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Maintaining Confidentiality among HIV Infected Couples: Physicians' Patterns of Decision in Nigeria

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Abstract

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MA, University College London, 2007

Bm. Bch, University of Jos, 1987

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Policies mandating HIV status disclosure to decrease incidence create ethical challenges for physicians on whether to breach or maintain infected patients' confidentiality. In Sub-Saharan Africa where HIV incidence is high, there is a need for clear guidelines/policies on making confidentiality decisions. The purpose of this quantitative quasi experiment was to determine whether the gender, gender orientation, and sexual relationship of an infected patient and physicians' demographics predicted physicians' decisions to breach confidentiality. In Plateau State, Nigeria, 222 physicians were given vignette questionnaires containing 6 different descriptions of gender, gender orientation, and sexual relationships of a hypothetical patient. Each physician decided to maintain or breach a patient's confidentiality in a variant. The utilitarian framework was applied, and data were analyzed using logistic regression models. A majority of the participants (70%) indicated a breach by directly informing sex partners or informing or referring to the health department. Only physicians' feature of previous confidentiality breach significantly predicted the decision to breach [p =.028, Exp (B) =.1.345, 95%CI (1.032, 1.753)]. The results suggested that regardless of patients' characteristics, physicians will breach confidentiality to protect sex partners potentially at risk of HIV infection. These findings may bring about positive social change by clarifying reasons for physicians' breach decisions, by informing the development of physicians' decision guidelines that would enhance physicians' practices in managing discordant couples, which could reduce HIV transmission among discordant couples leading to better and longer lives.

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Dedication

This dissertation is dedicated to my husband and my sons. Your love and support was an inspiration through the dissertation process.

And to all physicians, I hope the findings of this study will be used to enhance your practice and the care for HIV patients

Acknowledgments

I acknowledge my adorable husband for his outstanding support, motivation, and encouragement; my family and Bene clinic staff particularly, Mr. Ovie for their support and inspiration. You all looked up to me as a role model and I am glad I did not let you down,

I acknowledge all the faculty and staff at Walden University who made my Doctoral study a success. A special thanks to my chairperson Dr. Peter Anderson to whom I am indebted for his direction and encouragement to accomplish this work. I appreciate your help, unweaving support, and for not giving up on me. Special thanks to my second committee member Dr. Tolu Osoba, my URR Dr. Shingairai Feresu, and my student adviser Jared Yogerst for your great encouragement, advice, and support. Finally, I thank God almighty for his mercies that endures forever.

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Chapter 1: Introduction to the Study

Globally, HIV/AIDS continues to be a public health issue. There are about 36.7 million people currently living with the infection, 70% of whom reside in Sub-Saharan Africa (World Health Organization [WHO], 2016). According to an HIV and AIDS international organization –AIDS Virus Education Research Trust (AVERT) the increase in the number of new infections despite programs and policies in Sub-Saharan Africa (SSA) to curb the spread of HIV infection is of concern (AVERT, 2017b). Disclosing HIV positive status to sexual partners is crucial to prevention because about one-third of people living with HIV (PLWH) engage in unprotected sex without status disclosure to their sex partners who may have a negative status, thereby exposing partners to the infection (Awofala & Ogundele, 2016). According to Bott and Obermeyer (2013), nondisclosure of HIV positive status poses challenges for health workers, policymakers, PLWH, their sex partners, and their community.

Policies mandating HIV status disclosure to decrease HIV incidence have raised ethical and policy arguments (Bott & Obermeyer, 2013). Physicians treating HIV patients face the challenge of whether to maintain or breach patients' confidentiality to protect the population at risk of HIV infection (Bott & Obermeyer, 2013; Dawns,2015). Maintaining confidentiality may expose sexual partners to HIV infection, which may further propagate the transmission of HIV; alternatively, breaches in confidentiality may adversely affect therapeutic relationships, which may be harmful to the total wellbeing of a patient (Bott & Obermeyer, 2013). This dilemma can be burdensome in reaching a decision that would protect sexual partners without destroying the therapeutic trust

between patients and physicians. Moreover, medical regulatory bodies and policymakers in SSA have not taken clear positions on this issue but have allowed such decision making to the discretion of physicians (Iyioha & Nwabueze, 2016; Odunsi, 2007). In their practice, physicians have continued to struggle with the challenges of nondisclosure and have expressed a need for more guidance and support in this area (Bott & Obermeyer, 2013).

In my research, I investigated patients' and physicians' features that physicians may consider in making confidentiality decisions. The findings of this study may provide an insight into physicians' decision-making patterns, demonstrating features that may influence their willingness to breach confidentiality when caring for HIV positive patients who may pose a risk to sexual partners. Study findings may be used to enhance physicians' practices by clarifying physicians' reasons for making decisions to maintain or breach medical confidentiality among HIV patients. The findings also may promote positive social change by informing policies and programs aimed at HIV status disclosure and prevention.

In Chapter 1 of this study, I discuss the study background, the problem statement, and the purpose of the study. Further discussions include the research questions and hypothesis, the theoretical framework, and the nature of the study. Last, I define variables and terms used in the study, and I discuss the study assumptions, scope, and limitations.

Background of the Study

HIV remains a public health burden globally, and SSA is the most severely affected with 1 in every 25 adults (4.4%) being infected with the disease and accounting

for nearly 70% of the PLWH worldwide (WHO, 2016). After South Africa, Nigeria has the second-largest number of PLWH worldwide (Awofala & Ogundele, 2016). In recent years, progress in lowering new HIV infection among adults in SSA has slowed to the point of reversing; the annual incidence that persistently remained at 1.9 million since 2010 was estimated at 2.1 million in 2015 (AVERT, 2015). Besides, 40-50% of the PLWH are unaware of their HIV status, and the disclosure rate of HIV status to sexual partners is as low as 16% in some SSA countries (Ebuenyi et al., 2014).

