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Attitude and Subjective Norm as Predictors of Behavioral Intent Toward Condom Use Among Young Adults in Nigeria

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ATTITUDE AND SUBJECTIVE NORM AS PREDICTORS OF BEHAVIORAL INTENT TOWARD CONDOM USE AMONG YOUNG ADULTS IN NIGERIA

DISSERTATION

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by

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Abstract

Background: The high prevalence of HIV/AIDS in Nigeria is directly attributed to participation in risky sexual behaviors and inconsistent use of condoms. It is imperative that effective interventions to reduce the spread of this disease be based on the value system of Nigerian young adults and the factors that lead to their decisions in this regard.

Purpose: This study examined the predictive relationships of attitudes and subjective norms to the behavioral intention of Nigerian young adults to use condoms during sexual intercourse for prevention of HIV infection.

Theoretical Framework: The theory of reasoned action provided the theoretical framework for the study.

Methods: This study progressed through three phases. The first two phases culminated in the development of an instrument (the TRA) used to collect data from a sample of the target population. These data were used to measure the theoretical constructs and carry out hypotheses testing. Statistical methods included procedures to enhance assure quality of the data, and describe the samples, the outcomes, and the relationships of the variables.

Results: The results showed that attitudes toward condom use and subjective norms, the perception of the opinions of significant groups and the motivation to comply with that perceived opinion, are positively and significantly correlated to the behavioral intention to use condoms for sexual intercourse among the sample of young Nigerian adults.

Conclusions: The TRA can be used effectively used to predict condom use among this ethnic population.

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DEDICATION

I dedicate this study to the following:

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INTRODUCTION TO THE STUDY

The human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) continue to have devastating effects on the health and longevity of individuals across the globe. In the 1980s, when HIV was first discovered, it was primarily seen among the homosexuals. Later the same illness began to spread among heterosexual drug users and young people. Young people, in particular, are at risk for contracting HIV. They are an essential focus for prevention messages in sexual health programs.

The statistics of the impact of HIV world-wide are overwhelming. Estimates from the United Nations Agency for AIDS (UNAIDS, 2006) indicated that over 40 million people were living with HIV/AIDS in 2001. About 25 million people had died of AIDS since the disease was discovered in early 1980s. More than 15.6 million children under age 15 years had lost their mother, their father, or both parents as a direct result of AIDS.

Condoms are effective in preventing the spread of HIV/AIDS. When used correctly and consistently, condoms can provide as much as a 94% reduction in risk of HIV transmission (Holmes, Levine, & Weaver, 2004). Consistent use of condoms requires commitment on the part of the user and a reliable distribution network that provides condoms even to the poorest groups.

HIV/AIDS in Nigeria

The Nigerian situation is a subset of the urgent problem of HIV infection world-wide. The first case of HIV in Nigeria involving a sexually-active youth of 13 years of age was identified in 1984 (UNAIDS, 2006). Few cases were reported until 1989 when

23 AIDS patients were identified. Within a period of 10 years sentinel survey data (1991-2001) indicated that HIV prevalence rates increased from 1.8% to 5.8%. By the end of 1993, close to 1,000 AIDS cases had been identified. Since then reported HIV cases have more than doubled each year and the number of people infected with HIV has escalated exponentially. More than 3,000 to 6,000 young people die of AIDS in Nigeria every year (World Health Organization [WHO], 2006). The rate of death attributed to AIDS is at least 30% greater than that attributed to other causes. This problem has been recognized since 1992 by the Federal Ministry of Health & Human Services Nigeria, that Nigeria may become one of the most severely affected countries in sub-Sahara Africa unless drastic measures are taken

The main mode of HIV transmission in Nigeria is heterosexual sex which accounts for more than 71% of the reported HIV cases. Women are five times more likely to be infected than men (Olaseha, Ajuwon, & Onyejekwe, 2004). This is thought to be due to the trend of younger women having sexual partners who are older, more sexually experienced, and who have had sex with multiple partners. These practices increase the risk for exposure to HIV.

Because HIV/AIDS affects individuals at the most economically productive age of their life and because the cost of medication and caring for the sick can be prolonged, the associated financial burden is overwhelming (UNAIDS, 2006). HIV/AIDS leads to financial, resource and income impoverishment. In addition, the psychological stress that is a direct consequence of the impact of HIV/AIDS on individuals and families can compromise school and work performance, family relationships, and the capacity to take

care of children. These stressors may also culminate in high risk behaviors such as alcohol and drug abuse and unsafe sexual behavior.

Economic disadvantage has been linked to vulnerability to HIV infection in that extreme poverty may compel individuals to engage in risky sexual behavior for economic survival. Poverty and economic dependence push women and girls into high risk behavior such as commercial sex work in exchange for money or resources. Young women enter into sexual relationships with older men in order to pay school fees or provide for other needs (Arowoju, Ilesanmi, Roberts, & Okunola, 2002; FMH & HS, 1992).

HIV/AIDS among Young Adults in Nigeria

Several studies have estimated that by the year 2025 the number of HIV cases among young adults in Nigeria will exceed 57 million (UNAIDS, 2006). The explanations proposed for this HIV situation include power imbalances and disadvantages such as extreme poverty and lack of health education. Power imbalances exist when young women engage in sexual relationships with older men. This, coupled with their underdeveloped negotiation skill with sexual partners, makes it difficult for young women to insist their partners use condoms. This, in turn, increases the likelihood that they will engage in unprotected sexual intercourse.

Education Related to Sexual Health

In Nigerian culture sex is a very private subject and discussion regarding sexual behavior with young people is seen as encouraging them to engage in extramarital sexual intercourse. Until recently there was little or no sexual health education provided (Olaseha et al., 2004). Lack of accurate information about sexual health has lead to

propagation of myths and misconceptions about HIV. This has contributed to increasing transmission rates as well as stigma and discrimination toward people infected with HIV (UNAIDS, 2006).

Hopes for reducing the spread of the infection continue to rest on adoption of protective behaviors. Some youth-oriented reproductive health programs focus on abstinence as a means of stemming the tide of infection (Brieger, Delano, & Lane, 2001). However, in Nigeria, where sexual relationships are mediated by power relations, poverty, gender inequality and socialization processes, this approach may not be practical (Olaseha et al., 2004).

Condom Use among Young Adults in Nigeria

Despite a high level of awareness and knowledge that consistent use of condoms largely protects against HIV/AIDS, the level of condom use is relatively low and inconsistent. Data on condom use showed that males use condoms for only 9.8% of their sexual encounters while females report using condoms for only 6.5% (Hearst & Chen, 2004; Olaseha et al., 2004; Onoh, Mbah, Chukwuka, & Ikeme, 2004).

Statement of the Problem

The prevalence of HIV/AIDS is high in Nigeria and is directly attributed to participation in risky sexual behaviors and inconsistent use of condoms. Efforts toward education regarding the use of condoms to prevent the spread of the disease have been ineffective (Hearst & Chen, 2004; Olaseha et al., 2004; Onohet al., 2004). Clearly, it is imperative that effective interventions must be based on the value system of the individual and the factors that lead to his or her decisions in this regard. The limited existing research on HIV prevention in Nigeria is largely exploratory in nature with

information presented as percentages or opinions. Little empirical research has been conducted to understand the psychosocial factors associated with the behavior of Nigerian young adults regarding condom use.

Purpose of the Study

The purpose of this study was to empirically examine the predictive relationships of the theoretical constructs of attitude and subjective norm to the behavioral intention of Nigerian young adults to use condoms during sexual intercourse.

Research Questions and Hypotheses

This study progressed through three phases. Each phase posed specific research questions. The answers obtained at each phase provided the foundation for the questions at the next consecutive phase.

Phase 1

Phase 1 used the qualitative research approach to answer two research questions: What are the terms young Nigerian adults use to describe the positive and negative attitudes they have toward using condoms for sexual intercourse? Who are the referent groups young Nigerian adults consider to be influential in their decision to use condoms for sexual intercourse?

Phase 2

Information obtained in phase 1 was incorporated into a research instrument. That instrument was then subjected to statistical tests to assure it was psychometrically appropriate for the population in which was to be used. Phase 2 asked one research question: What are the psychometric properties of the newly developed research

instrument when used to measure attitude, subjective norm, and behavioral intention among young Nigerian adults regarding using condoms for sexual intercourse?

Phase 3

In phase 3, the variables prescribed by the theory of reasoned action (TRA), attitude, subjective norm, and behavioral intent, were measured by the instrument that was developed and refined in phases 1 and 2. The data collected was used to examine the independent variables of attitude and subjective norm for their predictive relationship with the outcome variable of behavioral intent regarding the use of condoms for sexual intercourse among young adults in Nigerian.

Research Question

Are any of the predictor variables specified by the TRA, attitude and subjective norm, significantly related, uniquely or as a linear composite, to the outcome variable of behavioral intent to use condoms for sexual intercourse among young Nigerian adults?

Hypothesis

There will be no significant contribution, uniquely or as a linear composite, between the predictor variables of attitude or subjective norm and the behavioral intent to use a condom during sexual intercourse among young adults in Nigeria.

Theoretical Framework

The theory of reasoned action (TRA), developed by Ajzen and Fishbein (1980), provided the theoretical basis for this study. The TRA is a model that originated in the late 1960s from the field of social psychology, and research that led to its creation focused on the relationship between attitudes and behaviors. The goal of the TRA is to predict behavior and understand what motivates individuals to change their behavior. The

TRA addresses behavioral intention rather than attitudes as the main predictor of behavior. It is believed that intention is the predictor of a behavior and the theory can be used to predict, explain, and influence human behavior in applied settings.

A number of investigations have used the TRA in an attempt to predict and understand intentions to engage in various health behaviors (Armitage, 2005; Blanchard, Courneya, Wendy, & Black, 2003; Bryan, Ruiz, & O'Neill, 2003; Dwyer, Williams, & Mummery, 2005; Hu & Lanese, 1998). These studies have demonstrated that when decisions are being made, the beliefs of the individual influence those decisions, thus making the Ajzen model applicable to predict, understand, and eventually modify behaviors (Ajzen, 1991).

The independent variables of this model reflect the links between beliefs, attitudes, norms, intentions and behaviors of individuals. These variables include behavioral beliefs which involve the beliefs about the likely consequences of the behavior and evaluation of the outcomes of engaging in a specific behavior. According to Ajzen (1991), beliefs are formed about a behavior by associating it with certain objects, characteristics, or events, thus linking that belief to a particular outcome. This could be a positive or negative consequence. This forms an attitude towards that behavior.

Normative beliefs involve the beliefs about the opinion of referent individuals or groups who may approve or disapprove of a given behavior and the motivation to comply with those opinions of others. These beliefs are the antecedents to individual attitudes and subjective norms which are then antecedents to behavioral intent which, in turn, is the antecedent to behavior. Each of these outcomes can be applied to the use of condoms

during sexual intercourse. The schematic application of the TRA to this study is depicted in Figure 1.

Behavioral Beliefs and Attitudes toward Behavior

Behavioral belief refers to an individual's belief about the consequences of performing a particular behavior. The beliefs are linked to the individual's attitudes toward the behavior. The attitudes could be the individual's positive or negative feelings about performing a behavior. A person’s behavioral belief is determined through an assessment of that person's beliefs regarding the consequences arising from the behavior including the individual’s evaluation of the desirability of these consequences.

If the person has positive beliefs about the outcome of a behavior, then the person will have a positive attitude about the behavior. If the person has a negative salient belief about the outcome of a behavior the person will have a negative attitude toward the behavior (Ajzen & Fishbein, 1980). The beliefs are rated for the probability that engaging in the behavior will produce the believed outcome. Thus, attitude is the sum of the individual consequences multiplied by the desirability of the expected consequences. The mathematical equation representative of attitude is with "A" as attitude toward the behavior, "B" as the strength of each belief, and "E" the evaluation of the outcome strength (AB = sum of E; Ajzen, 1991).

Normative Beliefs and Subjective Norms

Normative beliefs are beliefs about others' opinions about performing a behavior and the motivation to comply with these others' opinions. They are individuals' perceptions that other groups of people or individuals approve or disapprove of their performing the behavior. These two factors are multiplied to give the subjective norm. It is important to note that subjective norms are formed only in relation to the opinions of persons considered to be significant or important, the contribution of the opinion of any given referent. Hence, subjective norm can be expressed as the sum of the individual's perception multiplied by the motivation to comply with the opinion of others. The mathematical equation of subjective norm is "SN" as subjective norm "N" the strength of each normative belief, and "M" the motivation to comply with the referent (Ajzen, 1991).

Behavioral Intent

Behavioral intent is the intention to perform a particular behavior. In the model, intention is the predictor of behavior. It is considered to be the immediate antecedent of behavior. Ajzen (1991) explained that intentions are factors that influence a person's motivation to engage in a specific behavior and that intention is a cognitive representation of "how hard people are willing to try and how much of an effort they are planning to exert in order to perform the behavior" (Ajzen, 1991, p. 126). An individual's intention is determined by that person's attitudes toward the specific behavior and subjective social norms. The overall assumption underlying this concept is that the harder a person is willing to try to perform a specific behavior, the more likely that the specific behavior will indeed be performed. The determinants of behavioral intention are attitude and subjective norm.

