THE DIFFUSION OF MAX CONDOMS AMONG YOUNG WOMEN IN KWAZULU NATAL

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ABSTRACT

HIV is a disease that has a myriad of effects across different settings, and its prevalence varies across countries with different epidemiological drivers. The growing and disproportionate impact on young women has encouraged new ideas in HIV prevention strategies. The profusion of studies on HIV prevention strategies notwithstanding, the aspect of condom innovation has been largely ignored in literature. Drawing on the Diffusion of Innovation theory, this study examines how Max condoms have gained popularity among young women aged 18-24 years. The hypotheses are tested using an innovation-decision conceptual model and a comprehensive data set of 131 participants from rural, peri-urban and urban districts in KwaZulu Natal. Results reveal that the impact of marketing material and an effective public launch were significant in increasing Max condoms uptake, while the influence of peers and other members of one's social system are critical for normalising the behaviour change. Young women have adopted Max condoms and uptake is continually influenced by positive perception of Max condoms' relative advantage.

Keywords: Diffusion of innovation theory, young women, Max condoms

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DEFINITION OF TERMS AND LIST OF ACRONYMS

Behaviour change - the adoption and maintenance of healthy behaviours (with respect to condom use) to reduce the chances of acquiring HIV

Condom use self-efficacy - one's ability to use condom

Epidemic - refers to a disease condition affecting (or tending to affect) a disproportionately large number of individuals within a population, community or region at the same time. The population may be all of the inhabitants of a given geographic area, the population of a school or similar institution or everyone of a certain age or sex.

Gender - refers to the social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys. These attributes, opportunities and relationships are socially constructed and are learned through socialization processes. They are context/time-specific and changeable. Gender determines what is expected, allowed and valued in a woman or a man in a given context. In most societies, there are differences and inequalities between women and men in responsibilities assigned, activities undertaken, access to and control over resources, as well as decision-making opportunities.

Heterosexual - term used to refer to people who have sex with and/or are attracted to people of the opposite sex

HIV-negative (seronegative) - a person who is HIV-negative (also known as seronegative) shows no evidence of HIV in a blood test (e.g. there is an absence of antibodies against HIV).

HIV-positive (seropositive) – a person who is HIV-positive (or seropositive) has had antibodies against HIV detected in a blood test or gingival exudate test

Human immunodeficiency virus (HIV) - a virus that weakens the immune system, ultimately leading to AIDS

Incidence - HIV incidence is expressed as the number of new HIV infections over the number of people susceptible to infection in a specified time period

Intergenerational relationships - refer to relationships where there is a 10-year (or greater) age disparity between sexual partners

Peers - friends and/or acquaintances at the same level or are on par with

Prevalence - usually given as a percentage, HIV prevalence quantifies the proportion of individuals in a population who are living with HIV at a specific point in time. HIV prevalence also can refer to the number of people living with HIV.

Outreach event – Include but are not limited to, sports days, road shows and music concerts hosted at shopping malls, community halls or community sports fields, where health screening is conducted and information about HIV/AIDS, STIs, TB, safer-sex and sexual and reproductive health is distributed and discussed.

Risk - risk is defined as the risk of exposure to HIV or the likelihood that a person may acquire HIV. Behaviours, not membership of a group, place individuals in situations in which they may be exposed to HIV, and certain behaviours create, increase or perpetuate risk.

SANAC – South African National AIDS Council

Safer-sex - adopted behaviours that reduce or minimize the risk of HIV acquisition and transmission. In this context this refers to consistent use of condoms.

Sexually active - a person who is presently involved in sexual relations

Vulnerability - refers to unequal opportunities, social exclusion, unemployment or precarious employment (and other social, cultural, political, legal and economic factors) that make a person more susceptible to HIV infection and developing AIDS.

The factors underlying vulnerability may reduce the ability of individuals and communities to avoid HIV risk, and they may be outside of their control.

Young people – for the purposes of this study refers to people aged 18 to 24 years

1. CHAPTER ONE – INTRODUCTION

Introduction

This is a quantitative research paper examining the diffusion of the new freely available government Max condoms (Max) among young women aged 18 - 24 in KwaZulu Natal, South Africa. This chapter will give an overview of the context of the research, with a specific focus on HIV transmission and the importance of condom use as a preventative measure; present the research objections and discuss what the study aims to achieve by conducting research of this nature. The structure of the research will be presented in this chapter.

Context of Research

Several studies have investigated the relationship between young people's perceptions on using condoms and explored the reasons why they use them in order to improve on HIV Prevention Programmes (Ashmore and Herwood, 2015; DeHart and Birkimer, 1997; Ku, Sonenestein and Pleck, 1994; McPhail and Campbell, 2001; Rogers, 2003). There have been contradictory findings with some results suggesting that the benefits of safer-sex were not significant predictors of condom use (Albarracin, Johnson, Fishbein, and Muellerleile, 2001; Sheeran and Taylor, 1999), while others conclude that positive association with condoms results in usage (Kocken, Van Dorst and Schaalma, 2005).

Though HIV is no longer one of the top ten leading causes of death globally, it remains in the top five in low-to-middle income countries (World Health Organisation, 2016). South Africa is one of the countries most affected by the epidemic having the largest population of HIV positive people in the world, an estimated 7 million people (Maharaj, 2005; Statistics South Africa, 2017; UNAIDS, 2017a). According to Karim, Baxter, and Birx (2017) South Africa accounts for 18% of the global HIV infection burden with approximately one thousand new infections occurring daily. This places a fiscal burden on the country and the multifaceted impact on society extends well beyond health and well-being. KwaZulu Natal is the province with the second largest population in South Africa, and is at the epicentre of the HIV epidemic with a prevalence of between 35-40% (Karim et al., 2017); this is the highest HIV prevalence in the country (Maharaj,

2005; Shisana, Rehle, Simbayi, Zuma, Jooste, Zungu, Labadarios and Onaya, 2014; Statistics South Africa, 2017).

By the end of 2017 approximately 7 060 000 people in South Africa were living with HIV, and in that year 270 000 became infected and 126 755 died from opportunistic infections and AIDS-defining diseases (Statistics South Africa, 2017). The HIV prevalence among young people aged 15-24 has declined by 2.7% in the last five years; however new infections have only decreased by less than 1% (Statistics South Africa, 2017). For many women, infections occur between 15-24 years. Due to gender inequality, social norms, and gendered expectations, the negotiation of condom use is hard for women which means that HIV prevalence is higher for them than their male counterparts (East, Jackson, O'Brien and Peters, 2010; Kabiru, 2005; Karim et al., 2017). The patriarchal norms which undermine safe sex for women have an impact on their behaviour and the manner in which information is disseminated (Eaton, Flisher and Aaro, 2003). Even where evidence-based interventions exist, and are implemented, these are adopted slowly (Berwick, 2003).

Given that the primary route of transmission in sub-Saharan Africa is through heterosexual intercourse (Madu and Peltzer, 2003; Maharaj, 2005; Sacco, Levine, Reed and Thompson, 1991), the use of condoms is critical for those who are HIV negative to remain so. Preventive innovation is described by Rogers (2003) as an action towards an idea in order to avoid unwanted future consequences, but the rewards of preventive innovation are delayed and intangible with no guarantee that unwanted consequences would not occur anyway.

Preventive behaviour is crucial for the reduction of new infection as is the chronic treatment with antiretroviral medication for those who are HIV-positive (CDC, 2018). The epidemiological curve has shifted with improved access to antiretroviral treatment (ART) which is freely and immediately available in South Africa; this means fewer deaths and longer survival rates (UNAIDS, 2017b). Consequently, there are more people living with HIV (PLWHIV) now than ever before. The South African government has acknowledged the importance of prevention and consequently continuously increases and widens access of easily available condoms (Pettifor, Rees, Steffenson, Hlongwa-Madikizela and MacPhail, 2004; Shisana et al., 2014) and, to counter their

seemingly negative perception, has attempted to improve the experience of condom-use by investing in coloured and scented condoms.

Prior to the introduction of state-funded Max branded condoms (Max), the government had a 10-year-old free condom brand called Choice. According to UNFPA (2016) Choice received copious consumer complaints after its launch. The findings of a study conducted by Medecins Sans Frontieres (MSF) found Choice to be the least popular condom (Ashmore and Henwood, 2015). The study was conducted in a youth clinic in Khayelitsha township were four condom types; Choice, Condomize regular with bright packaging, Condomize strawberry flavoured, and Condomize extra-large were made available in the waiting area of the clinic in identical glass containers and kept fully stocked (Ashmore and Henwood, 2015). Condomize strawberry flavoured was the most popular, followed by Condomize extra-large, but Choice and Condomize regular in bright packaging were the least popular (Ashmore and Henwood, 2015). Prior the launch of Max, Choice constituted 80% of free condoms despite other brands being preferred, which resulted in redesign, rebranding and repackaging to render them more appealing (Ashmore and Henwood, 2015; eNCA, 2016). After a successful pilot of a youth-specific grape-scented variant had been developed to test the market, Max was launched in June 2016 as a replacement (UNFPA, 2016).

According to Peltzer (2000) condom use is among the most difficult issues to address when working on interventions to reduce the sexual transmission of HIV as the problem is multifaceted, so no single intervention is an adequate solution. This is evident in the latest Human Sciences Research Council behaviour survey which indicates that despite the increase in condom distribution, use at last encounter had declined by 9% over four years (Ashmore and Henwood, 2015); and of a hundred participants in Peltzer's study (2000) not one indicated having used a condom with their partner. Similarly, Graffy, Goodhart, Sennett, Kamusiime, and Tukamushaba (2012) found that only 56% of sexually active unmarried men reported having used a condom during their last sexual encounter and only 39% of unmarried women. These findings were consistent with a Kenyan study of high school students which found that less than 30% of young people used condoms consistently (Kabiru 2005). This reluctance is not a recent phenomenon however it remains a major concern regarding the risk of acquiring HIV through sex without condoms.

According to Graffy et al., (2012) the cost of condoms, moral views on abstinence, peer and family pressure, and the unreliability of condom supply all influence condom use. In addition, Peltzer (2000) points to a range of other factors that hinder condom use such as knowledge about HIV, perceived susceptibility to HIV infection, condom use self-efficacy and, one of the more difficult issues to overcome, people's customs, norms and social behaviour. These influences are both extrinsic and intrinsic factors and include societally constructed norms and expectations which may increase young peoples' vulnerability. This relates to information which Rogers (2003) suggests reduces uncertainty. Rogers (2003, p. 5) describes uncertainty as "the degree to which a number of alternatives are perceived with respect to the occurrence of an event and the relative probability of these alternatives". A certain level of uncertainty exists as a consequence of how new an innovation is, and few studies have considered condom adoption from this perspective.

Research suggests that condoms are perceived to reduce sexual pleasure (Cooper-Martin and Stephens, 1990; Madu and Peltzer, 2003; Sacco et al., 1991). The use of condoms is thought to interrupt sexual activity and cause discomfort by ruining the "excitement of flesh-to-flesh contact" and potentially injuring the vagina, thus removing intimacy and affections from sex (Fehr, Vidourek and King, 2015; Maharaj, 2005, p. 190; Peltzer, 2000). Unexpectedly, Madu and Peltzer (2003) found that condom use was considered an inconvenience. While Alvarez and Garcia-Marques (2011), found that using condoms during sexual encounters was considered unromantic. These findings suggest that romanticism and pleasure is more important to young people than safer-sex. As discussed in the findings of Graffy et al. (2012, p.4) condom use was regarded as removing the "sweetness" of sex. These findings are attuned with the nature of young people who often act impulsively and have an inability to delay immediate gratification (Karim et al., 2017). The innovation of Max challenges these perceptions and the marketing is targeted as directly challenging such views.

The study of Ramiro, Reis, Gaspar de Matos and Diniz (2014) found that HIV messaging was not effective, as 13.5% of the study population believed that contraceptives could also protect against HIV infection. This was suggested as one of the reasons for young people not using condoms during their last sexual encounter, as they believe themselves to already be using a means of protection. Similarly,

Maharaj (2005) found that 95% of the respondents had knowledge of condoms and knew where to obtain them, however the results indicated a limited ability to use them. Hence Max packaging specifically states “Max condoms are highly effective against STIs, HIV AIDS and unplanned pregnancy” and have step by step picture instructions on how to use.

Social economic and political factors in KwaZulu Natal make its people particularly vulnerable to HIV infection (Maharaj 2005). Contributing factors such as high levels of unemployment and poverty generate a mobile work force and a rapid rate of urbanization, which is associated with conditions favourable for casual sex and the commercialisation of sex, rendering it difficult to negotiate condom use (Eaton et al., 2003; Karim et al., 2017; Maharaj, 2005). Graffy et al. (2012) concurs that, in addition to cultural and traditional factors which are important in shaping sexual behaviours, these economic hardships often result in transactional sex, where young women engage in sexual relationships with men for monetary or material compensation. These relationships for financial and social security are often with older men, where gender-power imbalances are exacerbated (Karim et al., 2017). Since young women are reliant on these intergenerational relationships for survival, safer-sex negotiation is a completely unthinkable. Poverty has a large implication for condom use. McPhail and Campbell (2001) suggest that young disadvantaged people, which we know to be a large population of those in KwaZulu Natal, may also be unable to purchase condoms.

Condom use in a long-term relationship are perceived as undermining the commitment, trust and integrity of the other partner; however this is not the case in a causal relationships. Research suggests that condoms are more frequently used in casual relationships (Hammer, Fisher, Fitzgerald and Fisher, 1996; Maharaj, 2001; Maharaj, 2005). In KwaZulu Natal, the dominant Zulu culture and tradition allow for polygamy (Tallie, 2013) and these polygamous relationships are not considered casual, consequently consistent condom use in these relationships is not always guaranteed. The combination of multiple sexual partners and irregular condom use thereby increases the risk and likelihood of HIV transmission.

Research Objectives

The aim of this study is to measure the diffusion of Max condoms in KwaZulu Natal among young women aged 18-24 years. Using the theory of Diffusion of Innovation the study seeks to answer the following questions:

I. Have Max condoms successfully used the characteristics of innovation to influence use among young women?
II. Is there sufficient awareness of, and discussion about Max condoms to influence usage?
III. Do peers influence diffusion of Max condoms?

Research Aims

By addressing these questions, this study will use its findings to assess and influence condom use among young people with the aim of contributing towards successful HIV Prevention Programme designs. HIV infection prevention includes abstinence, long term monogamy with a seronegative partner and reduction in the number of lifetime sexual partners, however the best method of protection from infection is practising safer-sex. This means reducing or minimising the risk of HIV acquisition and transmission by means of consistent male or female condom use.