Concealment of HIV status negatively affects prevention for transmission of the disease as a large proportion of new infection is seen among discordant couples (Bott & Obermeyer, 2013; Salihu, Yusof, & Halim, 2018). The implication of disclosure has been recognized by policymakers, researchers, and public health program planners. Disclosure will enable partners to protect themselves against HIV infection, either by avoiding unprotected sex with PLWH or by abstaining from sexual intercourse with them (Ebuenyi et al., 2014; Odunsi, 2007). Since 2004 countries of the sub-Saharan region have been migrating from voluntary HIV status disclosure to adopting programs and policies that mandate or encourage HIV status disclosure or support the criminalization of disease transmission (Bott & Obermeyer, 2013; Iyioha & Nwabueze, 2016). Although researchers and policymakers debate the benefits and limitations of criminalization and mandatory status disclosure to public health, health workers face the challenge of whether to maintain patients' confidentiality and support patient-physician trust and treatment or to breach confidentiality to protect third parties at risk of infection. Medical regulatory bodies and policymakers in SSA have not taken clear positions on this issue,

and in their practice, physicians have continued to struggle with the challenges of nondisclosure and have often expressed a need for more guidance and support in this area (Bott & Obermeyer, 2013).

Researchers from the developed countries have investigated the role of physician and patient characteristics features in determining risk perception and in making confidentiality decisions in hypothetical cases where confidentiality may be breached to protect third parties at risk (Alghazo, Upton, & Cioe, 2011; Daly, Hevey, & Regan, (2011); DiMarco & Zoline, 2004; Schwartzbaum, Wheat, & Norton, 1990; Stewart & Reppucci, 1994). These researchers investigated patients' characteristic features such as gender orientation including homosexual, bisexual, and heterosexual; patients' gender and race; and physicians' demographic features as they related to physicians' decisions to breach or maintain confidentiality. Similar studies, however, are scarce in SSA; I found two studies where researchers investigated whether health workers would maintain or breach confidentiality in the management of HIV patients (Bott et al., 2015; Reis et al., 2005). Reis et al. (2005) reported that 38% of the 324 physicians, 674 nurses, and midwives investigated would breach confidentiality while 83% of health workers interviewed in Burkina Faso, Kenya, and Uganda said that they would disclose HIV positive status to patients' sex partners, family, or friends (Bott et al., 2015). The researchers in these studies did not investigate features that could influence confidentiality decisions. I could not find any study where the researchers investigated physicians' patterns on confidentiality decision making in SSA and Nigeria, or determine what factors were taken into consideration to maintain or breach confidentiality. To fill

this gap in the literature, I carried out this research in Central Nigeria. This research is needed because the findings could enhance physicians' practices in the management of HIV patients. I hope to contribute to the body of public health literature by documenting physicians' decision-making processes in my locality, demonstrating features that may influence physicians' willingness to maintain or breach confidentiality when caring for HIV positive patients who may pose risks to sexual partners. The findings may inform policies and programs aimed at HIV prevention in Nigerian and other communities in SSA.

Problem Statement

HIV infection has remained a public health burden for decades in SSA, and Nigeria has the second largest population of PLWH worldwide after South Africa (Awofala & Ogundele, 2016). Policies mandating HIV status disclosure to decrease HIV incidence have raised ethical and policy arguments (Bott & Obermeyer, 2013). Physicians treating HIV patients face the challenge of whether to maintain or breach patients' confidentiality to protect the population at risk of HIV infection (Bott & Obermeyer, 2013; Dawns, 2015). Maintaining confidentiality may expose sexual partners to HIV infection, which may further propagate the transmission of HIV; alternatively, breaches in confidentiality may adversely affect therapeutic relationships, which may be harmful to the total wellbeing of a patient (Bott & Obermeyer, 2013). This dilemma can be burdensome in protecting sexual partners without destroying the therapeutic trust between patients and physicians. Moreover, medical regulatory bodies

and policymakers in SSA have not taken clear positions on this issue but have allowed such decision making to the discretion of physicians (Odunsi, 2007).

Although scholars with studies regarding policies on HIV status disclosure in developed countries (Dawn, 2015; Khan, 2016; Sanders, 2014) and in SSA (Awofala & Ogundele, 2016; Dapaah & Senah, 2016; Kharsany & Karim, 2016) illuminate findings, there is a dearth of research on how disclosure policies in the SSA influence behavior in practice to reduce HIV incidence (Bott et al., 2015; Bott & Obermeyer, 2013). According to Bott and Obermeyer (2013), scholars do not know what factors may affect physicians' decisions to maintain confidentiality or to notify sexual partners at risk. Further research is warranted on the documented problem. In this research, I examined patients' and physicians' characteristic features related to physicians' confidentiality decisions that influence physician's willingness to breach confidentiality when caring for HIV positive patients who may pose a risk to sexual partners. The findings of this study may help clarify physicians' reasons for making decisions to maintain or breach confidentiality. The findings also may inform programs and policies mandating HIV status disclosure.

Purpose of the Study

The purpose of this quantitative study was to investigate patient and physician characteristics that are related to/ may predict physicians' decision to maintain or breach HIV confidentiality in Plateau state of Nigeria. Considering the persistent incidence of HIV infection (Kharsany & Karim, 2016; Joint United Nations Programs on HIV/AIDS (UNAIDS), 2015), how physicians in resource-constrained areas can ethically serve infected patients and protect their sex partners from potential exposure is crucial to

lowering HIV incidence (Bott & Obermeyer, 2013). Knowing what factors to consider and when to decide to breach confidentiality would enhance physicians; practice with this population regarding the needs and rights of all concerned (Bott & Obermeyer, 2013).