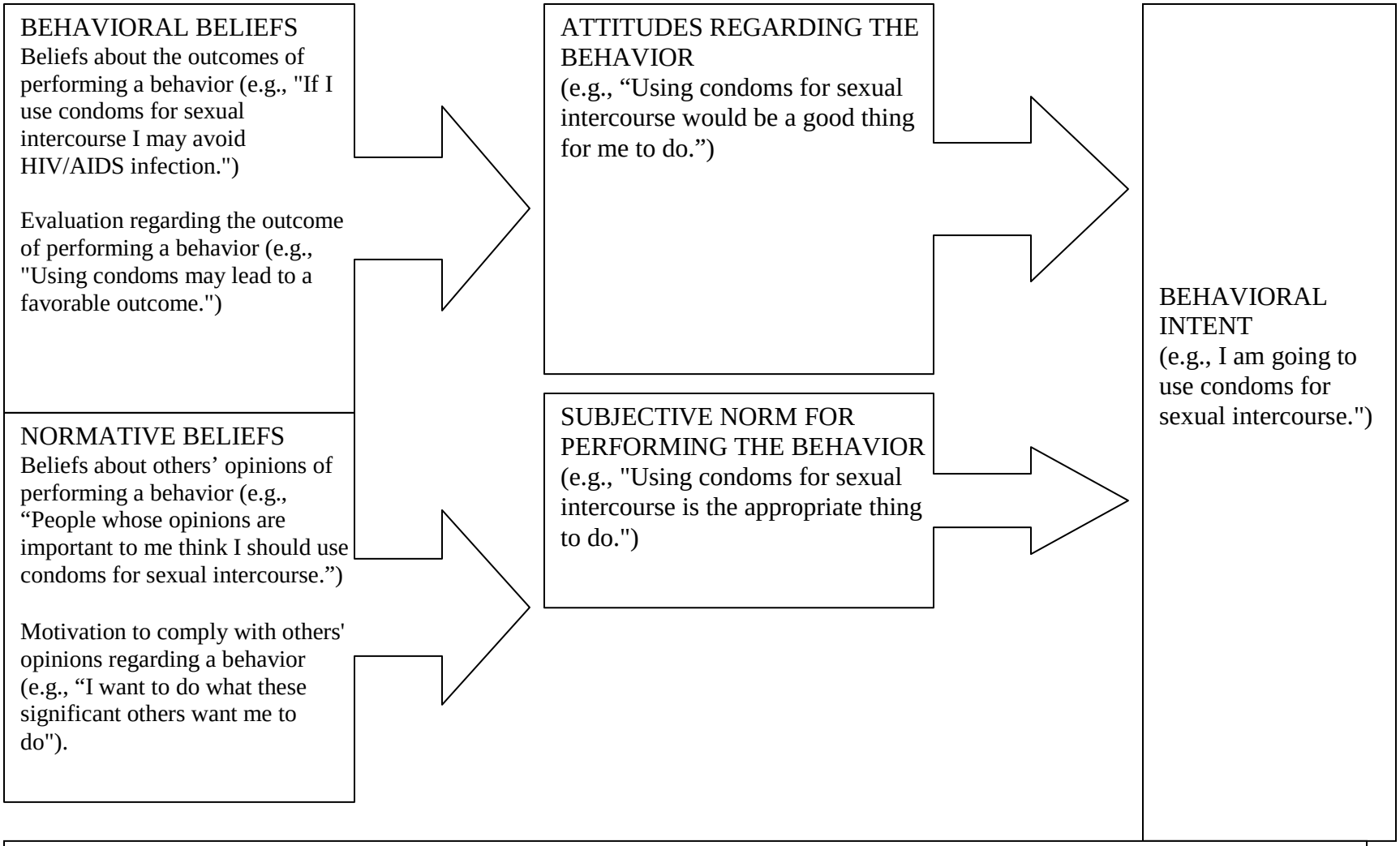

Figure 1. Pictorial presentation of the Theory of Reasoned Action (Ajzen, 1991) adapted by Dike for application to young adults in Nigerian regarding the intention to use condoms during sexual intercourse for prevention of HIV.

Relationship of the Theoretical Framework to the Study

The TRA is applicable to a study of the intention of young adults to use condoms during sexual intercourse. If use of condoms has been demonstrated to be one of the effective methods of HIV prevention, then it stands to reason that young adults would be open to using condoms during sexual intercourse for the prevention of HIV.

Nigerians are well aware and understand that using condoms can help to prevent the spread of HIV/AIDS. Despite this knowledge, they continue to engage in sexual activity without using condoms. Simply continuing to tell people what they already know will do little to change their behavior. In order for HIV/AIDS prevention interventions to be effective, they must be founded on and congruent with individuals' beliefs and perceptions that underlie their decisions to perform or not perform a behavior, that is, condom use. The TRA was used in this study because it was developed specifically to understand the predictive relationship between an individual's attitude toward and the perception of social pressures to engage in any behavior that is under volitional control.

According to the TRA, an individual's behavior is a function of the intention to perform a given act. Therefore, theoretically, the behavioral intent to use a condom is the antecedent to actually carrying out this behavior. Behavioral intent is predicated on two factors: the individual's attitude toward the use of condoms and the individual's perception of referent support for the use of condoms combined with the motivation to comply with that perception.

Thus, if an individual who has positive beliefs regarding the outcome of the use of condoms (that the use of condoms will reduce the risk of HIV), perceives that significant

others support this behavior, and there is sufficient motivation for that individual to comply with this perception, the behavioral intent toward the use condoms will be strengthened and ultimately, the behavior of using condoms will ensue. The opposite possibility exists as well in that if an individual has a negative belief regarding the outcome of the use of condoms and also perceives that significant others are not supportive of the behavior or if the individual is poorly motivated to comply with the perception of others, the individual will not have a strong behavioral intent and will not engage in the behavior (Albarracin, Johnson, Fishbein, & Mullerleile, 2001).

Theoretical and Operational Definition of Terms

The following theoretical and operational definitions were used in the study. The theoretical definitions are derived from the conceptual framework.

Attitude

Theoretical Definition

Attitude is defined as the individual's positive or negative evaluation towards performing a behavior (Ajzen & Fishbein, 1980).

Operational Definition

Attitude was operationally defined as responses to relevant items on the survey instrument that asked the respondents to describe their attitude towards condom use, using a scale consisting of semantic differentials. This scale was constructed based on the language that was identified in phase 1.

Subjective Norm

Theoretical Definition

Subjective norm is defined as individual's beliefs that specific people who are important to them will view a behavior as positive or negative act combined with the motivation to comply or not comply with that perception (Ajzen & Fishbein, 1980).

Operational Definition

Subjective norm was operationally defined as responses to relevant items on the survey instrument that asked the respondents to rate the influence of specific people who are significant to them. A list of referent groups perceived as being influential in the decision to use condoms was identified during phase 1 of this study. These referent groups provided the basis for the measurement of normative beliefs. Normative beliefs were measured by the perceived beliefs of the referents multiplied by the individuals' motivation to comply with these perceived beliefs (Ajzen & Fishbein, 1975, 1980).

Behavioral Intent

Theoretical Definition

Behavioral intent is defined as how hard an individual is willing to try to perform a behavior (Ajzen, 1991).

Operational Definition

Behavioral intent was operationally defined as the responses to one item that directly asked how likely it is that the respondent would use condoms for sexual intercourse.

Assumptions

Theoretical Assumptions

The TRA is based on the assumptions that (a) human beings are rational beings who systematically process and utilize information available to them; (b) people consider the implication of their actions before they decide to engage in a given behavior; and (c) that the best predictor of behavior is intention (Ajzen & Fishbein, 1975, 1980). These assumptions guide the understanding and application of this theory and, in doing so, present a behavior as something that is reasoned rather than an automatic response.

Research Assumptions

It was assumed that the participants would answer the survey questions honestly.

Significance

Because HIV/AIDS has posed enormous challenges to educators, those in various government sectors, and health care planners. The findings of this study are significant to those in the areas of education, nursing practice, research, and public policy.

Education

The results of this study will inform those charged with the responsibility of providing health and sex education to young adults in Nigeria. Many nurses, teachers, and parents engage in selective teaching of HIV/AIDS topics, leaving out sensitive and sexually explicit materials and presenting the content in an overly-scientific manner. This study may influence these groups to be more open toward communicating about HIV/AIDS and to discuss concerns of economic and social pressures on sexual behavior.

Public Education

The responsibility of promoting behavior change through education falls not only on healthcare providers but also on teachers who have direct access to and therefore, opportunity to influence the attitude and social perceptions of school age children. This study highlights the need for more emphasis to be put on these factors.

Teachers must be trained to teach health education directly and openly. Therefore, this study may influence the educational strategic planners in Nigeria to give teachers the training and support that they need to become an effective vehicle for sexual behavior change among the youth.

Sex Education in the Home

This study may support the notion that parents are an overriding influence in shaping the attitude and decisions their children make regarding sexual behavior and health protection. Mindful of the long tradition of taboo regarding sexual discussions in the home, parents must be educated regarding their responsibility to have these discussions with their children and be trained in their approach so that both parents and child feel comfortable openly discussing sexuality and the potential consequences of reckless sexual behavior.

Nursing Practice

As in the United States (U.S.), nurses in Nigeria provide health education directed toward health maintenance and disease prevention. While education regarding HIV/AIDS includes information about modes of transmission and strategies for prevention, the results of this study lend support for the content of the education to include the influence of attitude and social pressure on the decisions toward condom use.

This study may be significant to nursing practice because it will help to improve nurses' understanding of the factors that contribute to the increasing rate of HIV among young adults in Nigeria. This will help the nurses to understand their role in assisting young people to adopt safe sex behavior thus significantly decrease the rate of mortality among the young. This study may also assist nurses in designing nursing interventions and programs that are effective in increasing positive attitudes toward condom use and safe sex behavior among young adults in Nigeria.

Research

Previous studies have focused on the level of knowledge regarding HIV/AIDS and the relationship that knowledge has on the use of sexually protective behaviors. This study moves beyond the narrow focus of level of knowledge and delves into those psychosocial factors of attitude and social perceptions that are theoretically antecedents to behavior. Understanding that the determinants of all behaviors are multidimensional may open the door for more research in this area.

Public Policy

The reduction of the spread of HIV/AIDS is among the highest priorities for all nations including Nigeria. The findings of this study may influence the Nigerian Ministry of Health to review and evaluate national policies and programs on HIV/AIDS with the view of reducing the vulnerability of young people to HIV/AIDS. The curriculum of educational programs must be updated to include information regarding attitude and social pressures and how individuals may be empowered to exert protective control over their own sexual behavior.

Scope and Limitations

This study was limited by both internal and external threats to validity which impact the ability to generalize the findings from the sample to the population from which the sample was drawn or to any other population. Concerns include the exclusive use of a convenience sample located in one geographic area and the use of self-report regarding a subject that is clearly of a personal and sensitive nature.

Threats to External Validity

The study used a convenience sample recruited from young adults who only resided in the state of Abia, and Abuja Federal Capital Territory which may or may not be representative of all the young adults in Nigeria.

Threat to Internal Validity

The data was based on participants' self-report which may provide inaccurate information. Participants may have been reluctant to answer the questions truthfully and may have been inclined to answer the questions in the way that would be socially acceptable. Several actions were incorporated to improve the reliability and validity of this self-report measure. Trained research assistants (RA) helped in administering the questionnaires. Participants were encouraged to be truthful in their responses by the assurance of anonymity.

Summary

The prevalence of HIV/AIDS among young people world-wide, including in Sub-Sahara Africa and Nigeria is increasing. The majority of young adults become infected with HIV through heterosexual contact. There is an urgent need to better understand the

factors that influence young adults in Nigeria to incorporate protective measures into their sexual behaviors.

The TRA has previously been used successfully in understanding antecedents for specific behaviors, including sexual behaviors, by correlating the constructs of individual attitude, subjective norm, perceived behavioral control and behavioral intent. Behavioral intent is considered to have a direct relationship with actual carried out behavior.

The purpose of this study was to explore the attitudes, subjective norms and behavioral intentions of young Nigerian adults towards the use of condoms to prevent the transmission HIV/AIDS. The findings of this study support important implications for various arenas of education, nursing practice, public policy and research.

CHAPTER 2

REVIEW OF LITERATURE

An exhaustive search of the literature on the topic of the study was conducted to identify sources written by experts in the areas related to attitude, social pressures and behaviors of young people toward condom use to prevent the spread of HIV/AIDS. Computer databases including MEDLINE, Pre-MEDLINE, PsycINFO, Socio File, EBSCO academic search and Medline in PubMed and Cumulative Index for Nursing and Allied Health Literature (CINAHL), Blackwell, OVID, Google, and ProQuest were searched for journal articles. Searches were carried out using the key words of: health behaviors, youths and HIV/AIDS, social norms attitudes, behavioral intention, youth health behavior, youths in Nigeria, HIV/AIDS, knowledge and sexual behavior, sexual attitude and sexual behavior, perceived sexual control and sexual behavior. The search was limited to English language articles published between 2000 and 2008.

Review and critique of the existing literature on the variables of this study is herein presented in two sections. The first section presents empirical studies in which the TRA was used as the conceptual framework to examine various social behaviors. Section 2 is a review of studies on the constructs of the TRA closely related to safe sex behavior.

Application of the Theory of Reasoned Action in Various Disciplines

A number of investigations have used the TRA in their attempts to predict and understand intentions to engage in various health behaviors. Such health behaviors include, but are not limited to, blood donation (Giles, McClenahan, Cairns, & Mollet, 2004), exercise adherence (Armitage, 2005; Blanchard, Courneya, Wendy, & Black, 2003), smoking cessation (Hu & Lanese, 1998), nurses' intent to carry out defibrillation

(Dwyer, Williams, & Mummery, 2005) and prison inmates' intent to share tattoo needles (Bryan, Ruiz, & O'Neill, 2003). The TRA has also been applied in studies concerning education, business, and social life.

Sable, Schwartz, Kelly, Lisbon, and Hall (2006) used the TRA to examine physicians' intention to prescribe emergency contraception. The participants in that study were faculty from primary care departments (obstetrics/ gynecology, family medicine, pediatrics) at four universities. A total of 96 physicians responded to the survey, of whom 52% were family practitioners, 30% obstetrician-gynecologists and 18% pediatricians. On the average, the respondents had been in practice for 15.8 years. Ninety seven percent were board-certified, 62% were men, and 38% were women. Their ages ranged from 29 to 79 years old (M = 46.9).

Using the guidelines set forth by the theorists, a focus group representative of the target population was interviewed to identify salient beliefs and referents. The findings were used to construct a survey questionnaire. Data were analyzed using multivariate correlation between the three constructs of attitudes, subjective norm and knowledge, and the intention to prescribe.

The authors found that attitude, subjective norm, beliefs about the outcome of prescribing emergency contraceptives and normative beliefs of specific professional referents significantly correlated with intention or willingness to prescribe emergency contraceptives. In regression analysis, attitude and an indirect measure of subjective norms predicted physician intention to prescribe. The more positive physicians' attitudes about emergency contraception were, the greater their intention to prescribe the method ($\square$=1.39, $p < .001$). In addition, the greater the perception that specific professional

referents approved of prescribing emergency contraception, the higher the intention score (estimated ⁄= 0.05, $p < .05$). The researchers also found that the indirect measure of subjective norms, however, did not predict intention to prescribe.

