD4 white blood cells. "HIV kills these CD4 cells, lowering a person's resistance to opportunistic infections, including TB and fungal infections, as well as serious bacterial infections and several malignancies" (WHO, 2021:6).

Perceived behavioural control: Perceived behavioural control is the control belief about the action intended to be carried out. In other words, perceived behavioural control focuses

on people's beliefs about their capacity to complete a task, whether their engagement will yield a positive or negative outcome and is rooted in experience, the experience of other people around an individual, secondary information obtained (Forward, 1997; Ajzen, 2020). Moreover, perceived behavioural control is the perceived power of the particular control factor which can help or hinder in carrying out the act by an individual (Forward, 1997; Sok, Borges, Schmidt and Ajzen, 2021). Perceived behavioural control assumes that salient beliefs impact the decision to participate in or abstain from a particular behaviour. The more resources and information a person believes to possess, the greater the feeling of control should be. Behavioural performance is therefore determined by motivation (Forward, 1997; Chang, 2013).

Subjective norm. Refers to the person's normative belief concerning referent. This could include individual partners, friends, parents, or community (Forward, 1997; Sok, Borges, Schmidt and Ajzen, 2021; Chang, 2013). It also can be understood as a person's motivation to comply with that person or social group. The incentive to conform refers to a person's overall desire to conform to the expectations of a certain social group, individual or community. For the purpose of this study, subjective norm was evaluated by looking at the independence of the behaviour in question. Subjective norm is often measured in a relatively direct way by requesting participants to evaluate the likelihood that the majority of individuals significant to them would support or agree with them engaging in a specific behaviour (Forward, 1997; Sok, Borges, Schmidt and Ajzen, 2021; Chang, 2013).

Universal Test and Treat: is an approach whereby all HIV-positive persons are given treatment, regardless of their CD4 count, after being diagnosed HIV positive (WHO,2020). World Health Organisation (WHO) estimates that countries will end HIV within 20 years as a public health concern through the Universal Test and Treat programme.

Voluntary counselling and testing (VCT): a process where a person undertakes counselling prior to being tested for HIV for that person to be informed on whether to test or not and the consequences that come with knowing their HIV status (Ginwalla, Grant, Day, Dlova, Macintyre, Baggaley and Churchyard, 2002).

Youth: The South African concept of youth was used in the study, which defines youth as a population group aged between 15 and 35 years (National Youth Commission (NYC) Act of 1996). For this study, youth are defined as individuals aged between 18 to 35 years.

1.9 Structure of the Dissertation

The five chapters form the structure of this study and they are arranged as follows:

Chapter one

This section briefly layout the overview of the study and introduce the study's focus. It further contextualises the study and outlines the rationale of the study, problem statement, location, aims and objectives, study questions, the significance of the study in social work practice, key concept clarification and structure of the dissertation.

Chapter two

This chapter introduces a literature review by providing evidence of previous studies conducted about HIVST. Moreover, it looks at similar studies to this study looking at HIVST. The literature review in this study was broken down from the global, African and South African studies conducted on HIVST.

Chapter three

This section introduces the theoretical research framework that supported this study. This chapter reviewed the Reasoned in Action theory and theory of planned behaviour and used them as a lens to assess and understand the acceptability of HIVST.

Chapter four

The section focuses on the study's research methodology, sampling strategies, research design, data analysis methods, data collection techniques, and data verification methods. It will stipulate standard ethical considerations that are observed by the study as per the University of KwaZulu-Natal and the Social Science Research Ethics Committee guidelines. In the end, the chapter introduces the study's potential limitations.

Chapter five

This chapter presents and interprets the collected data from this study. The research findings are presented and analysed/visualised through tabulation, frequency tables, graphics, correlation among predictor variables, Correlation and Multi-variance analysis.

Chapter six

This chapter summarises findings and conclusions from the data collected from participants and makes recommendations for further studies in the field of HIVST. The results are interpreted in relation to the objectives of this study.

1.10 Conclusion

Chapter one has introduced the background and context of HIVST from global, African and South African contexts. This background and context laid the foundation that permitted this study and how the study fits in the South African context. This chapter also introduces the research problem, research aims and the objective defines significant concepts used in this study and the central area of concern to the research or the problem the investigation has tried to address.

The following chapter will introduce the study's literature review and provide key areas of focus, namely the History of the HIVST kit, policy and legislation of HIVST.

CHAPTER TWO: LITERATURE REVIEW

This chapter summarizes existing HIVST research and provides a scholarly summary of youth's behavioural intentions toward HIVST acceptability. Literature on HIVST policies and legislative frameworks on HIVST are examined. The chapter will further discuss the existing literature on the advantages and disadvantages of Universal Testing, VCT and HIVST as testing methods.

2.1 History of the HIVST kit

2.1.1 Global history of HIVST

A home test for HIV is not a new idea but an old method that still needs to be further investigated for full-scale possibilities. In 1996, the US Food and Drug Administration (FDA) permitted the Home Access for HIV-1 Test System, a kit that may be purchased over the counter and used privately at home (Wood, Ballenger and Stekler, 2014; Steehler and Siegler, 2019). The initial testing system also introduced dried blood mailing to the laboratory for testing (Wood, Ballenger and Stekler, 2014). The test was done in laboratories. Thus, the accuracy and sensitivity of the result were at 99.9%, although concerns were raised about the impact of window periods and that while awaiting the result, people might be infected and when the result return they will give a false positive mentality to people (Wood, Ballenger and Stekler, 2014).

Nevertheless, the most notable advantage of this testing system was that the results were tested in the laboratories by trained professionals. However, the noteworthy disadvantage was that people had to call to be registered prior to submitting their sample and then wait on an average of seven days and recall to obtain results (Wood, Ballenger and Stekler, 2014). Due to factors such as a lack of information about the testing system for at-risk populations and the concern around cost, the testing system never reached the anticipated usability levels. Thus, it was

abandoned (Wood, Ballenger and Stekler, 2014). Nevertheless, more than 170,000 specimens were submitted to Labourites in the initial year of test availability. An estimate of 95% of samples was suitable for analysis. Statistics reports indicate that only 0.9% were positive, and 58% reported testing for the first time (Chavez, Bradley, Wesolowski, Violette, Katz, Niemann, McMahan, McDougal, Cornelius-Hudson, Ethridge and Stekler, 2020).

The FDA authorized the very first point-of-care HIV test, the OraQuick Rapid HIV-1 Antibody Test, in 2002 for usage in health care locations in the USA (Wood, Ballenger and Stekler, 2014). This test utilized the finger stick system, giving results in less than 20 minutes. "The test's sensitivity was reported to be 99.6%, and the specificity at 100%" (Wood, Ballenger and Stekler, 2014:5). The test's rapid turnaround of results has been regarded as one of its main advantages. The most prominent concern was the possibility of false-negative results, particularly during the patient HIV window period (Wood, Ballenger and Stekler, 2014). Therefore scholars have emphasised the importance of confirmatory testing for positive results.

Since 2002, numerous rapid self-tests have gained approval (Wood, Ballenger and Stekler, 2014; Richter, Venter and Gray, 2012). The FDA gave pre-market (PMA) approvals to numerous point of care tests after OraQuik, such as Chembio Diagnostics System Inc, which manufactured the DetermineTM HIV-1/2 Ag/Ab Combo in 2013 and the dhembio DPP® HIV-1/2 in 2012, bioLytical Laboratories Abbott Laboratories INSTI™ HIV-1/HIV-2 Rapid Antibody Test in 2015 and Rapid HIV-1/2 Antibody OraQuick ADVANCE Test, 2015 gained the approval of adjustments to the production process and raw materials to enhance seroconversion detection (Wood, Ballenger and Stekler, 2014; Chavez, Bradley, Wesolowski, Violette, Katz, Niemann, McMahan, McDougal, Cornelius-Hudson, Ethridge and Stekler, 2020).

Research on point-of-care testing indicated that only 91% of antibody-positive males who engage in sexual intercourse with other men (MSM) and 80% of MSM were revealed by HIV RNA polymerase chain reaction according to studies of various point-of-care test techniques, oral fluid samples also recognised infections are lower than in plasma or whole blood (Wood, Ballenger and Stekler, 2014). On July 3rd, 2012, the OraQuick oral swab was given FDA approval to be utilised by people above the age of 17 and to purchase it over the counter. According to Richter, Venter and Gray (2012:5), "OraSure established a consumer support centre that provides telephonic support and referrals". This test is now available at many pharmacies in the US and more developing countries such as South Africa. The FDA established 95% specificity and sensitivity standards to approve the test.

2.1.2 *History of HIVST in the African continent*

HIV-self tests in an African region gained momentum when the UNIAIDS-funded HIV Self Testing Africa. The Initiative was called the STAR project and was to run for five years to catalyse the market for HIV self-testing. It was directed at six Sub-Saharan nations, namely Malawi, Zambia and Zimbabwe, Lesotho, South Africa and Swaziland (Ingold, Mwerinde, Ross, Leach, Corbett, Hatzold, Johnson, Ncube, Nyirenda and Baggaley, 2019; Majam, Conserve, Zishiri, Haile, Tembo, Phiri, Hatzold, Johnson and Venter, 2021). The project ran from 2015 to 2017 and was divided into two phases. The initial stage produced crucial data regarding the success, morale, and efficiency in the delivery of HIVST products (UNIAIDS, 2017). It was executed in Malawi, Zambia and Zimbabwe. The core of this phase was to address critical challenges in developing the HIVST market (Ingold, Mwerinde, Ross, Leach, Corbett, Hatzold, Johnson, Ncube, Nyirenda and Baggaley, 2019; Majam, Conserve, Zishiri, Haile, Tembo, Phiri, Hatzold, Johnson and Venter, 2021).

The goal of the second phase was to draw on the data from the first phase to expand the availability of HIV self-testing within Sub-Saharan Africa and create long-term delivery mechanisms (Unitaid organisation, 2017). This phase ran from 2017 to 2020, expanded HIVST delivery to South Africa, Swaziland and Lesotho, and continues to strive to overcome remaining HIVST market shortcomings. In addition, the STAR Initiative intended to reach those with poor testing uptake rates and limited access to HIV testing (Unitaid organisation, 2017). Young people, men, and critical groups like female sex workers and men who have sex with men were all included in this population (Ingold, Mwerinde, Ross, Leach, Corbett, Hatzold, Johnson, Ncube, Nyirenda and Baggaley, 2019; Majam, Conserve, Zishiri, Haile, Tembo, Phiri, Hatzold, Johnson and Venter, 2021).

2.1.3 *HIVST history in South Africa*

In South Africa, the Medicines and Related Substances Control Act regulates HIV self-tests as medical equipment (Act no. 101 of 1965, as amended). According to Shapiro, van Heerden, Krows, Sausi, Sithole, Schaafsma, Koole, and Rooyen, Celum and Barnabas (2020:2), "South Africa introduced guidelines for HIVST services and support in 2017". This marked the start of the distribution of HIV-self tests to the public, mainly by NGOs and NPOs. South Africa has greatly tried incorporating HIV self-test into its national policies. However, up to date, the South African National Department of Health has only approved the use of items that have received WHO pre-qualification in public health initiatives (Majam, Mazzola, Rhagnath, Lalla-Edward, Mahomed, Venter and Fischer, 2020).

Since the first proposal of using HIV self-test to increase testing, critics and support for the initiative have emerged. Most recently, the approval of the rapid kit in numerous countries

worldwide and in Africa for over-the-counter sales fuelled the debate about the advantages and risks of self-testing to the public. The core of the debate was whether HIVST would substantially affect HIV in general, with others emphasising the unintended harm that might emerge (Wood, Ballenger and Stekler, 2014).

Currently, HIV self-tests remain largely illegal in many undeveloped countries. However, the trend indicates that users ought to purchase HIV self-tests on the internet (Hoyos, Maté, Guerras, Donat, Agustí, Kuske, Fuertes, Chanos, Pichon, Sordo and Pulido, 2021). Authorities and agencies evaluating authorisation and use of the tests must weigh the various reasons for and against HIV self-testing to determine if their context will allow the distribution and use of HIVST. Therefore, studies on HIV self-test remain essential to determining the advantages, use and possible negative outcome of the HIV self-test (Wood, Ballenger and Stekler, 2014).

2.2 Legislations and policies on HIVST

International policies on HIVST have changed since the Joint UN Programme on HIV/AIDS/WHO initially mentioned HIVST in 2000. (Mavedzenge et al., 2013). Despite concerns of possible psychological harm and lack of linkage service, international regulatory agencies and localised health regulators have begun approving HIVST kits worldwide (Stevens et al., 2017). While other nations have made amends to their laws and policies to make HIVST permissible, the United States, Kenya, and the United Kingdom have all established a regulatory framework governing the use of HIVST kits (Stevens et al., 2017; Ingold, Mwerinde, Ross, Leach, Corbett, Hatzold, Johnson, Ncube, Nyirenda and Baggaley, 2019).

 In Kenya, as the result of the demand and informal utilisation of HIV rapid diagnostic tests (RDT) self-testing amongst medical employees and the growing accessibility of oral fluid

RDTs, the Kenyan government responded by establishing the 2008 National HTC guidelines merging an HIV-specific policy for self-testing to regulate it formally (Wong, Johnson, Cowan, 2014). However, a considerable number of countries in Africa continue to develop and introduce policies on HIVST.

In South Africa, the self-test policies and legal framework are not clear, and South Africa still needs to develop a direct policy, but governing policy framework to allow the sale of HIV RDTs online and in certain retailers. There is a much-needed legal framework, especially regarding the sale in pharmacies which has led to difficulties in regulating RDTs (Venter, Majam, Jankelowitz, Adams, Moorhouse, Carmona, Stevens, Msimanga, Allen, Balani and Nevhutalu, 2017). The South African National Strategic Plan for HIV, STIs and TB 2017 to 2022 (NSP) incorporates guidance on HIVST and in 2016, the National HIV Testing Services Policy for South Africa was expanded, and the policy and guideline supplement was later issued in 2017 (Lippman et al., 2018:2).

South Africa's legal and policy frameworks have been largely criticised for its confusing nature regarding the dissemination of HIV self-tests by National Health care centres and pharmacies. According to the Medicines and Related Substances Control Act Number. 101 of 1965), self-tests are categorized as medical instruments (as amended), but the act does not place any regulatory system for medical devices. According to Richter, Venter and Gray (2012:186), "The only legally binding restriction on the distribution of self-testing HIV kits is provided by the Good Pharmacy Practice (GPP) standards issued by the South African Pharmacy Council". Good pharmacy practice was gazetted on the 17th of December 2004 by Government Gazette No: 27112 in Board Notice 129 of 2004, per section 35A(b)(ii) of the Pharmacy Act 53 of 1974.

The fourth edition, section 2.13.5.5 of the GPP emphasises that only blood sampling rapid tests may be performed in South African pharmacies, and Section 2.13.5.8(h) provides guidelines on the sale of HIVST by a pharmacist by indicating that tests may not be sold to service users to conduct themselves at home. However, the section does not apply to self-test kits given by clinics and hospitals. This means that HIV self-tests were permitted for self-use in a pharmacy environment.

The South African National Strategic Plan for HIV, TB and STI 2017-2022 advocates for the roll-out of innovative approaches to increase treatment uptake, such as using self-testing technologies (National Department of Health SA, 2017). The government policy on HIV testing (2016:11) stipulates that "The South African Pharmacy Council (SAPC) has approved over-the-counter distribution and use of HIV self-tests. All healthcare providers should support clients who have self-tested and provide them with counselling after confirmation of diagnosis".

The progressive guidelines came after HIVST was incorporated as an additional approach in South Africa's National HIV Testing Services Policy in 2016 (Southern African HIV Clinicians Society, 2017). However, this has created a policy conflict between GPP Section 2.13.5.8(h) and the National HIV Testing Services policy. According to this testing policy, HIVST kits can be distributed and given to patients to use at home by clinics and hospitals, provided the test has been approved by the Medicine Control Council of South Africa or WHO.

Concessive between the GGP and National HIV testing service policy into a single policy is much needed, and it will reduce confusion at the ground level. Thus, ensuring easier distribution and scale-up of testing in South Africa to fight the spread of HIV.

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2.3 HIV self-test policies and regulations influence social work practice

In the early 2000s, researchers were starting to be aware that social workers increasingly took on additional responsibilities as primary preventionists and collaborators on provider-researcher social science projects during the epidemic's waves (Strug, Grube and Beckerman, 2002). This means social workers not only provide counselling and psychosocial support to HIV-affected people but are actively involved in the prevention programmes by working with Non-Governmental organisations, Non-profit organisations and various government sectors.

Notable policies and lack of access to proper health care have led to social and economic injustices. As HIV spreads in South Africa, more social workers will be involved in primary prevention. Social workers will assume a new expert role, for instance, participating in the provider-researcher collaboration. Therefore, providing a clear, coordinated single policy on HIVST will allow social workers to navigate easily around the new roles.

In nations like the United States of America, social workers have already been collaborating with the country's department health authorities, civic organisations, and AIDS activists to collaborate on research focus prevention initiatives like rapid valuations, rapid response, and assessment of HIV programs and policy development. The HIV pandemic has a more devastating effect on the poor and various communities (Schild and Sable, 2006). Social workers are at the forefront of fighting injustice and advocating for equal access to health by supporting inclusive policies allowing the poor to access it. The involvement of Social workers in developing social policies has been noted worldwide.

The social implication of this study points to the need to develop and support programmes that promote more accessible access to health and create a tailor-made prevention programme that

will target different populations to increase the government's HIV testing capacity. Youth have different needs and barriers that prevent them from testing, and therefore prevention programmes should aim to diminish these barriers and increase their testing rate. The poor communities and societies with limited resources where social work mainly practice will benefit from developing policies that consider their needs. This is one of the primary roles of social workers as they work primarily with venerable communities. This research will be valuable to meet the 95-95-95 HIV target and the effort to increase testing, particularly for the sexually active youth group.

2.4 Advantages and disadvantages of Universal Test and Treat (UTT), universal counselling and test (VCT) as a testing method.

2.4.1 Universal test and treat

UTT is a program developed by the World health organisation that proposes that all populations susceptible to contracting HIV are tested for HIV. Individuals with positive HIV results shall initiate treatment irrespective of the individual stage of the infection or CD4 count (Girum, Yasin, Wasie, Shumbej, Bekele and Zeleke, 2020; World Health Organization, 2015). Studies that have been carried out over three years in Botswana, Zambia, Uganda, Kenya, and South Africa revealed that UTT had one of the population highest occurrences of viral suppression in the SSA (Havlir, Lockman, Ayles, Larmarange, Chamie, Gaolathe, Iwuji, Fidler, Kamya, Floyd and Moore, 2020; Makhema, Wirth, Pretorius Holme, Gaolathe, Mmalane, Kadima, Chakalisa, Bennett, Leidner, Manyake and Mbikiwa, 2019).