Physicians are required in third party notification to evaluate the degree of risk involved to make confidentiality decisions; however, Schwartzbaum et al. (1990) claimed that physicians' decisions can also be influenced by patients' and physicians' demographic features. My study was an extension of this study. Bott et al. (2015) emphasized the need to investigate what health workers are doing, what is feasible within the health services context in SSA, and to demonstrate the differences between international third party notification guidelines and national and institutional policies. I chose to study physicians' confidentiality decisions of breaching or maintaining medical confidentiality as my dependent or outcome variables and patients' gender (male/ female), gender orientation (homosexual/ heterosexual); sexual relationship (polygamy/ monogamy); and physicians' demographic features of gender, age, years of practice, specialty, and previous breach of confidentiality as my independent variables. The selection of my study variables was guided by evidence from studies in SSA that demonstrated significant positive associations between HIV transmission and having multiple partners and homosexuality and gender inequalities where young females are primarily affected (Mwamwenda, 2014; Noor, Rampalli, & Rosser, 2015), and on the evidence that physician and patient sociodemographic features like gender, ethnicity, location, and cultural factors have been demonstrated to independently affect physicians'

practice or influence an ideal therapeutic relationship (Berger, 2009; Oginni, Obianwu, & Adebayo, 2014).

Research Question(s) and Hypotheses

Using the template for binary logistic regression (Statistics Solutions, 2016), two quantitative research questions (RQs) and corresponding null and alternative hypotheses were derived, and they provided the focus for this study.

Do patients' characteristic features (gender- male/female; gender orientation-homosexuality /heterosexuality and sexual relationship-monogamous/polygamous) have any statistically significant influence on (or predict) physicians' confidential decision making (maintain, breach) among HIV discordant couples?

Null Hypothesis *($H_0$1)*: Patients' characteristic features (gender- male/ female, gender orientation-homosexual/ heterosexual, sexual relationship- monogamous/ polygamous) do not have a statistically significant influence on (cannot predict) physicians confidentiality decision making (maintain, breach) among HIV discordant couples.

Alternative Hypothesis *(H_a1)*: Patients' characteristic features (gender- male/ female, gender orientation-homosexual/ heterosexual, sexual relationship- monogamous/ polygamous) have a statistically significant influence on (can predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples.

Do physicians' demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) have any

statistically significant influence on (can predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples?

Null Hypothesis *($H_0$2)*: Physicians' demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) do not have any statistically significant influence on (cannot predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples.

Alternative Hypothesis *(H_a2)*: Physicians' demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) have a statistically significant influence on (can predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples.

Study Variables

For the RQ1 the study variables included the following: Independent variables: patients' characteristics features; gender- male/female; gender orientation- homosexuality/heterosexuality; sexual relationship- monogamous/polygamous

Dependent variable: Physicians' confidentiality decision; maintain confidentiality = 0, Breach confidentiality = 1

Study variables for RQ2 included the following: Independent variable: Physicians' demographic features; gender-male/female; age in years- 21-30, 31-40, 41-50, 51-60, 60+; years of practice- never practice, 1-5, 6-10, 10+; specialty- not specialized, specialized; number of breaches in confidentiality before- never, once, twice, thrice, >thrice

Dependent variable: Physicians' confidentiality decision; Maintain confidentiality = 0, breach confidentiality = 1

Measurement of Study Variables

Table 1 describes the study variables, their measurements, coding, and scales.

Table 1

Study Variables, their Measurements, Coding, and Scales

Variable Description	Measurement/Code	Scale
Dependent Variables		
Confidentiality Decision	Maintain=0, Breach=1	Categorical/Nominal
Independent Variables		
Patient's Gender	Male=0, female=1	Categorical/Nominal
Gender Orientation	Homosexual=0, heterosexual	Categorical/Nominal
Sexual relationship	Monogamy=0, Polygamy=1	Categorical/Nominal
Physician's Gender	Male=0, Female=1	Categorical/Nominal
Physician's Specialty	Not Specialized=0, Specialized=1	Categorical/Nominal
Physician's Age	21-33, 31-40, 41-50, 51-60, 60+	Intervals
Practice Years	0, 1-5, 6-10, 10+	Intervals
Confidentiality Breaches	Never, once, twice, thrice, 3+	Intervals

Data were collected from the vignette questionnaire displayed in Appendix B. The first section of the questionnaire provided information on physicians' socio demography, which included physicians' registration status with the Nigerian Medical and Dental Council (NMDC), age, gender, number of years of practice, specialty, location of practice, number of HIV cases managed, and number of previous breaches in confidentiality. The latter section of the questionnaire provided physicians' breach options to manipulated hypothetical patients' gender, gender orientation, and relationship. The patient features were described in the vignette:

John is a 30- year-male in a monogamous homosexual relationship, he tested positive for HIV 1 & 2 by the Determine Test Strip and confirmed by the UniGold and Stat-Pak test kits. You have counseled and persuaded him to disclosure status to sexual partners. He asked you not to tell the partner the results of the test because he believes that the knowledge would complicate matters.