The authors also stated that among the 92 physicians who indicated their intention to prescribe, 39% were classified as having a high intention, 42% as medium and 19% as low. Statistically, the researchers found that significant differences between the groups were found for every belief about the consequences of prescribing emergency contraception. High intenders were more likely than low intenders to believe that prescribing the method reduces the number of unintended pregnancies, enhances a woman's reproductive options and reduces the number of abortions. Further, knowledge about the method was not associated with the intention or willingness to prescribe. There was no gender difference in the intention to prescribe emergency contraceptives.

The researchers concluded that the findings supported the theoretical relationships as predicted by the model. Further, the findings provided guidance that could be used to develop clinical protocols for a variety of healthcare disciplines regarding discussions about emergency contraception when educating sexually active women of reproductive age about birth control options.

Iversen, Fossel, Ayers, and Palmsten (2004) used the TRA and the theory of planned behavior (TPB) to examine patients' beliefs, attitudes, past exercise behavior and rheumatologist-patient exercise discussions to gain a better understanding of predictors of exercise behavior in 132 patients with stable rheumatoid arthritis (RA). Eighty-nine patients were women (79%); 21% were men. The average age was 54.8 years (*SD* = 14.4, range = 20 to 94). The mean duration of illness was 9.8 years (*SD*= 8.7, range = <1

to 35). About half of the participants were employed, and 87 participants (77%) lived with someone. These participants experienced a moderate level of physical impairment and pain as measured by the 36-Item Short Form health survey (SF-36). The mean SF-36 physical function subscale score was 49.3 (*SD* = 27.5, range = 5 to 95), and the mean SF-36 pain subscale score was 45.4 (*SD* = 22.6, 12 to 100).

The investigators used multivariate logistic regression to identify predictors of exercise behavior. Past history exercise was the strongest predictor of exercise behavior (odds ratio = 6.8, 95% CI = 3.1 to 15.0) Patients who exercised in the past were nearly seven times more likely than the patients who had not exercised to be participating in exercise 6 months following the baseline clinic visit. If a patient's rheumatologist exercised regularly, the patient was 26% more likely to engage in exercise (95% CI = 0.09 to 0.77) 6 months following the baseline clinic visit.

The researchers contended that the model used to predict exercise behavior in the study indicated that past exercise history and rheumatologists' exercise behavior together had good predictive ability. The findings indicated that past history of exercise and rheumatologists' exercise behavior (subjective norm) were predictors of patients' exercise behavior. Physicians who exercised were more likely to counsel their patients on the benefits of exercise and other health habits. In conclusion, the authors suggested that future studies should be expanded to examine exercise behavior in newly diagnosed patients with RA to determine appropriate interventions in hopes of enhancing overall self-efficacy in performing such activities.

Voorhees et al. (2005) used a cross-sectional research method and a sample of 10,962 young adults, aged 16 to 29 years, recruited from an Internet survey to examine

the association between severity of depressive symptoms, beliefs about and attitudes toward treatment, subjective norms, and past behavior on the intent of whether or not to accept a physician's diagnosis of depression. This multivariate model of intent was developed based on the TRA.

A multivariate logistic regression model was used to evaluate the relationship between the independent variables and outcome variable, intent regarding the acceptance of a diagnosis of depression. Interactions between past behavior and beliefs and attitudes, social norms, and the outcome variable were evaluated using tests of interaction and stratified analysis. The findings revealed that beliefs and attitudes, social norms, and past treatment behavior predicted the intent regarding acceptance of the diagnosis of depression. The researchers concluded that the results of the study may be useful for general medical practice and health care policy. They suggested that behavioral theories can be used to develop models to understand and deconstruct the reasons why so few young adults seek and accept care for depression.

Litchfield and White (2006) used a descriptive, correlational design to examine the efficacy of the TRA predictors in explaining behavioral intention and behavioral willingness in relation to amphetamine use. The sample consisted of 79 undergraduate students in an introductory psychology course at a large Australian university. The mean age of the participants was 19.38 years (*SD* = 2.03; range 17 to 25 years). Attitude toward amphetamine use was measured by a semantic differential scales. Subjective norm was operationalized by a measure of perceived pressure to use amphetamines from people important to them. Two items were used to assess the strength of intention to use

amphetamines. Behavioral willingness was assessed by means of three items whose scores were averaged to create the willingness scale.

The researchers used two sets of multiple regression analysis. The first analysis tested the TRA and the prediction of intention to use amphetamines. The second tested the efficacy of the TRA predictors (attitudes and subjective norms) in predicting behavioral willingness to use amphetamines. The results indicated that each of the constructs of the TRA contributed significantly to the prediction of intention to use amphetamines with attitude emerging as the most significant contributor (β =.46; $p <$ .001) and subjective norm (β =.22; $p <$.05). In addition, the investigators performed a standard multiple regression with attitude and subjective norm and found that these variables accounted for a significant 44% (43% adjusted R^2) of the variance in behavioral willingness to use amphetamines, if offered by a friend, F (2, 75) = 29.58, $p <$ 001.

Attitude (β = *.45*, $p <$ .001) and subjective norm (β =*.38*, $p <$ .001) were significant independent predictors of variance in behavioral willingness. The results indicated that participants who had a more positive attitude about amphetamine use and perceived more pressure from significant others to use amphetamines were more likely to intend to use amphetamines. The findings support the use of the TRA in predicting young people's intention to use amphetamines.

Using a sample 106 participants consisting of attending/staff physicians, physician residents, interns, advanced registered nurse practitioners, and physician assistants from five practice sites, Maue, Segal, Kimberlin, and Lipowski (2004) used the method described by Fishbein and Ajzen (1980) to investigate the relationship between health care providers' attitudes, subjective norms, intentions, and perceived barriers

toward clinical practice guideline utilization and compliance. Consistent with the aim of that study, the investigators focused on the relationships between behavioral intention and barriers to guidelines use.

The researchers tested four hypotheses. The first three hypotheses involved tests of bivariate correlations between independent and dependent variables. The researchers found a significant negative correlation *(*$r = -0.68$, $p < .0001$*)*. Also the authors examined the correlation between perceived barriers and practitioners' self-reported behavior, and found a significant negative correlation ($r = -0.47$, $p < .006$).Further, the authors examined the correlation of perceived barriers and practitioners' actual behavior as determined by chart review; no statistical significant difference was found ($r = -0.11$, $p = .50$). For the fourth hypothesis, which stated that external barriers are perceived as more inhibiting to guideline compliance than internal barriers, the researchers found a significant mean difference of .621 ($p = .001$).

In examining bivariate correlations of other predictor variables and behavioral intention, the researchers found significant correlation with attitude towards clinical practice guidelines ($r = 0.67$, $p < .0001$), subjective norms (average $r = 0.55$ for all referents, $p < .0001$ for each referent), overall perceived behavioral control ($r = 0.32$, $p < .002$), internal barriers ($r = -0.72$, $p < .004$). Attitudes, subjective norms, past behaviors, and perceived behavioral significantly controlled predicted behavioral intention and compliance behavior. In addition, a negative correlation was found between perceived barriers and practitioners self-reported behavior ($r = - 0.47$, $p < .006$). No statistically significant difference was found between perceived barrier and practitioners' actual behavior ($r = -0.11$, $p = .50$). The authors concluded that the results generated by their

research would lead to a better understanding of physicians' behavior and provided needed information that could be used for developing future guideline implementation programs.

Attitude as a Predictor of Condom Use

The construct of attitude and its relationship to the likelihood of condom use has been the predictor most widely studied (Graham, 2007; Lescano, Vazquez, Brown, Litvin, & Pugatch, 2006; Marandu, 2004). The TRA extends the simple attitude-behavior model into more comprehensive sets of factors that lead to a better explanation and prediction of behavior. Notable in this regard, is its use in predicting sexual behavior of young adults at risk of HIV/AIDS (Adedimeji & Jagha, 2005).

Marandu (2004) interviewed 1,349 individuals, students and teachers, throughout Botswana to explore public attitude toward condom use for the prevention of HIV/AIDS. Approximately 80% were males under 35 years of age. The study sought answers to five research questions with the aim to suggest approaches that could be used to promote the use of condoms during sexual intercourse. The study was guided by the TRA and asserted that attitudes were learned, not inborn, and behavior does not always reflect established beliefs and attitudes. Marandu operated under the assumption that there are certain attitudes, beliefs, traditions and behaviors in the society that impede the use of condoms.

Findings indicated that younger people were more likely to have unprotected sex (64%), than the older people, and that males had a greater tendency to agree with beliefs that discouraged use of condoms. Among these beliefs was one that condoms were ineffective in the prevention of the spread of HIV/AIDS. There was a common belief

that HIV was not a human-to-human illness but that AIDS was as a result of sex between humans and monkeys (21%). A common barrier to condom use was the belief that condoms interfered with sexual pleasure. Professionals in the study (physicians, nurses, teachers) contended that several factors had contributed to the spread of HIV/AIDS in the country including social cultural behaviors that encourage multiple sexual partners and relative poverty among female young adults.

Lescano et al. (2006) investigated attitudes about and behavior toward condom use with casual (CP) and main sexual partners (MP) among 1,316 adolescents and young adults, 563 males (43%) and 753 females (57%), aged 15-21 years (*M* = 18.21 years, *SD* = 1.8) recruited from primary care clinics and outreach activities. The interviews included questions regarding attitudes and perceptions about condom use. The answers from these questions were used to create scales measuring the constructs.

The participants were divided into two groups based on their report of the type of partner they had in the previous 90 days. Condom attitude behavior was examined in both groups. The CP groups reported using condoms a greater percentage of time (47%) than did the MP group (37%), *t* (956) = - 4.56, *p =000*. However, the mean number of unprotected sexual acts reported by the MP group (*M* = 18.9, *SD* = 28.0) was not significantly different from the CP group (MP =18.9 [SD=28.0] Vs CP=21.5 [SD=131]; t [1204] =-52, *P = 60]* , reflecting the greater frequency of sexual acts with CPs. Multiple linear regression for the MP group, using proportion of sexual acts with a condom as the dependent variable, demonstrated that perceived MP reaction to condom use scale was significant, F (11, 702) = 34.15, $p < .01$. For the CP group, the perception of CPs reaction to condom use was significant, F (11, 393) = 13.43, $p < .01$.

Consistent with the hypothesis, perceptions of MP attitudes toward condom use were significantly related to teens' behavior with MPs. That is, perception of partner attitude was linked to behaviors with that type of partner. The findings also revealed that condom use with MPs was significantly associated with pleasant and unpleasant expectation about condom use. There was no association found between attitudes and sexual behaviors with CPs.

That study demonstrated the importance of the adolescents' perception of their relationships with their partner and its association with sexual risk behavior. The study also highlighted the frequent sexual risks that teens take with partners of every type and indicated how an adolescent's understanding of his or her relationship with a partner relates to this sexual risk. The investigators emphasized the need for consistent condom use with all partners regardless of their feelings about their partner, the sense of commitment, or the length of their relationship. The researchers suggested that further research was needed to explore the adolescents' definitions of partners in different ways and how this influences their behaviors. Their study underscores the importance and complexity of the emotional context of the relationship in determining safer sexual behavior.

Talukdar, Sanyal, Roy, and Talukdar (2008) reported their efforts to adapt Brown's Attitude to Condom Use Scale for use among the migrant workers in India. The project progressed through two phases. The first phase consisted of instrument refinement (n = 234); the second phase used the resultant instrument to collect data to measure attitude (n = 280). Findings from phase 2 showed that participants who used condoms had higher mean scores for attitude (M = 20.5) than did those participants who

did not use condoms (M = 16.7) and the difference in the means was significant (p = 0.01). The researchers concluded that the 6-item Attitude toward Condom Use Scale would be valuable not only for assessing existing beliefs and attitudes toward condom use but also for evaluating efficacy of attitude-change techniques directed toward encouraging condom use.

Graham (2007) surveyed 1,093 Croations, 574 females and 519 males, aged 18-24, using the Parental Control Scale, Peer Sexual Attitude scale, and the Traditional Sexual Morality scale to explore HIV/AIDS-related knowledge, attitudes and sexual behaviors. Attitude toward condom use was assessed with seven items using a 5-point Likert-type scale.

The findings indicated that positive attitudes toward condom use were prevalent among young adults in Croatia. The attitudes toward condom use had a moderate associate with the traditional morality scale (r = 0.3, p < .001). Attitudes were not correlated with religiosity, but were associated with having had a religious upbringing (f = 5.0, p < .01). Interestingly, the author found a positive association between attitudes toward condoms and scores on the HIV knowledge scale (r = 0.2, p < .001); respondents with more positive attitudes towards condom use tended to have greater HIV knowledge. The researcher concluded that attitudes toward condoms and previous condom use were strong predictors of future condom use.

Using a sample recruited in Rome, Italy, Spizzichino and colleagues (2007) sought to assess knowledge, attitude, and willingness to use a female condom among 162 participants (34% male, 66% female), the majority of whom (56.5%) were in the 20 to 29 age range (M = 31.5). While the objective of the study was focused on the female

condom, findings revealed information regarding the use of male condoms among this population and provided insight regarding attitude and intent as related to the use of the female condom.

The authors found that 18.5% of males and 13.9% of females reported consistent use of male condoms, while 63.8% of males and 53.8% of females had never used female condoms. While only a small number of participants had ever heard of the female condom, barriers to use were very similar to those voiced regarding the use of male condoms including disruption of sexual pleasure. The researchers found a positive association between attitude toward female condoms and knowledge of female condoms. It was concluded that that knowledge and attitude were powerful predictors of the use of female condoms.

Summary of Attitude as a Predictor of Intention to use Condoms

The findings from these studies support the increasing scientific body of evidence that attitude toward a behavior is an antecedent to that behavior. Additionally, these studies have found that individuals with a positive attitude toward condom use were more likely to use condoms more consistently as compared to those individuals with a negative attitude toward condom use. Moreover, negative attitude toward condom use was more prevalent among young male adults. They doubted the effectiveness of condom, believed that condoms interfered with sexual pleasure and therefore were less inclined to use condoms.

Thus, this study was undertaken in order to explore the influence of attitude as a predictor of behavioral intent toward condom use among young Nigerian adults in the

belief that doing so might provide insight to guide interventions directed at promoting condom use.

Social Norm as a Predictor of Condom Use

The TRA defines subjective norm as a person's own estimate of the social pressure to engage or not engage in a behavior coupled with the motivation to conform to the expectation of these others. The theory assumes that peer pressure compels members to conform and to try to live up to expectations of the group. According to this view, individual decision-making is swayed in the direction of the social norm. Several studies on HIV prevention have been conducted in relation to subjective norms and condom use.