 Significant gains in viral suppression at the population level were produced in areas with varying baseline virus loads. Viral suppression gains have been observed to differ across all sub-populations; for instance, studies indicated lower suppression among youth compared to

other population groups (Havlir et al., 2020; Makhema et al., 2019; Lange, 2011). South African government adopted the WHO Universal Test and Treats guidelines in 2016 with the hope of curbing the spread of HIV infection in the country (Hirasen, Fox, Hendrickson, Sineke and Onoya, 2020).

Studies have reported similar advantages of UTT. They concluded that initiating ART for patients as soon as they receive a positive diagnosis could dramatically reduce morbidity and mortality among HIV-infected individuals because HIV-RNA levels in infected individuals are decreased by ART, and these decreased levels have been observed in plasma in both developed and low-income nations (Cambiano, Rodger and Phillips, 2011; Granich, Gilks, Dye, De Cock and Williams, 2009; Lange, 2011). The benefit of preventing further transmission for people with suppressed viral load has also been supported by literature, that it could lead to the eradication of the HIV pandemic as a public health threat before the end of 2030 (Hirasen *et al.*, 2020)

However, studies have also raised concern about the scale-up of UTT, arguing that a rise in the population eligible for treatment could have a negative effect if the health sector cannot keep up with demand. This can overwork medical professionals and reduce the standard of care. (Hirasen et al., 2020; Cambiano, Rodger and Phillips, 2011; Granich, Gilks, Dye, De Cock and Williams, 2009; Lange, 2011). Other studies expressed concern regarding the possible risk of HIV medication resistance development brought on by poor adherence in environments where ART is being scaled up (Grabowski, Patel, Nakigozi, Ssempijja, Ssekubugu, Ssekasanvu, Ndyanabo, Kigozi, Nalugoda, Grayand Kalibbala, 2021; Williams, 2009; Lange, 2011).

The advantages of UTT to a patient diagnosed/detected early with a healthy immune system are still unclear; even though the benefits of treating those with advanced HIV illness outweigh

any possible adverse treatment-related complications, the justification of the potential emergence of drug resistance and unpleasant effects of ART to the healthy patient is still to be investigated. As a result, treatment as prevention could be unethical if the risk to the individual outweighs the benefit for the individual with an intact immune system. This is because HIV therapy is now something that individuals need to do to guarantee governmental or public entity's preventive performance rather than being an individual interest (Orne-Gliemann, Larmarange, Boyer, Iwuji, McGrath, Bärnighausen, Zuma, Dray-Spira, Spire, Rochat and Lert, 2015; Kulkarni, Shah, Sarma and Mahajan, 2013).

Studies of sub-population regarded as at risk also raised concern about the observed increase of unsafe behaviour after participants engage in the UTT program. Studies revealed that unprotected sex among MSM in Europe, Australia, Canada, and the United States has significantly increased since 1996 (Orne-Gliemann et al.,2015). Due to the availability of highly active antiretroviral medication, there is a significant risk that MSM will switch to unprotected sex when they perceive a reduced risk of HIV/AIDS (Orne-Gliemann et al.,2015; Hirasen et al., 2020).

2.4.2 Voluntary counselling and testing (VCT)

Voluntary counselling and testing (VCT) of HIV provides information to individuals to make an informed choice on receiving an HIV test (Onoja, Sanni, Abiodun, Onoja, Shaibu, Oguche and Adamu, 2020). Traditional voluntary counselling and testing have been the primary services for individuals who use mobile testing centres, specialist HIV testing services, or isolated testing facilities (Cherutich, Bunnell and Mermin, 2013; Shamu, Farirai, Slabbert, Guloba, Masihleho, Kamera and Nkwashu, 2020). These services are usually offered to people at risk of contracting HIV (Cherutich, Bunnell and Mermin, 2013; Madebwe, Crescentia, Lilian

and Kudakwashe, 2012). Voluntary counselling and testing (VCT) is used to limit the spread through the promotion of behaviour change, risk reduction, condom use, status disclosure and partner referral (WHO, 2007; Madebwe, Crescentia, Lilian and Kudakwashe, 2012).

However, there are a limited proportion of people at risk of contracting HIV, such as MSM, youths, individuals that inject drugs, sex worker and other more at-risk population who attends these testing centres due to the stigma about HIV testing, the cost of travelling and the time it takes to get tested (WHO, 2007). VCT plays a considerable role in the prevention of HIV, but it is not enough to achieve universal coverage, especially in hard-to-reach and resource-limited settings. Projections based on VTC studies conducted in 12 highly affected regions in sub-Saharan Africa show that most HIV-positive individuals only receive testing and counselling when they are already showing signs of advanced clinical disease (CDC, 2004; Tesfaye, Lalisa, Dejene, Nigatu and Tekalign, 2017). Studies on the implementation and feasibility of VCT have proposed numerous disadvantages and advantages of VCT.

The first VCT model's identified disadvantage involves stigmatisation and discrimination when people present themselves at HIV testing centres to get tested (Munga, Urassa, Kisoka and Mutalemwa, 2019; Harichund and Moshabela, 2018). HIV is still highly stigmatised as it is viewed as a disease closely associated with an unhealthy sexual lifestyle (Relf, Holzemer, Holt, Nyblade and Caiola, 2021). Society often judges people who are HIV positive or seek HIV testing as people who engage in unprotected sex (Valdiserri, 2002).

The second disadvantage includes the influence the professionals carrying out the test have on the possibility of retesting. This is usually the case when the community has identified the centre staff as rude or unfriendly and the failure of the testing programmes to reach target

populations for HIV testing, such as at-risk men and the youth (Munga, Urassa, Kisoka and Mutalemwa, 2019; Harichund and Moshabela, 2018). The last disadvantage consists of the high costs related to implementing the VCT testing method, such as its dependence on trained health workers, involuntary HIV status disclosure because the results are usually read by the health professional and possible adverse social impacts dues to the discloser (Harichund and Moshabela, 2018).

The main advantage of VCT centres is that it provides an opportunity for ongoing prevention counselling for HIV-negative service users and long-term psychosocial support for those who have tested positive for HIV infection (Munga, Urassa, Kisoka and Mutalemwa, 2019; Harichund and Moshabela, 2018). Moreover, other early infections such as STIs can be dictated and treated in addition to HIV testing. VCT has a lower chance for potential coercion testing, especially in the venerable group. (Wood, Ballenger and Stekler, 2014)

2.5 Advantages and disadvantages of Self-test method

Getting tested and getting more people tested remains a huge setback to HIV testing in many regions dues to fear of stigmatization, discrimination and lack of resources. Unfortunately, this continues to threaten the acceptance of HIV testing services globally (Munga, Urassa, Kisoka and Mutalemwa, 2019). According to Wood, Ballenger and Stekler (2014:2) "proposals for HIV home tests generated controversy in the mid-1980s and debate reignited with the approval of a rapid oral swab kit for over-the-counter sale in the US in 2012". The debate has led to a division among the public and health professionals about the advantages and disadvantages of HIVST.

Global emerging qualitative and quantitative assessments studies have indicated that there is an overwhelmingly positive perception of HIV self-testing, including that it offers privacy, it guarantees the confidentiality of results and the convenience of not standing long ques (Witzel et al., 2021; Aluisio, Lim, Tang, Sugut, Kinuthia, Bosire, Guthrie, Katz, Farquhar and Mello, 2022; van Rooyen et al., 2015; Njau, Covin, Lisasi, Damian, Mushi, Boulle and Mathews, 2019; Hlongwa, Mashamba-Thompson, Makhunga, Muraraneza and Hlongwana, 2020).

2.5.1 *Advantages of HIVST*

One of the significant benefits of the recommended full-scale implementation of the HIVST is because observed high acceptability among high-risk populations such as MSM, persons who inject drugs and sex workers (Wood, Ballenger and Stekler, 2014). This argument has been supported by numerous studies and literature review studies which have concluded that there is at least a 60% acceptability rate across all studies on HIVST acceptability (Aluisio *et al.,* 2022; Witzel, Wright, McCabe, Gabriel, Wolton, Gafos, Ward, Lampe, Phillips, Trevelion and Collaco-Moraes, 2021; Lyons, Coly, Bowring, Liestman, Diouf, Wong, Turpin, Castor, Dieng, Olawore and Geibel, 2019). The second main advantage of HIVST is that results are accurate and trustworthy (Wood, Ballenger and Stekler, 2014). According to Kurth, Cleland, Chhun, Sidle, Were, Naanyu, Emonyi, Macharia, Sang and Siika (2016:2) "data from both blood and oral fluid HIV self-testing studies conducted in Canada, China, Kenya, Malawi, Singapore, Spain, South Africa, Uganda, and the U.S. show self-testing is feasible, acceptable, and accurate".

The HIVST has also been credited for its empowerment of users and its de-stigmatization of the HIV testing process (Wood, Ballenger and Stekler, 2014). HIVST is also proven to assuage confidentiality and stigma concerns when testing, potentially encouraging earlier HIV testing,

diagnosis, and treatment (Harichund, Moshabela, Kunene and Abdool Karim, 2019). This, therefore, has led to an increasing acknowledgement by researchers and policymakers that HIVST is a practical, affordable testing approach that might reach people who might not otherwise get tested (Witzel et al., 2021; Aluisio et al., 2022; van Rooyen et al., 2015). Other studies have concluded that HIVST provides a more accessible alternative for repeat testing (Harichund, Moshabela, Kunene and Abdool Karim, 2019).

In a qualitative study by Freeman, Sullivan, Higa, Sharma, MacGowan, Hirshfield, Greene, Gravens, Chavez, McNaghten and Johnson (2018) conducted in the United States on the perception of MSM about HIV self-testing, the participants described how HIVST offers the convenience of buying an HIV test and at the comfort of home. The study participants further indicated that HIVST might help people who have inflexible school or work calendars (Freeman et al., 2018). Participants identified not having professional medical such as nurses and psychosocial support during HIV testing as a challenge with HIVST. They expressed concern that some people may not cope well on their own with a positive test result (Freeman et al., 2018; Njau et al., 2019; Hlongwa et al., 2020). "They were also concerned that people who use HIV self-tests may not have access to important follow-up medical services, such as confirmatory HIV testing for a preliminary positive result" (Freeman et al., 2018:2). One participant expressed, "I think I would be a little concerned with those that might not handle a positive, so without someone there to consult or talk to, or you know, I think that would be a little iffy" (Freeman et al., 2018:2).

A similar study conducted in South Africa by Oduetse, Nkomo, Majingo, Mashalla and Seloilwe (2019) reported that the perceived benefit of HIV self-testis that it is the driver for HIV testing and it will lead to more testing of people who wouldn't traditionally test,

participants highlighted the benefit of partner testing at the convenience of their home. Studies have concluded that perceptions of both stakeholders and participants perceived HIVST as a breakthrough initiative with numerous advantages. Nevertheless, noted disadvantages included possible coercion and the ability of HIV-positive people to seek further support.

2.5.2 *Disadvantages of HIVST*

On the contrary, the HIVST has been criticized for insufficient counselling and a possible delay in entry to care (Okoboi, Twimukye, Lazarus, Castelnuovo, Agaba, Immaculate, Nanfuka, Kambugu and King, 2019; Johnson, Baggaley, Forsythe, Van Rooyen, Ford, Napierala Mavedzenge, Corbett, Natarajan and Taegtmeyer, 2014.). However, the lack of pre-test counselling is an advantage of HIVST that is viewed favourably by populations with high levels of prior experience with pre-test counselling. In a study of MSM, participants described the lack of counselling as an opportunity to avoid unnecessary talks and previously heard messages being repeated (Steehler & Siegler, 2019). Literature also emphasises the importance of HIV-ST programs to have surveillance and quick response systems to mitigate serious events such as suicide or mental breakdown, and these programmes could be expensive for low-income countries (Rivera, Hernandez, Mag-Usara, Sy, Ulitin, O'Dwyer, McHugh, Jordan and Hirschhorn, 2021).

During VTC are person is usually recommended also to undergo ST screening, especially if the person being tested has indicated that they have engaged in unprotected sexual intercourse. Therefore, the HIVST has been criticized for reducing the opportunity for early STI screening and thus increasing the spread of STIs from partner to partner (Johnson, Baggaley, Forsythe, Van Rooyen, Ford, Napierala Mavedzenge, Corbett, Natarajan and Taegtmeyer, 2014). Tucker, Yang, Yang, Zheng, Chang, Wang, Shen, Zhu, Subramanian and Chen (2011), have

vehemently claimed that if HIV testing is offered alongside STI testing as part of a regular sexual health exam experience, a high-risk person may be more inclined to consent to the test.

Further concerns raised about self-testing is its potential to exacerbate gender-based violence (GBV) and partner coercion (Rivera, Hernandez, Mag-Usara, Sy, Ulitin, O'Dwyer, McHugh, Jordan and Hirschhorn, 2021; Tucker et al., 2011). Surveys of participants in a community-based HIVST programme in Malawi revealed that coercion was a problem; out of 10,077 respondents, 287 indicated being forced to test, with 2.3% of females and 3.3% of men reporting this. HIVST exhibited a good level of acceptance and accuracy in this program (Rivera et al., 2021; Tucker et al., 2011). Nevertheless, no extreme examples of gender-based violence were documented, but it is essential to look into the possibility that the tests could result in such coercion or GBV and take this into account when weighing the advantages and disadvantages of self-testing.

Little evidence has been produced to support the potential of HIVST to promote gender base violence and suicide. Most of the literature is based on the response of participants in studies, not official statistics. This means few studies have reported actual side effects from participants. Most studies are based on anticipated side effects by participants.

2.6 Factors influencing male youths to test for HIV and to use the HIV self-test

Young men living with HIV are less likely than adults to be aware of their status, and the testing rate is even lower for the groups at high risk of contracting HIV, such as MSM, homosexual youth, youth who inject drugs (Brown, Carballo-Diéguez, John and Schnall, 2016; Khawcharoenporn, Mongkolkaewsub, Naijitra, Khonphiern, Apisarnthanarak and Phanuphak,

2019). International literature has associated youth's low HIV testing rate with several contributory factors that are regarded as barriers to getting tested.

Research indicates that people are highly motivated to get tested for HIV by peer pressure, perceived social standards, history of sexually transmissible infections, and risk perceptions. (Brown *et al.*, 2016; Rivera, Hernandez, Mag-Usara, Sy, Ulitin, O'Dwyer, McHugh, Jordan and Hirschhorn, 2021). A most recent qualitative study by Obiezu-Umeh, Gbajabiamila, Ezechi, Nwaozuru, Ong, Idigbe, Oladele, Musa, Airhihenbuwa, Tucker and Iwelunmor (2021) indicated that among the youth who have tested before for HIV, the majority mentioned that attitudes of healthcare workers at the testing centres as another significant deterrent from testing using VTC hence they prefer to use the HIVST kit.

While others have feared that test result manipulation at health facilities could occur, and they have viewed this possibility as a deterrent to testing using VTC. HIV testing preferences have been influenced by a number of factors, including the dread that emerges from a lack of trust between the tester and the client (Obiezu-Umeh et al., 2021; Rivera et al., 2021). Moreover, the main justification for opting for the oral-based HIVST among individuals who had never tested was the worry of cross-infection brought on by the several uses of disposable medical needles (Obiezu-Umeh, Gbajabiamila, Ezechi, Nwaozuru, Ong, Idigbe, Oladele, Musa, Airhihenbuwa, Tucker and Iwelunmor, 2021).

In most underdeveloped and developing countries, especially in Africa, Teenagers do not have adequate access to health services, including HIV testing. This is due to numerous barriers to access, such as health care systems that are stretched to its limit, stigma and a lack of confidentiality. Finding HIV testing programs outside conventional health facilities may give

young people a more accessible, stigma-free opportunity to test (Smith, Wallace and Bekker, 2016).

In South Africa, several barriers have been recognised as a hindrance for the youth to accessing HIV testing, including fear of testing positive, disclosing HIV test results to their significant others and fearing the possibility of being rejected as a result of being HIV positive (Oduetse et al., 2019). Even though fear has been regarded as the most significant barrier to testing in South Africa, other studies have also indicated that the long travelling journey to HIV testing facilities and testing centres operational during working days when people are at work also plays a substantial contributing effect in the low testing rate by the youth (Pettifor, Filiatreau and Delany-Moretlwe, 2019).

A study by Muravha, Hoffmann, Botha, Maruma, Charalambous and Chetty-Makkan (2021) showed that the majority of young people believed they had a minimal chance of contracting HIV since they were young, had no outward symptoms of the virus, were not sexually active, and had HIV-negative parents. Similar people had a perception that they have a low risk of HIV infection, this was evident in different populations regardless of age and gender characteristics, and it was predominately those that were unaware of their HIV status who believed they were not at high risk of contracting HIV (Hernandez et l., 2021; Muravha et al., 2021).

2.7 Acceptability of the self-test worldwide and in selected regions

The global literature review study of 559 online articles indicated high acceptability of HIVST, with an 81%–100% range, oral HIVST received the higher preference among participants (Stevens, Vrana, Dlin and Korte, 2018; Wood, Ballenger, & Stekler, 2014). Convenience and confidentiality of HIVST are the mediating factors that influence acceptability. Although, on

average, the majority of research indicates high HIVST acceptability, some studies have demonstrated low acceptability, such as a Hong Kong study which reveals a relatively low rate of MSM acceptance and use of self-testing with 40% acceptability. This was primarily due to many structural reasons that have made using VCT services easier, such as the effectiveness of VCT testing facilities and the difficulty in accessing information for self-tests (Wong, Tam, Chan and Lee, 2015).

In an African region, including the East African Community (EAC) and Economic Community of West Africa States (ECOWAS) regions the acceptability rate of HIVST ranges from 22% to 87%, with countries such as Malawi having the highest acceptability rate where HVST was offered at home (Krause, Subklew-Sehume, Kenyon and Colebunders, 2013; Ren, Wu, Mi, Mcgoogan, Rou and Yan, 2017). Some studies report an even higher acceptability rate of up to 98 % (Figueroa et al., 2015). On the contrary, the Kenyans reported low acceptability on average (Krause, Subklew-Sehume, Kenyon and Colebunders, 2013). The bulk of the studies under consideration revealed acceptabilities of more than 60%, and the individuals were primarily from high-risk categories such as MSM, partners who insert drugs, and visitors to emergency rooms or mobile testing units (Wood, Ballenger, & Stekler, 2014). A male-only study in Rwanda indicated a high acceptability rate of 74% (Dzinamarira, Muvunyi, Kamanzi and Mashamba-Thompson, 2020).