Six variants of patient characteristics were described by replacing the first phrase of this short story with these features

- John is in a monogamous heterosexual relationship (He has a female partner)
- Joan is in a monogamous heterosexual relationship (She has a male partner)
- John is in a monogamous homosexual relationship (He has a male partner)
- Joan is in a monogamous Lesbian relationship (She has a female partner)
- John is in a polygamous heterosexual relationship (He has female partners)
- Joan is in a polygamous heterosexual relationship (She has male partners)

Each of the six vignettes (race is not included) was followed by these progressively intrusive five statements (the first of the five statements were intended to infringe on the patients' privacy the least and the last statement the most). Options 1 and 2 were categorized as maintain confidentiality; Options 3, 4 and 5 were categorized as breach confidentiality. These options consist of the following:

Option 1: The knowledge of the antibody status would remain between my patient and me.

Option 2: I would attempt to persuade the patient to inform any partners who might be infected.

Option 3: The antibody status, but not the name, would be reported to the health department.

Option 4: The name of the person and the antibody status would be reported to the health department.

Option 5: If the person would not inform any partners who might be infected, I would attempt to do so if the person identified them.

Each participant was presented with one variant of the six to indicate what action will be taken in the scenario described. The aim of the study was to investigate whether physicians' decisions to breach or maintain confidentiality could be predicted on the patient being male or female, homosexual or heterosexual, or polygamous or monogamous. I also elicited whether physicians' demography of age, gender, specialty, number of years in practice, and number of previous breaches could predict physicians' decisions.

Theoretical Foundation

My study was based on the utilitarian theory, a normative ethical system concerned with the consequences of ethical decisions; therefore, it can be described as a consequentiality theory where the consequence of an action or policy is the most important determinant of the act being moral or not (Cottone & Claus, 2000). The proponents of the theory state that the best action or policy maximizes utility; as such, it moves beyond the scope of an individual's interests and considers the interests of others (Cottone & Claus, 2000). Opponents criticize the theory's inability to judge values or measure or compare happiness or wellbeing (Cowan & Macklin, 2012). However, using this theory can help formulate public health policy because it contains objective assessments of everyone's interest and adopts an unbiased position of maximizing good outcomes for the greatest number of parties involved (Cottone & Claus, 2000).

There are decision-making theories that identify and weigh risk factors proposed by researchers to be used as a more detailed guide for health care professionals when deciding whether to protect a third party at risk (Daly et al., 2011). These models, which include some social cognitive models, associate more with objective decision-making criteria by relating risk-related behavior to confidentiality breaching options. However, it is difficult to establish in practice the exact risk level associated with risk behavior including sexual practices as behaviors interact with clinical factors including patient viral load (Daly et al., 2011).

The utilitarian theory was the choice of framework for my research because the theory has been used to explain relationships between similar variables relating to

policies on HIV confidentiality, particularly in resource-poor settings (Khan, 2016; Lin & Liang, 2005; Njozing, Edin, Sebastian & Hurting, 2011; Scott, 2014). It was used in my study to help explain how patient and physician characteristics influenced confidentiality decisions by providing details on physicians' decisions emerging as a result of these related factors. It could also be used to offer guidance on ways to facilitate decision making (Cottone & Claus, 2000).

Nature of the Study

This quantitative study included the use of a vignette questionnaire in experimental research design, descriptive statistics, logistic regression data analysis, and cross-sectional data to evaluate associations between variables of interest stated in my research questions and hypotheses. My dependent or outcome variable was physicians' confidentiality decisions to maintaining or breaching confidentiality, and my independent or predictor variables were patients' gender, gender orientation, and sexual relationships and physicians' demographic features. The quantitative research design strategically addresses the research problem logically and coherently by generating numerical data or data that can be transformed into usable statistics. The quantitative approach is useful in quantifying opinions, attitudes, or behaviors and in the generalization of results from a large sample population (Creswell, 2013). I used the quantitative approach in my study because the study was aimed at bringing out a deeper understanding of events rather than a surface description of the population or event (see Frankfort-Nachmias & Nachmias, 2015). For the first research question, an experimental research design was used to manipulate the independent variables of hypothetical patients' gender, gender orientation,

and sexual relationships to evaluate any effect on physicians' decision to maintain or breach confidentiality, which was the outcome variable. I investigated whether any of the predictor variables could predict study outcome and could be used to investigate cause and effect relationships or make predictions (see Frankfort-Nachmias & Nachmias, 2015), and these findings could provide information/data for policy or health decision (Creswell, 2013).

For the second research question, the independent variables of physicians' demographic features were manipulated according to the subgroups of each variable to investigate any relationship between these independent variables and the outcome to maintain or breach confidentiality. The effect, if any, of physicians' gender (male/ female), age in years (21-30, 31-40, 41-50, 51-60, 60+), specialty (not specialized/ specialized), years of practice (never practiced, 1-5years, 6-10years, above 10years), and previous confidentiality breaches (never, once, twice, thrice, more than thrice) on the outcome variable of physician decisions to maintain or breach confidentiality were investigated. Investigating physicians' demography may lead to a recognition of trends and patterns but may not necessarily seek to prove causes for the observed patterns (see Frankfort-Nachmias & Nachmias, 2015).

The use of vignette was appropriate in this study because it would be unethical to relate the manipulated scenes in a clinical setting. The vignette questionnaire as a research instrument combines the survey and experimental methods to provide aspects of both the high external validity of the survey and the high internal validity of experiments (Evans, Roberts, Keeley, Blossom, & Amaro, 2014). Although concerns have been raised

on whether vignettes accurately reflect natural environmental phenomena, using vignettes as a research tool has numerous advantages including the ability to simultaneously manipulate many variables in a manner not possible in an observational study; researchers also have the ability to collect data from many participants simultaneously, the ability to remove observers effect, and the ability to avoid ethical dilemmas (Evans et al., 2014).