Using a survey constructed based on the constructs of the TRA and the TPB, Kocken, van Dorst, and Schaalma (2006) explored the relevance of cultural factors in predicting condom-use intentions among 346 Dutch Antilleans aged 15 to 50 years.

Social referent groups included family and friends; subjective norm was operationalized by means of three items regarding condom use. Using the statistical techniques of multiple logistic regression and hierarchical logistic regression, findings indicated that condom-use intention was statistically significant and related to perceived subjective norm (OR 1.86, 95% CI = 1.12 – 3.08). Participants who perceived a strong subjective norm favoring condom use were more likely to use condoms than were those who perceived a weak subjective norm (OR 3.38, 95% CI = .97 – 5.79).

Cultural and demographic variables were included in the logistic regression model analysis. In addition to subjective norm, machismo beliefs and views concerning discussion of sex were significantly related to condom use intention. Participants with

machismo beliefs and/or the opinion that a woman has a secondary role in intimate relationships were less likely to use condoms (OR = 1.86, 95% CI = 1.08 – 3.21).

Overall, it was determined that the intention to use condoms was primarily related to perceived norms toward condom use, perceived taboo on discussing sex, machismo beliefs, gender, age and educational level. The researchers concluded that the results of the study showed that cultural factors may play an important role in explaining intentions to use condoms. They suggested that prevention programs to promote safer sex would benefit from targeting cultural factors on condom use and its association with intention.

Using an interview guide that followed the principles of the TRA, Elwood, Green, and Carter (2003) conducted face-to-face interviews with 101 men, 18 to 58 years of age, who admitted to participating in sexual activities with other men in gay bathhouses. The purpose of the study was to explore the men's attitude, subjective norm and intent to use condoms for prevention of sexually transmitted diseases.

Perceived subjective norms regarding condom use (including expectations of others such as friends, partners, family members, and motivation to comply with these others expectations) appeared to be an important factor in condom use among the participants. For example, one participant stated that he thought about using condoms but he did not want to talk about it because he felt that it might break the moment or that the partner might refuse to have sex with him. Another participant reported that he had a desire to use condoms but felt constrained by the silence norm that existed in the bathhouse.

The finding suggested that condom use among this population was influenced by communication, partners, and peer norms. The researchers concluded that health

educators should seek to establish and encourage the verbal and non-verbal communication regarding condom use and that educational effort must foster a greater sense of responsibility in sexually active individuals.

Wiggers and Coutinoho (2003) conducted a cross-sectional survey of a randomly selected sample of 537 heterosexual men and women, Suriname, Antillean, and Sub-Sahara African migrants, between the ages of 15 and 55 years, living in Amsterdam, to assess risk behavior and determinants of condom use. The researchers tested the predictive utility of constructs derived from the health belief model, the TPB and the TRA. Multivariate analysis found that subjective norm and perceived behavioral control were independent determinants of consistent condom use. Participants used condoms more consistently when they perceived that salient others thought that they ought to use them.

The researchers concluded that the study provided valuable data that can be helpful in identifying sexual risk behavior in similar ethnic minority communities. Also they stated that the findings contributed to the understanding of the determinants of risk-taking and would enable health practitioners to design specific HIV/AIDS prevention programs for ethnic minorities. The researchers suggested that interventions seeking to promote condom use in ethnic minority populations should specifically address subjective social norms and perceived behavioral control related to condom use.

Giles, Liddell, and Bydawell (2005) utilized a convenience sample of 152 young Zulu adults (*M* age = 20.3 years) living in a subsistence agricultural settlement in South Africa to describe and correlate the TRA constructs of individual and normative constructs in prediction of condom use for this population.

Descriptive, correlational, multiple regression, standardized regression, and stepwise regression were all employed to analyze the data. Zero-order correlations were first calculated; findings indicated that all the variables correlated significantly with each other, but the strongest relationship was between subjective norm and behavioral intention. These findings were further explored in multiple regression analysis, in which intention was regressed on all four predictor variables simultaneously. The independent variables accounted for 67% of the variance in intention (F (4, 129) = 42.56, $p < 0.01$). The standardized regression coefficients indicated that the strongest relationship with intention was self-efficacy (β = 0.481, $p < 0.01$) followed by subjective norm (β = 0.352, $p < 0.01$). Attitude did not contribute significantly to prediction of intention.

The authors concluded that the normative component was important in determining safe-sex behavior and the family played an important role in regulating sexual practice. They posited that parents should be encouraged to talk more to their children about sex-related issues. The findings supported that the TRA could be used effectively to predict condom use and further highlighted the extent to which sexual behavior is governed by family and social influences.

Summary

From the literature reviewed it can be concluded that the constructs of the TRA, attitude and subjective norm, can be used effectively to predict condom use intent among a variety of cultural groups.

CHAPTER 3

METHODS

This study explored the relationship between the variables internal to the TRA and determined their efficacy in predicting the behavioral intent of young Nigerian adults, 21 to 30 years of age, regarding the use of condoms during sexual intercourse for prevention of HIV/AIDS transmission. Traditionally, individuals from the ages 21 to 30 are considered young adults in Nigeria.

The study progressed through three phases. Phases 1 and 2 represent preliminary work that resulted in a research instrument that is culturally and psychometrically appropriate for the target population. In phase 3 the research instrument was used to collect data from the target population for hypothesis testing.

Setting

All phases of the research took place in Abia state located in southeastern Nigeria and Abuja in the Federal Capital Territory Nigeria in West Africa. These two states harbor the largest business centers in Nigeria. Traders from across the sub-regions visit these cities on a daily basis to do business. This has inevitably resulted in a boom in both trucking activities and the sex trade. High-risk and vulnerable populations commonly seen in these states are the youth and low-income women.

Nigeria is bordered by Benin, Cameroon, Chad and Niger Republic. Covering 356,954 square miles, Nigeria is slightly larger than Texas and Oklahoma combined. Currently, an estimated 134 million people live in Nigeria. The population density is approximately 375 people per square mile. The Nigerian population is ethically and religiously heterogeneous. The most popular and politically influential groups are the

Hausas (29%), the Yoruba (21%), and the Igbos (18%). Fifty percent of Nigeria's population is Muslim, while 40% is Christian and 10% holds indigenous beliefs (Adedimeji & Jagha, 2005).

Sampling Strategy

All phases recruited a convenience sample consisting of individuals with similar characteristics. Inclusion criteria included young men and women, aged 21 to 30, residing in states of Imo and Abia and fluent in the English language. The number of individuals recruited was dependent on the phase of the study.

In order to recruit volunteers, flyers (Appendix B) were posted in places where young adults tend to gather such as club houses, parks, restaurants and hair salons announcing the dates, times, and places where the study would take place. In addition, the media was contacted to announce the study. Potential candidates were approached by the researcher or the RA while at the sites. The purpose and nature of the study were explained. Interested individuals were provided a copy of the cover letter appropriate to the phase (Appendix C) and given an opportunity to ask questions. Research procedures were unique to the phase of the research.

At all the three phases of the study participants were asked to provide demographic data (Appendix D) that was used to describe the sample and assure that the participants met the inclusion criteria.

Protection of Human Subjects

Protection of human subjects was incorporated into all phases of the study. The participants were given a cover letter (Appendix C) that identified the name of the researcher, faculty sponsor, and the organization of affiliation, the purpose of the

research, the risk and benefits and the extent to which all responses would be held in confidence. The letter clearly explained that participation was voluntary. As participation was anonymous, participants were not asked to sign consent forms.

Responses were only viewed by the researcher and the statistician. Findings are reported using group averages only. Participants were free to withdraw from participation at anytime. However, as responses were anonymous, there was no way to identify and remove responses once they were submitted to the researcher and pooled with other responses.

No adverse consequences to any of the participants were anticipated. Participants were informed that findings may be used to design specific prevention interventions to help reduce the prevalence of HIV/AIDS among Nigerians. The participants were given a small gift of approximately $5 in value.

Procedures

Phase 1: Instrument Development

The results obtained in phase 1 were used to answer the research questions: What are the terms Nigerian youth associate with the positives and negatives related to the use of condoms for sexual intercourse? Who are the referent groups Nigerian youth consider to be influential in their decisions regarding the use of condoms for sexual intercourse?

Research Design

The design for phase 1 was qualitative.

Sample

Twenty individuals meeting the inclusion criteria were recruited.

Procedure

To elicit behavioral beliefs, the consenting participants were asked to identify the advantages and disadvantages associated with the use of condoms during sexual intercourse. The following questions were asked: (a) What do you see as the advantage of using condoms for sexual intercourse? (b) What do you see as the disadvantages of using condoms for sexual intercourse? To determine normative beliefs, participants were asked to: Identify the groups of people who would influence your decision to use condoms during sexual intercourse. Responses were listed on a plain sheet of paper provided by the researcher and, when complete, the papers were put in a plain white envelope and returned to the researcher.

Analysis

The responses were used to operationalize the constructs of attitude and subjective norm and were incorporated into a research instrument, the Condom Use Inventory, developed in accordance with the guidelines described by Ajzen and Fishbein (1980). The most frequently occurring positive and negative beliefs were incorporated into the section of the questionnaire measuring attitudes. The most commonly identified referents were included in the section of the questionnaire measuring normative beliefs.

Phase 2: Instrument Refinement and Psychometric Estimation

In phase 2 the instrument developed in phase 1 was subjected to analyses of face validity and reliability. The results were used to answer the research question: What are the psychometric properties of the newly developed Condom Use Inventory when used to measure these constructs among Nigerian young adults?

Research Design

The research design was quantitative and exploratory.

Sample

A convenience sample of 50 individuals meeting the inclusion criteria were recruited in the manner established. This number was based on the recommendation from other researchers who have studied similar population using the same theoretical framework (Barnett, Bowen, Elwood, & Alexander 1998; Gambal, 1990; Whittingham, Sofronoff, & Sheffield, 2006).

Procedure

Participants were approached by the researcher or the RA while at the selected sites in the manner previously explained. Participants were asked to complete the research instrument, place it in a plain white envelope, seal it, and then place it into a locked box.

Analysis

Face validity. Face validity is a quality criterion referring to the degree to which an instrument is logical. It is based on the report from members of the target population as to whether the items seem to make sense. Face validity was assessed based on the feedback of the phase 2 participants. After answering the questions, the participants were asked to review the survey and give their opinion as to whether the items were clearly presented and if the measure seemed to make sense.

Reliability as internal consistency. One measure of reliability is the degree to which all respondents answer the questions on the scale in the same way. Reliability of the scaled items was assessed in several ways. Cronbach's alpha for reliability as internal

consistency was calculated. Criterion used to identify poorly functioning items was a correlation of <.30 between an item and the scale score (Nunnally, 1978). The acceptable alpha coefficient for this study was set at .70. Participant feedback and statistical analyses of data obtained in phase 2 provided the foundation for instrument refinement and culminated in the final instrument that was used for data collection from participants in phase 3, the main study.

Method for Phase 3: Main Study

Research Design

This phase of the study used a cross-sectional survey and employed correlation and descriptive data analysis methods.

Determination of Sample Size

Participants for the main study were recruited in the manner established. In order to determine an adequate sample size for the number of variables and the statistical techniques that were employed a priori estimation of sample size was made based on a power analysis. The hypothesis of this study contains two independent or predictor variables: attitude and subjective norm. There is one dependent or outcome variable: behavioral intent. The relationship among the variables was planned to be carried out by multiple regression.

Sample size is related to power, effect size, and significance level (Mertler & Vannatta, 2002; Munro, 2001). In order to calculate the sample size, the desired power, expected effect size, and the acceptable significance level, the alpha was set at .05, power ($1 - \beta$) was set at .95. The effect size, the strength of the relationship among variables, was anticipated to be medium ($f^2 = .15$). Based on these criteria, a sample size of 107 was

required using the G*POWER 2.1.1 software package (Faul & Erdfelder, 1992). However, to allow for up to 50% of incomplete surveys, a minimum of 161 individuals was planned.

Instrumentation

In addition to demographic information, data were collected by means of the newly developed Condom Use Inventory. The instrument used to measure the theoretical variables of attitude and subjective norm was a product rigorously developed according to the guidelines of Ajzen and Fishbein (1980) and tested for validity and reliability as indicated above.

Attitude. Attitude was measured by the participants' response to a scale consisting of semantic differentials representing bipolar evaluative adjectives. Each item offered the participant the opportunity to mark a range between 1 indicating a *low level of agreement* with the item and 7 indicating a *high level of agreement*. Responses to each item were summed for a total score representing attitude. The higher the score, the more positive the attitude the participant has regarding the behavior of using condoms for sexual intercourse. Lower scores indicate the more negative attitude the individual has .

Subjective norm was calculated by summing the products of the estimation of the opinion of a referent toward the subject times the level of motivation to comply with the referent. Each attribute has two parts; the first statement, the "a" statement, is reflective of the participants' perception of the opinion of a specified significant other(s), and the second statement, the "b" statement, is reflective of the participants' motivation to comply with said referent's opinion. Each item is rated on a Likert scale ranging from 1, *extremely improbable*, to 7, *extremely probable*.

The value ascribed to the "a" statement was multiplied by the value of the "b" statement. Once the values of the two statements were multiplied, a total score was determined by summing each of the multiplied groupings. The result was the score for normative beliefs. A lower score indicates lower intent to comply with referents' perceived opinions. A high score indicates high intention to comply with the perceived opinions of the referent groups.

Behavioral intent . Behavioral intent was measured by one item. The participants were asked to indicate, on a scale of 1 to 7, how likely it was that they intend to use condoms for sexual intercourse. The higher the score, the higher the degree of behavioral intent a participant has regarding the behavior of using condoms for sexual intercourse. Lower scores indicate lower behavioral intent.

Procedure

Participants were approached in the manner established.

Statistical Analysis

Data Cleaning

All surveys were examined for completeness. While participants may have provided surveys in which scales were incomplete, only complete scales were included in the analyses. However, if a participant provided an incomplete response to one of the scales but complete responses to other scales, the completed scales were included, using pair wise deletions.

A quality check procedure was conducted to minimize data transcription error. Responses to each item of each scale were entered into the Statistical Package for the Social Sciences (SPSS) for windows v.16.0 (SPSS, 2007). The responses to the

individual scale items were entered into the data matrix and computer scores for the scales were calculated. Additionally, each scale was manually summed. The manual sums were subtracted from the computer calculated scores. The result of zero assured accurate data entry.