Information about the marketing of social products is limited and traditional marketing research and methods focus on generating a financial bottom line, however there is potential to expand on these views by recognising the societal benefit as worthy, thus redefining profit. Additionally, studies that focus on HIV prevention and condom use have tended to be qualitative which limits their generalizability. Rogers (2003) describes the HIV/AIDS epidemic as one of the world's gravest social problems and confirms that the first successful HIV/AIDS prevention programme, STOP AIDS, was based directly on the diffusion model. This study focuses on the best method of protection from HIV infection for sexually active young women.

Research Variables

Though community level variables influence independent and dependent variables these will not be tested but rather used to interpret and understand the findings. The hypothesized relationship between independent variable – *frequency of Max condom*

use and *Max condom use in the last 6 months* and dependent variables derived from the literature will be tested using suitable quantitative analysis methods.

Structure of the Thesis

- Chapter 2 of this study is the literature review, and will focus on Rogers's Diffusion of Innovation Theory in the context of Max condom diffusion among young women;
- Chapter 3 details the research methodology and deals with the subjects included in the study, the research instrument used, and how and where the study was conducted;
- Chapter 4 is a presentation of the findings and consists of statistical results and the graphical representations thereof;
- Chapter 5 contains the discussion and interpretations of key findings;
- Chapter 6 concludes the research study, highlights study limitation, presents recommendations and makes suggestions for future research studies.

Summary

The research context has created an opportunity to examine an empirical topic, recommendations of which will be immediately implementable in HIV Prevention Programme design. The study will test nine hypotheses to examine how Max has diffused to young women in KwaZulu Natal. The next chapter will consider the theoretical underpinning of the study and review similar studies based on Rogers's Diffusion of Innovation Theory.

2. CHAPTER TWO – LITERATURE REVIEW

Introduction

This chapter presents a review of literature that underpins and directs this study. A multitude of sources were analysed in relation to the research topic and have been presented in this chapter. The Diffusion of Innovation Theory will be explained, then the four main elements thereof, the process of diffusion and ways in which adopters influence social learning. Relevant examples will be used to illustrate how the Diffusion of Innovation Theory is relevant to Max and has been used in similar research. The theoretical foundation of the study and the hypotheses of the study are derived from this chapter.

The Evolution of Max

Numerous resources have been channelled towards overcoming HIV for a number of decades, however the situation remains dire, especially for young women. The decision to innovate Government supplied free condoms was taken, to introduce an element of 'fun' and pleasure in condom use, a notion that needed to gain momentum in order to reach previous Choice users and the potential users of Max. The Diffusion of Innovation Theory provides a useful framework for understanding preventative innovation and the behaviour change necessary to curb the HIV epidemic.

Mulwo, Tomaselli, and Dalrymple (2009) found that although Choice, the government condom brand was available free of charge, students who could not afford commercial condom brands preferred to engage in unprotected sex, rather than experience the perceived discomfort of Choice. This investigation reinforced the need to improve the perception of the government brands, to reduce the risk of unprotected sex.

Background of Rogers's Diffusion of Innovation Theory

Rogers's Diffusion of Innovation Theory will be used in this study as a mechanism to measure Max condom adoption. Much of the research supported by the Diffusion of Innovation Theory has focused on technological innovation. According to Rogers (1962) as cited in Rogers (2003) the Diffusion of Innovation Theory describes the process of adopting an idea, practice, and object that is considered new and that through the diffusion of innovation social change occurs in a predicable linear pattern.

The Diffusion of Innovation Theory is based on research examining why some farmers adopted agricultural technologies more rapidly than others (Rogers, 1962 as cited in Rogers, 2003). This study suggests that the rate of diffusion which relates to the amount of time needed for the innovation to diffuse is based on a number of variables, namely, consumer characteristics, new product attributes, social context, and marketing environment (Nakata and Weider, 2011; Swasy, 2016).

Theory of Diffusion of Innovation defined

Diffusion is the process whereby innovation is communicated through channels and then adopted over time by people who form part of a social system (Rogers, 2003). Rogers (2003) described diffusion as a special type of communication by means of which a message is concerned with a new idea, practice or object and the communication facilitates the creation and sharing of information among members of the social system (Rogers, 2003). "[C]ommunication channels" require that one party is not aware of the innovation (Swasy, 2016, p.645) such as the pleasure associated with the use of coloured and scented condoms.

Given that Max is new there is a certain level of uncertainty associated with it which in turn implies a "lack of predictability, of structure, of information" (Rogers, 2003, p. 6). Uncertainty can be reduced by the dissemination of information often by early-adopters. Given that diffusion is a kind of social change, identifying and increasing the visibility of early adopters' activities is an important accelerator in the rate of healthcare innovation (Berwick, 2003). Furthermore, adds Rogers, diffusion is subjective depending on the type of adopter and innovation. Venkatraman (1989) suggests that adoptive behaviour is based on assumptions that are necessary for the adoption to occur, such as the recommendation of the innovation by a competent authority, the product's importance to the target group, its social relevance, and the obvious benefits to the intended adopter.

Relevance of Rogers's Diffusion of Innovation Theory

The Diffusion of Innovation Theory was not developed explicitly for public health application and is better suited for the *adoption* of behaviours rather than the *prevention* of behaviours. According to Rogers (2003) as cited by Bertrand (2004) preventative innovation refers to a concept that is adopted at one point in time, in order

to reduce the probability of a future unwanted occurrence. The Diffusion of Innovation Theory has however been applied successfully used in public health to accelerate the adoption of essential health programmes that are designed to change the behaviours in a social system.

According to LaMorte (2016) the Diffusion of Innovation Theory is useful in promoting a newly-developed intervention into a social system and its successful adoption by that social system is the result of an understanding of the target population and those factors that influence their rate of adoption. Furthermore, adoption is dependent on the norms of a social system (Venkatraman, 1989, Swasy, 2016), as for example, a group of individuals sharing the same goal, such as young women who do not wish to contract or transmit HIV.

In most societies, because patriarchy is the norm, males have the power to negotiate and make decisions. Consequently, in heterosexual sexual relationships where the risk of HIV transmission is highest, condom use negotiation and the power to make the decision to have, or not have, safer-sex resides with the male. According to Robertson, Stein and Baird-Thomas (2006) power imbalances in heterosexual relationships often lead to women's inability to negotiate condom use, thus making it difficult for them to use condoms consistently despite awareness of their efficacy. The Diffusion of Innovation Theory can be used to create a platform for women to negotiate condom brand, thereby influencing condom use. This study will explore if Max has been successful in creating this evolution through the innovative repositioning of government provided condoms.

Four Main Elements of the Diffusion of Innovation

The Diffusion of Innovation Theory is made up of four main elements, namely the innovation, the communication channels, the time and the social system (Rogers, 2003). These are standard for any diffusion process.

I. The Innovation

The innovation refers to an idea which is understood to be new. Max condoms, though not a new invention, have been enhanced by colour and scent resulting in a novel product. The potential advantage of these features arouses curiosity and the information gained reduces uncertainty about the expected results to what Rogers (2003) describes as a tolerable level; this can favourably influence the decision to adopt or to reject. Atkin, Hunt and Lin (2015, p.624) consider diffusion research as useful in order to "describe, predict and explain the various stages of innovation adoption".

All innovations are made up of five important characteristics which are perceived differently. These assist with understanding the nature of the innovation. These are 1) *Relative advantage* over existing innovations; 2) *Compatibility* to existing work routines; 3) *Complexity* of the innovation; 4) *Trialability* and 5) *Observability* (Rogers, 2003; Swasy, 2016; Atkins et al., 2015; Talke and Colarelli O'Connor, 2011).

Relative advantage refers to the extent to which the innovation is considered to be better than the superseding idea, product or practise (Rogers, 2003). This includes economic terms, social prestige factors, convenience or consumer satisfaction (Rogers, 2003); thus used to explain the extent to which Max is better than Choice. This is further influenced by early adopters who have the ability to influence the social prestige factors. Further to this, the availability of Max could influence the convenience. The objective advantages such as colour and scent of the condom which were designed to increase the pleasure associated with condom use, are limited influencers of adoption.

According to Bertrand (2004, p118) "[a]doption of innovations is more rapid when the innovation confers prestige, convenience, or satisfaction", which is why Max has attempted to confer to these qualities on the product. Condom use, however, cannot be viewed in isolation because young women who are struggling financially might feel that high-risk transactional sex may offer greater short-term benefits than insisting on condom use. If Max is perceived to enhance sexual experience, and protection is secondary, young women may be in a position to influence adoption among these male sexual partners.

Compatability refers to the extent to which the innovation is considered consistent with positive past experience and the extent to which it is able to satisfy the needs of potential adopters (Rogers, 2003). An innovation that is not aligned with the values or beliefs of a social system is rarely or slowly adopted. Consequently, adoption of Max will be slow in social systems that do not support the use of condoms and likely to be faster where safer-sex is a common practise and where Max would be viewed as a new or improved method of safer-sex.

Complexity refers to how simple or comprehendible the innovation is (Rogers, 2003). The design of Max has ensured that it is readily comprehendible by members of any social system as the colour is aligned with the scent. For example, banana scent is yellow, grape scent is purple, strawberry scent is red and regular scent is blue, which is often associated as neutral such as the air or water. It needs to be borne in mind that to remain HIV-negative, safer-sex would need to be sustained over a 30-50 year period which could prove burdensome and onerous (Bertrand, 2004).

Trialability refers to the extent with which an innovation may be experimented with (Rogers, 2003). An innovation that is trialable represents less uncertainty, as learning occurs by doing. In the context of Max, this would be easy as one can try using the various Max variants before deciding to adopt.

Observability refers to the extent to which the results of the innovation are visible to others (Rogers, 2003). Individuals who can witness the possible benefits of an innovation are more likely to adopt the innovation because observation stimulates peer discussions. Because the benefits of Max condoms are subjective they are difficult to observe; and because the goal, to avoid HIV transmission, is not immediately evident, the rewards are not immediately tangible (Bertrand, 2004).

These characteristics all influence the rate of diffusion and are reviewed together but not all characteristics are necessary for diffusion to occur. If an innovation has little relative advantage and has little compatiblility, is complicated and cannot easily be tried or observed, it is likely to diffusion more slowly (Rogers, 2003). Therefore as Swasy (2016, p. 645) argues “innovations must be advantageous as well as 1) talked about, 2) proved easy to use, 3) considered an improvement over the past and 4)

spread by trusted colleagues" if it is to rapidly diffuse through a social system. Relative advantage and Compatability are considered the most important for Max diffusion, therefore:

Ho1: Young women are more likely to report Max use if Max is considered not to have a relative advantage
Ha1: Young women are more likely to report Max use if Max is considered to have a relative advantage

Ho2: Young women are likely to report Max use if Max is considered not to have compatibility
Ha2: Young women are likely to report Max use if Max is considered to have compatibility

In addition to the factors that influence the rate of diffusion, adoption is further influenced by recommendation of the innovation by a competent authority, the products importance to the intended group, its social relevance and the visibility of its benefits to the intended adaptor (Venkatraman, 1989).

II. The Communication Channel

The communication channel refers to the means by which the innovation message is transmitted (Rogers, 2003). Mass media channels are usually the most rapid and efficient in informing an audience but interpersonal channels are even more effective in influencing and persuading individuals to accept an innovation (Rogers, 2003). With the increasing social media use among young people, it is expected that engagement through this medium would be the most successful method to diffuse information. Instagram in particular has emerged into the spotlight with over 150 million active users, with an average of 55 million pictures uploaded daily (Manikonda, Hu and Kambhampati, (2014). Instagram is an online social media platform on which users are able to share and search for experiences through photos and videos marked with specific hashtags (Manikonda et al., 2014). Hashtags provide markers for the subject, idea, event, location or emotion which features and are linked to images or videos posted and shared on Instagram (Highfield and Leaver, 2015). Figures 1 and 2 below illustrate examples of images found under #maxcondom.

Figure 1: Image of Max Condoms shared under #MaxCondom on Instagram

Figure 2: Image of Max Condoms shared under #MaxCondom on Instagram

The majority of individuals depend on subjective evaluations of an innovation rather than on scientific assessments (Rogers, 2003). It can therefore be said that “the heart of the diffusion process consists of modelling and imitation by potential adopters of their network partners who have previously adopted” given that the experiences of peers can be relied upon (Rogers, 2003, p. 19).

Marketing material takes a number of different forms and its impact is varying depending on individual preference, however it is necessary for exposure. To test if marketing material exposure has been necessary for Max use the following hypothesis has been derived:

Ho3: Young women are more likely to report Max use if they are not exposed to Max marketing material

Ha3: Young women are more likely to report Max condom use if they are exposed to Max marketing material

III. Time

Time is required for the five steps of the innovation-decision process to occur. This refers to the process of acquiring knowledge about an innovation, persuasion regarding its benefits, making a decision to adopt or reject and finally the implementation of the decision, followed by confirmation, is not quickly achieved (Rogers, 2003).

IV. Social System

According to Rogers (2003) the social system is made up of norms and established behaviour patterns for members of the system. Individuals in a social system seek to solve a common problem or to reach a mutual goal (Roger, 2003). All social systems have opinion leaders who informally influence attitudes or behaviours, there are also agents of change who attempt to influence the innovation-decision in the direction deemed desirable by the change agent. The perception of 'normal' is altered as new behaviours are modelled and is subsequently adopted by the group's social system members who are expected to adopt the behaviour as it diffuses through the community (Bertrand, 2004).

Adopters and Adoption

Adopters are, according to Venkatraman (1989), people of high socioeconomic profiles, risk-takers and adventure-seekers. Adaptors do not need to conform to the norms of their social system, but rather create and influence them (Venkatraman, 1989). Interestingly, this influence is exerted by action rather than interpersonal communication in that adopters are not considered convivial and consequently their influence is non-personal (Venkatraman, 1989). By using social media platforms, such as Instagram and Facebook, this influence is extended through content-sharing, information diffusion and publishing of thoughts and opinions pertaining to particular topics (Highfield and Leaver, 2015).

According to Rogers 2003, as cited in Nakata and Weider (2011), the speed and likelihood of new product adoption is affected by levels of economic deprivations. Adoption is made up of a two-step process through which cognitive adoption is followed by behavioural adoption (Nakata and Weider, 2011). Consequently it is possible to adopt an innovation in principal, but to fail to action the adoption. For example, one might intend to use Max and endeavour to do so, however due to vulnerability, gender dynamics or socioeconomic reasons, not have the negotiating power to follow through.

According to Peltzer (2000) culturally-embedded factors render the male gender as the significant predictor of condom use. Therefore, though cognitive adoption may occur, behaviour adoption is difficult. The findings by Shisana et al. (2014) disaggregated by race and sex, suggest that black African females have a higher rate of incidence as well as a large number of new infections, across all age groups, than do their male counterparts. One of the reasons is that sex and condom use are a taboo topic in certain cultures, making communication about condom use difficult with one's partner (Scott, Gilliam, Braxton, 2005). Though the study by Scott et al. (2005) was based in the United States of America, the same cultural nuances exist among black African women in South Africa, and this hinders behavioural adoption.