Quantitative data were collected via vignette questionnaires at a single point in time and from a primary source, which is a rich and detailed source of data. There are about 800 registered and practicing physicians in Plateau state, Central Nigeria (Federal Ministry of Health, Nigeria; 2009). In Nigeria, about 80-90% of practicing physicians dwell in urban cities, and about 10-20% dwell in rural towns that have limited power supply and technology (Adewuyi, Zhao, Auta & Lamichhane, 2017; Oladipo, 2014). Study sites were at three health centers in an urban city (City A) which accommodates about 750 physicians. Target participants were physicians practicing in these study sites. Only physicians were recruited because, by professional training, they possess knowledge that can be used to evaluate the risk involved and make confidentiality decisions. The sample size was calculated for logistic regression using the G*Power tool, and my sampling frame for the study was physicians who were registered with the NMDC, have managed at least one HIV case, and who can respond to the questionnaire in the English language.

Random sampling is a gold standard for experimental studies; however, convenience sampling can be used where randomization is not feasible (Patton, 2015).

The convenience sampling strategy was used in my study because of its low cost and ease of use (see Patton, 2015). The study instrument was a vignette questionnaire developed and validated by Schwartzbaum et al. (1990) in a similar study in Tennessee. Their study variables and methodology were adopted; the variable description of race, however, was not included in my study because patients' race cannot be manipulated in Nigeria, a predominantly Black race. Patients' relationship with either monogamy or polygamy was included instead. Permission was obtained from Schwartzbaum et al. to effect any change in the study instrument. A pilot study was also conducted to improve on the study design, make it adaptable to the SSA context, and to validate the instrument (see Jain, Dubey, & Jain, 2016; Morin, 2013). Vignettes were used to elicit truthful answers rather than eliciting socially desirable or expected moral answers (see Gourlay et al., 2014). In the vignette, a hypothetical patient's characteristic features were manipulated to portray six different vignette variants of relationships that combined gender (male/ female), gender orientation (homosexual/ heterosexual), and in a sexual relationship (monogamous/ polygamous) that may potentially expose a partner to HIV infection. These were distributed purposefully to physicians so that an equal number of responses were collected from each vignette variant. Each participant responded to one variation of the vignette, not all six to avoid response bias (see Gourlay et al., 2014).

The study questionnaires also included sections on physicians' demography, which included information on physicians' gender, years in practice, specialty, and the number of previous confidentiality breaches. The research instrument was administered in person using the traditional paper and pen method; participants were allowed enough

time and privacy to consent to the participant and provide their responses; data were collected from completed questionnaires. To ensure a high response rate, two follow-up visits within a week's interval, were made to further collect all completed questionnaires (see Creswell, 2013). Data collected with the questionnaire were transferred to SPSS, which was also used to analyze data and generate descriptive statistics and graphs. Binary logistic regression analysis was used to determine any predictive association between patients' gender, gender orientation, and relationships and physicians' demographics on confidentiality decisions. All information collected and data generated were treated as sensitive and were securely stored in password-protected data files and research laptop.

Definitions

Confidentiality: An ethical and professional duty of a health care professional not to disclose to anyone else, without authorization, information obtained in the context of the professional relationship with a patient (Iwuagwu, Durojaye, Oyebola, Oluduro, & Ayankogbe, 2003). The dependent variable of my study measured whether confidentiality would be maintained or breached.

Breach of confidentiality: Any divulgence of information by a health care provider without the express consent of the patient (Iwuagwu et al., 2003). In my study, this dependent variable was evaluated as yes/no.

Gender: Characteristics of men and women that are socially created (American Psychological Association [APA], 2012; WHO, 2017) as an independent variable, it was evaluated as male or female.

Gender orientation: A pattern of sexual attraction to persons of the opposite or same-sex, and or both described as in heterosexuality, homosexuality, and bisexuality respectively (APA, 2012). In my study, this independent variable was evaluated as homosexual or heterosexual.

Sexual relationship: Relationships that include sexual behavior. In my study, this independent variable was coded as polygamy in which there are more than two persons in a relationship, and monogamy as a relationship of just two persons (Diop & Stewart, 2016).

Assumptions

In this study, I assumed that the vignette questionnaire used was appropriate for my data collection and for measuring the variables of interest. I assumed that the participants had HIV knowledge and ethical knowledge relating to HIV and would truthfully complete the questionnaire to the best of their knowledge and ability. I also assumed that the study participants from an urban city in Plateau State of Nigeria were representative of physicians in Plateau State.

Scope and Delimitations

I investigated patients' characteristic features of gender, gender orientation, and sexual relationships and physicians' socio demography including age, gender, years of practice, specialty, and previous confidentiality breaches and how they relate to physicians' decisions to maintain or breach confidentiality. Regarding the persistently high HIV incidence and physicians' challenges in confidentiality decision making in SSA (Bott & Obermeyer, 2014), I chose to examine these relationships to document

physicians' current practices in Plateau State, Nigeria and to inform guidelines and policy that may clarify physicians' reasons for making confidentiality decisions. I did not assess physicians' risk perception of HIV patients or dangerousness posed potentially by the patient because it was a problematic procedure. My investigation was limited to sexually transmitted HIV cases; other modes of transmission were not included in the study. Generalization of the study could be enhanced by sampling from urban and rural health centers; however, the sample was drawn from the urban health centers that constituted a large enough portion of the total population sampled to assume generalization. The sample was not drawn from the rural health centers because there were few *physicians'* practices in rural centers to provide sufficient participants for the six vignette variants and the between-subject design of the study. Random sampling was not employed because it would be difficult and expensive to perform; convenience sampling was used because of its low cost and ease of application. To ensure a good response rate and improved internal validity, questionnaires were distributed, and the data were collected in person; however, data collection was done anonymously using an envelope and a dropbox; confidentiality and privacy were maintained. I used the same instrument used previously to enhance consistency and improve internal validity; however, the variable race was not included in my study because race could not be manipulated in a predominantly Black race in Nigeria. In the study, replicated monogamous relationships were investigated; I also investigated polygamous relationships for comparison.