Outliers were defined as any score falling below or above two standard deviations (*SD*) from the mean (*M*) and were identified by box plots. Outliers were examined to determine if they were properly part of the population from which the sample was intended.

Description of the Sample

Information obtained on the demographic survey was analyzed by means of descriptive statistics and frequency distributions. The results were used to describe the sample.

Statistical Assumptions

The relationship between the theoretical constructs was planned to be analyzed by means of parametric tests. Therefore, the data were expected to meet specific characteristics. That is, the data must be measured as continuous with interval or ratio scales. The variables must be normally distributed in the population (normality), the relationship between the dependent variable and the independent variables must be a linear relationship (linearity), there must be equal variances in the scores of the dependent variables and the independent variables (homoscedacity), and each value is independent and not related to any other predictor value (multicolinearity and singularity). Prior to data analyses, diagnostic methods were conducted to assure none of these assumptions

were violated, because violations would increase the likelihood of making a Type I and/or Type II error (Tabachnick & Fidell, 2001).

Several techniques were employed to assure that the data conformed to the assumptions for parametric testing. To assure the data were normally distributed histograms with the normal curve line imposed were plotted and visually inspected for the dependent variable. Additionally, the Kolmogorov-Smirnov (*D*) statistic was calculated; a non-significant value ($p > .05$) was considered supportive of normality. Values for skewness and kurtosis were generated; values approximating zero were considered indicative of distribution normality.

A residual plot was examined to indicate the linear relationship between the independent variables and the dependent variables and support homosedasticity. Collinearity statistics for tolerance and variance inflation factor (VIF) were considered. Indicators for multicollinearity were tolerance < .1 and VIF >10.0 (Vogt, 1993).

Hypothesis Testing

One hypothesis with its corresponding research questions was posed for the main study: There will be no significant contribution, uniquely or as a linear composite, between the predictor variables of attitude and subjective norm and the behavioral intent to use a condom during sexual intercourse. The hypothesis identifies two independent variables and one criterion variable.

Regression analysis is a method of explaining the "nature and closeness of the relationship between two or more variables, specifically, the extent to which you can predict some by knowing others and the extent to which some are associated with others" (Vogt, 1993, p. 192). It assesses the degree to which the dependent (outcome) variable is

related to the independent (predictor) variables or to predict the score of the dependent (outcome) variable from scores on several independent (predictor) variables.

Data Management

All coding, scoring, data entry and statistical analyses were performed by the statistician. Only the researcher and statistician had access to the data matrix. All paper files will be maintained in the researcher's home office in a locked file cabinet. Data will be stored on the researcher's home computer which is password protected. The data will be kept by the researcher for a period of 5 years. At the end of 5 years, all surveys will be shredded and computer files will be erased.

Summary

The study consisted of three phases. Phase 1 elicited information that was used to develop a culturally and language appropriate scale, the Condom Assessment Inventory, to measure attitude, subjective norm and behavioral intent of young Nigerian adults regarding condom use for sexual activity. Phase 2 focused on the refinement of the Condom Assessment Inventory and carried out testing for psychometric estimates of all of the scales that were then used to collect data for hypothesis testing in phase 3. Data collected in phase 3 were used to examine relationships between the theoretical variables prescribed by the TRA. The results of these analyses are presented in chapter 4.

CHAPTER 4

RESULTS

The purpose of this study was to test the efficacy of the constructs of the TRA to predict the intent to use condoms for sexual intercourse among young Nigerian adults. This study progressed through three phases. The first two phases were considered to be preliminary work in that the outcome was the instrument that was used to collected data that were then subjected to hypothesis testing in phase 3.

Phase 1: Instrument Development

Phase 1 sought seek information to be used to construct the first draft of the research instrument. The research questions to be answered included: What are the terms young Nigerian adults use to describe the positive and negative attitudes they have toward using condoms for sexual intercourse? Who are the referent groups young Nigerian adults consider to be influential in their decision to use condoms for sexual intercourse?

Sample

Twenty individuals meeting the inclusion criteria were recruited. The sample consisted predominantly of single (n = 17, 85%) men (n = 13, 65%) whose age ranged from 22 to 29 years (M = 25.25, SD = 2.08). The majority were Igbo (n = 19, 95%) with only one individual (5%) being Yoruba. The participants were highly educated with five (25%) having completed secondary school, three (15%) having had some university education and 11 (55%) having completed a university degree; one (5%) had only completed primary school.

Analyses

Attitude. The participants provided seven positive terms and six negative terms to describe their perception of condom use. These terms were compared to an existing 16-item semantic differential scale previously developed by Slovic, Severson, and Hampson, (1988; personal communication, June 9, 2009) and found to be consistent. With permission of Slovic (Appendix E) the two instruments were then meshed to form a 21-item semantic differential scale.

Subjective norm. The participants identified significant referents as: doctors, parents, friends, pastors, girlfriends, brothers, sisters, nurses, sex partners, teachers, colleges. These were then logically grouped into five categories: family members (parents, brothers, sisters), educators/counselors (pastors, teachers, colleges), healthcare providers (doctors, nurses), friends, and sexual partners. These groups were included in the section of the questionnaire measuring normative beliefs and matched with a corresponding item that asked the extent of motivation to comply with this perception.

Construct validity. The resultant draft of the instrument was taken to four experts on the theory and instrument design to assure that the items were relevant, appropriate and an adequate representation of the constructs they were intended to represent. A Nigerian expert was also asked to read the draft of the instrument to ensure that the content was culturally appropriate. These experts did not recommend any changes in the draft of the instrument.

Phase 2: Instrument Refinement and Psychometric Estimation

In phase 2 the instrument developed in phase 1 was subjected to analysis of face validity and reliability as internal consistency. The results were used to answer the

research question: What are the psychometric properties of the newly developed Condom Use Inventory when used to measure these constructs among Nigerian young adults?

Description of the Sample

A total of 52 individuals who met the inclusion criteria were recruited and provided survey instruments adequately complete for data analysis. The participants ranged in age from 21 to 30 years (M = 24.11, SD = 2.55) and consisted of men (n = 29, 55.8%) and women (n = 22, 42.3%); one (1.9%) participant did not report gender. The majority reported their marital status as single (n = 47, 90.4%) while the remainder reported being married (n = 5, 9.6%). Educational level was high in that the majority had attended a university with 20 (38.5%) having had *some* university education and 16 (30.8%) having *graduated* from a university; 15 (28.8%) had completed secondary education. Only one (1.9%) participant reported the highest level of education being that of primary school. Fourteen ethnic groups were represented; these ethnicities are presented in Table 1.

Educational levels of the participants are high because, in Nigeria, due to a high unemployment rate, many young adults after graduating from the college take to business such as trading. Trading is the easiest means of survival for these young people. They are found in the market squares, and shopping centers. Some of the data for this study was collected from participants in the market squares and shopping centers.

In addition, data for this study were collected in summer. During summer, there were series of student union meetings, club meetings and baseball games. Data were also collected from participants at these various meeting centers.

Table 1

Ethnic Background of Phase 2 Participants (*N* = 52)

Ethnicity	*n*	%
Igbos	21	40.3
Idoma	7	13.5
Igala	5	9.6
Yoruba	4	7.6
Ibibio	3	5.8
Efik	3	5.8
Ogoni	1	1.9
Benue	1	1.9
Jaba	1	1.9
Kanuri	1	1.9
Hausa	1	1.9
Ijaw	1	1.9
Bajju	1	1.9
Bekwara	1	1.9
Tiv	1	1.9

Analysis of Psychometric Properties

Face Validity

To provide evidence of face validity, participants were asked to read, complete, and comment on the instrument. The completed instruments were inspected for errors in completion that could be attributed to presentation of the items. All participants reported that they understood the items so no changes were made to the instrument.

Reliability as Internal Consistency

Cronbach's alpha was calculated for the attitude and the subjective norm scales. The results of the item analysis and internal consistency are presented in Table 2. Criterion used to identify poorly functioning items was a corrected item-total correlation of <.30 (Nunnally, 1978). Using this criterion, three items on the scale for attitude (1, 5, 7) were deleted from the scale. All items on the scale for subjective norm were retained. The results are presented in Table 2.

The final scale for attitude consisted of 18 items with possible scores ranging from 18 to 126. The final scale for subjective norm consisted of five referents with their motivation statements (Appendix F). Possible scores for subjective norm ranged from 5 to 245.

Table 2

Item Analysis and Internal Consistency of the Subscales: Attitude and Subjective Norm

Subscale	*M*	*SD*	Corrected item-total correlation	Alpha if item deleted
Attitude (*n* = 50)				
1. Feminine/masculine	**5.90**	**1.28**	**.19**	**.87**
2. Boring/exciting	4.52	1.82	.42	.86
3. Immature/mature	5.98	1.24	.43	.86
4. Unaccepted/accepted	5.80	1.56	.55	.84
5. Unhealthy/healthy	**6.06**	**1.37**	**.25**	**.86**
6. Unpopular/popular	6.22	1.28	.52	.86
7. Unavailable/available	**5.74**	**1.47**	**.22**	**.87**
8. Planned/spontaneous	4.76	1.73	.42	.86
9. Antisocial/social	5.50	1.25	.33	.86
10. Unattractive/attractive	4.66	1.80	.52	.86
11. Forbidden/allowed	6.16	1.36	.58	.86
12. Dislike/like	4.92	2.02	.48	.86
13. Wrong/right	5.80	1.56	.46	.86
14. Bad/good	5.74	1.52	.57	.86
15. Dangerous/safe	5.94	1.31	.45	.86
16. Not beneficial/beneficial	5.60	1.37	.47	.86
17. Not pleasurable/pleasurable	4.62	1.84	.61	.85
18. Tense/relaxed	5.10	1.54	.78	.80
19. Uncomfortable/comfortable	5.18	1.64	.42	.86
20. Unnatural/natural	4.72	20.3	.49	.86
21. Foolish/wise	6.10	1.16	.60	.86
α = .87, 95% CI = .81 - .92				
Subjective Norm (*n* = 49)				
1a. My family members think that I should use condoms for sexual intercourse.	5.51	1.96	.79	.90
1b. I want to comply with what my family members think about my using condoms for sexual intercourse.	5.69	1.77	.79	.90
2a. My health care providers think I should use condoms for sexual intercourse.	6.39	1.19	.47	.91

Table 2 continues

Table 2 continued

Subscale	*M*	*SD*	Corrected item-total correlation	Alpha if item deleted
2b. I want to comply with what my health care providers think about my using condoms for sexual intercourse.	5.90	1.47	.51	.91
3a. Most of my friends think that I should use condoms for sexual intercourse.	5.55	1.67	.63	.91
3b. I want to comply with what most of my friends think about my using condoms for sexual intercourse.	5.53	1.66	.76	.90
4a. My sexual partners think I should use condoms for sexual intercourse.	5.55	1.79	.62	.91
4b. I want to comply with what my sexual partners think about my using condoms for sexual intercourse.	5.69	1.60	.75	.90
5a. My educators/counselors think I should use condoms for sexual intercourse.	5.59	1.90	.67	.91
5b. I want to comply with what my educators/counselors think about my using condoms for sexual intercourse.	5.37	1.82	.80	.90
α = .91, 95% CI = .87 - .95				

Note. Items in bold met criteria for deletion.

Phase 3: The Main Study

A total of 161 surveys were distributed and returned. Two surveys were returned completely blank so were eliminated from the data set; therefore the sample consisted of 159 individuals. Only 141 participants provided complete data for all three scales; statistical analyses were carried out only on the scales that were complete.

One hypothesis was posed and reflective of the relationships proposed by the theory. Before hypothesis testing was carried out, the data were subjected to rigorous analyses to determine if the assumptions for parametric testing had been met.

Description of the Sample

The sample (N = 159) consisted of men (n = 85, 53.5%) and women (n = 74, 46.5%) between the ages of 21 and 30 years (M = 25.51, SD = 2.82). The majority were single (n = 114, 71.7%), 37 (23.3%) were married, 5 (3.1%) were divorced, 1 (.6%) was widowed and 1 (.6%) was separated. One (.6%) participant did not answer the question. The majority (n = 112, 70.4%) had attended a university with 56 (35.2%) having attended but not completed and 56 (35.2%) having completed a university education. The remainder (n = 47, 29.6%) were less educated with 40 (25.2%) having completed secondary school and 7 (4.4%) having completed only primary school.

The sample for this study was well educated. This is because of Nigeria's high unemployment rate. Many young adults take to business after graduating from colleges and universities. Trading is a common means of survival in Nigeria. These young adults are found in market squares selling their goods to make their living. Some of the data for this study were collected in the market squares. Since data were collected in summer, when schools were not in session, data were collected from participants during a series of student union meetings, club meetings, and at baseball fields. The sample was represented by 15 ethnic groups (see Table 3).

Table 3

Ethnic Background of Phase 3 Participants (*N* = 159)

Ethnicity	*n*	%
Igbos	47	29.5
Hausa	44	27.7
Yoruba	13	8.2
Igala	12	7.5
Ibibio	7	4.4
Idoma	7	4.4
Edo	6	3.8
Tiv	5	3.1
Shekiri	5	3.1
Fulani	4	2.5
Ijaw	2	1.2
Igede	2	1.2
Rivers	2	1.2
Igbire	2	1.2
Esako	1	.6

Descriptive Statistics

Descriptive statistics were obtained for each of the variable scales and are presented in Table 4. The scores for the variable scales were converted to *z*-scores and examined to detect outliers. The scores for the dependent variable, behavioral intent, were evaluated for characteristics of distribution to determine if they met the assumptions necessary for parametric testing.

Table 4

Means, Standard Deviations, and Ranges for Scores on the Variable Scales

Scale	M	SD	Range	*n*
Attitude	85.49	15.06	43 - 120	146
Subjective norm	137.41	49.69	28 - 245	155
Intent	5.68	1.67	1 – 7	158

Identification of Outlying Scores

The scores for attitude, subjective norm, and behavioral intent were screened for outliers (< 2 *SD* or > 2 *SD* from the *M)* by frequency distributions and histograms with the normal curve imposed. Visualization of the histograms for the variables of attitude and subjective norm appeared to be normally distributed but the histogram for behavioral intention appeared to be non-normal (see Figure 2). Two outlying scores were identified on the scales for attitude (43 and 44) and one on the scale for behavioral intent (1). Boxplots were used to identify the outlying cases.