The mere suggestion of condom use is associated with promiscuous sexual behavior and would imply infidelity within the marriage (Maharaj, 2001; Maharaj, 2005). It can be concluded that the social system has not accepted condom use as providing safer-sex but rather promiscuity or a lack of trust. Rogers (2003) refers to this as a lack of acceptability. Every innovation is evaluated in terms of one's prior experience with something similar, therefore indigenous perceptions cannot be discounted but should be integrated into the diffusion model in order to ensure they serve as a mental bridge when introducing innovations (Rogers, 2003). In the conceptual model developed for this study, these are referred to as the Predictor and Background variables.

This poses the question of whether relationship status, specifically marriage has a negative impact on Max adoption. To test this, the following hypothesis is proposed:

Ho4: Young women are more likely not to use Max if they are married

Ha4: Young women are more likely to use Max if they are married

Conceptualisation of Max

The design of a new product and its particular attributes, the consumers social context and the way in which it is marketed are all critical to the products acceptance by a social system (Nakata and Weider, 2011). Nakata and Weider (2011), explain that due to the low levels of literacy associated with Bottom of the Pyramid (BoP) consumers, another critical aspect for adoption is the visual comprehensibility of a new product's characteristics and/or its benefits through design and packaging. Given that the unemployment rate of young people in South Africa is so high, it is expected that the young women who will form part of this study fit the definition of BoP consumers, as they are part of the poorest socioeconomic group. The redesign and rebranding of Max to brightly coloured, image-enhancing packaging is consequently socially relevant. Max is packaged in the colour of, and have an image of, the fruit with which the condom is scented.

Figure 3: Picture of Max Condom variants

Brand identity is intended to differentiate each brand from its competitors' packaging with a unique name, logo colour and/or style (Aaker, 2012; Kotler, Roberto and Lee, 2002). Though brands have different meanings for different consumers, the Max brand identity was designed to "inject enthusiasm into the [government] condom campaign" (Health Minister Dr Aaron Motsoaledi, quoted in eNCA, 2012). Therefore, the government was very deliberate in deciding on the repackaging of Max in order to accurately display the new product's characteristics as well as to reflect its social context and marketing environment.

The availability of different variants suggests that one would be inclined to have a preference for, or at least opinion of, the different variants. Max was named for maximum protection and maximum pleasure which begs the question of whether knowledge of available variants bears any relationship to the adoption of Max. Therefore:

> Ho5: Young women are more likely to report Max use if they are not aware of the different variants available
> Ha5: Young women are more likely to report Max use if they are aware of the different variants available

Diffusion through recommendation

In low income communities with correspondingly low levels of education and literacy, people rely on each other's opinions. According to Nakata and Weider (2011) social capital reflects the trust and norms in a community in which interdependence, mutual assistance and guidance will have an impact on rates of adoption. According to the CDC (2018, page unknown) "Among people living with HIV and receiving medical care, young people aged 18 to 24 are more likely than older people to be living in households with low income levels". Consequently, it can be expected that young people would discuss the benefits of Max and would consider using Max if a competent authority recommended them to do so. Design and packaging, as discussed above are important, but another important element is the social capital built up through the interpersonal acceptance and approval achieved through trust of the promotor who influences judgement of a product. According to Nakata and Weider (2011), close relations with others affects adoption through persuasion or dissuasion. Interpersonal

acceptance is important among young people who regard each other as credible and informed sources

This will be tested by determining if the use of Max by others influences frequency of use. Clearly being in possession of a condom is not a reliable predictor for its use, therefore use by others will be taken into consideration when explicitly questioning if participants are aware of others' use and to what extend peers encourage their frequency of use. Therefore:

> Ho6: Young women are more likely to report Max use if they are not encouraged by their peers to use Max
> Ha6: Young women are likely to report Max use if they are encouraged by their peers to use Max

The Diffusion of Innovation Theory was used in one of the first HIV/AIDS prevention programmes, STOP AIDS. A small number of well-respected individuals led conversations in which knowledge about the human immunodeficiency virus was shared (Singhal and Rogers, 2003). Those who attended these meetings were informed about how the virus spread and were encouraged to use condoms (Singhal and Rogers, 2003). At the end of each session, attendees were asked to make a safer-sex pledge and volunteer to organise and lead an information session of their own in the near future (Singhal and Rogers, 2003). By 1987, according to Singhal and Rogers (2003) STOP AIDS had reached a critical mass of early adopters and was declared a success. STOP AIDS demonstrated the potential of diffusion and the success of opinion leaders in championing the innovation.

Diffusion through the s-curve

According to Labay and Kinnear (1981, p. 271) "the individual processes of adoption and diffusion can be integrated as component parts of the larger process of social change". This is "the innovation - which is the new product, method or idea"; "the individual who decides to adopt the innovation" and "the diffusion of the innovation through the social system as more people make adoption decisions" (Labay and Kinnear, 1981, p. 271). The diffusion of innovation rate is largely determined by

individuals' perceptions of the characteristics of the innovation (Labay and Kinnear, 1981).

Information moving through the social system, and with appropriate marketing strategies, is disseminated so that the potential adopter becomes aware of the innovation, acquires knowledge about it, forms an opinion about it, and then decides to adopt or to reject it (Venkatraman, 1989). This is known as the hierarchy of effects and is the independent variable in this study.

Escobar-Rodriguez and Romero-Alonso (2014) write that the Diffusion of Innovation Theory focuses on diffusion of technological novelties among individuals and that there are different categories depending on how inclined one is to adopt a new technology compared to others in the social system. Characteristics of those that fall within the different categories are classified on the basis of innovativeness which is defined as "the degree to which an individual…is relatively early in adopting new ideas" (Escobar-Rodriguez and Romero-Alonso, 2014, p. 1231). These categories are illustrated in Figure 4. In this study focus will be on how early adopters, as a collective category, have accepted and adopted Max in order to have the findings of this study guide future HIV Prevention Programme design.

Adopters Classification and Distribution

According to Rogers (2003) as cited in Escobar-Rodriguez and Romero-Alonso (2013), the distribution of adopters approaches normality by following an s-shaped curve over time. This continuum is partitioned into five categories, namely, innovators, early adopters, early majority, late majority, and laggards based on the mean and standard deviation of the speed of adoption for an assumed normal distribution (Dahl and Hoeffler, 2004; Escobar-Rodriguez and Romero-Alonso, 2013; Rogers, 2003). The distribution is based on the degree of innovativeness, which according to Rogers (2003) is the time for adoption of an innovation relative to other members of a social system. These five categories can be grouped into early and late adopters as illustrated below.

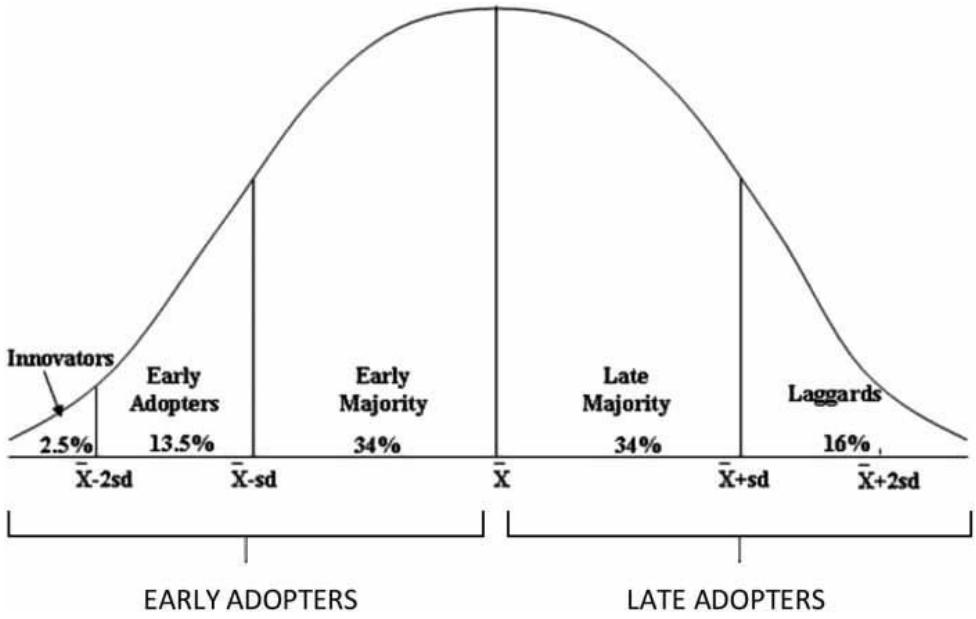


Figure 4: Distribution of adopters' continuum illustrating different categories of adopter

Innovators are the first 2.5% of individuals in a social system to adopt an innovation (Rogers, 2003). They are curious and often adopt due to their propensity to try new things (Maharaj and Muller, 1998; Rogers, 2003). Early adopters are the next 13.5% of individuals who adopt the innovation (Rogers, 2003). The majority of opinion leaders fall within this category. According to Escobar-Rodriguez and Romero-Alonso (2013) early adaptors are those open to change, who seek out and also embrace innovations. Shisana et al. (2012) describes early adopters as those who purchase or make use of products soon after their launch and well before the average person would have a reason to use it. It can therefore be said that early adopters do so for reasons relating to the advantages of the innovation. Early majority make up the next 34% of individuals to adopt an innovation (Rogers, 2003) and rely on the advice of, and information from, early adopters prior to adopting an innovation. The following 34% of individuals are the late majority, followed by the last 16% of individuals to adopt who are described as laggards (Rogers, 2003). As shown in Figure 1, late majority and laggards, the late adopters, are reserved and sceptical about innovation and new technology. This group adopt because of perceived social pressure to conform, only accepting innovation once the majority of their peers are satisfied with the innovation (Rogers, 2003). Though Figure 4 illustrates fixed proportions for each segment, there is the view suggesting that the size of each segment varies according to different product types

(Mahajan and Muller, 1998). To determine if the participants of this study are innovators the following hypothesis has been derived:

Ho7: Majority of Max users do so because Max is not new
Ha7: Majority of Max users do so because Max is new

Role of Early Adopters

The Diffusion of Innovation relies heavily on human capital as potential adopters look to early adopters for opinions about an innovation. Venkatraman (1989, p.53) defines early adopters as per Rogers's first writings in 1983, as "people who are relatively early in adopting an innovation as compared to other members of the social system" and "who purchase innovations relatively earlier than others in the social system". Early adopters are necessary for the diffusion of innovation, as they transmit beliefs and commitment through social and professional networks (Escobar-Rodriguez and Romero-Alonso, 2013; Frattini, Bianchi, De Massis and Sikimic, 2014).

According to Frattini et al. (2014) early adopters encourage information dissemination and behaviour imitation. Different people adopt innovations at different phases of the s-curve, though the speed of diffusion depends on the characteristics of the potential adopters as well as on the characteristics of the innovation, and as previously discussed, early adopters can accelerate diffusion (Escobar-Rodriguez and Romero-Alonso, 2013). It is therefore important to identify who are the early adopters in a population in order to target messaging and marketing to them as a means of encouraging the diffusion of an innovation.

Research suggests that market launch is the riskiest and most critical stage of innovation even when the consumer benefits are evident (Frattini et al., 2014; Talke and Colarelli O'Connor, 2011). Bringing an innovation into reality obviously relies on adoption and the rate thereof (Denning and Dew, 2015). Berwick (2003) adds, referring to the unpredictable nature of the dissemination of healthcare innovation, that even with evidence-based designs and successful implementation, successful adoption can be slow. It is therefore important to invest in early adopters by making their activity observable because diffusion only occurs when individuals' uncertainty about an innovation is confronted by information from a trusted source.

Innovators in this category, although the smallest segment of the five categories, are often the main target audience for market launch as they mobilise the adoption of products and ideas (Denning and Dew, 2015; Maharaj and Muller, 1998) as the main source of information regarding benefits and applications of an innovation to those potential adopters (Frattini et al., 2014). Given that innovators influence the remaining potential adopters, marketing efforts and resources are focused on innovators, rather than the majority (Rogers, 2003).

Frattini et al. (2014) demonstrate that early adopters disseminate information and encourage imitation of purchase, by lowering resistance and uncertainty. Even without disseminating information about the innovation, if the early adopter is regarded as a role model, imitative behaviour is propelled and subsequently adoption of the innovation, by merely informing potential adopters that the product has been used or tried. Innovation adoption can only occur where potential consumers have a positive perception of the characteristics of a new product (Talke and Colarelli O'Connor, 2011).

Therefore:

> Ho8: Young women are more likely to report Max use if Max is not regularly used by members of the social system
>
> Ha8: Young women are likely to report Max use if Max is regularly used by members of the social system

Social learning as a mechanism for diffusion

Social learning, which occurs through observation and replication of behaviours that are witnessed from individuals who are within the same social circle or of a high status, form the foundation of diffusion (Swasy, 2016; Valente, 1995). Through word-of-mouth, and in the current era of social media, platforms like Facebook and Instagram, are used to communicate information to those in search of opinions to reduce resistance to adopt the new product (Frattini et al, 2014). Figure 5 and 6 below show an example of this.