The study participants were physicians who were registered with the NMDC and were practicing in the study sites chosen in Plateau State, Central Nigeria. Only

physicians were engaged because the diagnosis of HIV is medical, and physicians can determine the infectious status of a patient and the potential risk that the sex partners may be exposed to. Participants were sampled from three health centers in an urban city (City A) and included only physicians who could respond to the questionnaire in the English language; the questions were written in the English language, which is the official language in Nigeria.

Limitations

My study was limited in some ways. I chose to do a quantitative cross-sectional experimental study using a vignette questionnaire to access physicians' decisions; however, the use of vignettes was a limitation because it could be difficult to determine if the vignette responses reflect real clinical decisions. To minimize this limitation, Evans et al. (2015) suggested that the construction of the vignettes and its questions must describe real-world situations and contain questions that reflect experiences in real-world settings. I worked to ensure that my vignettes contained realistic questions. Although the use of vignettes allowed for the manipulation of variables as in experimental settings, a second limitation to my study was that the high external validity created in real-life settings in surveys was compromised. Using a vignettes could affect the external validity of my study; however, the use of vignettes combined survey and experimental methods to provide aspects of both high external validity of survey research and high internal validity of experimental research to sort out many predictors of physician's confidentiality decisions (see Evans et al., 2015). Third, this experiment lacks control over other factors that may explain study findings, and I may be unable to establish

causality (see Frank-Nachmias & Nachmias 2014). Fourth, the convenience sampling strategy is a nonrandom selection of participants, and this impeded my ability to draw inferences about the population (see Patton, 2015). Finally, instrumentation can be a threat to internal validity as there could be inconsistencies in the manner that participants complete the questionnaire; problems may be encountered in gathering and grading information from the questionnaire (see Frank-Nachmias & Nachmias 2014). To minimize this threat, I ensured consistency in the message related to the participants and gathered the data myself.

Significance of the Study

This project addresses an under-researched health practice and policy issue in SSA (see Bott et al., 2015; Bott & Obermeyer, 2013). The research will fill a gap in the literature on the characteristic features that relate to physicians' confidentiality decisions in the management of HIV patients in SSA. The findings from this study could provide information to public health policymakers that may address ethical and policy issues on HIV status disclosure in SSA, and it may also inform public health initiatives aimed at preventing HIV transmission (see Bott & Obermeyer, 2013; Odunsi, 2007). The study has the potential of bringing about positive social change by informing the development of physicians' decision guidelines that would enhance physician' practice with people living with HIV (see Bott & Obermeyer, 2013). Another possible positive social change that could be affected is to inform policies and programs aimed at HIV prevention, which could lower HIV incidence in my community and state.

Summary

In Chapter 1, I discussed the public health importance of HIV globally and in SSA, the challenges of nondisclosure, and concerned policy issues. I introduced the problem statement as to how these issues challenge physician's practice in SSA and stated how my study performed in Nigeria could bring about a positive social change in my community. I also stated my research questions and hypothesis, the utilitarian theory, and my study methodology as a qualitative cross-sectional design. I outlined my sampling strategy and plans for data collection and analysis. In the later section of Chapter 1, I discussed the scope of my study, delimitations and limitations, and the studys significance.

In Chapter 2, I discuss my findings from the literature review relating to HIV/AIDS disclosure policies and how they affect physician practice in SSA, including factors related to their decisions to maintain or breach patients' confidentiality. I concentrate on patients' gender, gender orientation, and relationships and physician socio demography as they relate to medical confidentiality decisions.

Chapter 2: Literature Review

HIV/AIDS has remained a public health problem globally (AVERT, 2017a). Policies mandating HIV status disclosure to decrease HIV incidence have raised ethical and policy arguments (Bott & Obermeyer, 2013). Physicians treating HIV patients face the challenge of whether to maintain or breach patients' confidentiality to protect the population at risk of HIV infection (Bott & Obermeyer, 2013; Dawns, 2015). Medical regulatory bodies and policymakers in SSA have not taken clear positions on this issue; in their practice, physicians have continued to struggle with the challenges of nondisclosure and have expressed a need for more guidance and support in this area (Bott & Obermeyer, 2013). Researchers from the developed countries have investigated the role of physician and patient characteristics features in determining risk perception and in making confidentiality decisions in hypothetical cases where confidentiality may be breached to protect third parties at risk (Alghazo et al., 2011; Daly et al., 2011; DiMarco & Zoline, 2004; Schwartzbaum et al. 1990; Stewart & Reppucci, 1994). These researchers investigated patients' characteristic features of gender orientation including homosexual, bisexual, and heterosexual; patients' gender and race; and physicians' demographic features as they related to physicians' decisions to breach or maintain confidentiality. Similar studies, however, are scarce in SSA; I found two studies where researchers investigated whether health workers would maintain or breach confidentiality in the management of HIV patients (Bott et al., 2015; Reis et al., 2005). In these studies, however, the researchers did not investigate features that could influence confidentiality decisions.

I could not find any study where the researchers investigated physicians' pattern on confidentiality decision making in SSA and Nigeria, or determine what factors were taken into consideration to maintain or breach confidentiality. I hope to fill this gap in the literature by carrying out my study in Central Nigeria. This study was needed because the findings could enhance physicians' practice in the management of HIV patients. I hope to contribute to the body of public health literature by informing programs and policies aimed at the prevention of HIV in my community, state, nation, and SSA.