These outlying cases were visualized for credible authority and were considered to be valid components of the sample while representative of individuals with extremely poor attitudes towards the use of condoms and with no intention to use them. As changing these outlying scores did not significantly alter the score distribution and the scores were considered to be an appropriate part of the data set, they were left unchanged.

Tests of Normality of Distribution

Normality of distribution of the dependent variable of behavioral intent was evaluated. The negatively skewed value (-1.32) indicated that the scores piled up on the right of the distribution. The positive value of kurtosis (.87) indicated a pointy distribution and a significant deviation from zero indicated that the data were not normally distributed. This finding was supported by a significant Kolmogorov-Smirnov value, $D = .26$, $p = .0001$.

As the scores for behavioral intent were not normally distributed, attempts to correct the data and thus allow for parametric analysis were employed. Three transformations were made: log transformation, square root transformation, and reciprocal transformation. As the scores were negatively skewed, they were first reverse scored and then reverse scored after transformations. These transformations failed to correct the distribution for the variable. Despite these efforts to correct the distribution of the scores for the dependent variable behavioral intent, the distribution remained non-normal and, therefore, inappropriate for parametric statistical methods.

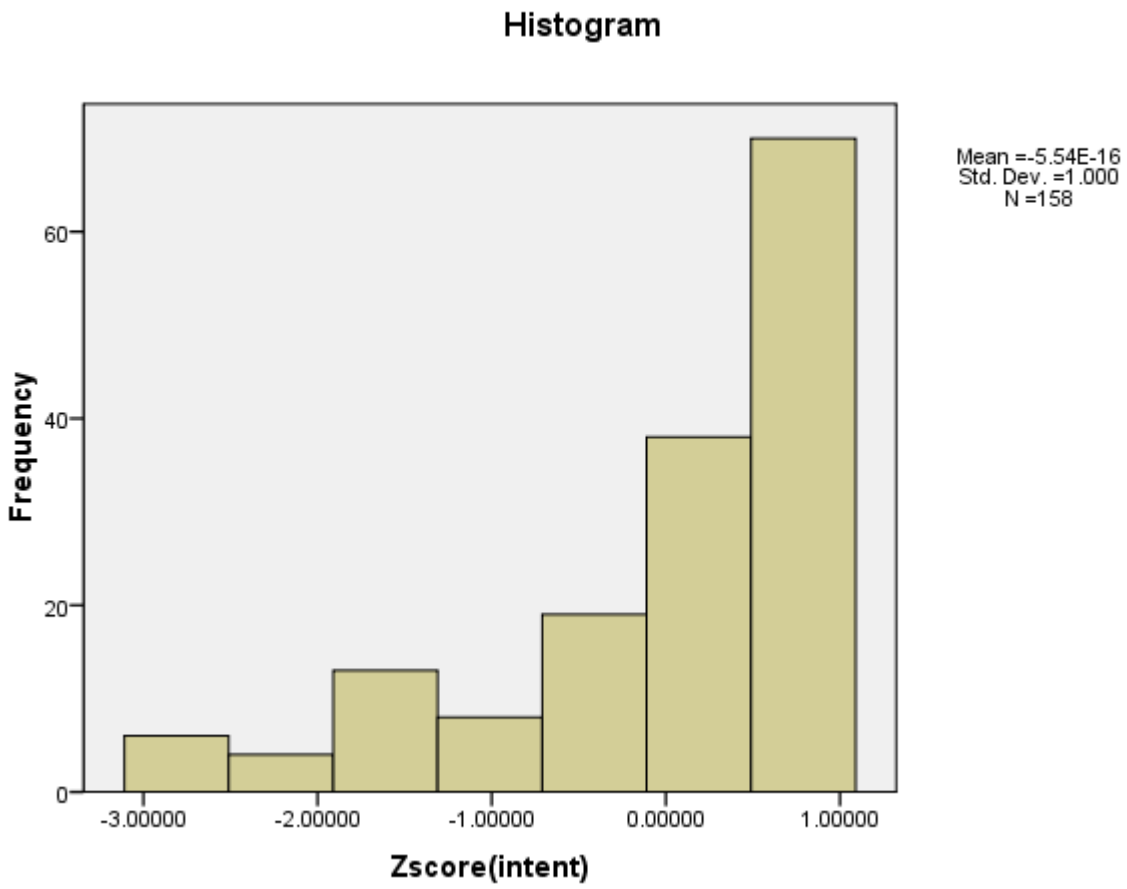

Figure 2. Histogram of scores for the dependent variable, behavioral intent.

Hypothesis Testing

One hypothesis was posed: There will be no significant contribution, uniquely or as a linear composite, between the predictor variables of attitude or subjective norm and the behavioral intent to use a condom during sexual intercourse among young adults in Nigeria. In this hypothesis, two independent variables, considered as predictors, and one criterion variable were identified. The variables were all initially measured as continuous data and appropriate for multiple regression. However, as the data were found not to meet the assumption of normality of distribution, the scores for the outcome criterion were transformed from continuous to dichotomous data wherein scores 1, 2, 3, 4, 5 and 6 were

re-coded to 0, indicating *less than full intent to use condoms for sexual intercourse*, and score 7 was re-coded to 1 indicating *full intention* to do so. Therefore, based on this re-coding, this hypothesis was tested by means of logistic regression. Logistic regression is well-suited for testing hypotheses about relationships between variables when the data do not achieve the assumptions considered necessary for linear parametric testing (Field, 2009).

Collinearity statistics were calculated. The tolerance statistic (.93) was well above zero, and the VIF value (1.08) was considerably less than 10. These values were accepted as evidence that multicollinearity was not a concern. This was supported by the results of bivariate correlation analysis presented in Table 5 whereby the predictor variables are significantly related to the outcome measure but not to each other.

Table 5.

Inter-correlations for Behavioral Intent to use Condoms for Sexual Intercourse and Predictor Variables (*N* = 145)

Measure	1	2	3
1. Behavioral intent	--	.267**	.276**
2. Attitude		--	.001
3. Subjective norm			--

**$p < .01$

Both of the independent variables, attitude and subjective norm, were found to be positively and significantly correlated to the dependent variable, behavioral intent. The values for *r* indicate that the effect of the relationship was medium; the significance of the relationship indicates that the findings may be generalized with confidence.

Logistic Regression Analysis

The two-predictor logistic model was fitted to the data to test the hypothesis regarding the relationship between the likelihood that the intent of young Nigerian adults to use condoms for sexual intercourse is predicted by attitude and subjective norm. The results showed that the predicted logit of behavioral intent = -5.600 + (.031)* attitude + (.019)** subjective norm. According to the model, the log of the odds of a young Nigerian adult intending to use condoms for sexual intercourse was positively related to attitude scores (p = .03) and positively related to subjective norm scores (p = .0001) with attitude being the most influential predictor (see Table 6).

Evaluations of the Logistic Regression Model

The soundness of the logistic regression model was supported by the overall model evaluation, statistical tests of individual predictors, and goodness-of-fit statistics.

Overall Model Evaluation

The logistic model provides a better fit to the data than does the null model. This improvement was supported using three inferential statistical tests: the likelihood ratio, score test, and Wald test. Table 6 shows that all three tests yielded the same conclusions, namely that the logistic model was more effective than the null model.

Table 6

Logistic Regression Analysis of 159 Young Nigerian Adults' Behavioral Intent towards the use of Condoms for Sexual Intercourse

Predictor	β	*SE* β	Wald's X^2	*df*	*p*	Odds Ratio
Constant	-5.600	1.391	16.218	1	.000	NA
Attitude	.031	.014	4.711	1	.030*	1.032
Subjective norm	.019	.004	17.974	1	.000**	.004

Test	X^2	*df*	*p*
Overall model evaluation			
Likelihood ratio test	32.721	2	.00**
Score test	32.721	2	.00**
Wald test	32.721	2	.00**
Goodness-of-fit test			
Hosmer & Lemeshow	8.337	8	.401

Note. Cox and Snell R^2 = .207, Nagelkerke R^2 = .277. NA = not applicable.
*p < .05, **p < .01.

Statistical Tests of Individual Predictors

According to Table 7, both attitude and subjective norm were significant predictors of young Nigerian adults' intent to use condoms for sexual intercourse.

Table 7

Mean Values for Predictor Variables as a Function of Intent to use Condoms for Sexual Intercourse (N = 145)

Variable	Intenders (n = 63)	Non-Intenders (n = 82)	t (143)
Attitude	90.206	81.829	3.430**
Subjective norm	162.90	117.31	6.349**

**$p < .001$

Goodness-of-Fit Statistics

Goodness-of-fit statistics assess the fit of the logistic model against the actual outcome of whether the individual intends to use condoms for sexual intercourse. One inferential test and two descriptive measures are presented in Table 6. The inferential goodness-of-fit test is the Hosmer-Lemeshow test that yielded an X^2 (8) of 8.337 and was insignificant (p = .401), suggesting that the model was fit to the data well and the null hypothesis was rejected.

Summary

The study progressed over the course of three phases with each phase building on the results obtained in the previous phase. At each phase, volunteer participants, representative of the target population, provided data. Information collected in phase 1 was used to construct a research instrument culturally and language appropriate to the population. Phase 2 involved data collection to allow for psychometric testing of the newly constructed instrument; this instrument was found to be valid and reliable for the

population. Phase 3 consisted of data collection from a sample of appropriate size to carry out the planned statistical analyses to answer the research questions and test the hypotheses.

The scores for the dependent variable, behavioral intent, were not normally distributed with a preponderance of scores indicating that the participant intended to use condoms for sexual intercourse. Therefore, parametric testing by means of regression analysis was abandoned and non-parametric procedures were applied. The results demonstrated that attitude toward condom use and subjective norm, the perception of the opinions of significant groups and the motivation to comply with that perceived opinion, are positively and significant predictors of behavioral intention to use condoms for sexual intercourse among the sample of young Nigerian adults.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

The purpose of this study was to measure the constructs of the TRA and examine their relationships as predictors of the intent to use condoms for sexual intercourse among a group of young Nigerian adults. This chapter summarizes the results of this study as well as comparing and contrasting these results with the previously reported findings in the literature. Implications for the discipline of nursing as well as directions for future research are discussed.

The Hypotheses

The results of this study support that both attitude and subjective norms are positively and significantly correlated to behavioral intent. Findings from this study indicate that the belief that condoms reduce the risk of HIV predicts young adults in Nigeria's intention to use condoms during sexual intercourse. The more positive the belief that condoms reduce the risk of HIV, the higher the correlation with the intent to use condoms. These results are consistent with the theory of reasoned action developed by Ajzen and Fishbein (1980).

Results of this study supported that subjective norms are correlated to the behavioral intent to use condoms for sex in young Nigerian adults. Young Nigerian adults rated "health care providers, friends, sexual partners and educators" among the highest in influencing their intent to use condoms when having sex. The finding, that the normative beliefs are important in determining intention to use condom during sexual intercourse, is perhaps not surprising given the dyadic nature of condom use and the findings that sexual partners have a significant role to play in decision-making process during sexual

intercourse. Results from this study indicate that young people's intention to use a condom is significantly related to their personal normative beliefs which are in keeping with results from previous studies (e.g., Fekadu & Kraft, 2001).

Results of item analysis revealed that that educators and counselors influence the intention of the young adults to use condoms during sexual intercourse. This finding indicates that educators and counselors were considered significant others who play an important role in regulating sexual practices. Thus, this might imply that educators and counselors could be encouraged to talk more to the young adults about sex related issues.

Relationship of the Study Results to Prior Research

Hypothesis 1 stated that there would be a significant positive correlational relationship between the independent variable of attitude and the behavioral intent to use condoms for sexual intercourse among young Nigerian adults. The finding that attitude and subjective norm were influential in the decision to use condoms is consistent with those of Albarracin et al. (2001) who reported that attitude correlated strongly with intention. These results are corroborated in previous research applying TRA to other professions, studies which demonstrated that positive attitude toward condom use significantly predicted condom use (Aleksandar, Graham, & Dean 2007; Blanchard et al., 2003; Fisher el al., 1995; Giles et al., 2004; Gillmore & Archibald 2002; Kocken et al., 2006; Lescano et al., 2006; Maue et al., 2004; Roberts, 1998; Sable et al., 2006; Voorhees et al., 2005).

Aleksandar et al. found that although young Croatian adults had positive attitudes towards the use of condoms during sexual intercourse, their use of condoms was not consistent. This finding indicates that even with positive attitudes toward the use of

condoms, the use was not consistent among this population. Aleksandar et al. posited that lack of knowledge regarding the use of condoms might have led to this inconsistence in reported use of condoms. Thus, this underlines the importance of comprehensive sex education for young people before they become sexually active. This study extended the work of Aleksandar et al. in identifying the importance of improving young people's attitudes and understanding of sexual health risk and to provide them with necessary behavioral and communication skills. Therefore, the findings from this study support the previous works by Aleksandar et al. (2007) and Blanchard et al. (2003) who suggested that young people need to be encouraged to have positive attitudes toward condom use.

It should be noted that not all prior research is in agreement, as some researchers reported that youths' normative beliefs did not predict intention to use condom during sexual intercourse (Bosompara, 2001; Fekuda, & Kraft, 2002; Gillmore & Archibald 2002; Godin, Fortin, Michaud, Bradet, & Kok, 1997). Fekuda and Kraft (2002) stated that this is obvious especially in cultures where decision making process is more individualistic. This is in direct contrast to the findings of this study and the findings of DiClement's (1991) study that support that peer norms predicted young adults' intention to use condom for sexual intercourse.

Some researchers found no evidence to suggest that attitudes toward condom use were related to condom use, which directly contrasts to the results of this study [Fekadu & Kraft, 2002; Fisher & Fisher, 1995; Fisher et al., 1995]) Giles et al. (2005) postulated that the reason for this is that decision-making in African cultures is governed more by social factors, and, as such, personal consideration will therefore have less relevance especially in more traditional contexts. The differences in the findings of this study might

be a result in social factors such as changes in the content of sex education, youth exposure to explicit materials, and in general social awareness of sexual risk-taking behaviors. These may have contributed to more carefully reasoned decisions about engaging in sexual intercourse among more contemporary young people in Nigeria. In addition, this study used the TRA to examine the predictive relationships of attitudes and subjective norms of young Nigerian adults' intent to use condoms for sexual intercourse. Thus this study differs from that of Giles et al. (2005) who utilized differing theoretical underpinnings and instruments in their research.