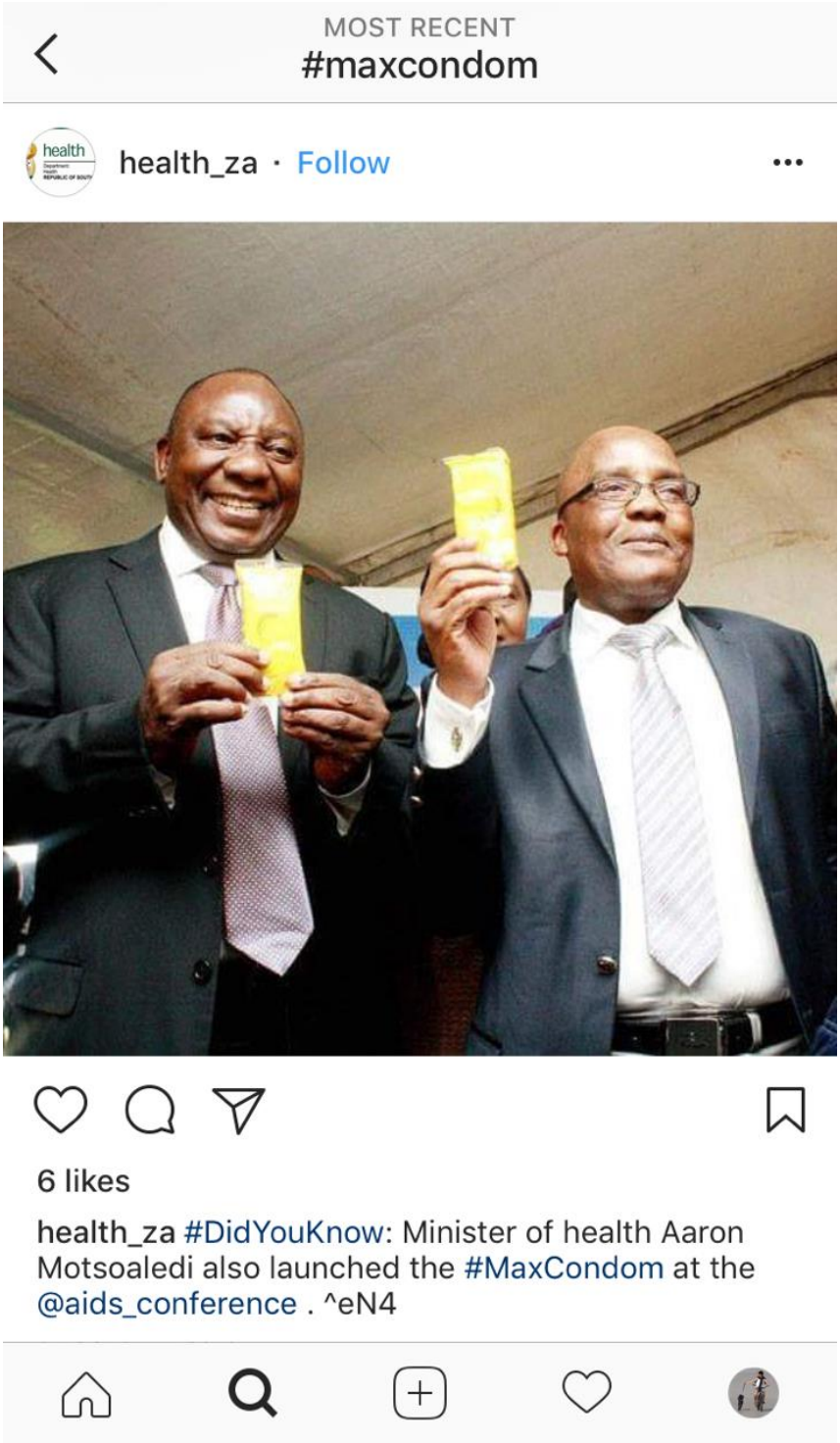


Figure 5: Instagram post of President of South Africa Cyril Ramaphosa and Health Minister Aaron Motsoaledi are seen holding the Banana variant of Max Condom.

Figure 6: Facebook post Zodwa Wabantu, South African socialite and dancer is seen with Steve Letsike, Deputy Chairperson of SANAC holding Strawberry variant of Max Condom at a popular Durban Tavern

Marketers identify opinion leaders who can act as influential agents for the diffusion of a message in order to influence individuals to adopt a product. Max was launched to the people of South Africa in September 2016 by the then Deputy President of South Africa, Cyril Ramaphosa (eNCA, 2016) who is quoted saying, “Max is for maximum pleasure, maximum protection and it... it comes in different flavours. If you want a grape flavour, you can get a grape flavour” (eNCA, 2016).

Figure 7: Cyril Ramaphosa promoting Max condom is parliament

It was anticipated that Ramaphosa's elevated status in society and his memorable product review in Parliament regarding the advantages of Max would have a significant impact on the subsequence uptake of Max because he would influence the choices made by potential consumers (Frattini et al., 2014; Talke and Colarelli O'Connor, 2011). His introduction and promotion of Max was extensively reported through news outlets nationwide. Mass media disseminated the message far beyond the initial launch reach which means Ramaphosa's comments were shared and discussed extensively and caused something of a media sensation; and the launch spawned a number of high-profile spoofs by radio and television personalities. This extensive interest in the then Deputy President's new favourite condom effectively boosted the awareness of Max which, it was hoped, would live up to the hype. OFM news conducted informal interviews with a number of young people which attracted more than one thousand views on YouTube. The video can be found at the following link, https://www.youtube.com/watch?v=JJ32ezoHd1U. Comments from young people interviewed suggest that the use of Ramaphosa to launch Max is the reason why they would be interested in trying Max themselves.

As a result, it is expected that Ramaphosa's support has had a positive effect on Max use, but to determine if this launch did in fact result in adoptions the following hypothesis has been prepared.

> Ho9: Young women are more likely to report Max use because Max did not have had an effective launch to the public
> Ha9: Young women are more likely to report Max use because Max did have an effective launch to the public

Replicating behaviour

Prinstein, Boergers and Spirito (2001) postulate that influence is either implicit or explicit as is evident in the findings of Langley, Bijmolt, Ortt and Pals (2012, p. 623) who suggest that consumers influence each other's decision to adopt and use products through "explicit recommendation or word of mouth, implicit social norms such as what a person feels is expected of him or her, or by visible behaviour such as seeing others purchasing or using a product". Therefore those who see that condoms are being acquired by individuals with whom they share similar characteristics or with whom they interact regularly are likely to exhibit the same behaviour. This is consistent with the findings of Xiao (2012) that suggested that social norms were a significant predictor of condom use.

The conceptual framework developed for this paper and illustrated in Figure 8, operationalised the variables and indicates how the literature will be used to answer the research questions posed in this study. Predictor variables which relate at a community level such as gender norms, tolerance of deviancy from previous practice, communication behaviour and peer norms about safe sex form the basis for the discussion in understanding the findings of this paper. While background variables at an individual level such as the number of children of each participant and their socioeconomic status are variables that influence potential condom users' behaviour and therefore cannot be ignored when interpreting the findings. The independent variables at a knowledge, behaviour and peer level form the basis of the hypotheses upon with the dependant variables will be measured.

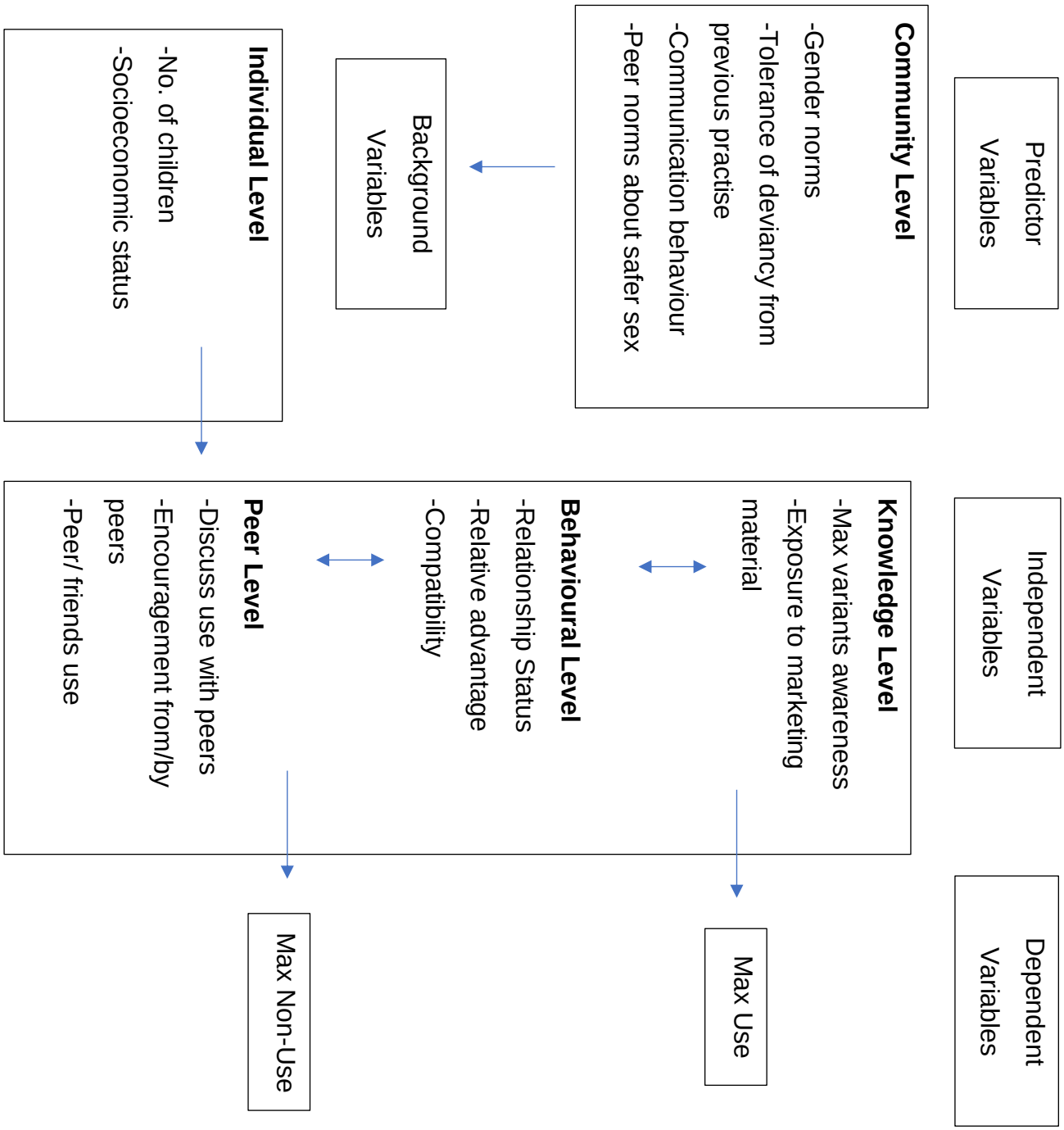


Figure 8: Conceptual framework adopted from innovation-decision process

Summary

Rogers's Diffusion of Innovation Theory has been used largely to establish the diffusion of technological innovations, hence the novelty of studying a free product from a preventative perspective. This chapter presented all the relevant aspects of Rogers's Diffusion of Innovation Theory set beside real examples relating to Max. The next chapter is a detailed overview of the methodology that was followed for this research.

3. CHAPTER THREE – RESEARCH METHODOLOGY

Introduction

This chapter will give the reader a clear understanding of how the research was conducted by describing the conceptual model adapted for this study and systematically give an overview of the study design, study location, sample, sampling method, data collection method, the instruments used, the ethical consideration and data analysis technique.

Research Paradigm

Recognising that there are other influences of condom use beyond the influences explored in this study, a post-positivistic approach will be used. According to Cook and Campbell (1979, p.24) as cited in Mackenzie and Knipe (2006, p. 3) "[p]ostpositivists work from the assumption that any piece of research is influenced by a number of well-developed theories apart from, as well as, the one which is being tested". The study aims to explain a relationship between variables based on probability in order to generalise from the sample findings to the population. For this reason, a quantitative statistical technique was used to interpret data and test hypotheses. Sekaran and Bougie (2010) describe just such a descriptive study as one that determines and describes the characteristics of variables of interest in a certain context. Therefore this can be described as a descriptive study which aims to measure awareness of Max in relation to peer and societal influences regarding the adoption of the usage of Max in order to explain the diffusion of Max among young women in KwaZulu Natal.

Research Goals and Objectives

The purpose of the research is to answer the following questions by statistically analysing data captured;

I. Have Max condoms successfully used the characteristics of innovation to influence Max condom use among young women?
II. Is there sufficient awareness and discussion about Max Condoms to influence the use thereof?
III. Do peers influence diffusion of Max condoms?

Independent and dependent variables (as listed below) were tested for significant relationships. The proportions of personal background and demographic characteristics were measured and used to describe the data set.

Conceptual Framework

A conceptual framework adopted from Rogers's (2003) five stages of innovation-decision process was used to answer the study's research questions. Figure 8 illustrates the innovation – decision conceptual framework. Predictor and background variables provide the basis for understanding the independent variable.

Dependent variables:

1. Frequency of Max use when having sex
2. Use of Max in the last 6 months

Independent variables:

1. Relative advantage of Max
2. Compatibility of Max to other condoms
3. Exposure to Max marketing material
4. Participant relationship status
5. Awareness of different Max variants
6. Encouragement of Max use by peers
7. Max as a new product
8. Use of Max by members of the social system
9. Effectiveness of Max launch to the public

Sample

The sample was made up of sexually active young people aged 18 – 24 years. To avoid any perceived bias by potential participants both males and females were permitted to participate, however only the data of participants who identified as female was used for analysis. Two single-scale items were used to determine sexual activity and condom use in the last six months. Only participants who had had sex in the last six months were included; the advantage of, and the reason for, using responses to this question as a measure of sexual activity and of Max use was to minimise the problem of memory lapse by ensuring recent occurrence of both. This variable gave

no indication of the consistency or frequency of the use of Max. Neither condom distribution, or possession, or sales are a valid proxy for usage, hence the questionnaire referred specifically to usage.

Study Location

Research was conducted in eThekwini, Umgungundlovu, and Nkosazana Dlamini Zuma districts of KwaZulu Natal. These locations were chosen to ensure that data was representative of the views of young women from an urban, a semi-urban, and a rural setting respectively. Additionally these are high HIV prevalence districts of KwaZulu Natal in which HIV infection is high, and the number of at-risk population group members is also very high (Karim et al., 2017).

The study targeted young women who attended a Non-profit development organisation's outreach events which were based in high-transmission areas or who were randomly recruited to participate within a 500m radius of an outreach event. The sample was selected from this population as these individuals would be expecting conversations about general and sexual health and would therefore be less likely to have reservations about participating in the research.

Sampling Method

The sampling representativeness of the population could not be guaranteed as there is no database of young women who are sexually active and who use Max. Therefore non-probability convenient sampling was used. Participation in the study was completely voluntary, and all individuals who wished to participate in the study, and met the study criteria were able to do so.

At outreach events hosted by a Non-Profit Organisation across rural, peri-urban and urban districts in KwaZulu Natal, the study was explained to both male and female who attended the outreach, who are sexually active and aged 18 – 24 years, in English or IsiZulu. It was explained that participation was completely voluntary and that should an individual decide to opt out of the study at any point, there would be no negative consequences. The study was explained in full to the individual and the questions, and option to respond, were verbally translated for those who did not understand them. All explanations were conducted in English and isiZulu as and when necessary to ensure

that participants fully understood the purpose of the research, the methodology, and their right to withdraw at any point during the study. These individuals were then invited to participate in the study by completing self-administered questionnaires.

Instrument

A questionnaire was used for data collection. Babbie (2010, p. 256) defines a questionnaire as "a document containing questions and other types of items designed to solicit information appropriate for analysis". The questionnaire was made up of close-ended questions. According to Cooper and Schinder (2006) questionnaires are suitable for quantitative studies. The construction of the questionnaire was based on literature review of peer reviewed articles in published journals and adopted from the Peer Norm subscale of the Sexual Risk scale which measures peer attitudes towards safer-sex (De Hart and Birkimer, 1997) and the Attitudes Toward Condoms subscale used in the research of Madu and Peltzer (2003). Appendix 1 is the final questionnaire used for this study. The questionnaire was pre-tested for readability and understanding by 10 people none of whom formed part of the final sample. All ambiguities identified were revised after the pilot phase and the final self-administered questionnaire was given to the sample.