In the first section of Chapter 2, I preview the strategy used for the literature search, explore HIV in SSA and Nigeria, outline people living with HIV and the burden of HIV in Nigeria, physicians' dilemmas on confidentiality, and policies mandating status disclosure. In the latter part of the chapter, I discuss my findings from the literature review as they relate to my study variables and concepts, explaining known facts about the relationships between physicians' confidentiality decisions, patient and physicians' characteristics, controversies, and what needs further investigations.

Literature Search Strategy

Using the Walden University library, I searched for journal articles in the following databases: Psych-Info, Health and Medical Complete, PubMed, MEDLINE, Science Direct, CINAHL Plus, Google Scholar, and Cochrane Database of Systemic Reviews. Keywords and word combinations used for my search were *HIV/AIDS, confidentiality, breach confidentiality, duty to warn, third party notification, in SSA, in Nigeria, HIV policies in SSA,* and *Nigeria.* I could not limit my search to the past 5 years because few articles related to my study were found within this time range, and the

original study I proposed to replicate (Schwartzbaum et al., 1990) was a 1990 article. I ensured that other supporting literature was within 5 years of publication. Also used in my literature review was information from recognized health and public health policy organizations and academic institutions.

Theoretical Foundation

My study was based on the utilitarian theory, a normative ethical system concerned with the consequences of ethical decisions; it could be described as a consequentiality theory where the consequence of an action or policy is the most important determinant of the act being moral or not (Cowan & Macklin, 2012; Hodson & Bewley, 2017). The concept is generally credited to Bentham and Mill who described pleasure and happiness as intrinsic values, on which the concept was derived (Mastin, 2008). The best action or policy maximizes utility and it moves beyond the scope of an individual's interests and considers the interests of others (Cowan & Macklin, 2012; Mastin, 2008). For HIV confidentiality decisions, this would be more consistent with the evident preference for mandatory over voluntary disclosure programs or policies (Hodson & Bewley, 2017). The theory is not against individual rights and freedom but considers personal interests as inherently contained in the considerations of the maximum population; it does not support the narrow self-interest or the desire for purely private gain pursued alone without considerations for the interests and needs of the maximum population (Cowan & Macklin, 2012). Thus, utilitarianism, in theory, requires scientific precision and analysis of statistical probability (Hodson & Bewley, 2017). It weighs and balances prospects and harmful outcomes to the maximum number involved to make

decisions, and the priority decision is to maximize the greater well shared by others even if this was structurally skewed against certain groups (Hodson & Bewley, 2017).

There is the objection to the use of this theory. Opponents criticize the theory's inability to judge values, measure, or compare happiness or wellbeing (Cowan & Macklin, 2012). Despite its limitation on quantifying utility appropriately, using this theory can help formulate public health policy. It was chosen as a theoretical framework for my study because it contains an objective assessment of everyone's interest and adopts an unbiased position of maximizing good outcomes for all parties involved (Hodson & Bewley, 2017). Utilitarianism justification for any approach depends on the evidence of the overall good that the policy/program/decision would achieve. This theory has been used to explain relationships between similar variables relating to policies on HIV confidentiality, particularly in resource-poor settings (Cowan & Macklin, 2015; Khan, 2016; Lin & Liang, 2005; Njozing et al., 2011; Scott, 2014). Cowan and Macklin (2012) applied this theory in their case study of HIV occupational exposure to determine whether an unconsented HIV test be performed or not on the source person after weighing the benefits and harms to the source and exposed persons. Based on the utilitarianism, Khan (2016) explained confidentiality decision making among HIV discordant couples and why confidentiality may be breached.

The theory also relates to my study problem statement and variables. Third party disclosure service is an essential part of the global response to combating HIV, but it presents a conflict between HIV prevention and individual rights (Dawns, 2015; Hodson & Bewley, 2017). In applying utilitarianism to HIV confidentiality decisions, the concept

holds that individual preferences are weighed to maximize the overall satisfaction of the preferences of the greatest numbers of individuals (Mastin, 2008). The utilitarian approach was used in my study to explain how patient and physician characteristics influence confidentiality decisions by providing details on physicians' decisions to maintain or breach confidentiality. According to Hodson and Bewley (2017), the theory could also be used to offer guidance on ways to facilitate decision making.

HIV/AIDS

The immunodeficiency virus causes HIV infection and AIDS (Center for Disease Control and Prevention [CDC], 2013) HIV is believed to have originated in Africa in the Democratic Republic of Congo around 1920 but had spread worldwide by the late 1970s (AVERT, 2017b). The virus was first identified in 1980 in the United States among homosexual men and intravenous drug users, and there is now a wealth of evidence on HIV/AIDSC (AVERT, 2017b).

HIV is a retrovirus that is transmitted through blood; breast milk; and seminal, vaginal, and rectal fluids in contact with the body mucous membrane or lacerated body tissues (CDC, 2013). The infection is spread through sexual intercourse, blood transmission, breastfeeding, infected mother to fetus, sharing of intravenous needles or sharp objects, or by other ways which exposes an individual to the blood and intimate fluids of an infected person (CDC, 2013). In the body, the virus attacks and breaks down the body's immune system causing febrile illness, rash, weight loss, and inability to resist other infections (AIDS Information [AIDSinfo], 2017; CDC, 2013). The infection is progressive and in stages; during the acute stage that occurs 2 to 4 weeks of infection, the

virus multiples resulting in an increase in the lymphocyte, CD4 count (CDC, 2013). In the clinically latent stage that occurs with or without symptoms and can last up to 8 years, the viral load gradually grows while the CD4 count begins to drop (AIDSinfo, 2017). If untreated, HIV infection leads to AIDS, a stage where the immune system can no longer function because of the depletion of the CD4 cells (AIDSinfo, 2017). Infected people at this stage are prone to opportunistic infections and eventually to death (AIDSinfo, 2017). HIV infection cannot be cured but can be treated with antiretroviral therapy (ART), which has enabled people with access to the treatment to live long and healthy lives with HIV (AIDSinfo, 2017).