Sub-Saharan Africa in the SADC region accounted for 1.71% of the world's HIV infection load (Oduetse, Nkomo, Majingo, Mashalla and Seloilwe, 2019). Studies conducted in this region indicate an acceptability rate of 22% to 94%, with men reporting HIVST being more beneficial than women (Kurth et al.,2015; Maheswaran et al., 2016; Oduetse et al., 2019). Moreover, the HIVST acceptability rates in research focused exclusively on men in Sub-Saharan have been

constantly shown to have higher acceptability ranging from 70–94% if compared with studies that comprise both men and women with a range of 22–64% (Kurth et al., 2015; Maheswaran et al., 2016; van Dyk, 2013; Harichund & Moshabela, 2017).

South African studies on HIVST indicate high acceptability, especially in men (Harichund, Moshabela, Kunene and Karim, 2019). The study by Mokgatle and Madiba (2017) conducted in the province of Gauteng reported 87.1% HIVST acceptability. The study emphasised that limited awareness of HIVST was a significant barrier to the roll-out and acceptability of HIVST. Thus, programs for health education must incorporate HIVST information so that individuals will be given a chance to decide whether or not to get tested for HIV, which might result in a higher testing rate (Mokgatle and Madiba, 2017). There is significant high support and adoption of HIVST in South Africa from numerous stakeholders who impact research on HIV prevention and treatment and policy formation (Makusha, Knight, Taegtmeyer, Tulloch, Davids, Lim, Peck and van Rooyen, 2015).

The acceptability of HIVST in South African informal settlements has been reported to be high (Martínez Pérez, Cox, Ellman, Moore, Patten, Shroufi, Stinson, Van Cutsem and Ibeto, 2016). According to the study, those who don't trust medical professionals or are concerned about their reputation in public and are afraid of confidentiality breaches found home Oral-HIVST to be highly acceptable (Martínez Pérez et al., 2016).

2.8 Acceptability of HIVST in men and different target populations

At-risk populations such as female sex workers (FSW), people who inject drugs (PWID), young persons, transgender people, and MSM are significantly affected by HIV infection. The findings of a Chinese indicated the acceptance and willingness to use HIVST rate among MSM,

FSW, and the youth was 72.8%, 72.1% and 70.4%, respectively (Marley, Kang, Wilson, Huang, Qian, Li, Tao, Wang, Xun and Ma, 2014; Figueroa et al., 2015; Iliyasu, Kassim, Iliyasu, Amole, Nass, Marryshow and Aliyu, 2020). At the same time, PWID also indicates high HIVST acceptability of above 60% (Peiper, Shamblen, Gilbertson, Guest, Kopp, Guy and Rose, 2022). Studies on the transgender population indicate acceptability above 50% for self-testing over clinic-based testing (Lippman, Moran, Sevelius, Castillo, Ventura, Treves-Kagan and Buchbinder, 2016). The Cambodia study on HIVST among the key populations depicts high acceptability, which is consistent with findings in other HIVST key population studies (Pant Pai, Sharma, Shivkumar, S., Pillay, Vadnais, Joseph, Dheda and Peeling, 2013; Krause, Subklew-Sehume, Kenyon and Colebunders, 2013)

Regarding gender disparities, HIVST uptake and acceptability were similar for both genders in the Malawian study despite a significantly lower testing history among men (Kumwenda, Mavhu, Lora, Chilongosi, Sikwese, Taegtmeyer, Hatzold, Johnson, Corbett and Desmond, 2021). As a result of HIV associated stigma and stigma of healthcare facilities in general, men believed that the HIVST offered a viable alternative to testing for HIV (Tonen-Wolyec, Koyalta, Bouassa, Filali, Batina-Agasa and Bélec, 2020). Gender differences in the rate of HIV testing can be a consequence of women using local health centre's services for sexual and reproductive health more regularly when compared their males who postpone testing (Mohlabane, Tutshana, Peltzer, & Mwisongo, 2016; Harichund, Moshabela, Kunene and Abdool Karim, 2019).

Most studies in Sub-Saharan Africa included a population of healthcare workers, policymakers, men and the general public, indicating higher acceptability of HIVST overall (Harichund and Moshabela, 2018; Hamilton et al., 2021). The studies also showed strong acceptability and

usage of HIVST to reach hard-to-reach populations groups to test for HIV, with people living in rural areas or disadvantaged backgrounds being identified as most likely to accept and benefit from the roll-out of HIVST (Harichund and Moshabela, 2018).

Scholars have all indicated higher acceptability rates of between 70–94% for studies that focus exclusively to men population group in comparison to studies that combined both men and women (22.3–64%) (Wong et al., 2015; Harichund and Moshabela, 2018; Kumwenda et al., 2021; Bwambale, Ssali, Byaruhanga, Kalyango and Karamagi, 2008). The higher acceptability rates among men clearly indicate that alternative and innovative HIV testing methods could be the most efficient and ideal means of increasing the uptake of HIV testing in men. However, more context-based research is needed to understand the causes of these gender disparities and lower HIVST approval rates among women.

In sub-Saharan Africa, men and young people make up a significantly large fraction of PLHIV who are unaware of their status. Findings from two years of widespread adoption of HIVST using a variety of distribution models show how targeted roll-out could boost HIV testing coverage in hard-to-reach priority people, predominantly concerning high-risk men and young people, and boost the effectiveness and capacity of HIV testing services in busy clinics (Oduetse et al., 2019).

CHAPTER THREE: THEORETICAL FRAMEWORK

This section unpacks the theories that underpin the research's discussions and literature analyses to allow for a better comprehensive understanding of young male acceptability of the HIV self-test method. This study utilised the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB) to analyse and interpret the data. By the end of this section, the TPB and TRA principles, assumptions, strengths and critics will have been explained.

3.1 TPB and TRA underpinning assumptions

TPB and TRA are some of the most widely accepted social psychology theories for predicting behaviour in people (Sommer, 2011). "Theory of Planned Behaviour is an adaptation of the Theory of Reasoned Action developed in 1980 by Fishbein and Ajzen to predict a person's intent to engage in a behaviour at a particular time and location" (Ajzen, 1991:5). In other words, the theory of planned behaviour is a continuation of the TRA and was developed to offer a complete explanation of how all behaviours not simply those under volitional control are produced (Ajzen, 2020).

The study utilised two concepts of TRA (attitude and subjective norms), and it adopted the concept of *perceived behavioural control,* which TPB introduced as a foundation conceptual framework to investigate HIVST approval by young men. In contrast to TRA, TPB incorporates behavioural control as an extra factor influencing intentions and behaviour (Ajzen, 1965). The TPB also suggests that a individual's actual level of control over their behaviour, which a measure of perceived behavioural control should operationalize, determines behaviour rather than just their intentions (Ajzen, 1988).

Thus, the investigation's main theoretical concepts of interest are attitudes, subjective norms, perceived behavioural control, and acceptability. Central to the TPB and TRA is the assumption that behavioural intention is the crucial, direct determining factor of behaviour. Thus, a

person's attitude toward behaviour, a subjective norm, and their perception of their level of behavioural control all influence their behaviour (Ajzen, 2020; Montano and Kasprzyk, 2015)

3.1.1 Attitude toward behavioural intention

The TRA and TPB rely on the expectancy-value creation to determine the attitude toward behaviour (Ajzen, 2020). Attitude toward the behaviour refers to the "degree to which a person has a favourable or unfavourable evaluation of the behaviour in question" (Ajzen, 1991:25). Attitude toward a behaviour is the result of easily obtainable beliefs about the possible consequences of a particular action. Thus the behavioural beliefs will produce either positive or negative attitudes toward behaviour (Godin and Kok, 1996; Ajzen, 2020). Attitude can be calculated using a mathematical formula where the power of every accessible belief (b) is multiplied by the result's subjective evaluation (e) and summed by the resulting product. There is a direct proposition between person attitude (ATT) and opposite belief index

$$ATT \ \Omega \sum b_i e_i$$

Formular by Ajzen (2020)

3.1.2 Subjective norm toward intention

To determine the subjective norm, the TPB and TRA look at how normative beliefs such as injunctive and descriptive beliefs influence behaviour in individuals. Injunctive normative assesses the expectation underlies belief or the probability that the referent people, such as family, friends, and spouse would approve of performing that behaviour or action. While descriptive normative beliefs refer to the subjective probability that important people in one's life will perform a particular behaviour (Godin and Kok, 1996; Ajzen, 2020). Subjective norm can be mathematically calculated where the sum of accessible normative belief, both injunctive and descriptive (n) and interaction of important (n) are directly proportional to the subjective norm (sn)

SN $\Omega\sum n_i s_i$

Formular by Ajzen (2020)

3.1.3 *Perceived behavioural control*

The TPB describe the formation of attitude as the result of accessible behavioural beliefs and subjective norm as the result of accessible normative beliefs. The perceived behavioural control is presumed to result from accessible control behaviour (Hankins, French and Horne, 2000; Ajzen, 2020). The TPB evaluate factors that could hinder or promote the execution of certain behaviour. Examples of control factors could be skills or abilities, time, money (Godin and Kok, 1996; Hankins, French and Horne, 2000; Ajzen, 2020). Perceived behavioural control could be statistically calculated where the sum of timed perceived power (p) and control belief strength (c) is directly proportional to the perceived behavioural control (PBC)

PBC $\Omega\sum c_i p_i$

Formular by Ajzen (2020)

The theory of planned behaviour's applicability to the HIVST problem area and young men's acceptance rests on its capacity to forecast volitional behaviour methodically and scientifically (Hankins, French and Horne, 2000; Ajzen, 2020). Numerous research using the Theory of Planned Behavior has demonstrated that it is possible to explain volitional behaviour of whether to accept or reject behaviour with limited concepts (Southey, 2011; Paul, Modi and Patel, 2016; Sok, Borges, Schmidt and Ajzen, 2021).

Two iconic studies were conducted in 1991 and 1992 (Chang, 2013). The 1991 study by Randall and Gibson employed the idea of planned behaviour to analyze healthcare practitioners' ethical decision-making. The study was the start of studies that proved that intention could be explained by limited concepts (Chang, 1998; Chang, 2013). The theory of

reasoned action (TRA) was created to simulate how behavioural and normative ideas, attitudes, and intentions toward any specific behaviour under volitional control result in that behaviour. The studies have proven that the TPB and TRA can use the assessment of intention to predict behaviour accurately and that both the person's attitude toward engaging in that behaviour and their impressions of the social forces exerted on them to engage in or refrain from engaging in that behaviour, termed the subjective norm, cause intention (Ajzen and Klobas, 2013; Chang, 2013; Knabe, 2012; Engle, Dimitriadi, Gavidia, Schlaegel, Delanoe, Alvarado, He, Buame and Wolff, 2010).

According to the theory of planned behaviour, assumptions regarding the expected consequences of winning and losing, perceived success or failure probability, normative beliefs about significant referents, and incentive to follow these referents are all crucial factors in determining whether an attempt to undertake behaviour will be successful or unsuccessful (Ajzen, 1985; Montano and Kasprzyk, 2015). This generally means that people will strive to behave in a specific manner if they think the advantages of achievement exceed the drawbacks of failure and if they also feel that important people would want them to perform that behaviour or action (Ajzen, 1985 Ajzen, 2020). The theory of reasoned action and the theory of planned behaviour are significant in predicting whether young men accepts or rejects the new method of testing (HIVST).

Figure 1 illustrates the theory of planned behaviour
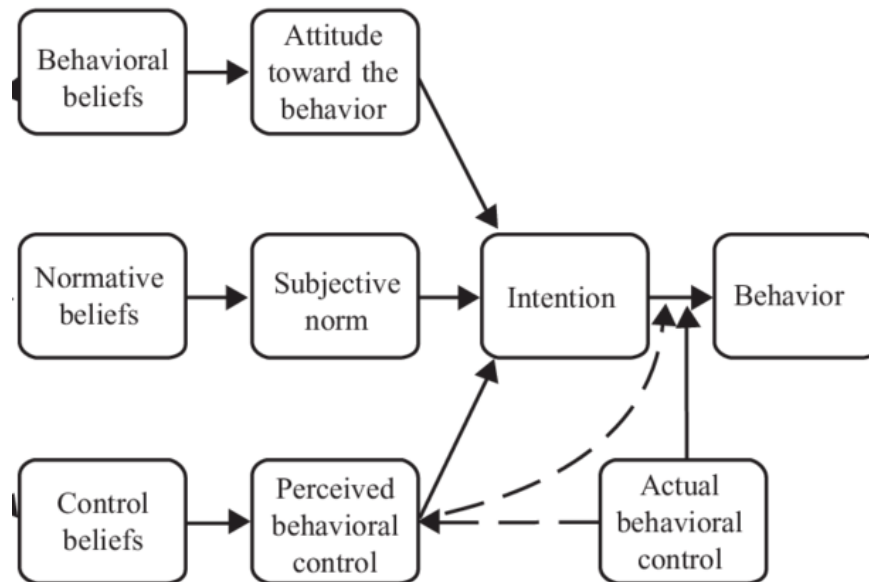
Figure 1: Revised from Conner and Sparks (2005)

3.2 Critics of planned behaviour theory

TPB has been reviewed, tested and criticized by numerous scholars since it was published by Ajzen. Sniehotta, Presseau and Araújo-Soares (2014) argued that TPB's main criticism is whether explaining volitional behaviour using only four concepts is sufficient. Moreover, Sniehotta, Presseau and Araújo-Soares (2014) further supported this argument that the theory's flaw is the exclusive emphasis on logical thought, which disregards unconscious effects on behaviour, and the significant role played by emotions in behaviour (Conner, Gaston, Sheeran, & Germain, 2013).

Moreover, "the static explanatory nature of the TPB does not help to understand the evidenced effects of behaviour on cognitions and future behaviour" (Sniehotta, Presseau and Araújo-Soares, 2014:4). Scholars have argued that self-identity predicts behavioural intentions

subsequently to, attitudes and norms should be taken into consideration and incorporated into the TBP (Rise, Sheeran and Hukkelberg, 2010; Sparks, 1999). According to Ajzen TPB is unfalsifiable because the theory is intuitively reasonable, and there is intensive empirical research done to prove that the theory is unfalsifiable (Ajzen 2020). Researchers have also challenged whether the assumptions derived from the TPB model are susceptible to empirical verification and whether they are irrational assertions that cannot be refuted (Ogden, 2003). This is because circumstances suggesting that persons are more likely to participate in behaviours that they enjoy less and feel unable to do could be viewed as implausible and could result in distrust of the data more than of the fundamental theory. Similarly, Sussman and Gifford (2019) argued that TPB does not consider the consensus effect and predicts that people who engage in specific behaviour perceive others as more likely to do the same.

The primary criticism of TPB has been the theory's restrictive predictive validity (Sniehotta, Presseau and Araújo-Soares, 2014). Therefore, the criticism should focus on validity and utility regarding the application of the theory (Smedslund, 1978; Sniehotta, Presseau and Araújo-Soares, 2014). Fekadu and Kraft (2001) have proposed that the valuation of the predictive validity of the TPB/TRA has primarily focussed on the questionnaire methodology approach. This argument has also been supported by Potter and Wetherell (1987), who claim that it is uncertain if those who fall on an attitude scale describe anything neutral or express an internal mental state or attitude. AraújoSoares, Rodrigues, Presseau, & Sniehotta, (2013) argued evidence is not always fully consistent with the finding that beliefs are frequently shown to predict behaviour over and above intention in the TPB.

Thus, there is a need to assess underlying control beliefs, especially under perceived behavioural control factors (Conner and Armitage, 1998). More critically, the hypothesis that assumes that the TPB mediates all theory-external influences on behaviour has been challenged, and some analyses have concluded that it is theoretically and experimentally

untenable (Sniehotta, Presseau and Araújo-Soares, 2014). The main reason for their disagreement is that there is "consistent evidence that age, socio-economic status, physical health, mental health and environmental features predict objectively measured physical activity when TPB predictors are controlled for" (Sniehotta *et al.*, 2014; French and Hankins, 2003:5). However, it is crucial to note that although other factors could be influential, it is difficult to account for all behavioural influences.

"The TPB elucidates an explicit, fully specified and statistically testable model describing how behavioural, normative and control beliefs determine the attitude, subjective norm and PBC" (Sniehotta, Presseau and Araújo-Soares, 2014:4). To overcome this challenge, it is recommended that Schmidt's technique of analysis could be applied to collect data to assess the degree of the problems that the use of multiplicative composites has caused (French and Hankins, 2003). Furthermore, Marteau, Ogilvie, Roland, Suhrcke & Kelly (2011) argued that human consciousness can change behaviour without intention or TPB by altering the meaning, cost, and amplifying behavioural decisions outside. Thus, TPB is primarily beneficial when predicting behaviour (Sniehotta et al., 2014).

Sniehotta et al., 2014 argued that it is challenging to create reproducible a priori treatments to modify attitudes and subjective norms without a defined theory of change, and PBC, thereby hindering independent testing. This lack of clarity results in dismissing all studies that do not support the theory by arguing that the evidence is due to improper manipulation of theory and tampering with the TPB's assumptions. Some research experiments have not matched the TPB, which could be regarded as the inadequacy of theory to predict behaviour (Chatzisarantis & Hagger, 2005; McCarty, 1981; Sniehotta, 2009).

TRA and TPB introduced good utility by pointing out that behaviour is not just a reflection of attitude, as suggested by previous theories. Nevertheless, scholars have criticised this

approach arguing that there is a need to assess the impact of past or history of behaviour on current behaviour and its effect on the intention to be determined (Conner and Armitage, 1998). The theory can be utilised for experimental testing, but it rarely provides descriptive hypotheses that are rationally different from other theories (Sutton, 2002). Therefore, the ability of the theory to perform a test that is comparative experimental in nature or two plausible competing hypotheses is significantly hindered (Sniehotta et al., 2014)

The theory of TPB and TRA is one of the most used theories to predict behaviour; as a result, it has overwhelming evidence that proves that the theory can predict intention with a strong degree of accuracy (Gibson, Magnan, Kramer and Bryan, 2021; Huang, Dai and Xu, 2020; Kasri and Ramli, 2019). However, the theory still needs to evaluate how it can be improved. This could be done by evaluating the advantages of TPB being integrated into a dual-process paradigm of attitude-behaviour relationships or determining how goal intents may result in goal success by taking into account the incorporation of volitional processes (Conner and Armitage, 1998).

3.3 Application of TPB in the study

The theory of planned behaviour (Ajzen, 1985) served as the theoretical underpinning for this study's investigation of young men's acceptance of HIVST. In this inquiry, attitudes, subjective norms, perceived behavioural control, and acceptability is the key theoretical ideas of interest. The study adopted Ajzen's (1988), assumptions of TPB in the development and adoption of scales to investigate young men's acceptability of HIVST.

The study used the intention as a prelude to behaviour; perceived behavioural control takes into account previous experience and also expected potential barriers and challenges, it has motivational implications for intentions which can influence behaviour or indirectly through intentions while also being capable of predicting behaviour directly since it can be regarded as

a partial replacement for a degree of control attitudes toward a behaviour was evaluated by assessing the function of readily accessible beliefs about the possible consequences of a choice to use HIVST. Thus the behavioural beliefs produced either positive or negative attitudes toward the acceptability of HIVST (Godin and Kok, 1996; Ajzen, 2020).