The questionnaire consisted of questions about 1) sexual activity and condom use (2 items), which were used as screening questions at the point of data entry. The remainder of the questionnaire was made up four categories, namely 1) Awareness of Max condoms (7 items); 2) Peer use and social norms (11 items); 3) Characteristics of innovation (30 items); and 4) Biographical data (9 items). The screen questions were used to qualify the respondents to be part of the sample. The demographic information was included in the questionnaire to gather information pertaining to the individuals' demographic information. The demographic information will be used accurately to describe the sample.

Scaling involved the use of a 4-point Likert type scale with responses coded as 1 - 4. According to Moerdyk (2009) Likert scales are more appropriate when questions relate to feelings and opinions. A 4-point Likert was used to encourage people to commit to a response (Moerdyk, 2009). In addition, Moerdyk (2009) suggests that fewer options should be made available for a target audience with a lower educational level. Given

that the target audience is 18-24 years, it is anticipated that the educational level will be low and therefore the response format has been limited to a four-choice Likert. Skip questions and “don’t know” responses were included to ensure that participants respond only to answers with which they were familiar.

Data Collection Method

Fieldworkers based at a Non-profit development organisation’s outreach events were trained on how to assist with data collection. Each fieldworker was based at an outreach event to mobilise people to attend the outreach as well as to provide HIV testing and counselling services. Fieldworkers were used as research assistants given their knowledge about safer-sex, familiarity with Max, and counselling skills.

Given that the questionnaires were produced in English, the Fieldworkers went through each question in Zulu where this was requested; the participant was given the opportunity to respond to the questionnaire in private. The Likert scale and how to respond to the questionnaire was explained to all participants prior to completion of the questionnaire. Participants were asked to complete the questionnaire in a private area and to ensure their anonymity they were distinctly briefed not to provide their names. Consent forms were collected and stored separately from the completed questionnaires to further ensure anonymity. Complete questionnaires were placed in a box by the participant to ensure that they were comfortable about responding honestly without fear of stigma. Completed questionnaires were manually checked for errors and incompleteness and if a participant was female (as the study focused on young women therefore questionnaires of male respondents were discarded) prior data entry into excel.

Data Analysis

Data analysis is known as the process of ordering, structuring, and establishing meaning from data collected (Kothari, 2004; Schurink, Fouche and De Vos, 2011). Given that the study adopted a quantitative research methodology, statistical methods were necessary to analyse the data. Data was captured and coded in Excel before being imported into R which was used for statistical analysis.

To evaluate and analyse the H_o1: *Young women are likely to report Max condom use if Max is considered not to have a relative advantage*; and H_o2: *Young women are likely to report Max condom use if Max is considered not to have compatibility* the weighted average was calculated for the participants' responses to questions 21 – 29 and questions 30 – 34 of the questionnaire, respectively. The average calculated changed nominal data to continuous data which was then used as a representative value of relative advantage and compatibility of Max. Spearman's correlation was then used to measure the strength and direction of the relationship between relative advantage and compatibility with the frequency of Max use when having sex (question 3).

To evaluate and analyse H_o3: *Young women are more likely to report Max use if they are not exposed to Max marketing material* Fisher's Exact test was used to determine if there was a relationship between the frequency of exposure to marketing material for Max (question 4) and the frequency of Max use when having sex (question 3).

To evaluate and analyse H_o4: *Young women are more likely not to use Max if they are married* Fisher's Exact test was used to determine if there was a relationship between participants' relationship status and the frequency of Max use when having sex (question 3).

To evaluate and analyse the H_o5: *Young women are more likely to report Max use if they are not aware of the different variants available* the weighted average was calculated for the participants' responses to questions 6 - 9. The average calculated changed nominal data to continuous data which was then used as a representative value of Max variant awareness. Spearman's correlation was then used to measure the strength and direction of the relationship between extent of awareness of Max variants with the frequency of Max use when having sex (question 3).

To evaluate and analyse H_o6: *Young women are more likely to report Max use if they are not encouraged by their peers to use Max* Fisher's Exact test was used to determine if there was a relationship between peer/friend encouragement of Max use (question 14) and the frequency of Max use when having sex (question 3).

To evaluate and analyse H_o7: *Majority of Max users do so because Max is not new* Fisher's Exact test was used to determine if there was a relationship between participants' use because Max is new (question 39) and Max use in the last 6 months (question 2).

To evaluate and analyse the H_o8: *Young women are more likely to report Max use if Max is not regularly used by members of the social system* the weighted average was calculated for the participants' responses to questions 15 and 40. The average calculated changed nominal data to continuous data which was then used as a representative value of Max variant awareness. Spearman's correlation was then used to measure the strength and direction of the relationship between Max use by peers and others with the frequency of Max use when having sex (question 3).

To evaluate and analyse H_o9: *Young women are more likely to report Max use because Max did not have had an effective launch to the public* Fisher's Exact test of independence was used to determine if there was an effective launch to the public (question 5) and the frequency of Max use when having sex (question 3).

Due to some expected frequencies falling below 5, Fisher's Exact test was used as a substitute for the Chi-squared test where the expected frequencies were too low for chi-square (Robson, 1993). Sample distribution such as mean, standard deviations, and variance were calculated for Section 1: Awareness, Section 2: Peer/friends use and social norms and Section 3: Attributes of Innovation of the questionnaire. Descriptive statistics were analysed to provide a summary of the characteristics of the sample which enable the researcher to generalise and make recommendations that extend beyond the sample of the study to the population.

Limitations

Convenient sampling method was considered a limitation of the study as there was no surety of representativeness to the population (Cooper and Schindler, 2006). Further to this, the data was collected in the form of self-reported questionnaires which could affect their reliability and validity given that participants may have been tempted to respond with a more socially desirable response given the topic of the study.

Validity and Reliability

Validity is according to Moerdyk (2009), p.274: “[t]he degree to which an instrument measures what it is intended to measure”. The relationship between sex in the last six months and condom use in the last six months was tested to determine validity of the results. Reliability is according to Moerdyk (2009, p. 271): “[t]he degree of consistency of a measure and/or the degree to which it is free from random error”. The reliability of the questionnaire was checked by calculating the Cronbach’s Alpha. The Cronbach’s alpha is a coefficient which measures internal consistency of a scale. A Cronbach alpha score of 0.6 or above was considered as an acceptable level of internal consistency (Gliem and Gleim, 2003; Sekaran, 1992). Any research based on measurement must be concerned with accuracy or dependability (Cronbach, 1951). According to Sekaran (1992) reliabilities less than 0.6 are considered poor, while those within the range of 0.6 – 0.7 are considered acceptable and those above 0.8 are considered good. Therefore the closer the reliability coefficient is to 1, the better the reliability of the instrument (Sekaran, 1992). Due to the Likert-type nature of the proposed scales it is imperative to calculate and report Cronbach’s alpha coefficient for internal consistency and reliability. Further to this, to ensure the validity of the results by receiving honest responses, questionnaires were self-administered, anonymous, and voluntary.

Ethical Consideration

Prior to initiation into the study, the research protocol and informed consent forms were reviewed and approved by the Rhodes Business School Ethics Committee. According to Peil (1995) official permission from a competent authority is crucial prior to conducting any research. An Institution Participation letter was drafted and given to the CEO of a Non-profit development organisation requesting permission for the organisation to assist with data collection. A copy of the participation letter will be found in Appendix 3. The details of the questionnaire were shared prior to the individual’s deciding to participate, to ensure that each person fully understood the intimate nature of the questions that would be asked. Participants were asked to sign the consent form before taking part in the study (Babbie 2010). A copy of the consent form is available in Appendix 2. Participants were assured of confidentiality and that the data would be used exclusively for research purposes.

Summary

This chapter detailed the research methodology that directed this study. A self-administered 59 item questionnaire was designed and administered to sexually active young women aged 18-24 years old in KwaZulu Natal. Statistical analysis for each hypothesis was clearly stipulated. The study ethical approval process, the measures taken to ensure validity and reliability, and the limitation of the methodology were explained. The next chapter will present the findings of the study.

4. CHAPTER FOUR – FINDINGS

Introduction

This chapter will highlight the key findings of the study. The results of this study are presented in relation to the research objectives and hypotheses and have been organised into two sections; the first section summarizes the demographic of the participants' descriptive data of responses and the second section summarises the results of the hypothesis testing. A total of 185 people completed the study, however 54 questionnaires were excluded from the analysis as they were either incomplete, filled in by men and not young women, or did not satisfy the requirements of the study that participants be sexually active.

Demographic data of participants

Table 1 illustrates the proportion of participants by demographic factors. As shown in the table the proportion of participants was highest for the age group 24 years, participants in a relationship, who have a formal education beyond grade 10 and a matric certificate or equivalent, are African and have isiZulu as their home language, have no children, and are students.

Table 1: Proportion of sexually active participants by demographics

Variable	n	%
Age Group		
18 years	21	16%
19 years	29	22.1%
20 years	16	12.2%
21 years	16	12.2%
22 years	10	7.6%
23 years	8	6.1%
24 years	31	23.7%
25 years and older	0	0%
Relationship Status		
Single	38	29%
In a relationship	78	59.5%

Living with partner	4	3%
Married	1	0.8%
Divorced	0	0%
Widowed	1	0.8%
Multiple partners	9	6.0%
Formal Education		
Less than grade 10	12	9.2%
More than grade 10	76	58%
University	43	32%
Highest Qualification Attained		
Matric (or equivalent)	76	58%
Less than Matric	26	19.8%
Diploma	19	14.5%
Degree	6	4.6%
Postgraduate Degree	4	3.1%
Race		
African	128	97.7%
White	0	0%
Coloured	2	1.5%
Indian	1	0.8%
Other	0	0%
Home Language		
English	8	6.1%
isiZulu	115	87.8%
isiXhosa	4	3.1%
Afrikaans	1	0.8%
Other	3	2.3%

Number of Children		
None	81	61.8%
One	37	28.2%
Two	10	7.6%
Three or more	3	2.3%
Employment Status		
Student	73	55.7%
Employed	22	16.8%
Unemployed	36	27.5%

Figure 9 shows proportion of results for the question *How often do you use Max condoms when you have sex*. From the graph one notes that more than seventy-five percent of participants in total responded that they always or regularly use Max when having sex.

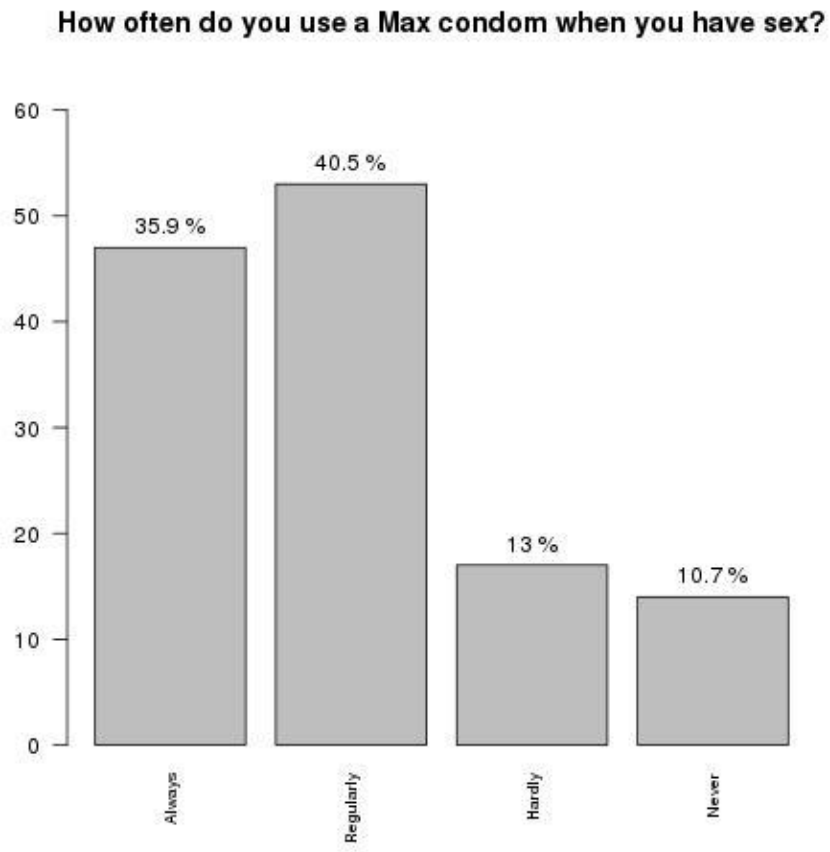


Figure 9: Bar graph 1 showing percentage of respondents for each response of how often Max Condoms are used

Table 2 illustrates the descriptive statistics for the results of section one and two of the questionnaire, Awareness and Peer/Friend use and Social norms.

Table 2: Mean, Standard Deviation and Variance for Diffusion of Innovation Attributes

Variable	Mean	Standard Deviation	Variance
Awareness	1.60	0.42	0.04
Peer/Friend use and Social norms	2.34	0.55	0.48

Table 3 illustrates the descriptive statistics for the results of section three of the questionnaire, Characteristics of Innovation.

Table 3: Mean, Standard Deviation and Variance for Diffusion of Innovation Characteristics

Variable	Mean	Standard Deviation	Variance
Relative Advantage	2.17	0.41	0.04
Compatibility	2.11	0.46	0.04
Trialability	2.12	0.52	0.05
Observability	2.31	0.33	0.03
Complexity	2.24	0.52	0.05

Validity and Reliability

A chi-square statistic was calculated to examine if condom use was related to safer-sex. The test was found to be statistically significant, $X^2(1, n = 131) = 125,639$, p-value = 0.0005. The results suggest there is a significant relationship between sex in the last six months and Max use, thus confirming that Max is used for sex and not other activities. The Cronbach alpha reliability coefficients calculated for each section of this scale are presented in table 4. The overall Cronbach alpha of this scale is 0.6053834 which is deemed as acceptable as per Sekaran (1992).

Table 4: Cronbach's Alpha, Standardized Alpha and Average inter-item correlation for the overall scale and each characteristic of the Diffusion of Innovation

	Cronbach's Alpha	Standardized Alpha	Average inter-item correlation
Overall	0.60	0.55	0.14
Awareness	0.61	0.55	0.15
Peer Use	0.66	0.63	0.13
Relative Advantage	0.56	0.60	0.14
Compatibility	0.20	0.92	0.05
Trialability	0.82	0.82	0.36
Observability	-0.13	-0.8	-0.01
Complexity	0.67	0.64	0.23

Research Objectives and Hypothesis Testing

Hypotheses H_o1 and H_a1, H_o2 and H_a2, H_o7 and H_a7, H_o9 and H_a9 were derived and tested to respond to research question one: *Have Max condoms successfully used the characteristics of innovation to influence Max condom use among young women*?