In this study normative beliefs showed the highest correlation to behavioral intent to use a condom during sex. Similar results have been obtained by other researchers who found significant correlations between attitudes and intention (Armitage, 2005; Bosompara, 2001; Fekuda & Kraft, 2002; Godin et al., 1997). Fekuda and Kraft (2002) posited that the finding that the normative component is important in determining intention to use condoms during sexual intercourse is perhaps not surprising given the dyadic nature of condom use and the findings that sexual partners have significant role to play in the decision-making process concerning sexual intercourse.

Results of this study support the hypothesis that young people's intention to use condoms is significantly related to their personal normative beliefs regardless of gender. Giles et al. (2005) contended that the lack of gender differences is because both genders share a common environment, are exposed to the same information as circulated by the media, are exposed to the same social pressures and condom use promotion programs. Thus, as postulated by Ajzen and Fishbein (1980), the influence of gender is mediated through the constructs of the model.

Limitations of the Study

Empirical research on attitude and subjective norms of young Nigerian adults related to condom use during sexual intercourse for prevention of HIV is limited with this study being the first in this area. The results of this study provided insight into the predictive power of attitude and subjective norm for condom use among young Nigerian adults and the efficacy of the TRA for predicting intention to use condoms by young adults. While this study has added to the body of research in these important areas, this study is not without limitations which will be discussed herein.

A convenience sample was used. Because of this sampling strategy, it cannot be assumed that the participants in this study are truly representative of the larger population of young adults in Nigeria. This is because, the United Nations Agency for AIDS (2006) estimated that the population of Nigeria in 2005 was 141 million. It is composed of 250 ethnic groups with the most populous and politically influential being the Hausa and Fulani together 29%, Yoruba 21%, Igbo 18%, Calabar 10%, Ibibio 4.5%, Annang 3.5%, Efik 2% , Ijaw 6.5%, Kanuri 4%, and Tiv 2.5%. Although the exact demographics of the population of young adults in Nigeria is unknown, it has been estimated that young adults make up 53% of the country's population.

Ethnically, the sample of this study is composed of 29.5% Igbo, 27.7% Hausa, 8.2% Yoruba, and Igala together 7.5%, Ibibio and Idoma each 4.4%, Edo and Tiv each 3.8% and others 10.7%. With the over representation of the Igbos, the Hausas and the Fulanis, and under-representation of the other ethnic groups, in this study, the sample is not truly representation of the population from which it was drawn. These results cannot be generalized with confidence because the participants were not randomly selected. This

is one of the disadvantages of using convenience sampling as true representative samples of the population may not occur because of this technique (Salkind, 2000a).

Data were collected via a self-report method. The self-report questionnaire may have influenced the results. Self-report questionnaires could result in inaccuracies that could affect the results. However, to promote accurate assessment of participants' attitudes and normative beliefs for the use of condoms the researcher utilized an anonymous method to encourage participants answering honestly.

The researcher's presence during data collection could have some effect on the results. Participants may have been influenced by the presence of the researcher and may have responded to the questionnaires in the manner perceived to be more socially and morally acceptable to the researcher. Once again, anonymity of responses was stressed in an effort to maximize participants honestly answering surveys.

The sensitive nature of the items contained in the survey could have affected the accuracy and honesty of the participants' answers. Sexual intercourse is a private issue in Nigerian culture and discussions on young adults' use of condoms is viewed as encouraging the young people to be promiscuous (Olaseha et al., 2004).

The instrument used was designed for young adults in Nigeria. This makes it difficult to generalize the findings to other populations with different ethnic backgrounds and characteristics. So caution must be used before generalizing the findings to other populations with different ethnic backgrounds and different demographic characteristics. As an example of one of those characteristics, such as level of education may have influenced the criterion variable; however, they were not measured in this study. The participants were primarily college-educated individuals able to read and understand the

English language. This inclusion criterion leaves out uneducated people who may have a different view and level of knowledge about condom use and safe-sex behavior. Caution should be used when in generalizing to populations with differing levels of education not consistent with the sample of this study. Also, the use of a single theoretical perspective to investigate intention may limit the appearance of significant findings not measured with the TRA.

Implications of the Study

Because HIV/AIDS has posed enormous challenges to educators, those in various government sectors, and health care planners, the results of this study have implications for nursing education, practice, research, and social policy.

Implication for Nursing Education

The findings in this study, that attitude and subjective norm positively predict intention to use condoms among young adults in Nigeria, have implications for nursing education. This can be useful in helping to improve nurses' understanding of the positive contributions of attitudes and subjective norms in young people's intention to use condoms. Thus nurse educators and nurses working with young people can utilize the information from this study in planning and designing nursing intervention and safe sex educational programs that may prove effective toward building or increasing positive attitudes toward condom use. Positive attitudes toward condom use may increase consistent condom use and thus help to slow or prevent the spread of HIV infection and significantly decrease the rate of mortality.

The majority of the youths interviewed during the first phase of this study felt that the instructions concerning HIV infection and AIDS in schools were limited and

fragmentary. The principal content of instruction was how the virus is transmitted and how it is not transmitted. Instruction on attitude to HIV infected persons and the consequences of AIDS had not been given much attention in the classroom. Instruction which influences attitudes and behavior should consist of more than giving out information. A comprehensive approach would be to promote sexual responsibility and, at the same time, improve young people's understanding of sexual health risk and provide them with necessary behavioral and communication skills (Aleksandar et al., 2007). Aleksandar et al., contends that effective sexual health education programs are those that are designed to improve positive attitudes, knowledge of safe sex, and confidence in self to use condoms consistently. Such programs should be encouraged and widely implemented.

Teachers must be trained to teach health education directly and openly. Therefore, this study may influence the educational strategic planners in Nigeria to give teachers the training and support that they need to become an effective vehicle for sexual behavior change among the nation's youth. The educational efforts directed towards young people are being conducted by many organizations and institutions, of which the school is one of the best due to its accessibility. Therefore, nurse educators need to inform nurses and nursing students of their unique role in educating individuals about safe sex behaviors. The efforts of nurses and nursing students should be heightened in school venues.

Health educators should educate young people on proper condom protocols to dispel myths that individuals may have learned. The following human factors have been shown to reduce the effectiveness of condoms: using oil base lubricants such as

petroleum jelly and lotions that weaken latex, using condoms in damaged packages or that show obvious signs of age (brittle, sticky or discolored), storing condoms in direct heat or sunlight (Marandu, 2004). The program should aim at educating the general population on the technical and human aspects of condom efficacy. At the same time, the program should caution people that although condoms are effective, they are not foolproof; the only absolute strategies are abstinence and mutual monogamy. If young people's negative attitudes toward condom use are to be changed, comprehensive sex education must become part of school and nursing education curriculums in Nigeria.

Implications for Nursing Practice

HIV prevention, risk assessment, and case finding are necessary role for both primary and specialized medical care providers. Registered nurses, and advanced nurse practitioners are in unique positions to assess, develop, implement, and evaluate prevention programs that are targeted to this population. While many physicians and nurses have already received basic HIV training and education, a study by Wolf, Linsk, Mitchell, and Schechtman (2004) suggested that a majority of healthcare providers have not assumed a public health role with regard to the HIV epidemic. Wolf et al. (2004) found that only a quarter of the participants reported having been assessed by their physician for HIV and STD prevention. As a result medical providers may need updated information and training sessions not necessarily related to antiretroviral treatment protocols, but for HIV prevention, assessment and identification of HIV risk behaviors.

Preventive programs developed by nurses must include content on behavioral change theory. Such theory as the health belief model can be very effective. This model examines the individuals' perceived susceptibility, severity of the HIV infection, benefits

of changing the behavior, barriers to changing behaviors, and self-efficacy in using protective measures (Rosenstock, Stretcher, & Becker, 1994). These preventive measures may be effective in helping the young adults to identify risk behavior and increase or improve their positive attitudes toward condom use.

These results could be used to develop nursing interventions and target educational strategies for this population to encourage safer sex behavior and decrease the spread of HIV. However, the use of culturally appropriate interventions cannot be over emphasized. Transferring knowledge of HIV prevention in a manner that is not culturally sensitive reduces the relevance of the material, and in turn, affects individuals' ability to make healthy choices and avoid risky behaviors.

Nurses must be comfortable and proficient in screening the members of this population for their perceptions of their significant others. The result of the current study indicated that significant others have great influence on the sexual decisions of the young adults in Nigeria. Nurses should consider asking a question such as: "What are the perceptions of your significant others towards the use of condoms for prevention of HIV?" This will allow the nurse a more in-depth assessment of the client's risk for HIV.

Although series of HIV/AIDS educational programs have been organized in Nigeria, very few or almost no organized prevention models and evaluation strategies specifically tailored to the needs of Nigerian young adults currents exist. This study offered a group of young Nigerians the opportunity to share, discuss, and acquire relevant HIV/AIDS information.

The successful implementation of HIV /AIDS intervention depends on several factors. The nurse must be proficient in screening members this population, and

comfortable with sexual history taking with them. Nurses who work with this population should be non-judgmental, straightforward and frank in discussing sexuality. A quick assessment can be conducted by asking the client questions such as: “What do you do to prevent HIV when you are having sexual intercourse?”, “ What do you consider when you decide whether or not to use a condom during sexual intercourse?”, and “What is your opinion regarding the use of condoms as a preventive measure for HIV?” These questions allow clients to open up and discuss sexuality freely. It is important to re-enforce that HIV is caused by risky sexual behaviors.

In addition, nurses are responsible for providing both verbal and written information on HIV infection for members of this population. Written information should be available in the language and level that can be easily understood by the community. Information should include the cause of HIV, how an individual can be infected, and why the population is vulnerable.

The nurse can also be a good resource for developing group sessions for the population. During these sessions, the nurse can present topics that are relevant to HIV prevention. The nurse can use the opportunity to discuss attitudes that can have good or bad effects on sexual behaviors. The nurse can emphasize on abstinence and positive attitude toward the use of condoms for the prevention of HIV. The nurse should attempt to modify people’s beliefs about the outcomes of using condoms and to increase normative pressure to take preventive actions.

Similarly, nurses, practitioners, and counselors may counteract beliefs about negative outcome of using condoms. For example if an individual reports that that using a condom makes sex painful or uncomfortable, the nurse must probe for the reason. If the

person says that condoms are too dry, the nurse or the counselor may suggest extra lubricant (Middlestadt et al.). Group discussions should aim at promoting favorable attitudes and support positive social norms among young people create self-awareness; build skills on communication, condom use and its negotiation with partners; and build networks with this population and the disenfranchised in the community.

Implications for Nursing Research

This research may be the first to study the attitude and subjective norm for condom use among young Nigerian adults and the efficacy of the TRA for predicting intention to use condoms by young adults, thus adding to the body of nursing research. The largest implications for nursing research lie with recommendations for future research as outlined below. Based on these results, research initiatives that encourage and support research in HIV prevention should be implemented.

Implications for Social Policy

The reduction of the spread of HIV/AIDS is among the highest priority for all nations including Nigeria. It is anticipated that this study may influence the Nigerian Ministry of Health to review and evaluate national policies and programs on HIV/AIDS with the view of reducing the vulnerability of young people to HIV/AIDS. The curriculum of educational programs must be updated to include information regarding attitude and social pressures and how individuals may be empowered to exert protective control over their own sexual behavior.

The findings of this study indicate that nurses need to be involved in policy development at all levels of the government to ensure that young people receive adequate health care and services. On the national level, nurses need to advocate for funding to be

allocated to HIV/AIDS prevention. These funds could be used to cover the cost of primary education on HIV prevention for young people. With the steady increase in new HIV infections (WHO, 2006), advocating for increased funding for these services is imperative.

On the federal and state level, nurses need to advocate for preventative services. As primary prevention efforts have not consistently decreased HIV infection rate among young people, nurses need to be more active in examining primary prevention strategies in order to make them more effective in decreasing HIV transmission among young people. Writers in health care should consider the benefits of good sexual health for individuals especially the young people who are at risk for contracting HIV. Therefore, policies should be implemented that are designed to decrease the rate of HIV among young people. Policies that are designed to increase the availability and affordability of condoms should be implemented for this population.

Recommendations for Future Research

More research is needed to more fully explore the role of norms in predicting intention to use condoms among young adults. It may be interesting to replicate the study to examine who are the most influential persons regarding an individual's intent to use a condom and what is the most influential normative component (could be peer pressure, health practitioners, parents, siblings, or family members). Additionally, replicating this study with adults in addition to young adults would be helpful in identifying if social norms would be significant for differing age groups.

Further, studies replicating whether young people who have a positive attitude toward condom use actually use condoms consistently during sexual intercourse should

be conducted. A prospective study design would be able to test the assumption that individuals' intention reliably predicts condom use. Future research using a prospective study design is recommended.

The instrument in this study was designed for young adults in Nigeria. Although reliability and validity was established using this tool within this population, testing this instrument with other populations is recommended to add to the body of scientific knowledge.

The participants for the current study were primarily educated individuals. Future studies could include uneducated people who may have different views and level of knowledge about condom use and safe sex behavior.

The TRA does not measure individuals' perception of their ability to control their behavior. To include such a measure, the theory of planned behavior, which Ajzen and Fishbein (1980) developed by expanding the TRA could be used. However, the TRA was used because the intention to use condom is within the individual's immediate control. Future studies could include a measure of perceived behavioral control to examine the extent to which high volitional control minimizes the utility of behavioral intention.

Although the TRA has been used in nursing research, repeated studies using the TRA in nursing would help to validate the theory and predictors of condom use intention. Strategies for confirming, increasing and maintaining a positive attitude toward condom use have great potential in predicting consistent condom use. Thus, it is recommended that nurse researchers conduct further studies on attitude and influence of societal norms in predicting condom use among young persons in order to help identify strategies that

may prove effective in boosting positive attitudes among young people and the larger society.

The results of the current study have shown that normative beliefs strongly predicted intention for the study's young Nigerian adults to use condoms. It can be gleaned that factors specific to Nigerian culture contributed to this. An implication for further research is to examine the influence of cultural factors on the actual behavior of condom use and its association with intention. Further research on safer sex activities may improve our insight into the role of cultural factors in explaining intention and behavior. Longitudinal studies may be needed to unravel causal mechanisms of condom use intention. Evaluative research into safer sex behavior will teach us how to motivate communities to take action to pursue effective preventive programs.