To determine the subjective norm normative beliefs such as injunctive and descriptive beliefs influence behaviour in individuals assessed. The injunctive normative belief was assessed by evaluating the expectation or the probability that the referent people, such as family, friends, spouse , would approve if the participant used HIVST. Wong (2019) emphasized that using social identity as a weighting element may be advantageous because descriptive standards are based on the perceived prevalence of behaviours. The more you identify with a reference person or group, the more influence that reference should have on your intentions.

Therefore, descriptive normative beliefs were determined by assessing the subjective probability that important people in one's life will accept and use HIVST (Godin and Kok, 1996; Ajzen, 2020). The inclusion of descriptive norms improves the ability to predict intent. After considering various TPB variables, a meta-analysis of TPB research that measured both provisional and descriptive norms discovered that descriptive norms contributed a further 5% of the variance (Wong, 2019).

The perceived behavioural control was assumed to result from accessible control behaviour (Hankins, French and Horne, 2000; Ajzen, 2020). The TPB evaluate factors that could hinder or promote the execution of certain conduct. Thus the study assessed participants' control factors such as skills or abilities, time, and money (Godin and Kok, 1996; Hankins, French and Horne, 2000; Ajzen, 2020).

Therefore, the study questionnaire was divided into three sections in conjunction with the TPB and TRA intention influential factors namely, attitude, perceived behavioural control and subjective norms.

CHAPTER FOUR: METHODOLOGY

This chapter describes the methodology that was utilised for this research study. The chapter covers key research methods of the study, the research design, hypothesis, population, sampling strategy, data collection method and tools, the accuracy of the measurements, management of research data and analysis, ethical concerns, and finally, the study's limitations are all discussed. Research methodology is defined as a strategy for methodically addressing the research topic and investigating the numerous approaches that researchers typically choose to investigate the issue, as well as the reasoning behind those approaches (Kothari, 2020; Sileyew, 2019).

The researcher needs to understand the assumption and technique of the method adopted, as methodology often is described as a rigorous set of rules, standards, and formal situations that scientific trials manually set up and conduct to prepare and create more comprehensive information about the phenomenon (Gelo, Braakman and Benetka, 2008). Research methodology determines the nature of the relationship between the researcher's observation, theory, hypothesis and research methods.

4.1 Research design

The research design is a basic means of collecting evidence for the study and provides an appropriate study framework (Sileyew, 2019). Kothari (2020:31) stated that "research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data". Such as determining a hypothesis and its practical implications for the final data analysis are thus part of the design. Thus, the choice of which research design to adopt depends on the desired outcome of the study. Therefore, social scientists may select between quantitative or qualitative or mix-method designs.

This research study utilised a cross-sectional quantitative research method. A cross-sectional study looks at data from several cases simultaneously at a single moment in time (Neuman, 2014; Nardi, 2018). This method was appropriate for this descriptive research because the study's primary purpose is to describe why events occur and to build, elaborate, extend, or test the hypothesis (Neuman, 2014). The systematic analysis of social phenomena using numerical or statistical data falls under the umbrella of quantitative research, which includes a variety of methodologies. Therefore, the quantitative approach involves measurements and implies that the examined variables can be quantified (Neuman, 2014). Its goal is to look for data patterns and relationships while validating measures (Watson, 2015).

Finding the association between two interconnected variables, namely the dependent and independent variables, is the goal of quantitative research (Babbie, 2009). To reduce the risk of factors other than those being researched, quantitative researchers aim to regulate the environment in which the data is obtained and analysed and isolate certain variables in the study framework, seeking correlation, linkages, and causality (Babbie, 2010).

Thus, this methodology fits well the aim of this study, which sought to find a relationship between two variables: the self-test method and young men's knowledge and acceptability. According to the TPB, three factors influence the intent to undertake certain behaviour or not, namely attitude, subjective norms and perceived behavioural control, which can be viewed as variables impacting the behaviour. This research design cuts across many disciplines and study fields. Moreover, the utilised design minimises biases. Thus, results can easily be replicated, analysed and compared with other studies (Ryan, 2006; Babbie, 2010).

The study adopted a correlational research design. This non-experimental research makes it simpler to understand and analyze how diverse variables are related (Seeram, 2019). Therefore

this research utilized this approach to investigate the extent of the interaction between attitude, subjective norms, and perceived behaviour control on the intention to accept and use HIVST.

The correlation was investigated with the adoption of a randomized research design. The two principles of replication and the principle of randomization were the cornerstones of the design (Seeram, 2019). Randomised research design is the most straightforward design, and its analysis procedure is more simpler (Seeram, 2019). The critical distinguishing factor of the design was that participants were randomly selected, and the randomization process gives every equal possibility of being selected. One-way analysis of variance (ANOVA), bivariant and correlation tests were used to analyse such a design with the degrees of freedom error specified.

4.2 Hypotheses

Alternative hypotheses

The study hypothesis was derived from the Theory of planned behaviour assumptions about behaviour. Therefore, the study hypothesis that:

1. H1: Attitudes will predict HIVST acceptability.

2. H1: Subjective norms will predict HIVST acceptability.

3. H1: Perceived behavioural control will predict HIVST acceptability.

4. H1: Knowledge about HIVST mediates the relationship between attitudes, subjective norms and perceived behavioural control toward HIVST acceptability.

The intention to use and accept the HIVST method is influenced by the participant's attitude, subjective norms and perceived behavioural control, and knowledge is a mediating variable towards acceptability. (*see figure 2*)

Null hypothesis

A commonly used statistical theory called the null hypothesis asserts that there is no statistically significant association between the observed variables in two sets of measured events and observed data (Haldar, 2013). Testing the importance of discrepancies in experiments and between observations depends on the hypotheses. This study proposed the null hypothesis as follows

Ho(1): attitude, subjective norm, and perceived behavioural control do not predict HIV acceptability.

Ho(2): Knowledge about the HIV self method does not mediate the predictor variables (attitude, subjective norm and perceived behavioural control).

Figure 2 illustrates the theory of planned behaviour and the hypothesis.
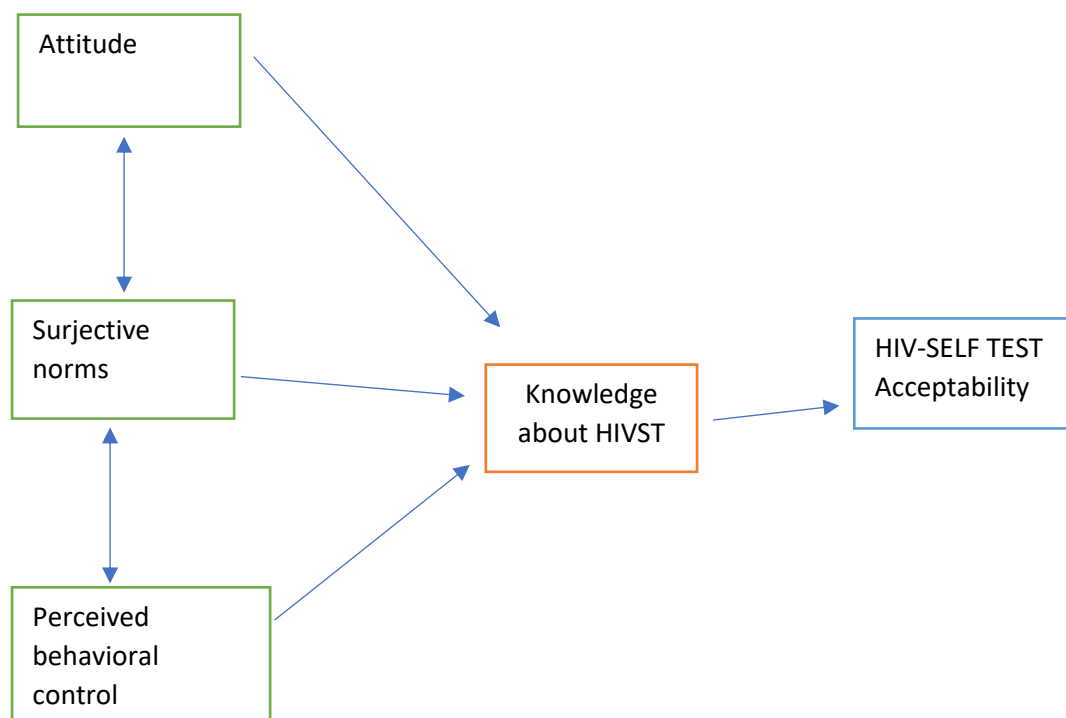
4.3 Variables

Variables are properties that take various values. This is also a logical grouping of attributes. The attribute is a property or property that describes the object (Kaur, 2013). Variables can be defined as measurable elements throughout the operational process. It can turn complex

concepts into easy-to-understand ones and measure them empirically. "It's important to define the term as a variable so that it can be quantified and measured (Kaur, 2013). The central study variable includes the independent, dependent, and mediating variables.

4.3.1 Independent variables of the study

Attitude: this variable was operationalised in the study as a degree to which a person favours or does not favour the HIVST method using the attitude towards behaviours scale. Regarding the attitude-behaviour relationship, attitude strength has been proven to be a critical moderator variable (Armitage and Christian, 2003; Fishbein, Jaccard, Davidson, Ajzen and Loken, 1980).

Subjective norm: this variable was operationalised in the study as a degree to which individual bias, stereotypes, and beliefs impact their choice to use HIVST using the Subjective norms of the participant HIVST scale. An individual's willingness to conform to other people's opinions and the perceived social pressure they feel from others to behave a certain way is what define subjective norms (Ham, Jeger and Frajman Ivković, 2015).

Perceived behavioural control (PBC): this variable was operationalised in the study as a degree to which an individual perceives his or her ability to execute HIV testing without the assistance of a professional. The study used the Perceived behavioural control scale to operationalise PBC. Similar to attitude and subjective norm, perceived behavioural control can be accessed by explicitly probing one's capacity to engage in a behaviour or inferring it from beliefs about one's capacity to deal with particular facilitating or inhibiting conditions. (Ajzen, 2002).

4.3.2 Dependent variables

HIVST acceptability: this variable was operationalised in the study where participants were asked about their desire to use HIVST.

4.3.3 Mediating variables

Knowledge: The decision to use and accept HIVST is mediated by people's knowledge about the HIVST method. Knowledge was measured using modified knowledge questions from a study by Johnson, Neuman, MacPherson, Choko, Quinn, Wong, Hatzold, Nyrienda, Ncube, Baggaley and Terris-Prestholt (2020). Have you ever seen an HIV self-test kit?. Have you ever used an HIV Self-test kit?, Have you ever seen someone using an HIV self-test?, Have you ever read or heard of the HIV self-test?

4.4 Population and Sampling

The study utilised a time location probability sampling of University of KwaZulu Natal young men students aged 18 and 35 years to gather data. Time location sampling (TLS) is a probability sampling technique that is frequently used to get data from communities that are difficult to reach by randomly selecting people from accessible locations (Karon & Wejnert, 2012). All possibility of venue-day-time (VDT) periods of young men students were sampled. Random selection of VDT from the roster using a random number table was utilised *(see Appendix 4)*. The sample is selected in stages *(See Appendix 3)*. The first step in the sampling design was to choose a random sample from each time-location unit that appears in the sampling frame list, ideally with a probability proportional to the total quantity of population members eligible for each time-location unit. The participants are systematically chosen for each randomly chosen time-location unit in the second stage. (Gayet, Cecilia, Fernández-Cerdeño, Araceli, 2009)

Using Time-Location Sampling was advantageous as the study was able to collect data from informal venues, such as secluded places where young men frequently sit, to be added to the sampling frame and to connect with the target population that does not generally frequent public spaces (Gayet et al., 2009). The sample was collected across the Howard College campus in areas where young men are frequently found, such as the garden park and food cafes, computer laboratories, male residences. The inclusion criteria for the selection of participants

they had to be males over the age of 18, and they should be students at the University of KwaZulu-Natal.

Young men were chosen for this study because getting males to get tested and treated for the HIV and AIDS epidemic presents a significant issue but one that has not gotten enough attention. This is because the behaviours of men seeking health services are poorly understood and often under-researched (Mills et al., 2012). Therefore, men must be more included in strategies to combat the HIV epidemic.

4.5 Sample size determination

Singh and Masuku (2014:5) define sample size determination as a "method of selecting the number of observations to include in a sample". Any study or investigation that aims to draw conclusions about the population from a sample must determine a certain sample size (Singh and Masuku, 2014). Moreover, the study must be of appropriate size concerning the study's goals (Lenth, 2001). The sample size should be large enough to be statistically significant. However, the study should not be so large that it is not economically viable to conduct (Lenth, 2001; Dell, Holleran and Ramakrishnan, 2002). Studies that are too small can waste resources because they cannot produce useful results, but studies that are too large consume more resources than necessary.

For ethical reasons, the sample size is an essential issue in experiments or human research (Lenth, 2001). They are explicitly stating the preferred width of a confidence interval and determining the sample size that fulfils that objective is one method for calculating the sample size (Dell, Holleran and Ramakrishnan, 2002; Taherdoost, 2017). A confidence level of 95 and 90 and a margin of error of 10% or 5% is considered statistically significant, and the sample is representative of the population (Hunter, 2016; Taherdoost, 2017). This study utilised Hunter's

(2016) table to determine the margin of error for the study. The table is assumed as a 95% confidence level.

Figure 3 (sample size and margin of error)

Survey Sample Size	Margin of error Percent*
2,000	2
1,500	3
1,000	3
900	3
800	3
700	4
600	4
500	4
400	5
300	6
200	7
100	10
50	14

The study had a sample size of 99 and therefore assumed a .10 (standard error). This margin of error was utilised to calculate the sample size, this is required in order to get results that are within the study's declared confidence range and margin of error (See the calculation below).

"Where $Z_{\alpha/2}$ is interpreted as the critical value, the positive value that is at the vertical boundary for the area of $\alpha/2$ in the right tail under the standard normal distribution. σ is interpreted as the standard deviation of the population" (Kothari, 2020)

By: $$n = \left[\frac{z_{\alpha/2}\sigma}{E} \right]^2$$

[1.96 x 0.50÷0.10]2

3.84 x 0.25÷0.01

3.84 x 25

n=96

According to the sample size calculation above, this study needed a minimum sample of 96 people. Additionally, 99 young males were sampled in this study.

4.6 Data collection procedure and instruments

Jarbandhan and Schutte (2006) emphasized that the collection of data procedures must be given the significance it warrants, as poor data collection instruments will affect the reliability and validity of the study. This study has utilised a quantitative data collection procedure. The basic principle of data collection in quantitative research is that the data is acquired independently of the observer's expectations and that the data accurately represent the phenomenon (Sileyew, 2019; Kothari, 2020).

Four main objectives guide quantitative data collection. *Empiricism:* finding solutions to research challenges requires a methodical strategy based on scientific principles, and it is an observation and measurement that others can reproduce (Khalid, Abdullah and Kumar, 2012; Botti and Endacott, 2005). *Measurement*: A careful and clear definition of the device such as a scale or questionnaire used to measure the phenomenon (Botti and Endacott, 2005). *Reproducibility*: This guarantees that the results obtained can be replicated in duplication studies by different scholars or researchers (Botti and Endacott, 2005). *Objectivity*: An attempt to remove bias in data collection and interpretation so that the conclusions reflect the facts

about the phenomenon. Therefore, whether a particular research study has achieved these goals depends on the research plan, the definition of the phenomenon of specific interest, the equipment or tools utilized in the collection of data, and the measuring equipment (Botti and Endacott, 2005; Khalid, Abdullah and Kumar, 2012).

The instrument of the study consists of semi-structured self-questionnaires. With four sections central to the study. *Section I;* participant's demography ensures replication of the study context and reliability of the study. Section II: consists of a scale to measure participants' knowledge about HIVST; this section measures the mediating variable of the study. Section III: This section measures the attitude of participants toward HIVST. *Section IV:* This section measures the subjective norms of participants to HIVST. *Section V:* This section measures the perceived behavioural control of participants (*See Appendix 2).*

4.7 Measures of the study

The study utilised four modified scales to measure the acceptability of the HIVST method. The first scale is a modified attitude toward behaviour, modified subjective norm toward behaviour and perceived behavioural control toward behaviour. The last scale measured the mediation effect of knowledge toward predictor variables (attitude, subjective knowledge and perceived behavioural control).

Attitude toward behaviours scale (ATHIVST): The study utilised Ajzen modified Attitude Testing Scale together with modified HIV-Antibody Testing Attitude Scale (HTAS) which was developed and tested for reliability and validity, utilising data from two heterogenic college student samples (Boshamer and Bruce, 1999). The HTAS has a high internal consistency (Cronbach alpha= .88). According to Boshamer and Bruce (1999), the HTAS result correlates with intending to test for HIV but not with other similar behaviour such as condom usage. HTAS is an easy-to-use tool that could be applied to prevent HIV and emphasise

antibody testing programmes (Boshamer and Bruce, 1999). This study's attitude scale utilised had seven Likert-type scale items with possible responses ranging from strongly in agreement to strongly opposed for its five main elements.

Regarding scoring, the strongly agreed response was given a score of five for the positive response, and the strongly disagree response had a weight of one, with two representing disagree, four recorded as agree and three as neutral. The study items were as follows: I would use an HIV self-test? I value counselling in HIV tests?. Using Self-testing will not benefit me?. Self-testing for HIV will make me test more often for HIV?. Testing at home for HIV will have negative consequences?. I value the privacy of the self-test? I would recommend an HIV self-test to other people. Each participant received a total score that was calculated by adding their individual item scores as a result, higher scores were interpreted as more favourable attitudes toward HIVST. Piloting of the measure resulted in reducing the response factor range from seven items to five response ranges, decreasing confusion among participants. After collecting data, this measure recorded a reliability of .732 (Cronbach's alpha).

Subjective norms of participants to HIVST scale (SNTHIVST): This scale measured participants' subjective norms toward HIVST using Ajzen and Madde's (1986) modified TPB subjective norm scale. This scale has been used in similar studies and tested for reliability and validity (Ajzen, 2002). SNTHIVST was a Likert-type scale with seven items comprising five response options ranging from very likely, neutral and most likely. Participants selected one and two were recorded as very unlikely and unlikely to use HIVST. In contrast, participants scoring four and five were recorded as likely and most likely to use HIVST.

Thus high score indicated a high likelihood of accepting HIVST, while a low score indicated a low probability of accepting the HIVST. Participants were scored from the following items; I will use a test if recommended by a health professional? I would do the test even if my friends

are against it? I would do the test if my family think I should?, My peers have done HIV self-test? Most people who are important to me would do HIV self-test? People in my life whose opinions I value would be happy if I did the HIV self-test? The community I am from will use HIV self-test. During the piloting of the study measure, item four was rephased due to a low response from it to peers instead of friends and the scale response range was reduced from seven to five. After collecting the data, the measure's reliability was recorded as .824 (Cronbach's alpha).