> H_o1: Young women are more likely to report Max use if Max is considered not to have a relative advantage
>
> H_a1: Young women are more likely to report Max use if Max is considered to have a relative advantage

A Spearman's correlation was run to assess the relationship between relative advantage and frequency of Max use. There was a weak correlation between the two variables, which was statistically significant, $r_s = 0.3622$, n= 131, p-value < 0.05 therefore there is sufficient evidence to reject Ho1 and accept H_a1.

> H_o2: Young women are likely to report Max use if Max is considered not to have compatibility
>
> H_a2: Young women are likely to report Max use if Max is considered to have compatibility

A Spearman's correlation was run to assess the relationship between compatibility and frequency of Max use. There was a very weak correlation between the two variables, which was not statistically significant, $r_s = 0.1608$, n= 131, p-value = 0.0666 therefore there is insufficient evidence to reject H_o2.

H_o7: Majority of Max users do so because Max is not new
H_a7: Majority of Max users do so because Max is new

A Fisher's Exact Test was calculated to examine hypothesis 7. The test was found to be statistically significant, p-value = 0.0245. Therefore, there is sufficient evidence to reject H_o7 and accept H_a7.

H_o9: Young women are more likely to report Max use because Max did not have an effective launch to the public
H_a9: Young women are more likely to report Max use because Max did have an effective launch to the public

A Fisher's Exact Test was calculated to examine hypothesis 9. The test was found to be statistically significant, p-value = 0.0289. Therefore, there is sufficient evidence to reject H_o9 and accept H_a9.

The H_o3 and H_a3, H_o4 and H_a4, H_o5 and H_a5 were derived and tested to respond to research question two: *Is there sufficient awareness and discussion about Max Condoms to influence the use thereof*?

H_o3: Young women are more likely to report Max use if they are not exposed to Max marketing material
H_a3: Young women are more likely to report Max condom use if they are exposed to Max marketing material

A Fisher's Exact Test was calculated to examine hypothesis 3. The test was found to be statistically significant, p-value = 0.0189. Therefore, there is sufficient evidence to reject H_o3 and accept H_a3.

H_o4: Young women are more likely not to use Max if they are married

H_a4: Young women are more likely to use Max if they are married

A Fisher's Exact Test was calculated to examine hypothesis 4. The test found p-value = 0.076. Therefore, there is insufficient evidence to reject H_o4.

H_o5: Young women are more likely to report Max use if they are not aware of the different variants available

H_a5: Young women are more likely to report Max use if they are aware of the different variants available

A Spearman's correlation was run to assess the relationship between awareness of different variants and frequency of Max use. There was a very weak correlation between the two variables which was not statistically significant, $r_s = 0.0539$, n= 131, p-value = 0.5405 therefore there is insufficient evidence to reject H_o5.

The H_o6 and H_a6, H_o8 and H_a8 were derived and tested to respond to research question three: *Do peers influence diffusion of Max condoms*?

H_o6: Young women are more likely to report Max use if they are not encouraged by their peers to use Max

H_a6: Young women are likely to report Max use if they are encouraged by their peers to use Max

A Fisher's Exact Test was calculated to examine hypothesis 6. The test was found to be statistically significant, p-value = 0.0005. Therefore, there is sufficient evidence to reject H_o6 and accept H_a6.

H_o8: Young women are more likely to report Max use if Max is not regularly used by members of the social system

H_a8: Young women are more likely to report Max use if Max is regularly used by members of the social system

A Spearman's correlation was run to assess the relationship between regular Max use by members of the social system and frequency of Max use. There was a weak correlation between the two variables which was statistically significant, $r_s = 0.3622$, n= 131, p-value < 0.05 therefore there is sufficient evidence to reject H_o8 and accept H_a8.

Summary

Descriptive statistics were presented in this chapter and the results for each hypothesis were presented against the relevant research question. The level of significance for this study was 95% confidence interval, therefore null hypothesis was rejected for results with p-values < 0.05. Hypotheses H_o2, H_o4 and H_o5 were accepted and H_a1, H_a3, H_a6, H_a7, H_a8 and H_a9 accepted. The next chapter will discuss the findings presented in this chapter in relation to the literature reviewed.

5. CHAPTER FIVE – DISCUSSION

Introduction

This chapter will examine the findings of the research and will highlight major differences and similarities in the literature. Max provides an opportunity to introduce a 'fun' and pleasurable element to condom use which could in turn help young women negotiate safer-sex to reduce their risk of HIV transmission. The findings of this study offer insights into which innovative characteristics of Max contribute to increased uptake among young women, and investigates whether there is sufficient awareness of and discussion about Max to influence usage, and whether peers influence the diffusion of Max.

Adoption due to Max characteristics

Three research questions have been addressed in the study. The first of these *Have Max condoms successfully used the characteristics of innovation to influence Max condom use among young women* is addressed by testing null hypothesis 1, 2, 7, and 9.

South Africa is a middle-income country and has one of Africa's most developed economies (World Bank, 2018a); its population, estimated at 50.7 million people, has an average life expectancy of 53-54 years (World Bank, 2018b). There are large disparities between the poor majority and the wealthy minority. The Gini co-efficient based on income data, which includes salaries, wages, and social grants is 0.68 (Lehohla, 2015). At more than 50%, unemployment is high among young people (World Bank, 2018b). As the literature suggests the majority of sexually active young people are likely to have little disposable income, so the purchase of condoms has to be weighed against items such as food and transport. Recognising this, the South African government has invested millions of Rands on free condom development, promotion, and distribution. Despite this, according to the Durex Global Sex Survey, only 41% of sexually active South Africans have used free condoms (Durex, 2017).

It is unknown whether the introduction of Max has increased the use of condoms however this study did find that 39.5% of participants "always" used Max when having sex and 40.5% "regularly" used Max when having sex. Further, 24.4% of participants

would “always” prefer to use Max rather than another condom brand and 50.4% would “regularly” use Max rather than any other condom brand. These findings suggest that Max is the preferred condom for the participants of this study. Noting that young women have little disposable income to purchase condoms, but more importantly, given the extensive availability of Max in public places, this finding suggests that Max has been able to pass the subjective barrier associated with freely available government condoms.

According to Rogers (2003) preventative innovations generally have slow rates of adoption because people have difficulty perceiving its relative advantage. The relative advantage is the extent to which an innovation is perceived to be superior to the superseding and existing product (Rogers, 2003). Practising safer-sex only yields the desired consequence of remaining HIV negative in the future, therefore it can be said that the relative advantage is delayed. Given that Max provides the immediate advantage of a ‘fun’ and pleasurable element to safer-sex, this beneficial consequence is achieved at the time of use, superseding the prophylactic health benefit of remaining HIV negative.

Hypothesis 1 tested the relationship between the frequency of Max use and the relative advantage of Max use. The p-value < 0.05 indicated that there is a significant relationship between these variables. Shifting the main relative advantage of Max to ‘fun’ and pleasurable has had the benefit of influencing the frequency of Max use among young women as the challenge with solely focusing on transmission prevention is, as Rogers (2003, p. 234) describes it, that “[a]doption by an individual at present may prevent getting AIDS at some future time. But the individual might not have contracted AIDS* even without adopting the idea of safer sex.”. Consequently the non-evident nature of adopting safer-sex has been preceded by communicating the positive ‘fun’ and pleasurable aspects of Max use rather than highlighting the prophylactic aspect. This has resulted in a positive perception of the relative advantage.

** One cannot contract AIDS, one contracts HIV which if left untreated will become AIDS as the immune system fails. In 2003 the widespread availability of ARVs triple*

therapy and the concomitant nomenclature had not yet evolved accurately to describe the science.

Choice was the South African government's freely distributed condom brand prior Max and of the study participants, 21.6% "strongly agreed" and 54.3% "agreed" that Max were considered more prestigious than Choice. In addition 26.7% of participants "strongly agreed" and 49.1% "agreed" that Max was more likely to improve their sexual experience than Choice. Similarly, 22.4% "strongly agreed" and 50% "agreed" that Max made their sexual experience safer than Choice did. According to Rogers (2003) compatibility is important in reducing uncertainty about an innovation. In this context the compatibility with Choice is negatively associated with a perception of Choice being noisy, smelly, and unsafe. Hypothesis 2 tested the relationship between the frequency of Max use and Max compatibility. The p-value = 0.0666 indicated that there is no significant relationship between these variables. It can therefore be said that Max is not compatible with its predecessor Choice. This was the expected result in that the purpose of introducing Max was that it should be perceived as different from Choice and a great improvement on Choice. According to Rogers (2003, p. 243) "[c]compatibility of an innovation with a preceding idea can either speed up or retard [the] rate of adoption". In this study the rate of adoption was not measured in relation to compatibility with other brands and this has limited the scope of the interpretation of the results.

H_o7 was rejected and H_a7 accepted at p-value < 0.05, therefore there is evidence to support and confirm the finding that the majority of participants use Max because it is new. These individuals are comfortable with what Rogers (2003) describes as a degree of uncertainty. It is difficult to determine if these users are innovators or early adopters as both adopter categories try new items simply because they are new. As was found in the study of Venkatram (1989) as cited in Rogers (2003, p.283) both categories help trigger mass adoption and are expected by their peers to make "judicious innovation-decision[s]" about new products. Given that the participants of this study indicated that they use Max because it is new, the expectation is that diffusion would continue among young women in KwaZulu Natal as it assists the triggering of critical mass adoption of an innovation.

The marketing environment is crucial to driving adoptions (Rogers, 2003) and marketing has always focused on the launch phase as this is the critical step for all innovations. Given that the success of an innovation is highly reliant on the launch, it can be said that the public launch of Max was an exceptional success because it created discourse about Max and positively influenced its uptake. H_o9 was rejected at a p-value = 0.0289, therefore young women considered the launch of Max as one of the influencing factors for their use of Max. Literature suggests that promotional campaigns assist in making condom use more socially acceptable in the community, and this in turn increases overall condom use. This was evident when Max was being discussed widely on social media platforms and hashtag #MaxCondoms trending. By using the then deputy President Cyril Ramaphosa to launch Max, many young people were encouraged by his approval and felt permitted to try Max. Furthermore, safer-sex was normalised and an interest for people to try the different variants had been created.

Max influence through awareness and discussion

The second research question *Is there sufficient awareness and discussion about Max condoms to influence the use thereof* was addressed by testing null hypothesis 3, 4 and 5.

There was significant evidence to reject H_o3 which confirmed that young women are more likely to use Max if they are exposed to Max marketing material. As discussed in the literature, given Max's brightly coloured packaging, marketing has not been limited to conventional mass media, but, as illustrated in Figures 1 and 2, has been socially marketed by users of social media platforms such as Instagram and Facebook. These unplanned marketing strategies have had a considerable and positive impact.

As presented in the literature, women's negotiation of condom use is largely incompatible with the traditional cultural values of South Africa. Literature suggests that married women would be regarded as promiscuous or that they were undermining the trust and commitment of the marriage if they suggested condom use. There was however insufficient evidence to reject H_o4 at p-value = 0.076. Of the study participants 59.5% of them were in a relationship, and only 0.8% of the participants identified as

married. Therefore, the married population of young women was largely under-represented by the sample.

According to Bobrova, Sergeev, Grechukhina and Kapiga (2005), men and women use condoms for different reasons therefore promotional messaging and advertising should be gender specific. However if the significant aspect of Max that increases adoption is the colour and scent, then the aspect of 'fun' and pleasure supersede the safer-sex elements associated with condom use and therefore undermines the gender specificity of the claim made by Bobrova et al. (2005). There was, however, no significant relationship between frequency of use and awareness of different variants, therefore there was insufficient evidence to reject H_o5. The level of awareness of the different variants of Max was not equal. There was, interestingly, a greater awareness of the fruit variants than of the Regular variant inviting the speculation that the frequency of use is a result of other factors than that the variants have fruity scented variants.

Peer influence on Max use

The last research question *Do peers influence diffusion of Max condoms* was addressed by testing null hypothesis 6 and 8. Fundamental to the diffusion of innovation is the influence of other members of the social system on individuals. Innovators influence early adopters who in turn influence early majority by giving advice about an innovation. The adoption s-curve then slows down as the late majority and laggards adopt innovations slowly though they do adopt due to social pressure from others. Bobrova et al. (2005) had found that peer-based education was more impactful in influencing behaviour change as friends and peers are often more trusted than is faceless marketing. Similarly, Rogers (2003) refers to the study of Kelly et al., (1997) as cited in Rogers (2003, p. 311) wherein an HIV prevention intervention was introduced by identifying the most popular men in gay bars who'd be recruited to "serve as opinion leaders". Rogers (2003) explains that "[t]hese opinion leaders were trained in HIV prevention and safer sex and given badges to wear, in order to stimulate questions from their acquaintances". A pre and post intervention sample was taken, and findings indicated a 45% increase in condom-protection by customers in the gay bars where the four interventions were tested as compared to the control group bars. Similarly, in this study H_o6 was rejected and H_a6 accepted that young women are more

likely to report Max use if they are encouraged by peers to use Max. Consequently, peers and friends so influence Max use, because, though young women might use condoms for different reasons, the notion of peer encouragement is evidently important.

It is understood that diffusion is a process whereby an innovation is communicated by various means over time to people who form part of a social system (Rogers, 2003). Communication is the transmission of messages relating to an understanding of new ideas for understanding and can be regarded also as a two-way exchange and interaction (Rogers, 2003). Young people are in a development phase during which peer influence in decision-making is extensive (Karim et al., 2017). As new boundaries are explored, and social norms are challenged, these interactions form only one part of the information exchange process (Rogers, 2003). Peer groups are important for reducing uncertainty during the process of decision making. There was significant evidence to reject H_o8 and accept H_a8, therefore confirming that young women are more likely to report Max use if Max is regularly used by members of the social system. This is consistent with literature as young women are likely to adopt behaviours from each other and with people among whom they have strong social relations (Rogers, 2003). Since the social setting in which one finds oneself affects adoption through shared norms, it is anticipated that the diffusion of Max would be organic as more young women increase their use of Max. This would result in increased condom use among young people and a reduction in new HIV infections. As was found in the study of Swasy (2016), adoption was dependent on social norms among members who regard each other as credible sources of information. According to Bobrova et al. (2005, p.177) “association between consistent condom use and belief that condoms are used by peers suggests that increasing the proportion of young people using condoms is likely to lead to higher condom use in this population”. This is the desired outcome of the introduction of Max: to normalise use by members of the social system.

Summary

The results of the hypotheses tested were discussed in relation to the purpose of the research questions of this study. Similarities and differences in the literature reviewed are also considered here. The next chapter brings the study to its conclusion, indicates its limitations, and makes recommendations for future research in the field.

6. CHAPTER SIX – CONCLUSION

Introduction

The fourth chapter of this study presented its findings which were then discussed in Chapter Five with particular reference to the literature pertaining to the subject. This chapter concludes the study by drawing together its main findings according to the theoretical objectives of the study; some recommendations prompted by the study are also offered here. This chapter also sets forth a description of the limitations of the study.