Further study in other cultural groups and educational backgrounds is recommended as they may yield different results because of differences in cultural sexual expression, sexual practices. Level of education and safe sex knowledge may also impact attitudes for condom use during sexual intercourse.

Other directions for further research could be to replicate the study to examine the influence of gender on attitude to condom use. During the instrument development stage of this study, participants in the group emphasized that male partners have a greater tendency to agree with beliefs that may encourage non-use of condoms. This may imply that programs for behavioral change may be made more effective by focusing on men.

Summary

The purpose of this study was to determine the efficacy of the constructs of the theory of reasoned action to predict the intent to use condoms during sexual intercourse among young Nigerian adults. Information obtained from this study could be useful in designing culturally sensitive nursing interventions tailored to this population. Ajzen and Fishbein's (1980) TRA provided the theoretical framework for studying the major concepts in this study. The results of this study provided knowledge of these variables that influence the intention of young Nigerian adults to use condoms during sexual intercourse for HIV prevention. These findings should be used to assess, plan, implement, and evaluate prevention and educational strategies to halt the spread of HIV infection in this population. Future studies could build on the findings of this study; that is, it could spawn other related research on preventing the spread of HIV. The present findings have not only shown that the TRA can be used effectively to predict condom use, but also highlight the extent to which the study participants' sexual behavior intentions are governed by other sources of social influence

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Appendix A

Institutional Review Board Documents

Barry University

Dear Research Participant:

Your participation in a research project is requested. The title of the study is *Attitude and Subjective Norm as Predictors of Behavioral Intent toward Condom Use among Nigerian Youth.* The study is being conducted by Bernadette Dike, a student in the nursing department at Barry University, and is seeking information that will be useful in the field of nursing. The aim of the research is to test research survey instrument that will be used to collect information regarding the beliefs that influence the decision regarding the use of condoms for sexual intercourse. In accordance with this aim, the following procedures will be used: completion of a research survey questionnaire. We anticipate the number of participants to be 50.

If you decide to participate in this research, you will be asked to complete a demographic survey and a survey questionnaire. You are required to list your responses on a plain white sheet of paper provided to you by the researcher. When complete, put the paper in a plain white envelope provided to you, seal it and place it into a locked box provided to you by the researcher. It is estimated that completion of the questionnaire will take about 20 minutes.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects to you. However, once responses are co-mingled, there will be no way to identify and remove your responses from the group.

There are no known risks to you. Although there are no direct benefits to you, your participation in this study may help our understanding of the factors that motivate the decision to use condoms for sexual intercourse. Also findings from this study will help health and social services professionals to develop appropriate and cultural sensitive strategies to help decrease the rate of HIV infection among Nigerian young adults. As you submit the completed survey, you will receive a gift of 'T' shirt in appreciation for your time and participation.

As a research participant, information you provide will be kept anonymous, that is, no names or other identifiers will be collected on any of the instruments used. Data will be kept in a locked file in the researcher's home office. By completing and returning this survey you have shown your agreement to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Bernadette Dike, at 0803-498-5251, or my e-mail at Bernadette_dike@hotmail.com , my supervisor Dr. Jo Ann Kleier, at + 1 (305) 899-3800, or e-mail at jkleier@mail.barry.edu or the Institutional Review Board point of contact, Barbara Cook, at +1 (305) 899-3020 or e-mail at BCook@mail.barry.edu

Thank you for your participation.

Sincerely,

Bernadette Dike

Bernadette Dike

Approved by Barry University IRB
Date: MAY - 8 2009
Signature: Joan C. Gauldmark, MD, FACEP

Appendix B

Recruitment Flyer

VOLUNTEERS NEEDED

RESEARCH STUDY

Are you a Nigerian Young Adult age 21-30 years and want to assist with identifying predictors of behavioral intent of young adults in Nigeria towards condom use for prevention of HIV?

- Volunteer to participate in a study.
- We will be distributing questionnaires at places that young adults in Nigeria frequently visit (I.E., Club Houses, Parks, Restaurants, Market Square, and Hair Salons) soon.
- Questionnaires can be completed in a short amount of time (20-30 minutes)
- No names will be used; your answers cannot be traced back to you.
- Come get your free gift for your input and time.

The Study will be conducted by Bernadette Dike, RN, MSN, ARNP, Doctoral student, Barry University, Miami Shores in Florida, USA. Findings from this study will help health and social services professionals to develop appropriate and cultural sensitive strategies to help decrease the rate of HIV infection among Nigerian young adults. For questions you may contact me at 0803-498-5251 or at Bernadette_dike@hotmail.com or Dr. Kleier at +1 (305) 899-3800 or at Jkleier@mail.barry.edu or Barbara Cook at +1 (305) 899-3020 or BCook@mail.barry.edu
Thank you for your participation.

Appendix C

Cover Letters

Barry University

Dear Research Participant:

Your participation in a research project is requested. The title of the study is *Attitude and Subjective Norm as Predictors of Behavioral Intent toward Condom Use among Nigerian Youth*. The study is being conducted by Bernadette Dike, a student in the nursing department at Barry University, and is seeking information that will be useful in the field of nursing. The aim of the research is to identify the groups of people that are influential in the decision regarding the use of condoms and the positives and negatives associated with condom use. In accordance with this aim, the following procedures will be used: compile two lists: (1) categories of people you consider influential in your decision to use condoms for sexual intercourse and (2) the advantages and disadvantages of using condoms. We anticipate the number of participants to be 20.

If you decide to participate in this research, you will be asked to do the following: Complete a demographic survey, and compile two lists: (1) categories of people you consider influential in your decision to use condoms for sexual intercourse and (2) the advantages and disadvantages of using condoms. List your responses on a plain white sheet of paper provided to you by the researcher. When complete, put the paper in a plain white envelope provided to you, by the researcher, seal it and place it into a locked box provided to you by the researcher. It is anticipated that this process will take approximately 20 minutes.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects to you. However, once responses are co-mingled, there will be no way to identify and remove your responses from the group.

There are no known risks to you. Although there are no direct benefits to you, your participation in this study may help our understanding of the factors that motivate the decision to use condoms for sexual intercourse. Also findings from this study will help health and social services professionals to develop appropriate and cultural sensitive strategies to help decrease the rate of HIV infection among Nigerian young adults. As you submit the completed survey, you will receive a gift of 'T' shirt in appreciation for your time and participation.

As a research participant, information you provide will be kept anonymous, that is, no names or other identifiers will be collected on any of the instruments used. Data will be kept in a locked file in the researcher's home office. By completing and returning this survey you have shown your agreement to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Bernadette Dike, at 0803-498-5251 or at my e-mail at Bernadette_dike@hotmail.com, my supervisor Dr. Jo Ann Kleier, at + 1 (305) 899-3800, or e-mail at jkleier@mail.barry.edu or the Institutional Review Board point of contact, Barbara Cook, at + 1 (305) 899-3020 or e-mail at BCook@mail.barry.edu

Thank you for your participation.

Bernadette Dike

Barry University

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If you decide to participate in this research, you will be asked to complete a demographic survey and a survey questionnaire. You are required to list your responses on a plain white sheet of paper provided to you by the researcher. When complete, put the paper in a plain white envelope provided to you, seal it and place it into a locked box provided to you by the researcher. It is estimated that completion of the questionnaire will take about 20 minutes.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects to you. However, once responses are co-mingled, there will be no way to identify and remove your responses from the group.

There are no known risks to you. Although there are no direct benefits to you, your participation in this study may help our understanding of the factors that motivate the decision to use condoms for sexual intercourse. Also findings from this study will help health and social services professionals to develop appropriate and cultural sensitive strategies to help decrease the rate of HIV infection among Nigerian young adults. As you submit the completed survey, you will receive a gift of T-shirt in appreciation for your time and participation.

As a research participant, information you provide will be kept anonymous, that is, no names or other identifiers will be collected on any of the instruments used. Data will be kept in a locked file in the researcher's home office. By completing and returning this survey you have shown your agreement to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Bernadette Dike, at 0803-498-5251, or my e-mail at Bernadette_dike@hotmail.com , my supervisor Dr. Jo Ann Kleier, at + 1 (305) 899-3800, or e-mail at jkleier@mail.barry.edu or the Institutional Review Board point of contact, Barbara Cook, at +1 (305) 899-3020 or e-mail at BCook@mail.barry.edu

Thank you for your participation.

Sincerely,

Bernadette Dike

Barry University

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If you decide to participate in this research, you will be asked to complete a demographic survey and a research survey questionnaire. You are required to list your responses on a plain white sheet of paper provided to you by the researcher. When complete, put the paper in a plain white envelope provided to you, seal it and place it into a locked box provided to you by the researcher. It is estimated that completion of the questionnaire will take about 20 minutes.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects to you. However, once responses are co-mingled, there will be no way to identify and remove your responses from the group.

There are no known risks to you. Although there are no direct benefits to you, your participation in this study may help our understanding of the factors that motivate the decision to use condoms for sexual intercourse. Also findings from this study will help health and social services professionals to develop appropriate and cultural sensitive strategies to help decrease the rate of HIV infection among Nigerian young adults. As you submit the completed survey, you will receive a gift of a 'T' shirt in appreciation for your time and participation.

As a research participant, information you provide will be kept anonymous, that is, no names or other identifiers will be collected on any of the instruments used. Data will be kept in a locked file in the researcher's home office. By completing and returning this survey you have shown your agreement to participate in the study.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Bernadette Dike, at 0803- 498- 5251 or at my e-mail Bernadette_dike@hotmail.com , my supervisor Dr. Jo Ann Kleier, at + 1 (305) 899-3800 or at jkleier@mail.barry.edu or the Institutional Review Board point of contact, Barbara Cook, at + 1 (305) 899-3020 or at BCook@mail.barry.edu

Thank you for your participation.

Sincerely,

Bernadette Dike

Appendix D

Demographic Survey

Demographic Questionnaire

Please provide the answers to the following items as completely and honestly as possible. If you do not feel comfortable answering any of the question(s) you do not have to answer the question.

1. As of your last birthday, what is your age? _____
2. What is your gender
    1. Male
    2. Female
3. What is your marital status?
    1. Married
    2. Single
    3. Widowed
    4. Divorced
    5. Separated
4. What is your ethnic background? _____
5. What is the highest level of education you have completed?
    1. No formal education
    2. Completed primary school
    3. Completed secondary school
    4. Some university
    5. Completed university.

Appendix E

Permission to Use Semantic Differential Instrument

Ms. Dike has my permission to adapt and use this instrument. I hope it proves useful.

Sincerely,

Paul Slovic

Paul Slovic
Decision Research
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Appendix F

Final Survey Instrument

Instructions

Please read each statement carefully and answer by circling the number that best describes your perception. There are no correct or incorrect answers.
Please adhere to the following guidelines:

- Provide one answer for each and every item – do not omit any.
- Do not circle more than one number on a single item.

The following scale measures attitude toward using condoms for sexual intercourse. Please circle the number that best completes the sentence: For me, using condoms for sexual intercourse is

1.	Boring	1	2	3	4	5	6	7	Exciting
2.	Immature	1	2	3	4	5	6	7	Mature
3.	Unaccepted	1	2	3	4	5	6	7	Accepted
4.	Unpopular	1	2	3	4	5	6	7	Popular
5.	Planned	1	2	3	4	5	6	7	Spontaneous
6.	Antisocial	1	2	3	4	5	6	7	Social
7.	Unattractive	1	2	3	4	5	6	7	Attractive
8.	Forbidden	1	2	3	4	5	6	7	Allowed
9.	Dislike	1	2	3	4	5	6	7	Like
10.	Wrong	1	2	3	4	5	6	7	Right
11.	Bad	1	2	3	4	5	6	7	Good
12.	Dangerous	1	2	3	4	5	6	7	Safe
13.	Not Beneficial	1	2	3	4	5	6	7	Beneficial
14.	Not Pleasurable	1	2	3	4	5	6	7	Pleasurable
15.	Tense	1	2	3	4	5	6	7	Relaxed
16.	Uncomfortable	1	2	3	4	5	6	7	Comfortable
17.	Unnatural	1	2	3	4	5	6	7	Natural
18.	Foolish	1	2	3	4	5	6	7	Wise

The decision you make regarding the use of condoms for sexual intercourse may be influenced by a number of people that are important in your life. The following statements have been constructed based on feedback from young adults asked to identify those groups of people they viewed as being important in their condom use decisions. Please respond to the following sentences based on **your own** perceptions.

1a. **My family members** (parents, brothers, sisters) think that I should use condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

1b. I want to comply with what **my family members** (parents, brothers, sisters) think about my using condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2a. **My health care providers** (doctors, nurses) think I should use condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

2b. I want to comply with what **my health care providers** (doctors, nurses) think about my using condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3a. Most of **my friends** think I should use condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

3b. I want to comply with what most of **my friends** think about my using condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4a. **My sexual partners** think I should use condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

4b. I want to comply with what **my sexual partners** think about my using condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5a. My **educators/counselors** (teachers, professors, pastors) think I should use condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

5b. I want to comply with what my **educators/counselors** (teachers, professors, pastors) think about my using condoms for sexual intercourse.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Lastly, please respond to the next item **based on your current plans and intentions** regarding using condoms for sexual intercourse.

I absolutely **do not** plan to use condoms for sexual intercourse. 1 2 3 4 5 6 7 I absolutely **do** plan to use condoms for sexual intercourse.

THANK YOU FOR YOR PARTICIPATION!

CURRICULUM VITA

EDUCATION

1983	Registered nurse/Midwife University College Hospital Ibadan, Nigeria
1999	B.S., Nursing Barry University Miami Shores, Florida
2001	M.S., Nursing, ARNP Barry University Miami Shores, Florida

PROFESSIONAL WORK EXPERIENCE

1983	Clinical Instructor Mercy Hospital Umulogho, Nigeria
1987	Director of Nursing Oke Ola Catholic Hospital Ibadan, Nigeria
1992	St John Nursing and Rehab Center Fort Lauderdale, Florida
1995	St Francis/Barry Nursing Center Miami Shores, Florida
1998	Registered Nurse Mount Sinai Medical Center, Miami Beach, Florida
1999- Present	Staff Nurse Jackson Memorial Hospital Miami, Florida
2003	Lindsey Technical School Miami, Florida
2009- Present	Adjunct Professor of Nursing Miami Dade Community College