Perceived behavioural control scale (PBTHIVST): This scale was used to measure participants perceived self-efficacy toward using the HIVST. PBTVIVST scale is a five-item Likert-type scale adapted and modified from Ajzen and Madde's (1986) TPB scale. For this study, the scoring options ranged from a weight of five which strongly disagree with, and a weight of one assigned as a strongly agree response, with agree, disagree, and neutral given a weight of two, four and three, respectively. Higher scores indicated poor perceived self-control over HIVST. Participants were scored in response to these items: I am confident that I will use self-test?, The choice to test utilising a self-test is beyond my control?, Whether I test using HIVST is up to me?, I know where to go if I test positive?, Do health professionals influence how I test?. After piloting the study measure, the response range was reduced from seven to five, and the measure's reliability became .730 (Cronbach's alpha) after collecting the data.

Knowledge of HIVST scale (HIVSTK): the study utilised the modified Johnson et al. (2020) knowledge test scale. The scale consisted of five Likert-type items to measure the mediating power of knowledge about HIVST toward attitude, subjective norm and perceived behavioural control. For this study, the scale comprises five main factors with possible answers varying between strongly agree to strongly disagree. These items were; Have you ever tested yourself for HIV?, Have you ever seen an HIV self-test kit?, Have you ever used an HIV Self-test kit?,

Have you ever seen someone using an HIV self-test? Have you ever read or heard about HIV self-test?.

When scoring for knowledgeability about HIVST, the response with a score of five represented strongly agree, and the strongly disagree response had a score of one, with two representing disagree, four recorded as agree and three neutral. Each respondent received a total value calculated by adding each item's results. Therefore higher scores reflected more knowledge participants have about HIVST, while the lower score indicates low knowledge about HIVST. This research study established the internal consistency of 3 .863 (Cronbach's alpha).

4.8 Reliability of the study measures

Reliability refers to the degree to which phenomenological measurements yield stable, consistent results (Taherdoost, 2016). "Reliability is related to reproducibilities such as the scale or test is said to be reliable if repeated measurements under certain conditions yield the same results" (Taherdoost, 2016:8). The reliability test is important to refer to the consistency between the parts of the measuring device (Taherdoost, 2016).

If an item on the scale is related and measures the same configuration, high internal consistency reliability can be attributed to the scale (Huck, 2007; Robinson, 2009). The method most frequently employed for internal consistency is Cronbach's alpha factor. This is regarded as a suitable reliability measure, especially when using the Likert scale (Taherdoost, 2016). There are no absolute rules for internal consistency, but in most cases, the scientific community agrees with an internal consistency factor of at least 0.70. (Taherdoost, 2016).

The scales used in this research have been found to have reliability ranging from Cronbach's alpha of .73 in perceived behavioural control toward the HIVST scale to .86 in the knowledge of the HIVST scale. Subjective norms toward the HIVST scale and attitude towards the HIVST scale had the reliability of .824 and .732, respectively.

Table 1: *Reliability scale*

Scale	Cronbach's alpha of the scale
Attitude towards HIVST scale	.732
Subjective norm toward HIVST scale	.824
Perceived behavioural control toward HIVST	.730
Knowledge of the HIVST scale	.863

4.9 Data management and analysis

The study's model included a dependent variable, HIVST use behaviour, independent variables, which are attitude, subjective norms, and perceived behavioural control, and one moderator variable, Knowledge about HIVST. In order to test the study's main hypothesis that attitudes, subjective norms, and perceived behavioural control will have a predictive power against HIVST use behaviour, the hypothesis was tested using multiple regression analysis. Moore, Anderson, Das and Wong (2006) defined multiple regression as a statistical procedure that could be utilised to analyse the correlation of a single dependent variable with several independent variables. The study further hypothesised that the influence of the attitude, subjective norm, and perceived behavioural control variables would be mediated by knowledge participants have about HIVST.

Initially, a descriptive statistical analysis was done to describe the sample's demographics. Independent t-tests and chi-square analysis were employed to analyse the demographic factors according to the degrees of knowledge toward HIVST. The predictor variables' mean comparisons and standard deviations were conducted. This study conducted a bivariate analysis

of the relationship between variables starting with the crosstabulation of socio-descriptive information of participants. Pearson correlation coefficient evaluated the connection between predictor variables (attitude, subjective norm, perceived behavioural control) using linear regression and a two-tailed correlation test. This analysis was followed by assessing each predictor variable and HIV self-use. Multivariate analysis was conducted using R-square, ANOVA and MNOVA.

The analysation of research data was done using the Statistical Package for the Social Sciences (SPSS). Various studies use SPSS for complex statistical data analyses. This statistic package was suitable for this study as it makes comparing two variables easy and minimises bias in the study. The study has three independent variables (attitude toward HIVST behaviour, subjective norm toward HIVST and Perceived behavioural control toward HIVST use) and a dependent variable, an intention to use HIVST.

The strength of the package is that it enables a researcher to acquire statistics ranging from straightforward descriptors to intricate multivariate matrix analyses (Muijs, 2010). Data can be plotted in histograms, scatterplots, and other visual ways for easy interpretation. Moreover, the tool has been tested over the years, and it has proven to be reliable and accurate (Huizingh, 2007). However, the tool has been critiqued that it requires knowledge and technical skill to run data analysis; thus, in this research study, the researcher was experienced in the use of the software tool.

Good records are essential to the scientific approach. Research data alone do not constitute a robust research process (Schreier, Wilson and Resnik, 2006). This includes but is not restricted to research panning and methodology descriptions, data handling and analysis procedures and individual and group interpretation of results (Schreier, Wilson and Resnik, 2006). Data management is a broader conceptual subset of the management and planning of research,

replication of findings, documentation of collaboration, publication and peer review, and adherence to governmental and agency norms and regulations all depend on the research records (Schreier, Wilson and Resnik, 2006).

Over the last few decades, research documents' legal and regulatory use has become critical. Research materials have long been used to resolve intellectual property disputes (Schreier, Wilson and Resnik, 2006). The research data have been stored in locked university cardboard for safe-keeping for five years, and it will be destroyed by burning after five years. The software records of the study will be stored in the password-protected USB flash drive and deleted after five years have elapsed.

4.10 Ethical considerations

Research should be based on ethics (Israel and Hay, 2006). Ethics are characterized by a set of values proposed by people or individuals that are widely recognized and provide guidelines for behaviour regarding how to act in various situations concerning experiment participants, companies, donors, research assistants or research students (Babbie, 2007; De Vos, Strydom, Fouche & Delport. 2011).

Several norms of ethical behaviour were followed throughout the research investigation in an attempt to assure verification and authenticity of this study. This study considers the potential psychological harm that results from revealing sensitive and private information about the participants' sexual behaviours and HIV status. The primary ethical principle of research is that participants cannot be harmed during the study (Babbie, 2009; Israel and Hay, 2006).

Risk and benefit of participants: Participants in the social research study may suffer physical, psychological, or emotional distress (Israel and Hay, 2006). Physical discomfort is frequently easier to forecast and measure than emotional damage to participants, although emotional harm frequently has more severe effects on respondents (De Vos et al., 2005). The fact that there

would be no intentional physical, psychological, or emotional harm to study respondents should be acknowledged. The potential harm was minimised by offering psychosocial assistance either during or after the study. However, given the area of research, there may be an unforeseen emotional or psychological risk. Participants were also told that because the researcher is a qualified professional social worker, emotional or psychological damage will be easily identified and addressed. In addition to this, there would be safeguards to address any potential emotional distress. Arrangements with the MA'AT NGO were made for participants who would need any psychosocial support during and after the study.

Informed consent: Informed consent includes offering respondents sufficient details about the study (*see Appendix 1*), the predicted period of engagement, the procedures which would be carried out during the research, the likely benefits, disadvantages, and risks that the respondents may be subjected to, in addition to the researcher's credibility (Smith, 1995; De Vos et al., 2011).

All participants were provided with a written informed consent agreement form. The informed consent form provided the participants with information about the research, the nature of the questionnaire, the timeframe, their rights in relation to the research investigation, persons who would have access to the data they provided and for what intention. Verbally explanation and discussion of the informed consent were undertaken where participants were given an opportunity to seek clarity where they could not understand before signing the consent form (*see Appendix 1*).

Voluntary participation and privacy: According to De Vos et al. (2011), research involvement should always be voluntary, and no individuals should be pushed into participating in the study. The respondents were informed about the nature of the research study before participation in order to guarantee voluntary participation. Furthermore, all respondents

signed written informed consent forms. While completing the questionnaires, if a respondent felt uncomfortable responding to a question, they have the option of not answering and withdrawing from the study at any time. As a result, participants were able to make an informed decision about whether or not to engage, ensuring voluntary participation, and there was no financial reward for participating in the study.

Privacy is defined as "that which is not normally intended for others to see and analyse" (De Vos et al., 2011:4). The participants were given privacy to answer questions as the researcher gave them the self-administrated questionnaire, maintained a ten-meter distance. The distance was sufficient for participants to ask questions but also have privacy.

Confidentiality: Confidentiality could be defined as an agreement among individuals to limit others' access to their private data and to manage information confidentially (De Vos et al., 2011). The principle of respect for autonomy underpins the notion of confidentiality, which means that individually identifiable information acquired throughout the research procedure will not be divulged without authorization (Wiles, Crow, Heath and Charles, 2008). Participants' confidential information was protected by storing the information collected in the secure office locker and protecting the software information with a password. The principle of confidentiality was verbally explained to participants, and concerns about confidentiality were managed by maintaining the confidentiality of all questionnaires and only utilized for research reasons.

The principle of confidentiality is inextricably intertwined with the notion of anonymity, and anonymity is another way confidentiality is maintained (Wiles, Crow, Heath and Charles, 2008).

Anonymity: Anonymity entails attempting to make sure that participants' identifications are untraceable (De Vos et al., 2011). Moreover, anonymity was assured by utilizing digital data

coding and storage that met the most stringent and safe data encoding requirements. The respondents were assured that the data gathered through the study questionnaires will be viewed only by the researcher and the researcher's supervisor; also, using codes as identification on the surveys secured the participant's true identity by using pseudonyms.

Human participant protection: The researcher is aware that the study might cause psychosocial distress to participants. Therefore, measures were put in place to ensure that should cause this distress which could arise from participating in the study, received support even after the study. This was done by pre-booking participants in an NGO called MAAT institute, which provides psychosocial support to everyone in need. Furthermore, participants were given contact details of the NGO. Furthermore, full ethical clearance was obtained from the Humanities and Social Sciences Research Ethics Committee (HSSREC) (*See Appendix 5*)

Conduct and competence of researchers: According to Walliman (2006) and De Vos et al. (2011), researchers have an ethical obligation to guarantee that they are knowledgeable/qualified, truthful, and appropriately skilled to carry out research. I did not provide participants with misleading data. Furthermore, to guarantee ethical research, I completed the research under the supervision of a higher qualified supervisor.

Release or publication of findings: I ensured that the final results were clear and represented the participants' data. Furthermore, participants were verbally informed that the result was to be published in the UKZN library research gate to allow participants access to the study's final result. Respondents were further informed that they could use the researcher's contact details if they wanted to check the status of findings or the research progress before publication. However, the researcher did not receive the request during the research.

4.11 Limitations of the study

All research studies have both strengths and weaknesses, but study limitations should focus specifically on the research issue under investigation rather than the general limitations of all research studies (Connelly, 2013). Theofanidis and Fountouki (2018) argued that research limitations are heavily linked to the chosen research design, statistical model constraints, and financing constraints and are usually outside the researcher's direct control. The limit generally focuses on both the internal and external validity of the research. Internal validity deals with the rigorous implementation of the study, while external validity emphasises the generalization and applicability of the results to a larger population. These areas make research scientifically rigorous (Connelly, 2013).

The study's main strength is that sophisticated statistical analysis (SPSS) was used to analyse the research data, which has been proven reliable. Moreover, since the study was quantitative, the researcher's prejudice and bias had little impact on the final result of the study as all measures were observed to ensure an objective outcome. However, it is also essential to acknowledge study limitations to promote further exploration of the topic and increase knowledge of HIVST.

This study was cross-sectional; thus, the results are beneficial as baseline data for prospective future advanced studies in the same field (Wang and Cheng, 2020). However, it is essential to note the predictive limits of cross-sectional studies is that there are generally no temporary signs due to simultaneous exposure and endpoint recording. True causality without longitudinal data is complex. It is, therefore, difficult to establish a precise causal relationship (Solem, 2015). To minimise this limitation, the study employed numerous statistical tests such as ANOVA, MANOVA, linear regression and correlations to investigate the hypothesis.

This study's capacity to generalize the study's causal inferences (external validity) beyond the study settings of South African young male students may be limited. This is because the study

had few foreign national students and was only conducted in one university. Furthermore, youth is a diverse heterogeneous group. This means that the study may not have covered every young person. However, an effort to minimise this limitation was by randomising the sample and the composition of the population. The study targeted university students as universities often have a diverse population and attract youth from different backgrounds and countries.

Another limitation of this study was that it was conducted during the COVID-19 pandemic. The time location sampling technique was disadvantaged by the pandemic as the hotspot where young male students were usually found was half occupied as the result of a state of emergency act restricting only 50% occupation of indoor spaces.

CHAPTER FIVE: RESULTS

This chapter contains the research data result collected and analysed from a total of 99 young male participants. This section presents the results of statistical data analysis in connection to the study aims and hypotheses investigated. By providing descriptive data, bivariate analysis, including socio-demographic factors, correlation among predictor variables, correlations for individual predictor variables, knowledge of HIVST and HIVST use and finally, multivariant analysis of the data collected will be presented.

5.1 Participant's descriptive information

5.1.1 Socio-demographic characteristics of participants.

The study had 99 total participants ages ranging from 18-35, with the majority of respondents being between 21-23 is 40.4% of participants, followed by 24-26 with 24.2%, 18-20 received 21%, 27-29 received 9.1%, 30-35 received 2%, and the lowest age range was 33-35 having 2% of participants. The study had a mean of 2.38 and a standard deviation of 1.131 for age distribution. See figure 4 below
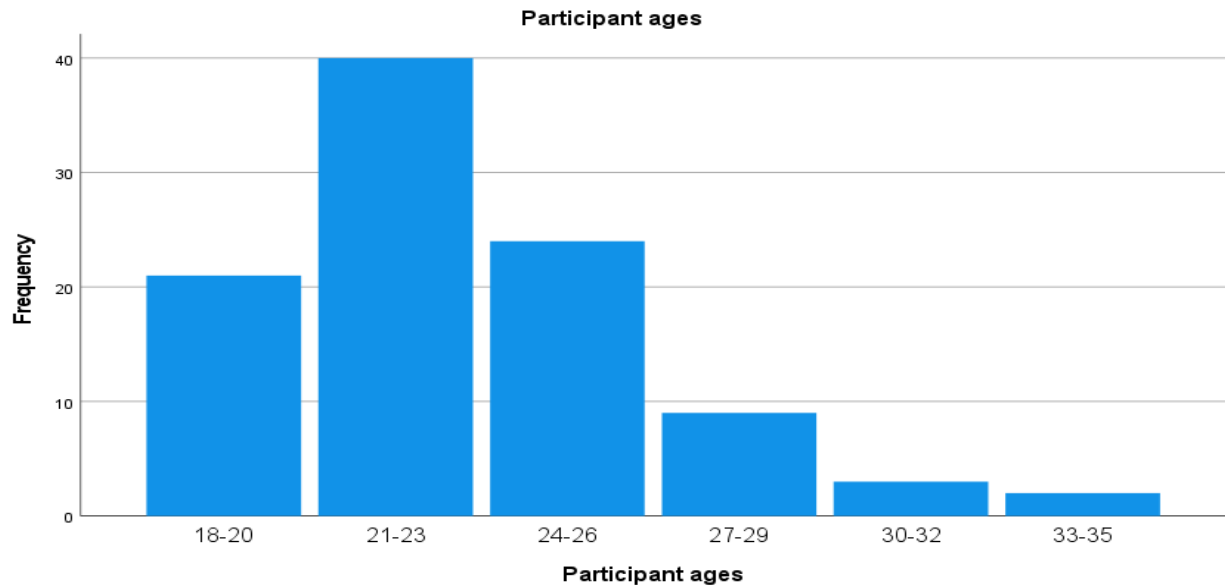
Figure 4: The participant's Age distribution

Participants in the study were all African/black in terms of race and with the majoring of participants from the province of KwaZulu-Natal, accounting for 88.9% of participants in the study. Moreover, the study had a total of 2% Non-South African participants. The second province with the high number of participants that responded was Mpumalanga with 4%, followed by Eastern Cape, and the province with the least responded was Limpopo with 2%. See figure 5

Figure 5: Participant's province of origin

Partcipant Province of origin

Legend:
- KwaZulu-Natal
- Limpompo
- Eastern Cape
- Mpumalanga
- Not South African
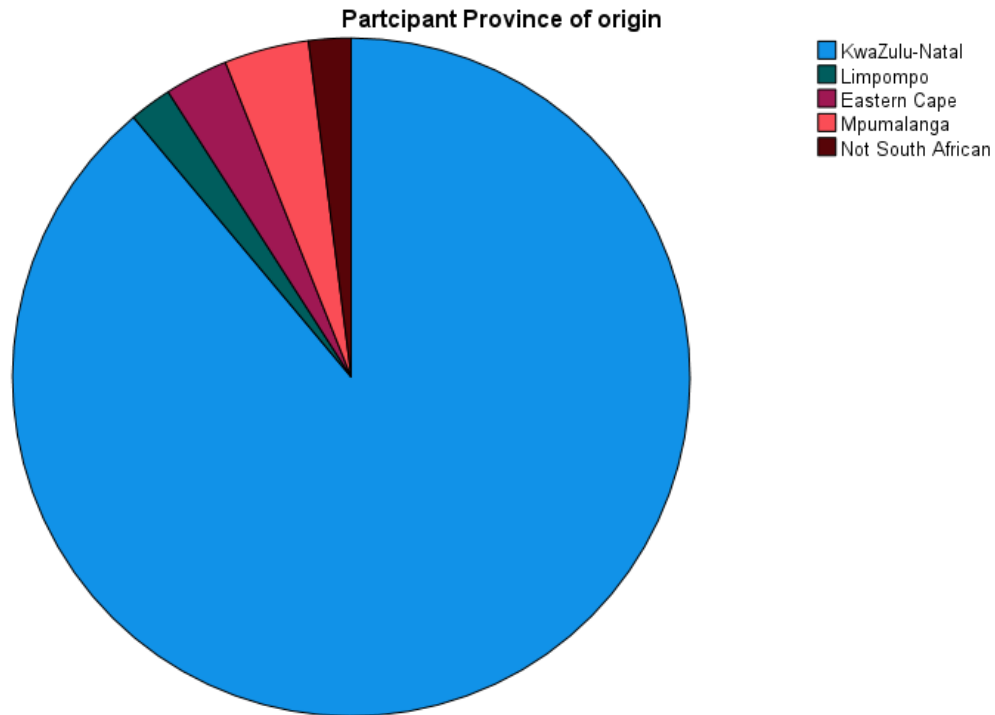
The study targeted registered students; thus, all participants were registered during the data-gathering process. The majority of participants were South African (98%) and foreign nationals (2%).