The purpose of the research was to measure the diffusion of Max condoms in KwaZulu Natal among young women aged 18-24 years. To achieve this, three research questions were designed and answered by testing nine hypotheses: 1) Have Max condoms successfully used the characteristics of innovation to influence their use among young women; 2) Is there sufficient awareness of, and discussion about, Max condoms to influence usage; 3) Do peers influence diffusion of Max condoms.

Summary of Main Findings

The Diffusion of Innovation Theory guided the study by offering a framework through which its findings could be analysed and understood. As is made clear in Chapter Five, social change occurs when new ideas diffuse through society and are adopted or rejected either spontaneously or as a result of purposeful intervention. One of the key findings of this research was that young women adopted Max because it was new, but also because it was used by peers and other members of their social circle; an additional influence on adoption was the impact of the public launch of Max which injected curiosity in the public mind, making young women eager to experience the innovation for themselves. These elements combined to stimulate uptake which became possible because, as the literature suggested, young people felt the romanticism and pleasure of sex to be more important than the ideal of safer-sex. By using Max, therefore, young women were not seen to be compromising on ‘fun’ and pleasure. The early adopters initiated the process by prompting other young women to use Max because of its relative advantage.

The success of this project promises important and exciting prospects for the future of HIV prevention programmes because it demonstrated that government and civil society organisations will not necessarily be called upon to expend extensive resources on the promotion of safer-sex. Their focus can, rather, be directed towards altering mindsets by devising preventative innovations that are positive rather than punitive as did this launch when it highlighted the 'fun' and pleasurable aspects of condom use.

If young women are able to make use of the positive characteristics associated with Max in order to negotiate condom use, then the indirect result of trying a 'fun' and pleasurable condom has the additional benefit of reducing the risk of HIV transmission. It is important to note that it was awareness and discussion about Max that was one of the significant reasons for increased Max use, and this demonstrates that peer encouragement can be equally as important as generating marketing and promotional material. Though there was no significant relationship between Max variant awareness and frequency of use, a large proportion of participants were aware of the different variants available.

Limitations

Given that this study is quantitative in nature its ability to interrogate the reason/s underlying the responses of participants was necessarily limited. The study examined the subjective experience of young women but it must be borne in mind that the data collection tool was a closed-ended questionnaire, so that participants were not given an opportunity to express their perceptions beyond the confines inherent in the Likert response options that are available. Furthermore, it was not determined what the categories of adopter participants were, and this limitation constrained the statistical analysis options because direct comparisons of categories could not be examined. For all its advantages, one of the known shortfalls of the Diffusion of Innovation Theory is that it cannot take into account the resources of potential adopters or provide social support towards adopting new behaviours, which inevitably excludes some key drivers of HIV transmission and the widespread reluctance by to use condoms.

Future study suggestions

It is recommended that future studies on this topic use a mixed method approach, in order to further interrogate the reasons behind statistical findings. The rate of adoption was perforce not measured nor was a comparison made to other brands of condoms that are for sale. It would be essential for these factors to be explored in future in order to have an holistic understanding on the diffusion of Max among young women.

Summary

The study set out with the purpose of better understanding how to use the Diffusion of Innovation Theory to increase condom use and thereby decrease new HIV infections among young people. It succeeded in being able to explore and reveal the importance of peer influence on the shifting of the norms of a social system in a developing country that has the largest HIV-positive population in the world. The study also indicated that moving beyond the clinical approach towards preventative innovation by means of communicating persuasive and informative understanding within the norms of societal connection can result in behaviour change which could strategise the prevention of HIV infection in order to curb the HIV epidemic. The fiscal burden on South Africa of new HIV infection was not part of this study nor the multiple consequences of condom-less sex; these central concerns, however, should be part of any future research that addresses the use of innovative approaches and societal challenges.

7. LIST OF REFERENCES

Aaker, D.A., 2012. *Building strong brands*. Simon and Schuster.

Albarracin, D., Johnson, B.T., Fishbein, M. and Muellerleile, P.A., 2001. Theories of reasoned action and planned behavior as models of condom use: a meta-analysis. Psychological bulletin, 127(1), p.142.

Alvarez, M.J. and Garcia-Marques, L., 2011. Cognitive and contextual variables in sexual partner and relationship perception. *Archives of sexual behavior*, *40*(2), pp.407-417.

Ashmore, J. and Henwood, R., 2015. Choice or no choice? The need for better branded public sector condoms in South Africa. *Southern African journal of HIV medicine*, *16*(1).

Atkin, D.J., Hunt, D.S. and Lin, C.A., 2015. Diffusion theory in the new media environment: Toward an integrated technology adoption model. *Mass Communication and Society*, *18*(5), pp.623-650.

Babbie, E., 2010. *The practice of social research*. Belmont, CA: Cengage Learning.

Bertrand, J., 2004. Diffusion of innovations and HIV/AIDS. *Journal of Health Communication.* [e-journal] 9(1), pp.113 – 121. http://dx.doi.org/10.1080/10810730490271575

Berwick, D.M., 2003. Disseminating innovations in health care. *Jama*, *289*(15), pp.1969-1975.

Bobrova, N., Sergeev, O., Grechukhina, T. and Kapiga, S., 2005, Social-cognitive predictors of consistent condom use among young people in Moscow. *Perspectives on Sexual & Reproductive Health.* 37(4), pp.174-178.

Centers for Disease Control and Prevention., 2013. *Condoms and STDs: Fact sheet for public health personnel*. [online] Available at: <http://www.cdc.gov/condomeffectiveness/latex.htm> [Accessed 10 July 2018].

Cooper-Martin, E. and Stephens, D., 1990. AIDS prevention through consumer communication: ideas from past and current research. *Advances in Consumer Research,* 17(1), pp. 288-293.

Cooper, R. and Schindler, S., 2006. *Marketing Research*. McGraw-Hill Irwin.

Cronbach, L., 1951. Coefficient Alpha and the Internal Structure of Tests. *Psychometrika, 16(1)*, pp.297-334.

Dahl, D.W. and Hoeffler, S., 2004. Visualizing the self: Exploring the potential benefits and drawbacks for new product evaluation. *Journal of Product Innovation Management*, *21*(4), pp.259-267.

DeHart, D.D. and Birkimer, J.C., 1997. Trying to practice safer sex: Development of the sexual risks scale. *Journal of Sex Research*, *34*(1), pp.11-25.

Denning, P.J. & Dew, N., 2015. Why our theories of innovation fail us. *Communications of the ACM,* 58(12), pp. 24-26.

Durex, 2017. *Durex Global Sex Survey*. [Survey].

East, L., Jackson, D., O'Brien, L. and Peters, K., 2011. Condom negotiation: experiences of sexually active young women. *Journal of Advanced Nursing*, 67(1), pp.77-85.

Eaton, L., Flisher, A. and Aaro, L., 2003. Unsafe sexual behaviour in South African youth. *Social Science and Medicine*, 56(1), pp.149-165.

eNCA (eNews Channel Africa)., 2012. Flavours and colours to fight condom fatigue. *eNCA.com*, [online] 2 April. Available at: <http://www.enca.com/south-africa/flavours-and-colours-fight-condom-fatigue> [Accessed 30 July 2017].

eNCA, (eNews Channel Africa)., 2016. Ramaphosa introduces Max, the tasty new condom. *eNCA.com*, [online] 1 September. Available at: <https://www.enca.com/south-africa/ramaphosa-introduces-max-the-tasty-new-condom> [Accessed 30 July 2018].

Escobar-Rodríguez, T. and Romero-Alonso, M., 2014. The acceptance of information technology innovations in hospitals: differences between early and late adopters. *Behaviour & Information Technology*, *33*(11), pp.1231-1243.

Fehr, S.K., Vidourek, R.A. and King, K.A., 2015. Intra-and inter-personal barriers to condom use among college students: A review of the literature. *Sexuality & Culture*, *19*(1), pp.103-121.

Frattini, F., Bianchi, M., De Massis, A. and Sikimic, U., 2014. The role of early adopters in the diffusion of new products: differences between platform and nonplatform innovations. *Journal of Product Innovation Management*, *31*(3), pp.466-488.

Gliem, J.A. and Gliem, R.R., 2003. Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education*. The Ohio State University Columbus, OH.

Graffy, J., Goodhart, C., Sennett, K., Kamusiime, G. and Tukamushaba, H., 2012. Young people's perspectives on the adoption of preventive measures for HIV/AIDS, malaria and family planning in South-West Uganda: focus group study. *BMC Public Health*, *12*(1), pp.1022.

Hammer, J.C., Fisher, J.D., Fitzgerald, P. and Fisher, W.A., 1996. When two heads aren't better than one: aids risk behavior in college-age couples. *Journal of Applied Social Psychology*, 26(1), pp.375–397.

Highfield, T. and Leaver, T., 2015. A methodology for mapping instagram hashtags. *First Monday*, *20*(1), pp.1-11.

Kabiru, C.W., 2005. *Condom use among Kenyan high school students*. Ph. D. University of Georgia.

Karim, Q.A., Baxter, C. and Birx, D., 2017. Prevention of HIV in adolescent girls and young women: key to an AIDS-free generation. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, *75*, pp.S17-S26.

Kocken, P.L., Van Dorst, A.G. and Schaalma, H., 2005. The relevance of cultural factors in predicting condom-use intentions among immigrants from the Netherlands Antilles. Health Education Research, 21(2), pp.230-238.

Kothari, C.R., 2004.*Research methodology: Methods and techniques*. New Age International.

Ku, L., Sonenstein, F.L. and Pleck, J.H., 1994. The dynamics of young men's condom use during and across relationships. *Family planning perspectives*, pp.246-251.

Kotler, P., Roberto, N., Lee, N., 2002. *Social Marketing: Improving the Quality of Life.* SAGE.

Labay, D.G. and Kinnear, T.C. 1981, Exploring the consumer decision process in the adoption of solar energy systems, *Journal of Consumer Research,* 8(3), pp. 271-278.

LaMorte, W., 2016. *Diffusion of Innovation Theory*. [online] Boston University School of Public Health. Available at: <http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories4.html> [Accessed 4 August 2018].

Langley, D.J., Bijmolt, T.H.A., Ortt, J.R. and Pals, N. 2012, Determinants of social contagion during new product adoption, *Journal of Product Innovation Management,* 29(4), pp. 623-638.

Lehohla, P., 2015. *Poverty trends in South Africa: an examination of absolute poverty between 2006 and 2015*. [pdf] Statistics South Africa. Available at: <https://www.statssa.gov.za/publications/Report-03-10-06/Report-03-10-062015.pdf>

Mackenzie, N. and Knipe, S., 2006. Research dilemmas: Paradigms, methods and methodology. *Issues in educational research*, *16*(2), pp.193-205.

Madu, S. and Peltzer, K., 2003. Factor structure of condom attitudes among black South African university students. *Social Behavior and Personality: an international Journal*, *31*(3), pp.265-274.

Mahajan, V. & Muller, E., 1998, When is it worthwhile targeting the majority instead of the innovators in a new product launch?. *Journal of Marketing Research,* 35(4), pp. 488-495.

Maharaj, P. 2005, Patterns of condom use: Perspectives of men in KwaZulu-Natal, South Africa, *Development Southern Africa,* 22(2), pp. 187-197.

Maharaj, P., (2001) Male attitudes to family planning in the era of hiv/aids: evidence from KwaZulu-natal, South Africa. *Journal* of *Southern African Studies.* 27 (2), pp.245-257

Manikonda, L., Hu, Y. and Kambhampati, S., 2014. Analyzing user activities, demographics, social network structure and user-generated content on Instagram. [online] Available at: < https://arxiv.org/pdf/1410.8099.pdf> [Accessed 1 September 2018].

MacPhail, C. and Campbell, C., 2001. 'I think condoms are good but, aai, I hate those things': condom use among adolescents and young people in a Southern African township. *Social Science and Medicine*, *52*(11), pp.1613-1627.

Moerdyk, A.P., 2009.*The principles and practice of psychological assessment*. Van Schaik.

Mulwo, A.K., Tomaselli, K.G. and Dalrymple, L., 2009. Condom brands, perceptions of condom efficacy and HIV prevention among university students in KwaZulu-Natal, South Africa.*African Journal of AIDS Research*, *8*(3), pp.311-320.

Nakata, C. & Weidner, K. 2012, Enhancing new product adoption at the base of the pyramid: a contextualized model, *Journal of Product Innovation Management,* 29(1), pp. 21-32.

Peil, M., 1995.*Social science research methods: a handbook for Africa*. East African Educational.

Peltzer, K., 2000. Factors affecting condom use among senior secondary school pupils in South Africa.*The Central African journal of medicine*,*46*(11), pp.302-308.

Pettifor, A., Rees, H., Steffenson, A., Hlongwa-Madikizela, L. and MacPhail, C., 2004. *HIV and sexual behaviour among young South Africans: a national survey of 15-24 year olds*. [survey]. 6 April. Johannesburg, South Africa University of the Witwaterstrand, Reproductive Health research unit.

Prinstein, M.J., Boergers, J. and Spirito, A., 2001. Adolescents' and their friends' health-risk behavior: Factors that alter or add to peer influence.*Journal of pediatric psychology*, *26*(5), pp.287-298.

Ramiro, L., Reis, M., de Matos, M.G. and Diniz, J.A., 2014. Trends in adolescent sexual behavior, impact of information, and attitudes about HIV/AIDS in Portugal.*Psychology, health and medicine*, *19*(5), pp.614-624.

Robertson, A. A., Stein, J. A., and Baird-Thomas, C., 2006. Gender Differences in the Prediction of Condom use among Incarcerated Juvenile Offenders: Testing the Information–Motivation–Behavior Skills (IMB) Model. *Journal of Adolescent Health*, 38, pp.18–25.

Robson, C., 1993. *Real world research: A resource for social scientists and practitioners-researchers*. Massachusetts: Blackwell Pushers.

Rogers, E. 2003. *Diffusion of Innovation*. 5th ed. New York: Free Press.

Sacco, W., Levine, B., Reed, D. and Thompson, K., 1991. Attitudes about condom use as an AIDS-relevant behavior: their factor structure and relation to condom use. *Journal of Consulting and Clinical Psychology*, *3*(2), pp.265.

Schurink, W., Fouché, C.B. and De Vos, A.S., 2011. Qualitative data analysis and interpretation. *Research at grass roots: For the social sciences and human service professions*, *4*, pp.397-424.

Scott, K.D., Gilliam, A. and Braxton, K., 2005. Culturally competent HIV prevention strategies for women of color in the United States. *Health Care for Women International*, *26*(1), pp.17-45.

Sekaran, U. 1992. Research Methods for Business: a skills building approach (2nd Edition). New York: John Wiley & Sons.

Sekaran, U. and Bougie, R., 2016.*Research methods for business: A skill building approach*. John Wiley & Sons.

Sheeran, P. and Taylor, S., 1999. Predicting intentions to use condoms: a meta-analysis and comparison of the theories of reasoned action and planned behavior. *Journal of Applied Social Psychology*, 29(8), pp.1624-1675.

Shisana, O., Rehle, T., Simbayi, L.C., Zuma, K., Jooste, S., Zungu, N., Labadarios, D. and Onoya, D., 2014. *South African national HIV prevalence, incidence and behaviour survey*, [survey] 2012. Cape Town: HSRC Press.

Singhal, A. and Rogers, E.M., 2003.*Combating AIDS: Communication strategies in action*. Sage.

Statistics South Africa, 2017. *Mid-year populations estimates 2017*. [pdf] Pretoria: Statistics South Africa. Available at: <http://www.statssa.gov.za/publications/P0302/P03022017.pdf> [Accessed 18 June 2018].

Swasy, A., 2016. A little birdie told me: factors that influence the diffusion of twitter in newsrooms, *Journal of Broadcasting & Electronic Media,* 60(4), pp. 643-656.

Talke, K. and Colarelli O'Connor, G., 2011. Conveying effective message content when launching new industrial products. *Journal of Product Innovation Management*, *28*(6), pp.943-956.

Tallie, T.J., 2013. Queering natal: settler logics and the disruptive challenge of zulu polygamy. *A Journal of Lesbian and Gay Studies*, *19*(2), pp.167-189.

UNAIDS 2017a. *UNAIDS Fact Sheet – July 2018*. [pdf] UNAIDS. Available at: <http://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf> [Accessed 18 June 2018].

UNAIDS, 2017b. *UNAIDS Data 2017.* [pdf] Joint United Nations Programme on HIV/AIDS (UNAIDS). Available at: <http://www.unaids.org/sites/default/files/media_asset/20170720_Data_book_2017_en.pdf> [Accessed 18 June 2018].

UNFPA (United Nations Population Fund), 2016. Max condom launched in South Africa with UNFPA support. [online] Available at: <http://southafrica.unfpa.org/en/news/max-condom-launched-south-africa-unfpa-support> [Accessed 30 July 2017].

Valente, T. W., 1995. *Network models of the diffusion of innovations*. Cresskill, NJ: Hampton Press.

Venkatraman, M.P., 1989. Opinion leaders, adopters, and communicative adopters: A role analysis. *Psychology & Marketing*, *6*(1), pp.51-68.

World Bank, 2018a. South Africa Overview. [online] Available at: <http://www.worldbank.org/en/country/southafrica/overview> [Accessed 18 June 2018].

World Bank, 2018b. South Africa. [online] Available at: <https://data.worldbank.org/country/south-africa> [Accessed 18 June 2018].

World Health Organization. 2016. *Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region*, 2000-2016. Geneva, World Health Organization.

Xiao, Z., 2012. Correlates of condom use among Chinese college students in Hunan province. *AIDS Education and Prevention*, *24*(5), pp.469-482.

APPENDIX 1 - QUESTIONNAIRE

ATTITUDE & BEHAVIOUR TOWARDS MAX CONDOMS USE QUESTIONNAIRE

RESEARCH OUTLINE AND CONTEXT:

The Government launched Max Condoms with the intention to increase the appeal of condoms among young people and thereby increase condom use. This questionnaire is designed to explore if this has been successful. Consequently the questions in the questionnaire relate specifically to Max Condoms as the researcher would like to establish if the branding and product design of Max Condoms has made them more acceptable to you and your peers and if as peers you influence each other in any way to use Max Condoms.

Please respond to all the questions as indicated and as honestly as possible. If you are unsure of the meaning of the question, please ask the research assistant to assist in clarifying. There is no time limit so please take your time to complete all the questions except where skip questions are indicated.

Please mark the appropriate response to the statements below

Have you had sex in the last 6 months	YES	NO
Have you used a Max condom in the last 6 months	YES	NO

SECTION 1: AWARENESS

Please mark the response that best describes your feeling towards the statements below.

***If you answer "never" to question 3, you may skip question 15.**

How often do you use a Max condom when you have sex	always	regularly	hardly	never
How frequently do you see marketing material for Max condoms	frequently	occasionally	rarely	never
Max condoms had an effective launch to the public	strongly agree	agree	disagree	strongly disagree

To what extend are you aware that Max condoms are available in banana variant (banana flavour, banana scent and yellow colour)	to a great extend	somewhat	very little	not at all
To what extend are you aware that Max condoms are available in strawberry flavour variant (strawberry flavour, strawberry scent and red colour)	to a great extend	somewhat	very little	not at all
To what extend are you aware that Max condoms are available in grape flavour variant (grape flavour, grape scent and purple colour)	to a great extend	somewhat	very little	not at all
To what extend are you aware that Max condoms are available in regular flavour variant (no flavour, no scent and light beige colour)	to a great extend	somewhat	very little	not at all

SECTION 2: PEER/FRIEND USE AND SOCIAL NORMS

Please mark the response that best describes your feeling towards the statements below

***If you answer "never" to question 10, you may skip question 11-19.**

.I discuss condom use with my peers	frequently	occasionally	rarely	never	
.My peers use Max condoms	frequently	occasionally	rarely	never	don't know
.My peers regularly speak about Max condoms	frequently	occasionally	rarely	never	don't know
.My peers like that Max condoms are now coloured and flavoured	strongly agree	agree	disagree	strongly disagree	don't know
.My peers encourage me to use Max condoms	always	regularly	hardly	never	

.I use Max condoms because my peers use them	strongly agree	agree	disagree	strongly disagree
.If a peer/friend knew that I might have sex on a date, s/he would make sure I was carrying a Max condom	frequently	occasionally	rarely	never
.If I thought that one of my peers had sex on a date, I would ask them if they used a Max condom	frequently	occasionally	rarely	never
.If I had sex and I told my peers that I did not use a Max condom, they would judge me	definitely wont	probably wont	probably will	definitely will
.If a peer/friend knew that I had sex on a date, s/he wouldn't care if I have used a Max condom or not	definitely wont	probably wont	probably will	definitely will
.To what extent are your peers the reason why you know about Max condoms	to a great extend	somewhat	very little	not at all

SECTION 3: CHARACTERISTICS OF INNOVATION

a) Relative Advantage

***If you answer "never" to question 26, you may skip question 27-29.**

.Max condoms are easy to use	strongly agree	agree	disagree	strongly disagree
.Max condoms do not have a negative impact when using	strongly agree	agree	disagree	strongly disagree
.Using Max condoms reduces my sexual pleasure	strongly agree	agree	disagree	strongly disagree
.Max condoms make safer-sex more fun	strongly agree	agree	disagree	strongly disagree

.Using Max condoms makes sex feel unnatural	strongly agree	agree	disagree	strongly disagree
.Prior using Max condoms I used Choice condoms	frequently	occasionally	rarely	never
.Using Max condoms makes my sexual experience safer than Choice condoms	strongly agree	agree	disagree	strongly disagree
.Max condoms are considered more prestigious than Choice condoms	strongly agree	agree	disagree	strongly disagree
.Max condoms are more likely to improve my sexual experience than Choice condoms	strongly agree	agree	disagree	strongly disagree

b) Compatibility

.I would rather use Max condoms than any other condom brand	always	regularly	hardly	never
.I worry about the enjoyment of sex when using Max condoms	always	regularly	hardly	never
.I worry that Max condoms will not protect me from HIV, STIs or unwanted pregnancy	always	regularly	hardly	never
.Max condoms smell nice	strongly agree	agree	disagree	strongly disagree
.Max condoms have attractive packaging	strongly agree	agree	disagree	strongly disagree

c) Trialability

***If you answered "never" to question 26, you may skip question 35.**

.Trying Max condoms convinced me that they were better than using Choice	strongly agree	agree	disagree	strongly disagree
.I tried all the different variants of Max condoms before deciding on my favourite	strongly agree	agree	disagree	strongly disagree

.It did not take me long to try Max condoms once they were launched	strongly agree	agree	disagree	strongly disagree
.It is better to experiment with Max condoms before adopting them	strongly agree	agree	disagree	strongly disagree
.I use Max condoms because they are new	strongly agree	agree	disagree	strongly disagree
.I only use Max condoms because others use them	strongly agree	agree	disagree	strongly disagree
.I would only use Max condoms if I was certain of their benefits	strongly agree	agree	disagree	strongly disagree
.I only use Max condoms if there are no other condoms available	strongly agree	agree	disagree	strongly disagree

d) Observability

.I started using Max Condoms based on the benefits I saw from others	strongly agree	agree	disagree	strongly disagree
.I observed others carrying Max condoms before using them	strongly agree	agree	disagree	strongly disagree
.The benefits of using Max condoms are obvious	strongly agree	agree	disagree	strongly disagree
.Being seen with Max condoms increases my likelihood of having sex	frequently	occasionally	rarely	never
.Taking out a Max condom during sex is offensive	strongly agree	agree	disagree	strongly disagree
.I feel ashamed to carry Max condoms	strongly agree	agree	disagree	strongly disagree

e) Complexity

.Having the option of different Max condoms variant complicates my sexual activity	strongly agree	agree	disagree	strongly disagree
.Where and how to store Max condoms is difficult to understand	strongly agree	agree	disagree	strongly disagree

.Max condoms are easy to obtain	strongly agree	agree	disagree	strongly disagree
.The different variants of Max condoms are confusing	strongly agree	agree	disagree	strongly disagree
.It is easy to use Max condoms even if one has not used them before	strongly agree	agree	disagree	strongly disagree
.In the heat of the moment it is easy to ignore Max condoms	strongly agree	agree	disagree	strongly disagree

SECTION 4: BIOGRAPHICAL DATA SHEET

Please answer the following questions by marking the appropriate boxes.

AGE GROUP

□ 18 years
□ 19 years
□ 20 years
□ 21 years
□ 22 years
□ 23 years
□ 24 years
□ 25 years and older

RELATIONSHIP STATUS

□ Single
□ In a relationship
□ Living with partner
□ Married
□ Divorced
□ Widowed
□ Multiple partners

FORMAL EDUCATION

□ Less than Grade 10
□ More than Grade 10
□ University

HIGHEST QUALIFICATION ATTAINED

□ Matric Certificate
(*__OR__ equivalent)
□ Less than Matric Certificate
□ Diploma

□ Degree

□ Postgraduate Degree

GENDER

□ Male

□ Female

□ Gender Non-binary / Gender Neutral

□ Trans

RACE GROUP

□ African

□ White

□ Coloured

□ Indian

□ Other

*please specify: _____

HOME LANGUAGE

□ English

□ isiZulu

□ isiXhosa

□ Afrikaans

□ Other

*please specify: _____

NUMBER OF CHILDREN

□ None

□ One

□ Two

□ Three or more

EMPLOYMENT STATUS

□ Student

□ Employed

□ Unemployed

APPENDIX 2 - INFORMED CONSENT FORM

RHODES UNIVERSITY

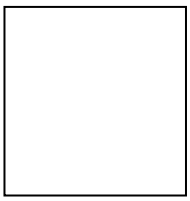
INFORMED CONSENT FORM

Department of Commerce

roject Title:	**The Diffusion Of Max Condoms Among Young Women In KwaZulu Natal**
Principal Investigator(s):	**Charlene Donald** **Prof. Deon Nel**

Participation Information
I understand the purpose of the research study and my involvement in it I understand the risks of participating in this research study I understand the benefits of participating in this research study I understand that I may withdraw from the research study at any stage without any penalty I understand that participation in this study is done on a voluntary basis I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential I understand that I will receive no payment for participating in this study

Information Explanation
The above information was explained to me by:
The above information was explained to me in: □English □Afrikaans □isiXhosa □isiZulu □Other: and I am in command of this language **OR**, it was comprehensibly translated to me by:

Voluntary Consent		
I,_____, hereby voluntarily consent to participate in the above-mentioned research.		
Signature:	**OR**, right hand thumb print  Witness signature:	Date: / /

Investigator Declaration	
I, _____, declare that I have explained all the participant information to the participant and have truthfully answered all questions ask me by the participant.	
Signature:	Date: / /

Translator Declaration	
I, _____, declare that I translated a factually correct version of: all the contents of this document all questions posed by the participant all answers given by the investigator In addition, I declare that all information acquired by me regarding this research will be kept confidential.	
Signature	Date: / /

APPENDIX 3 – PARTICIPATION LETTER

RHODES UNIVERSITY

Grahamstown ● 6140 ● South Africa

DEPARTMENT OF COMMERCE

Tel: [+27] 046 603 8617

Fax: [+27] 046 603 8613

E-mail: d.nel@ru.ac.za

10 January 2018

Rhodes Business School

P.O Box 94

Grahamstown

6140

South Africa

AIDS Foundation of South Africa

135 Musgrave Road

Musgrave

4001

Dear Ms Debbie Mathew

Re: Invitation to conduct research through your institution

Charlene Donald (under the supervision of Prof Deon Nel) is a Business School a MBA student at Rhodes University carrying out research on The Diffusion of Max condoms among young women in KwaZulu Natal. The aim of this research is to measure the diffusion of Max condoms in KwaZulu Natal among young women aged 18-24 years. The participation and cooperation of your institution is important for the

collection of accurate data.

The research will be undertaken through the assistance of fieldworkers to who will be asked to explain the methodology of the study to potential participants at AIDS Foundation of South Africa outreach events where attendees will be invited to participate by completing self-administered questionnaires. The data to be collected from this research will be quantitative. The identity of the employees who voluntarily assist with data collection will be treated with complete confidentiality.

Attached for your information is a copy of the participant's Informed Consent Form. If you have questions or wish to verify the research, please feel free to contact us.

Thank you for your time and I hope that you will find our request favourable.

Yours sincerely,

Charlene Donald	Prof Deon Nel
Research Student	Supervisor

APPENDIX 4 – ETHICAL CLEARANCE LETTER

Rhodes Business School
Leadership for Sustainability

Rhodes Business School
PO Box 94
Grahamstown
6140

2nd May 2018

Dear Prof Nel and Ms Donald

Research Ethics Application: Reference: 2018/03/72

This serves to confirm that on **2nd May 2018,** ethical clearance was recommended by the Rhodes Business School Ethics sub-committee for the research project with the following provisional title: **An evaluation of the impact of innovation and social influence on condom use among young people in KZN.**

The application was recommended for approval with the stipulation that gatekeeper permission should be obtained before commencing with data collection.

Please ensure that the Rhodes Business School Ethics sub-committee is notified of any substantive changes that are made, for whatever reason, during the research process.

Please note that this application expires on 31 December 2018. A progress report is required in order to renew the approval for the following year.

Yours faithfully,

Prof Noel Pearse
Chair: Rhodes Business School Ethics sub-committee