The majority of participants (55) were registered under the College of Agriculture, Engineering and Science (55.6%). The second college with high participation was Humanities, with 32 participants (32.3%). Law and Management studies 6 participants (6.1%). The Health Science and other Colleges had 3 (3%) percent. This data is presented in figure 6 below.
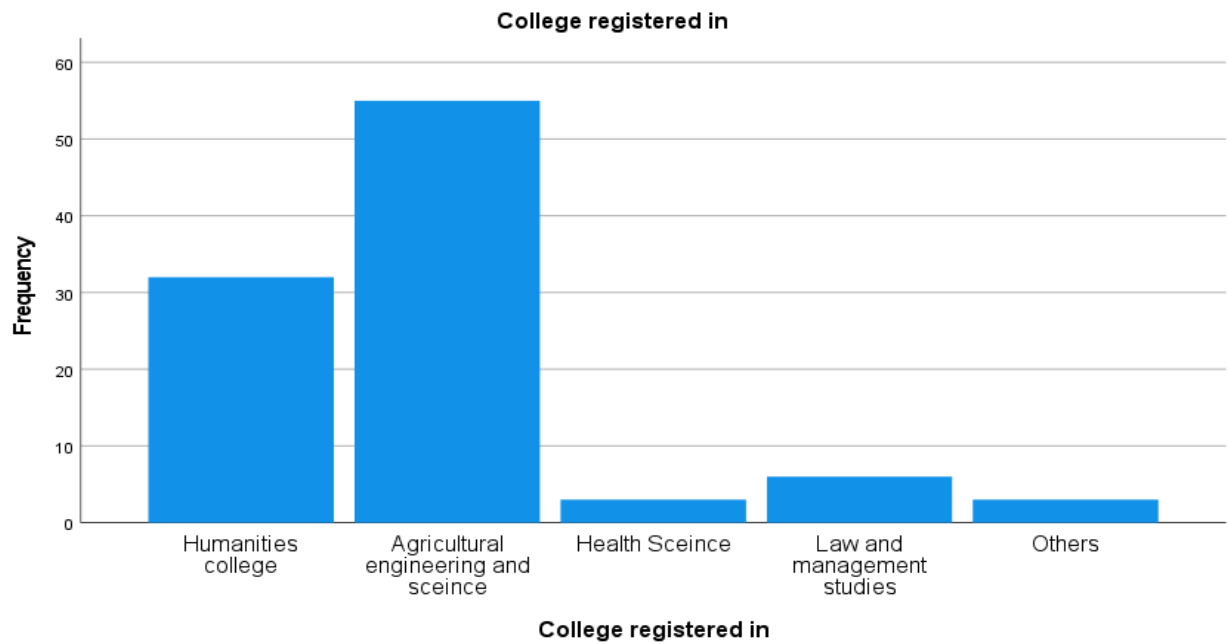
Figure 6: University Colleges

The study sampled undergraduate and postgraduate students, with the undergraduate becoming the majority of the sample, 73 (73.7%) and the postgraduate being the minority, 26 (26.6%). Moreover,44 (44.4%) of participants responded to having tested in the last three months, and 44 (44.4%) reported not having tested in the previous month. However, 11 (11.1%) preferring not to answer this question.
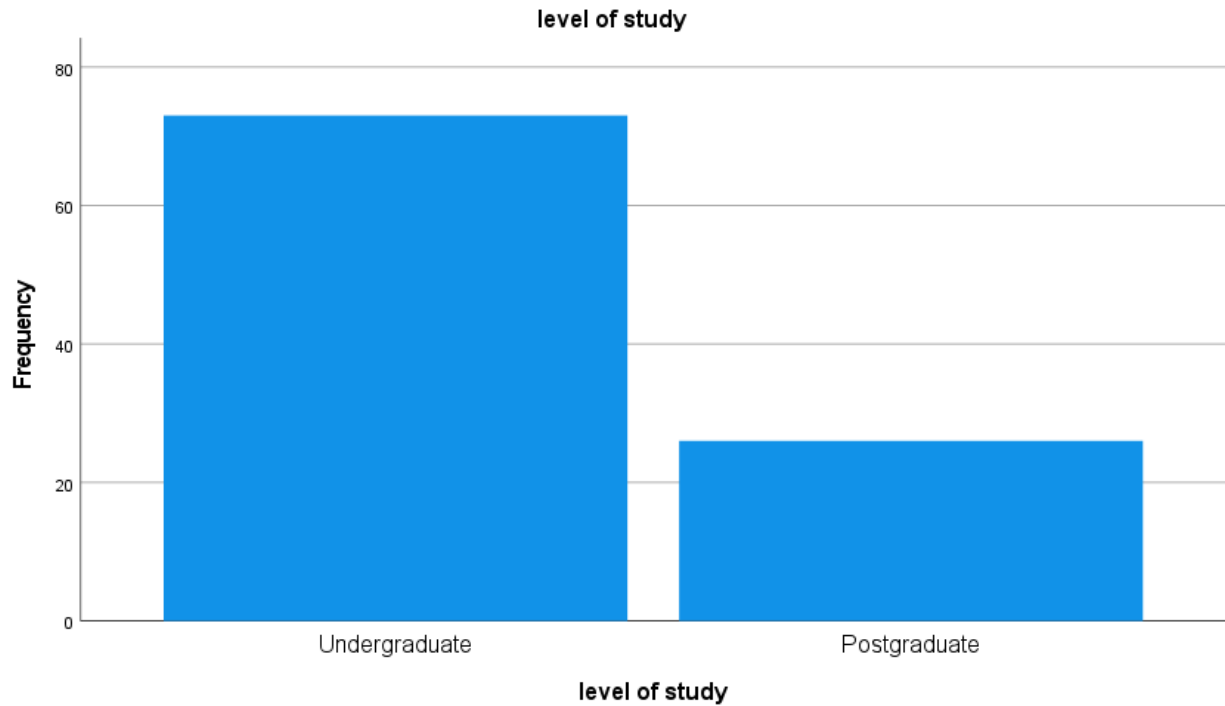
Figure 7: level of study

The majority of participants 53 (53.5%) reported having tested themselves before for HIV, while 41 (41,4%) reported never testing before and 5 (5.1%) were not sure. Moreover, 59 (59.6%) of participants indicated having seen an HIVST before, and only 32 (32%) had never seen the HIVST kit before. This was correlated with a response of 66 (66.7%) of participants who reported having read about or heard of the HIVST. A further 26 (26%) reported never hearing or reading about HIVST. The minority 12 (12%) reported having never seen HIVST.

A majority of participants 65 (65%) reported having never tested themselves using HIVST, while 27 (27%) have tested themselves, with only 16 (16%) not sure if they have or not.

Table 2 Overall means and standard deviation of scales

Descriptive Statistics

	N	Mean	Std. Deviation

Mean score ATHIVST	(99)	2.0750	.80304
Mean score SNTHIST	(99)	3.2280	1.03619
Mean score PBTHIVST	(99)	2.0444	.84058

On average, participants in this survey did not report highly favourable subjective norms toward HIVST as indicated by high standard deviation with Attitude toward HIVST and perceived behavioural control having low standard deviation (*See table 2).* However, the standard deviation between the scales used in this study was relatively similar (See table 3).

Table 3 items Mean and standard deviation (std. deviation)

Descriptive Statistics

	N	Mean	Std. Deviation
ATHIVST1	99	1.83	1.302
ATHIVST2	99	1.97	1.182
ATHIVST3	99	2.80	1.622
ATHIVST4	99	1.81	1.158
ATHIVST5	99	2.57	1.451
ATHIVST6	99	1.64	1.064
ATHIVST7	99	1.92	1.218
SNTHIVST1	99	3.38	1.695
SNTHIVST2	99	3.44	1.579
SNTHIVST3	99	3.40	1.558
SNTHIVST4	99	2.63	1.454
SNTHIVST5	99	3.18	1.388
SNTHIVST6	99	3.40	1.362
SNTHIVST7	99	3.15	1.320
PBCTHIVST1	99	1.81	1.192
PBCTHIVST2	99	2.72	1.485
PBCTHIVST3	99	1.75	1.082
PBCTHIVST4	99	1.77	1.150

| PBCTHIVST5 | 99 | 2.18 | 1.110 |

5.2 Bivariate analysis

The relationship between two variables is an analysis termed bivariate analysis, an individual variable is categorised as the outcome variable, and that designated variable different values are contrasted on the bases of the different values of the other variables, which are referred to as explanatory variables. (Bertani, Di Paola, Russo and Tuzzolino, 2018). The most applicable techniques for bivariate analysis are correlation analysis and simple linear regression to evaluate the strength of the influence of the independent variable on the dependent variable**.**

5.2.1 Cross-tabulation of socio-demographical information

The cross-tabulation of participant's age and testing history indicated that the age group 33-32 had the highest testing rate (66.6%), while the age group 18-20 reported a low testing rate (61.9% non-testers) with only 33.3% of participants who have tested. Age groups 21-23, 27-29, and 33-35 reported equal percentages of 44% between those who have tested and those who have not tested in the last three months (See table 4 below).

*Table 4:Participant ages * Testing history in the last three months Crosstabulation*

			Testing history in the last three months			Total
			yes	No	Prefer not to say	
Participant ages	18-20	Count	7	13	1	21
		Expected Count	9.3	9.3	2.3	21.0
		% within Participant ages	33.3%	61.9%	4.8%	100.0%
	21-23	Count	17	17	6	40
		Expected Count	17.8	17.8	4.4	40.0
		% within Participant ages	42.5%	42.5%	15.0%	100.0%
	24-26	Count	13	9	2	24

		Expected Count	10.7	10.7	2.7	24.0
		% within Participant ages	54.2%	37.5%	8.3%	100.0%
	27-29	Count	4	4	1	9
		Expected Count	4.0	4.0	1.0	9.0
		% within Participant ages	44.4%	44.4%	11.1%	100.0%
	30-32	Count	2	0	1	3
		Expected Count	1.3	1.3	.3	3.0
		% within Participant ages	66.7%	0.0%	33.3%	100.0%
	33-35	Count	1	1	0	2
		Expected Count	.9	.9	.2	2.0
		% within Participant ages	50.0%	50.0%	0.0%	100.0%
Total		Count	44	44	11	99
		Expected Count	44.0	44.0	11.0	99.0
		% within Participant ages	44.4%	44.4%	11.1%	100.0%

Participants aged 21-23 reported high HIVST acceptability (40.4%), followed by 24-26 (24.2%), 18-20 (21.2%), 27-29 (9.1%), 30-32 (3%), 33-35 (2%). See figure 6

Figure 8

Bar Chart
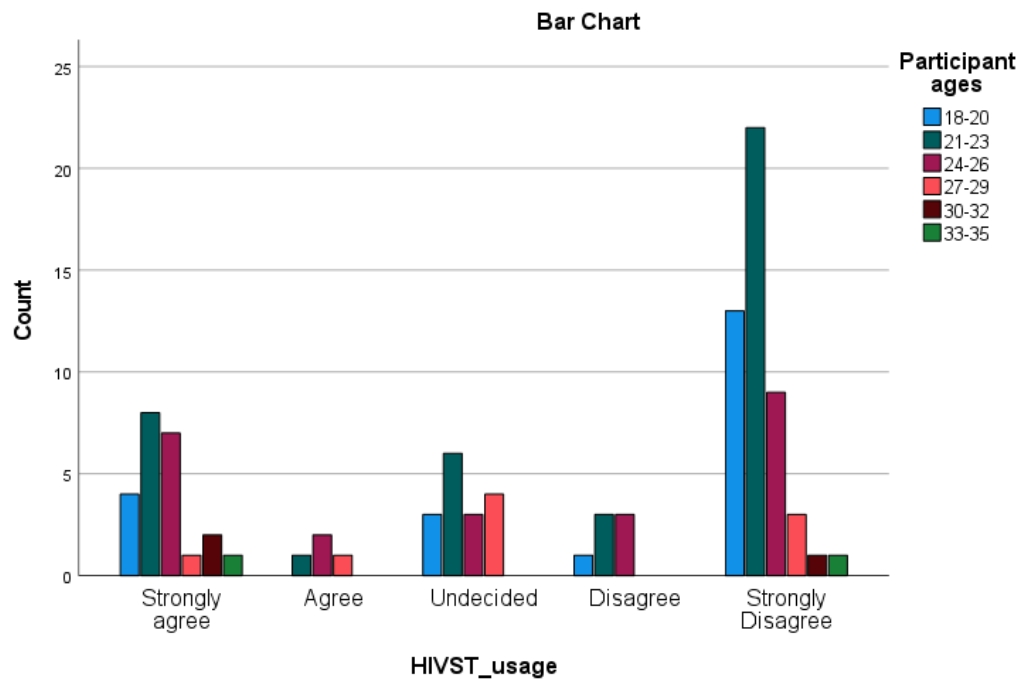
Most participants were from KwaZulu-Natal (88) and reported high HIVST usage (27.2%), while Eastern Cape, Limpopo, and non-South Africa reported less than 2.3% and other provinces such as the Free State, Gauteng, Northern Cape and North-west having no participants. These findings are presented in table 5 below. Only 27 participants from South Africa reported having used HIVST, with all the non-South African having never used HIVST. See table 6

*Table 5:Participant's Province of origin * HIVST acceptability Crosstabulation*

			HIVST acceptability					
			Strongly agree	Agree	Undecided	Disagree	Strongly Disagree	Total
Participant's Province of origin	KwaZulu-Natal	Count	21	4	16	6	41	88
		Expected Count	20.4	3.6	14.2	6.2	43.6	88.0
		% within Participant Province of origin	23.9%	4.5%	18.2%	6.8%	46.6%	100.0%
	Limpopo	Count	1	0	0	0	1	2
		Expected Count	.5	.1	.3	.1	1.0	2.0

80

		% within Participant Province of origin	50.0%	0.0%	0.0%	0.0%	50.0%	100.0%
	Eastern Cape	Count	0	0	0	1	2	3
		Expected Count	.7	.1	.5	.2	1.5	3.0
		% within Participant Province of origin	0.0%	0.0%	0.0%	33.3%	66.7%	100.0%
	Mpumalanga	Count	1	0	0	0	3	4
		Expected Count	.9	.2	.6	.3	2.0	4.0
		% within Participant Province of origin	25.0%	0.0%	0.0%	0.0%	75.0%	100.0%
	Not South African	Count	0	0	0	0	2	2
		Expected Count	.5	.1	.3	.1	1.0	2.0
		% within Participant Province of origin	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Total		Count	23	4	16	7	49	99
		Expected Count	23.0	4.0	16.0	7.0	49.0	99.0
		% within Partcipant Province of origin	23.2%	4.0%	16.2%	7.1%	49.5%	100.0%

*Table 6: HIVST acceptability * Participant's Nationality Crosstabulation*

			Participant's Nationality		
			South African	Foreign National	Total
HIVST acceptability	Strongly agree	Count	23	0	23
		Expected Count	22.5	.5	23.0
		% within HIVST usage	100.0%	0.0%	100.0%
	Agree	Count	4	0	4
		Expected Count	3.9	.1	4.0
		% within HIVST usage	100.0%	0.0%	100.0%
	Undecided	Count	16	0	16
		Expected Count	15.7	.3	16.0
		% within HIVST usage	100.0%	0.0%	100.0%

	Disagree	Count	7	0	7
		Expected Count	6.9	.1	7.0
		% within HIVST_usage	100.0%	0.0%	100.0%
	Strongly Disagree	Count	47	2	49
		Expected Count	48.0	1.0	49.0
		% within HIVST usage	95.9%	4.1%	100.0%
Total		Count	97	2	99
		Expected Count	97.0	2.0	99.0
		% within HIVST usage	98.0%	2.0%	100.0%

Humanities students reported being the college with the majority of its student reporting to have not tested in the last three months (50.0%), while 40.6% reported to have tested and 9.4% deciding not to disclose. The college of Health science had the highest student who tested in the last three months (66.7%). Agricultural, Engineering and science had a close margin difference, with 43.6 reporting to have tested if compared with 45.5% reporting to have not tested and only 10.6% did not disclose. See table 7

*Table 7: College registered in * HIVST acceptability Crosstabulation*

			HIVST acceptability					Total
			Strongly agree	Agree	Undecided	Disagree	Strongly Disagree	
College registered	Humanities college	Count	9	3	5	2	13	32
		Expected Count	7.4	1.3	5.2	2.3	15.8	32.0
		% within College	28.1%	9.4%	15.6%	6.3%	40.6%	100.0%
	Agricultural engineering and science	Count	7	1	10	5	32	55
		Expected Count	12.8	2.2	8.9	3.9	27.2	55.0
		% within College	12.7%	1.8%	18.2%	9.1%	58.2%	100.0%
	Health Science	Count	2	0	0	0	1	3
		Expected Count	.7	.1	.5	.2	1.5	3.0
		% within College	66.7%	0.0%	0.0%	0.0%	33.3%	100.0%
		Count	2	0	1	0	3	6
		Expected Count	1.4	.2	1.0	.4	3.0	6.0

Law and management studies		% within College	33.3%	0.0%	16.7%	0.0%	50.0%	100.0%
	Others	Count	3	0	0	0	0	3
		Expected Count	.7	.1	.5	.2	1.5	3.0
		% within College	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total		Count	23	4	16	7	49	99
		Expected Count	23.0	4.0	16.0	7.0	49.0	99.0
		% within College	23.2%	4.0%	16.2%	7.1%	49.5%	100.0%

*Table 8:level of study * HIVST acceptability Crosstabulation*

			HIVST acceptability					Total
			Strongly agree	Agree	Undecided	Disagree	Strongly Disagree	
level of study	Undergraduate	Count	14	2	9	6	42	73
		Expected Count	17.0	2.9	11.8	5.2	36.1	73.0
		% within level of study	19.2%	2.7%	12.3%	8.2%	57.5%	100.0%
	Postgraduate	Count	9	2	7	1	7	26
		Expected Count	6.0	1.1	4.2	1.8	12.9	26.0
		% within level of study	34.6%	7.7%	26.9%	3.8%	26.9%	100.0%
Total		Count	23	4	16	7	49	99
		Expected Count	23.0	4.0	16.0	7.0	49.0	99.0

*Table 9:Testing history in the last three months * HIVST acceptability Crosstabulation*

			HIVST acceptability					
			Strongly agree	Agree	Undecided	Disagree	Strongly Disagree	Total
Testing history in the last three months	yes	Count	15	1	8	3	17	44
		Expected Count	10.2	1.8	7.1	3.1	21.8	44.0
		% within Testing history in the last three months	34.1%	2.3%	18.2%	6.8%	38.6%	100.0%
	No	Count	4	2	6	4	28	44
		Expected Count	10.2	1.8	7.1	3.1	21.8	44.0
		% within Testing history in the last three months	9.1%	4.5%	13.6%	9.1%	63.6%	100.0%
	Prefer not to say	Count	4	1	2	0	4	11
		Expected Count	2.6	.4	1.8	.8	5.4	11.0
		% within Testing history in the last three months	36.4%	9.1%	18.2%	0.0%	36.4%	100.0%
Total		Count	23	4	16	7	49	99
		Expected Count	23.0	4.0	16.0	7.0	49.0	99.0

| | | % within Testing history in the last three months | 23.2 % | 4.0% | 16.2 % | 7.1% | 49.5 % | 100.0 % |

Of the 73 undergraduates, 16 (21.9%) have ever tested using HIVST, and out of 26 postgraduates, 11(44.3%) have ever used HIVST to test, as presented in table 8. Of participants who tested for HIV in the last three months, 16 (36.4%) of 44 total have ever used HIVST, and for those who never tested three months before the study, only 13.6% have ever used HIVST. (See table 8 above).

5.3 Correlations among predictor variables

Correlation analysis is a statistical method utilised to investigate the relationship that exists between two variables or research datasets and the strength of that relationship (Russo, 2011). The hypothesized model predicted an association between attitudes, perceived behavioural control, subjective norms and knowledge of HIVST. With knowledge becoming the mediating variable of the model. The predictor variables were analysed using Spearman correlation. This is an indication that there is a correlation between the variables. Using a two-tailed correlation test.

Table 10: Correlations

			Total score HIVST	Total score SNHIVST	Total scale PTHIVST
Total score HIVST		Correlation Coefficient	1.000	-.061	.481[**]
		Sig. (2-tailed)	.	.547	.000
		N	99	99	99
Total score SNHIVST		Correlation Coefficient	-.061	1.000	-.067
		Sig. (2-tailed)	.547	.	.507

			99	99	99
Total scale PTHIVST	Correlation Coefficient	.481**	-.067	1.000
	Sig. (2-tailed)	.000	.507	.
	N	99	99	99

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

5.4 Correlation between each predictor variable and HIV-self use

Pearson correlation was calculated for individually predictor variables (attitude toward HIVST, subjective norm toward HIVST, perceived behavioural control towards HIVST against HIVST use. The results indicate that the attitudes toward HIVST had a correlation of .310 at a significance of 0.01 level. Furthermore, the Pearson correlation between subjective norms toward the HIVST scale indicated a positive correlation of .067 using N=99 cases. The correlation between perceived behavioural control toward HIV-self test and HIVST use was reported to be a positive correlation of .289, which is significant a 0.01 level for N=99 cases.

The correlation between Attitude and HIVST usability was reported to be positively correlated at .310 with a significant p-value of .002 at an alpha level of .001. See table 11 below

Table 11: Correlations

		Total score (ATHIVST)	HIVST use
Total score (ATHIVST)	Pearson Correlation	1	.310**
	Sig. (2-tailed)		.002
	N	99	99
HIVST acceptability	Pearson Correlation	.310**	1
	Sig. (2-tailed)	.002	
	N	99	99

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

The Bivariant correlation between HIVST usability and the Subjective norm scale was negatively correlated with a non-statistically significant alpha level of .067, which is above the

.05 p-value of this study. Therefore, this means the was little influence of subjective norms on the participant's choice to accept HIVST.

Table 12: Correlations

		HIVST use	Total score (SNTHIVST)
HIVST acceptability	Pearson Correlation	1	.067
	Sig. (2-tailed)		.509
	N	99	99
Total score (SNTHIVST)	Pearson Correlation	.067	1
	Sig. (2-tailed)	.509	
	N	99	99

The bivariant correlation between the perceived behavioural control scale and HIVST usability was reported to be positively correlated at .289 with a p-value of .004 at an alpha level of .001, which is below the study's .05 alpha level. Therefore, the scale is reported to be statistically significant in influencing HIVST user acceptability. See table 13 below

Table 13:Correlations

		HIVST use	Total score (PCTHIVST)
HIVST acceptability	Pearson Correlation	1	.289[**]
	Sig. (2-tailed)		.004
	N	99	99
Total score (PCTHIVST)	Pearson Correlation	.289[**]	1
	Sig. (2-tailed)	.004	
	N	99	99

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

The result indicates that perceived behavioural control (positive correlation of .289 with a p-value of .004 at an alpha level of .001) and attitude (positive correlation of .310 with a P-value .002 at an Alpha level of .001) are the most influential factors for young males youth to test using the HIVST. At the same time, the subjective norm had no statistically significant (negative correlation and P-value .067) influence on the intention to use HIVST. This means

approval or support from important people in young men's lives had no influence on the choice to accept or use HIVST.

5.5 Knowledge of HIV-self test as a mediator variable

Hypothesis four predicted that knowledge about HIVST will generally mediate behaviours toward HIVST. Participants reported a moderate to strong correlation of .772 at a significance of 0.01 level between a choice to use HIVST and HIVST knowledge in general with a P-value below .05. Furthermore, the testing of the correlation between HIVST and Attitude toward HIVST is significance with a correlation of .307 (at P-value of 0.01) the correlation achieved a significance of 0.02 which is below a P-Value of 0.05. Bivariant analysis of the correlation between HIVST knowledge and Subjective norm toward HIV self-test indicated a weak negative correlation -.012 and significance above 0.05. the perceived behavioural control showed a positive correlation of 260 with a p(00.9) at a 0.01 significant level. Thus, Knowledge had a mediating effect on attitude and perceived behavioural control but not on subjective norms toward HIVST, as presented in table 14 below.

Table 14: Correlations

		total_score_SNHIVST	Total_scale_PTHIVST	ATHIVST_score	Knowledge_of_HIVST
total_score_SNHIVST	Pearson Correlation	1	-.026	-.082	-.012
	Sig. (2-tailed)		.795	.421	.906
	N	99	99	99	99
Total_scale_PTHIVST	Pearson Correlation	-.026	1	.349[**]	.260[**]
	Sig. (2-tailed)	.795		.000	.009
	N	99	99	99	99
ATHIVST_score	Pearson Correlation	-.082	.349[**]	1	.307[**]
	Sig. (2-tailed)	.421	.000		.002
	N	99	99	99	99

Knowledge_of_HIVST	Pearson Correlation	-.012	.260[**]	.307[**]	1
	Sig. (2-tailed)	.906	.009	.002	
	N	99	99	99	99

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

5.6 Multivariate analysis

Multivariate analysis is a collection of approaches for analyzing data sets having more than one variable (Abdi, 2003). The multivariate analysis is s presented in a table format, and the interpretation of the tables is provided. The interpretation of R-square in block (B/2) indicates the predictive power added by introducing variables (HIVST knowledge) over and above the subjective norm toward HIVST variable and perceived behavioural control toward HIVST. The R-squared in block (1/A) is .127, and it increased by 0.50 to .177 in block B. the increase is not, however, statistically significant as it has a significant change of .018. See table 15

Table 15:Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
					R Square Change	F Change	df1	df2	Sig. F Change
1	.356[a]	.127	.109	5.30697	.127	6.976	2	96	.001
2	.420[b]	.177	.151	5.18027	.050	5.753	1	95	.018

a. Predictors: (Constant), Total score (PCTHIVST), Total score (SNTHIVST)

b. Predictors: (Constant), Total score (PCTHIVST), Total score (SNTHIVST), HIVST Knowledge

The ANOVA result indicates the mean square and the significance alpha level of block one and block two, respectively, the result indicates a significance alpha level of .001, which is statistical significance as it is below a significance of .05 level and the significance level for block 2 is a perfect statistical significance of .000.

Table 16: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	392.951	2	196.475	6.976	.001[b]
	Residual	2703.736	96	28.164		
	Total	3096.687	98			
2	Regression	547.342	3	182.447	6.799	.000[c]
	Residual	2549.345	95	26.835		
	Total	3096.687	98			

a. Dependent Variable: Total score (HIVST use)

b. Predictors: (Constant), Total score (PCTHIVST), Total score (SNTHIVST), Total score (ATHIVST)

c. Predictors: (Constant), Total score (PCTHIVST), Total score (SNTHIVST), HIVST Knowledge

Perceived behavioural control toward HIVST variable and Subjective norm toward HIVST in a multivariant analysis (MANOVA) was statistically significant with a .000 and 004 significant, while knowledge toward HIVST had no statistical significant .018. This means that the combination of variable PCHIVST and SNHIVST did not influence participants' choice to accept and use HIVST. See table 17 below.

Table 17: Coefficients[a] multivariant analysis of HIVST acceptance

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	(Constant)	11.056	2.212		4.999	.000			
	Total score (SNTHIVST)	-.056	.074	-.073	-.762	.448	-.082	-.077	-.073
	Total score (PCTHIVST)	.464	.128	.347	3.635	.000	.349	.348	.347
2	(Constant)	9.101	2.308		3.944	.000			
	Total score (SNTHIVST)	-.055	.072	-.071	-.767	.445	-.082	-.078	-.071

| Total score (PCTHIVST) | .384 | .129 | .287 | 2.974 | .004 | .349 | .292 | .277 |
| HIVST Knowledge | .189 | .079 | .231 | 2.399 | .018 | .307 | .239 | .223 |

a. Dependent Variable: Total score (HIVST acceptability)

Conclusively, this fifth chapter reported the results of statistical tests performed to test the study's hypotheses. Correlations, cross-tabulation ANOVA, and MNOVA were conducted to test the study's hypothesis. Prior to analysing the MNOVA, preliminary studies were performed to confirm that no assumptions of normality, linearity, multicollinearity or homoscedasticity were violated.

CHAPTER SIX: DISCUSSION

This study aimed to investigate the acceptability of unsupervised HIV self-testing among young male students at the University of KwaZulu-Natal, as South Africa has the highest HIV rate. Using SPSS, the current study investigated the associations between the variables, attitudes toward HIVST, subjective norms toward HIVST, perceived behavioural control toward HIVST, and the outcome variable HIVST acceptability. The interpretation in this chapter is based on the IBM SPSS statistical analysis and the theory of planned behaviour and reasoned action. Finally, recommendations for research limits and future research are presented.

6.1 Study result discussion in relation to the hypothesis

The study hypothesised that attitude would predict HIVST acceptability in young male students. The hypothesis was supported as results indicated that attitude had a positive, statistically significant correlation to HIVST acceptability behaviour $p<0.002$. This means that attitude influenced the choice of male students to accept HIVST as a new method of testing for HIV. Therefore, this result rejects the null hypothesis and retains that attitude influences the acceptability of HIVST in young male students. Similarly, Ayodele's (2017) study concluded that attitude accounted for significant variance in HIV testing intention. Moreover, in support of the current study's findings, in Ethiopia, cross-sectional research using a quantitative study triangulated with a qualitative investigation was undertaken, which concluded that the intention to utilise HIV self-testing services was largely due to attitude and subjective norms toward HIVST, thus, indicating that attitude influences the choice of HIV testing method (Abamecha, Godesso and Girma, 2013).

TPB mode has been demonstrated to be applicable in predicting participants' intent to use HIV services (Kakoko, Åstrøm, Lugoe and Lie, 2006; Ayodele, 2017). With respect to the adjusted

R-square of 0.30, the simultaneous predictive power of perceived behavioural control for attitudes, subjective norms, and intent means that the model explains a 30% chance of intent to use HIV service (Ayodele, 2017). Omer and Haidar (2010) utilised TPB to assess the usability of HIV testing in teachers, and the consequence of the study was that the attitude and perceived behavioural control were significant, with p<0.001 in measuring the intention to test.

This study also identified that 36% of young male students who recently tested for HIV had high acceptability; thus, this means the history of testing for HIV using traditional methods such as VCT increased the acceptability of accepting HIVST. It might be beneficial for future studies to investigate the association between VCT usage and the acceptability of HIVST.

The study's second hypothesis was that subjective norms would predict HIVST acceptability of HIVST by young male students. Both Multivariance (p >.044) and bi-variance correlation (p>.509) tests indicated that there is a negative correlation between HIV usability of participants and subjective norm toward HIVST scale. This means the correlation was not statistically significant, with a p-value above 0.05. Therefore, the finding of this study rejects the hypothesis that subjective norm influences the acceptability or usability of HIVST. The rejection of the hypothesis means that the study adopts the null hypothesis that subjective norm does not influence the behaviour of male students to test using HIVST.

Similarly, Norwich and Duncan (1990) concluded that attitude and past learning behaviour, but not the subjective norm, significantly correlated with behaviour intention in participants. According to Ajzen (2020), injunctive normative beliefs and descriptive normative beliefs influence the decision of people to engage in the course of action. Still, for this study, both beliefs were accessed and lacked the power to influence participants' acceptability rate.

There is evidence in the Southern Africa region and South Africa that social influences can discourage testing wanting to test which could undermine HIV prevention efforts (Johnson,

Darbes, Hosegood, Johnson, Fritz, Ngubane, van Rooyen and McGrath, 2022; Musheke, Ntalasha, Gari, Mckenzie, Bond, Martin-Hilber and Merten, 2013.). Fear of stigma, loss of personal relationships, positive consequences or diminished social status after connecting to HIV services can lead to avoidance of testing (Skovdal, Campbell, Madanhire, Mupambireyi, Nyamukapa and Gregson, 2011; Izugbara, Undie, Mudege and Ezeh, 2009). Forming male normative subjective beliefs towards SSA health-seeking and risk-taking behaviours, aiming for an ideal male self-identity surrounded by self-confidence, strength and expression of immortal personal qualities often lead to seeking approval from the people around before engaging in action (Skovdal et al., 2011; Johnson et al., 2022). This, however, was not supported by the findings of this study that people around youth influence the acceptance of HIVST. In addition, according to Johnson et al. (2022), Men's peer groups, in particular, provide practical advice to avoid contact with medical services for fear of conveying a vulnerable image or social recognition, encouragement and support. This means efforts are needed to challenge the social display of masculinity in conjunction with promoting new HIV testing methods in South Africa.

In contrast, other studies have found different results from this study. For instance, Chiou (1998) and Asare (2015) concluded that only attitude and subjective norms significantly impacted the intention to test for HIV. Hasbullah, Osman, Abdullah, Salahuddin, Ramlee and Soha (2016) reported that subjective norms influenced the intention to engage in a particular action. These findings mean that subjective norms could influence the intention to use HIV testing services under different research settings and study variables.

The study also hypothesised that perceived behavioural control toward HIVST would influence HIVST acceptability. The findings of this study reported a positive correlation (p<.004). This means that the result rejects the null hypothesis and supports the hypothesis that the participant's perceived behavioural control influences HIVST acceptability. The findings of

this study are isolated findings. A similar study by Jemmott, Jemmott and Hacker (1992) reported that perceived behavioural control significantly increased the correlation and intentions. In addition, numerous studies have concluded that perceived behavioural control influences the HIVST usability behaviour and acceptance of HIVST (Ayodele, 2017; Omer and Haidar, 2010). This study supports previous research from Ethiopia, which found a relationship between perceived behavioural control and the desire to use HIV testing services such as VCT (Kusumaningrum, Atharik, Gita and Kusumawati, 2020).

In another study under MSM again, perceived behavioural control and VCT intent indicated a strong correlation (p <0.001) (Stephenson et al. 2014). The elements that influence the usage of testing services and PBC are related to the desire to undertake VCT (Kusumaningrum, Atharik, Gita and Kusumawati, 2020). Studies in Tanzania inducted that the majority of participants (81%) had strong perceived behavioural control to carry out VCT (Kusumaningrum, Atharik, Gita and Kusumawati, 2020)

In studies conducted in South Africa, although they have indicated a strong correlation between HV testing and PBC, additional influential factors have been observed, such a small margin of failure to self-administer the HIVST on the first try, thus, leading to low self-confidence in conducting the test as home. In the general population of KwaZulu-Natal, only 0.09% of testers stated that they needed to re-test due to mistakes after the self-test demonstration. While in countries such as Ugandan, a higher percentage was observed with the errors of 19% of participants, but like our results, most tests were still successful. However, participants seemed to test more often, which could lead to more comfortable testing (Asiimwe, Oloya, Song and Whalen, 2014).

An overall pattern was observed in HIVST and the use of technology in numerous studies. The acceptability rate in participants was strong, with 54% to 99% of participants wanting to utilize

HIVST with digital help. Therefore, in addition to the assessment of acceptability, it might be beneficial for further research to compare the acceptability of digitally supported HIVST (Zwerling, McGuire, de Waal, Karellis, Janssen, Engel, Sampath, Carmona, Suarez and Pai, 2021).

In contrast, Hill, Mann and Wearing (1996) reported results to the theory where self-efficacy had not been identified as a significant predictor of behavioural motivation. Thus, sample, setting, study design and methodology could influence the influential power of the perceived behavioural control variable.

The study utilised the multivariance hierarchal analysis to understand the influence of variables over others to assess hypothesis four: that knowledge about HIVST mediated the relationship between attitudes toward HIVST, subjective norms toward HIVST and perceived behavioural control toward HIVST acceptability. The result indicates that the knowledge had a moderate influence which was no statistical significance. This means that knowledge about HIVST does not influence male students' acceptability and usability. The result indicated that perceived behavioural control was the most influential variable above and above subjective norm and knowledge.

Overall, attitude and perceived behavioural control explained the majority of the variance in HIVST utility. This suggests that male youths with favourable peer influence and strong HIVST self-efficacy were more likely to choose HIVST over other testing methods. Subjective norms and knowledge of HIVST were not influential in the intention to use HIVST kits.

Overall, the acceptability of HIV self-test was moderate in this study, with students in the college of health being the highest willing to use HIV self-test (66.7%) and the least college being agriculture and engineering science (12.7%). Previous studies have indicated that Health care workers have a high rate of self-testing compared to other fields. The fundamental

motivation for self-testing was the desire for test result secrecy and having the skills to self-test, which was mentioned by (82%). Moreover, 14.0% of health workers claim a lack of time to obtain routine counselling and testing programs (Kebede, Abate and Mekonnen, 2013).

High acceptability of HIVST was also observed in postgraduate students, with 44% compared to 22% in undergraduate students. These results could be attributed to the age associated with the level of study. The older the student, the more likely to be concerned about their health (Leventhal and Prohaska, 1986).

6.2 Associations among demographic variables

The cross-tabulation of participants' ages and testing history indicated that the age group 33-32 had the highest testing rate (66.6%). This means that males aged 33-32 are more likely to test compared with a younger age group of males student; thus, the age group 18-20 reported a low testing rate (61.9% non-testers) with only 33.3% of participants who have tested. While age groups 21-23 and 27-29, and 33-35 reported an equal percentage between those who have tested and those who have not tested in the last three months. Similarly, UNAIDS (2017) reported that in males aged 20-24, 70% reported having tested for HIV, while 78% of males aged 25-29 reported having tested. However, the high testing rate was age group 30-39 with 82%.

Most participants were from KwaZulu-Natal and reported a high testing rate (90.9%), while Eastern Cape and non-South African reported 2.3%, respectively, with only 11 participants preferring not to disclose. This signifies that, as compared to other provinces, KwaZulu-Natal has the strongest testing rate. However, it is significant to note that the result could be influenced by the fact that most participants were from KwaZulu-Natal. An argument supported by Jooste, Mabaso, Taylor, North, Shean, Simbayi, Reddy, Mwandingi, Schmidt, Nevhungoni and Manda (2021) that the difference in HIV test coverage between districts was

also the smallest in the district of KwaZulu-Natal made the most significant difference in HIV testing.

Humanities students reported being in the college, with most of its students not being tested in the last three months (50.0%). This means that humanities, engineering, agriculture and science students were less likely to test than Health science students. This might be explained by the fact that College of Health students are more exposed to testing sites and centres. The result further indicated high acceptability of HIV self-test among health students. This, additionally supports the narrative that the more a person is exposed to knowledge related to HIV, the more likely they are to accept an HIV self-test (Harichund et al., 2019).

In conclusion, perceived behavioural control toward HIVST and attitude to HIVST have been shown to be the most influential variables in the decision to either test or not by participants of this study. Even though HIVST was acceptable to male students, evidence of the practical use of this testing approach is inadequate.

6.3 CONCLUSION

This chapter will highlight the primary response to the research question posed by the researcher. It will further reflect on the main findings, make recommendations for further studies, and state the implications for social work.

The research finding answered the main research questions and concluded that attitude and perceived behavioural control influence the choice of male students to test, with the overall acceptability rate being moderate. Furthermore, the findings conclude that youth has knowledge about HIVST, and they believed that they will be able to test themselves without the assistance of a professional health worker. More real-life test of the approach is needed to test the readiness of mass implementation of this approach to meet the 95-95-95 target. However, the young age group, especially between 18-21, still needs to be targeted as they

know about HIV and prevention, yet they have a low testing rate compared with the older age group.

Attitude and perceived behavioural control are the most influential variables in testing and the adoption of HIVST; therefore, it is essential to develop programs that will challenge the negative masculine ideologies preventing the youth from testing and using HIVST. The issues around the reliance on the opinions of others to make a decision is negatively affecting the effort to stop the spread of HIV and to introduce HIVST on a larger scale. Studies have indicated that social media also creates new forms of peer pressure faster and more comprehensive than those experienced in personal situations (O'Keeffe, Clarke-Pearson and Council on Communications and Media, 2011). Therefore, using social media such as Twitter, Tiktok, FaceBook, WhatsApp, Instagram, YouTube and other relevant ways to implement interventions to reach people could help inspire discussions about the potential benefit of HIVST.

The current research contributes to the body of knowledge by highlighting the need to focus on behavioural influences such as peer opinion to overcome the lack of testing in the youth and promote the acceptance of HIVST as a method of choice. The study also emphasises the need to develop age-appropriate campaigns to educate and challenge the non-testing behaviour of the youth, especially in high HIV-affected countries such as South Africa. This is because the current study discovered that young male students are easily influenced by the opinions and views of others when deciding whether to accept HIVST or not.

Future studies will need to assess popular ideas of masculinity and how they influence the decision of the male youth to use HIVST and to test in general. The current study concluded that their attitude influences the adoption of HIVST by youth; therefore, an in-depth review of these attitudes must be obtained in order to optimize programs to overcome them.

6.4 The implication of these results to social work field practice and education

Social workers worldwide have faced various new challenges, including the psychosocial impacts of infection and a huge number of orphans in need of care, especially in underdeveloped countries (Hall, 2007). The most critical role of social work in HIV is education and lobbying for implementing health programs that caters for all, especially the vulnerable population (Power and Phillips-Wren, 2011). Social work community outreach programs should challenge the negative opinions that influence the youth. According to Mmatli (2008), social workers must partake in the political courses determining the life circumstances of their service users. This means challenging any system that promotes dangerous behaviour in society. This study highlights the need for a social worker working on HIV and AIDS to focus on attitudes that influence the depiction of masculinity which often prevents young men from accessing HIV prevention programs.

In conclusion, this study has been unique because it utilized the male youth population and HIV; few studies in South Africa have focussed on HIV and young males. Social workers need access to a vast body of research information to assist in shaping institutional and community responses to epidemics to reduce HIV impact. Moreover, HIVST is still a new method that has not been researched; thus, this study provides a much-needed insight into the population's conditions and acceptance. Previous studies in South Africa has been focused on studying both gender and man who have sex with other men, and male youth has not been studied as a single entity. The study has also highlighted the need to focus on the younger age group and divide intervention according to age.

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APPENDIX 1: **INFORMED CONSENT DOCUMENT**

Dear Sir,

My name is Sanele Siyabonga Mhlongo. I am a master's student at the University of KwaZulu-Natal, Howard College campus. The title of my research is:
Acceptability of unsupervised HIV self-test method among young male students at the University of KwaZulu-Natal.
The aim of the study is **to investigate the knowledge and acceptability of the unsupervised HIV-self test method by male students at the University of KwaZulu-Natal**.

I am inviting you to participate in this study by answering a questionnaire related to the HIV self-test. I am interested in your experiences, knowledge and observations on the subject matter.

Please note that:

- The information that you provide will be used for scholarly research only.

- Your participation is entirely voluntary. At any point in the research, you have a choice to refuse to answer any question or to stop participating and you will not be penalized for taking such an action.

- Your views in this research will be presented anonymously using a false name, and your identity will not be disclosed in any form in the study.

- The questionnaires will take about 10-15 minutes.

- Hard copy records of the interview will be locked up in my supervisor's cupboard, and any soft copy will be placed in a password-protected USB accessible only to myself and my supervisors. After a period of 5 years, it will be disposed of by shredding, burning and deletion.

- If you agree to participate, please sign the declaration attached below

- Please note that if you feel any psychological/social challenges dues to participating in the study, the organisation called MAAT will be on standby to assist free of charge
- (toll-free line 0800800019/send a WhatsApp at 060 5489137)

- The study ethical clearance number is (**HSSRES00002485/2021)**

If you have any questions, please feel free to contact me at: The School of Social Sciences, University of KwaZulu-Natal, Howard College campus. Email: ssanele444@gmail.com/ 215028507@stu.ukzn.ac.za, Cell: 073 351 4308. My supervisor is Dr Boitumelo Seepamore, who can be found at Room F217, 2nd Floor MTB Building, Howard College Campus, Durban. Contact details: **seepamoreb@ukzn.ac.za.** Tel: **031-260-7640.**

The Humanities and Social Sciences Research Ethics Committee's contact details are as follows: Ms Mariette Snyman, University of KwaZulu-Natal, Research Office.
Email: Snymanm@ukzn.ac.za
Tel: 031 260 8350
Fax: 031 260 4609

Thank you for your contribution to this research.

DECLARATION

I……………………………………………………………………… *(full name of the participant)* hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participate in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

---------------------------------   -------------------------------

Signature   **Date**

APPENDIX 2: RESEARCH QUESTIONNAIRES ON THE ACCEPTABILITY OF THE HIV SELF-TEST METHOD

Interview date	……./………./…………..
Participant code name	

SECTION 1

BIOGRAPHICAL INFORMATION

Please indicate your answer choice by (x)

Gender

1. Male…….   **2.** female……. 3. Prefer not to say………

Age

1. 18-20…….   **2.** 21-23……   **3**.24-26……. **4**. 27-29…….   **5**. 30-32……   **6**. 33-35……..

Race

1. African**…….** **2.** White…….. **3.** Indian…...... **4.** Colored…..… **5.** Others……..

Nationality

1. South African………   **2.** Foreign national……………

Province

1. KwaZulu natal……**2.** Limpopo……**3.** Eastern Cape……**4.** Western cape….. **5.** Free State…...**6.** Northern cape…….**7.** Gauteng…… **8.** Mpumalanga…… **9.** North west……

10. Not from South African……….

Registered student at UKZN

1. Yes………. 2. NO………

College registered in:

1. Humanities…..…… **2.** Agriculture engineering and science…….. **3.** Health Sciences ……..

        4. Law and management studies……… **5.** Other…..……

Level of study

1. Undergraduate…….. **2**. post-graduates……….

Have you ever been tested for HIV in the last three month?

1. YES……   **2.** NO……… **3.** Prefer not to say……….

SECTION 2: THE HIV SELF-TEST

For the following questions please indicate your answer by circulating the number (*1. Being strongly agree with the statements and 5 being strongly disagree)*

	Strongly agree	**Neutral**			**Strongly disagree**
Have you ever tested yourself for HIV	1	2	3	4	5
Have you ever seen an HIV self-test kit	1	2	3	4	5
Have you ever used HIV Self-test kit	1	2	3	4	5
Have you ever seen someone	1	2	3	4	5

using an HIV self-test					
Have you ever read or heard about HIV self-test	**1**	**2**	**3**	**4**	**5**

SECTION 3 (MEASURING ATTITUDE OF PARTICIPANTS TOWARD HIV SELF-TEST)

For the following questions please indicate your answer by circulating the number (*1 Being strongly agree with the statement, 3 Neutral and 5 Being strongly disagree*

	Strongly agree		**Neutral**		**Strongly disagree**
I would use HIV self-test	**1**	**2**	**3**	**4**	**5**
I value counselling in HIV test	**1**	**2**	**3**	**4**	**5**
Using Self-testing will not benefit me	**1**	**2**	**3**	**4**	**5**
Self-testing for HIV will make me test more often for HIV	**1**	**2**	**3**	**4**	**5**
Testing at home for HIV will have negative consequence	**1**	**2**	**3**	**4**	**5**
I value privacy of the self-test	**1**	**2**	**3**	**4**	**5**

I would recommend a HIV self-test to other people	**1**	**2**	**3**	**4**	**5**

SECTION 3 (SUBJECTIVE NORM FOR HIV-SELF TEST)

For the following questions, please indicate your answer by circulating the number (*1 Being very unlikely, 3 Neutral and 5 being very likely*

	Very unlikely		**Neutral**			**Most likely**
I will use a test if recommended by health professional.	**1**	**2**	**3**	**4**	**5**	
I would do the test even if my friends are against it.	**1**	**2**	**3**	**4**	**5**	
I would do the test if my family think I should.	**1**	**2**	**3**	**4**	**5**	
My peers have done HIV self-test.	**1**	**2**	**3**	**4**	**5**	
Most people who are important to me would do HIV self-test	**1**	**2**	**3**	**4**	**5**	
People in my life whose opinions I value would be happy if I do the HIV self-test	**1**	**2**	**3**	**4**	**5**	

The community I am from **1** **2** **3** **4** **5**
will use HIV self-test

SECTION 4 (PERCEIVED BEHAVIOURAL CONTROL FOR HIV-SELF TEST)

For the following questions please indicate your answer by circulating the number

1 Being strongly agree with the statement, 3 Neutral and 5 Being strongly disagree

	Strongly agree		**Neutral**			**Strongly disagree**
I am confident that I will use self-test	**1**	**2**	**3**	**4**	**5**	
The choice to test using self-test is beyond my control	**1**	**2**	**3**	**4**	**5**	
Whether I test using HIVST is up to me	**1**	**2**	**3**	**4**	**5**	
I know where to go if I test positive	**1**	**2**	**3**	**4**	**5**	
Health professional influence how I test	**1**	**2**	**3**	**4**	**5**	

APPENDIX 3(TIME LOCATION SAMPLING PROCEDURE)

FIRST STAGE CENTRES		SECOND STAGE HALF-DAYS		THIRD STAGE INDIVIDUALS	
Sampling frame	PSU	Sampling frame	SSU	Sampling frame	TSU
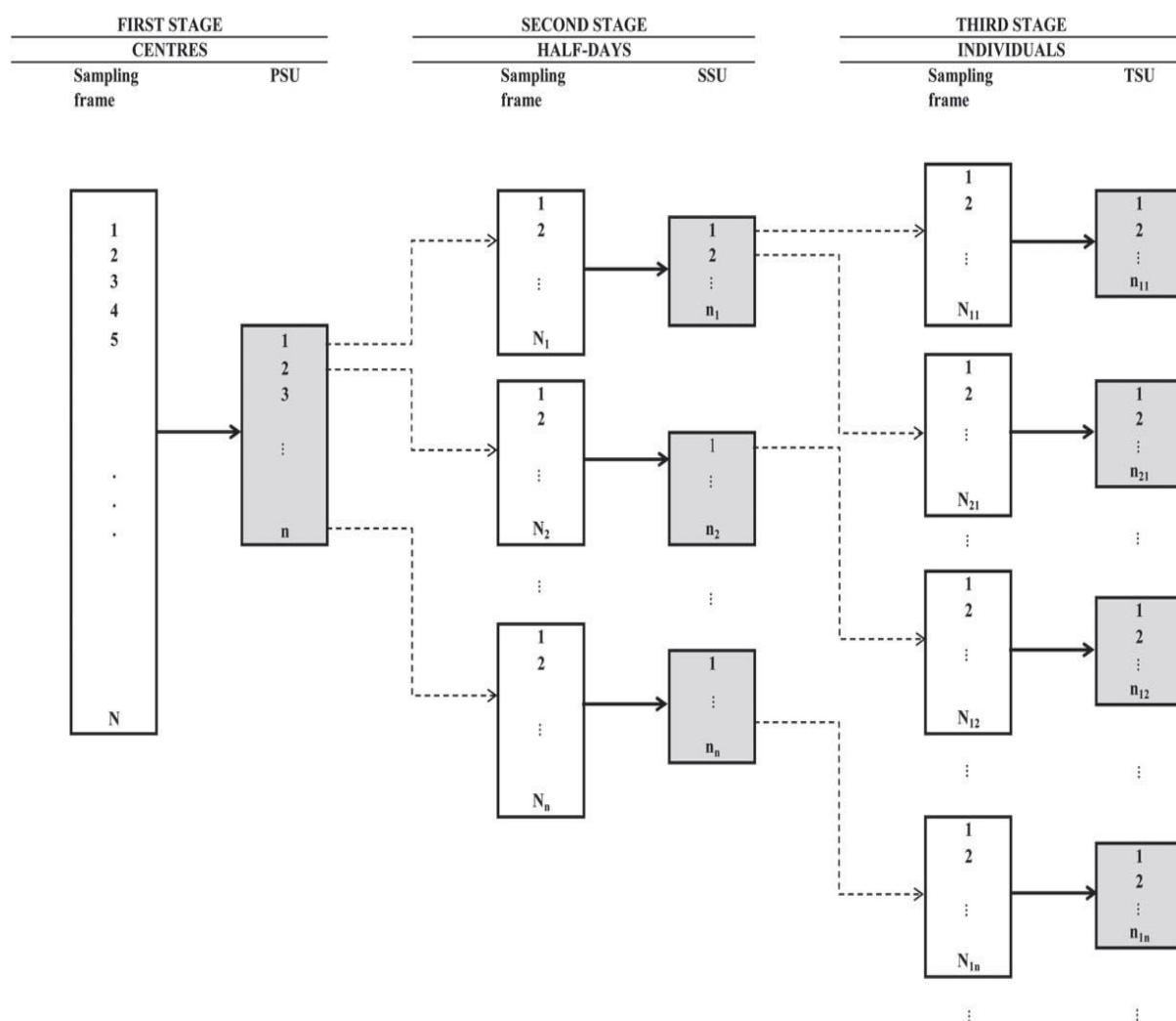
APPENDIX 4 (COLLECTION TIMES AND DATES)

Venue A (lans)	Mon	Tue	Wed	Thur	Fri	Satur	Sun	mon	tue	wed	thur	fri	satur	sun
08h00				X		closed	Closed		X				closed	closed
09h00														
10h00														
11h00											X	X		
13h00	X													
14h00														
15h00		X						X						
16h00					X					X				

Venue B (Res)	Mon	Tue	Wed	Thur	Fri	Satur	Sun	mon	tue	wed	thur	fri	satur	sun
08h00	X									X				
09h00												X		
10h00														

11h00												X	
13h00		X		X									
14h00	X								X		X		
15h00													
16h00													

APPENDIX 5: *ETHICAL CLEARANCE*

UNIVERSITY OF KWAZULU-NATAL ™
INYUVESI YAKWAZULU-NATALI

16 April 2021

Mr Sanele Mhlongo (215028507)
School of Applied Human Sc
Howard College

Dear Mr Mhlongo,

Protocol reference number: HSSREC/00002485/2021
Project title: Investigating the acceptability of unsupervised/private HIV self-testing among young male students at the University of KwaZulu-Natal.
Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 18 December 2020 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 16 April 2022.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,

Professor Dipane Hlalele (Chair)

/dd

Humanities and Social Sciences Research Ethics Committee
Postal Address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27 (0)31 260 8350/4557/3587 **Email:** hssrec@ukzn.ac.za **Website:** http://research.ukzn.ac.za/Research-Ethics

Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

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APPENDIX 6: *GATEKEEPER LETTER*

UNIVERSITY OF
KWAZULU-NATAL ™
INYUVESI
YAKWAZULU-NATALI

23 March 2021

Mr Sanele Mhlongo (SN 215028507)
School of Social Sciences
College of Humanities
Howard College Campus
UKZN
Email: 215028507@stu.ukzn.ac.za

Dear Mr Mhlongo

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN) towards your postgraduate studies, provided Ethical clearance has been obtained. We note the title of your research project is:

"Investigating the acceptability of unsupervised/private HIV self   -testing among young male students at the University of KwaZulu-Natal."

It is noted that you will be constituting your sample by handing out questionnaires to male students on the Howard College campus. (Taking in account the regulations imposed during the lockdown ie restrictions on gatherings, travel, social distancing etc. ZOOM, Skype or telephone surveys recommended).

Please ensure that the following appears on your notice/questionnaire:
• Ethical clearance number;
• Research title and details of the research, the researcher and the supervisor;
☐ Consent form is attached to the notice/qu   estionnaire and to be signed by user before he/she fills in questionnaire;
• gatekeepers approval by the Registrar.

You are not authorized to contact staff and students using the 'Microsoft Outlook' address book. Identity numbers and email addresse s of individuals are not a matter of public record and are protected according to Section 14 of the South African Constitution, as well as the PAIA and POPI Act. For the release of such information over to yourself for research purposes, the University of KwaZulu-Natal will need express consent from the relevant data subjects. Data collected must be treated with due confidentiality and anonymity.

Yours sincerely

DR KE CLELAND: REGISTRAR

Office of the Registrar
Postal Address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27 (0)31 260 7971 Email: registrar@ukzn.ac.za Website: www.ukzn.ac.za

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