People Living with HIV/AIDS

Worldwide, an estimated 36.7 million people were living with HIV by the end of 2015, resulting in a global prevalence of 0.8% among adults (AVERT, 2017a). An estimated 1.1 million people died of AIDS-related illnesses, and 2.1million people, including 150,000 children, were newly infected in the same year (AVERT, 2017b). HIV/AIDS remains global public health burden (WHO, 2016). The burden of the HIV infection varies between regions and countries, and SSA remains the most severely affected accounting for nearly two-thirds of the total number of PLWH globally (WHO, 2016). South Africa, India, and Nigeria host the largest number of PLWH (WHO, 2016). Since the beginning of HIV epidemics 3 decades ago, about 78 million people have been infected globally, and 35 million people have died of AIDS-related illnesses (AVERT, 2016). Despite programs and policies to decrease new infections, some countries have achieved only a 50% decline in new infections in the last 10 years, while many have no

measurable progress and some experience increases in new infections (AVERT, 2017b). The epidemics not only affect the health of these individuals, families, communities, and countries but impacts their socio development and economic growth causing problems such as food insecurity and health challenges that are experienced more in poor resource countries (AVERT, 2017b)

Despite these challenges, new global efforts have been rewarding concerning access to ART, especially in SSA. The number of people receiving ART globally has increased from 7.5 million in 2007 to 17million in 2015 (AVERT, 2017b). Even with improved care, PLWH still face stigmatization, discrimination, violence, and isolation (Dalhlui et al., 2015; WHO, 2016).

The Burden of HIV/AIDS in Nigeria

The current population of Nigeria is 190 million based on the United Nations estimate for August 2017 (United Nations [UN], 2015), and 9% of all the PLWH worldwide live in Nigeria (AVERT, 2017b). Nigeria is the most populous country in African and has the second largest number of PLWH; 3.5 million people were living with HIV in 2015 despite a low prevalence of 3.1% (AVERT, 2017b). Approximately 180,000 people died from AIDS-related illnesses in 2015 as only 51% of PLWH had access to ART (Awofala & Ogundele, 2016). Nigeria accounted for 60% of new HIV infections in Western and Central Africa (AVERT, 2017b). The prevalence rate varies across the six geo-political zones in Nigeria; the South-East has the lowest HIV prevalence at 1.8%, the highest is in South-South at 5.5%, and the North-central zone where my study site was

located had a prevalence of 5.4% (AVERT, 2017b). Rural areas are reported to have higher rates (4%) than urban areas (3%; AVERT, 2017b).

Unprotected heterosexual contact is the most common route of transmission, and it accounted for 80% of new infections (Awofala & Ogundele, 2016). The key affected populations who also lead to spreading the infection are commercial sex workers, homosexuals, and intravenous drug users (Awofala & Ogundele, 2016). Sex workers reported low condom use and are eight times more likely to be infected than the general population (AVERT, 2017b). The number of revealed homosexuals living with HIV is increasing in Nigeria, and they now bear a burden since 2014 when the Nigerian Government passed the antihomosexual bill accompanied by 10-14 years imprisonment for practicing or assisting homosexuality (AVERT, 2017b). This law created a barrier to accessing treatment and preventive measures for homosexuals even though the law does not deny them access to ART (AVERT, 2017b). Intravenous drug users account for 9% of new infections yearly (AVERT, 2017b). Other groups of concern are young people and children; only12% of the 260,000 children (0-14years) living with HIV in Nigeria have access to ART, and an estimated 4.2% of people aged 15-24 years are living with HIV; more young women are being infected (34,700 in 2013) than men affected the same year (National Agency for the Control of AIDS [NACA] 2015).

Despite preventive initiatives and government commitment to curb infection, there are still barriers to HIV prevention in Nigeria; which include the 2014 anti-homosexuality bill, gender inequity, inadequate and poor health facilities/programs, and economic barriers (AVERT, 2017c; Awofala & Ogundele, 2016). Uptake of HIV testing

and disclosure of status remain low; as of 2012, only 23% of males and 29% of females had tested for HIV, and more than 60% of people do not know their HIV status; many PLWH do not know they are infected (UNAIDS, 2013). The majority of PLWH miss the opportunity for early detection and timely treatment, and which plays a role in the spread of the virus (AVERT, 2017e).

Public health efforts have been made to increase the number of people who are counseled and tested for HIV; yet, a substantial number do not disclose their HIV status, particularly to their sex partners. (Awofala & Ogundele, 2016; Ebuenyi et al., 2014). Many persons become infected with the disease because they are unaware of the positive status of their sexual partners (Dawns, 2015). In Nigeria, as few as 21% of the population know their HIV status; this is because the adverse consequences of status disclosure (ie., stigmatization, discrimination, abandonment, and violence) could make someone struggle to disclosure status to sexual partners; most PLWH would prefer to conceal their HIV status from partners (Awofala & Ogundele, 2016; Maman, Rooyen, & Grove, 2014). According to Bott and Obermeyer, (2913) nondisclosure of HIV positive status could pose challenges for health workers, policymakers, governments of nations, PLWH, their sex partners, families, and their communities; they pointed out the need to address the challenges encountered in relation to HIV disclosure in SSA, particularly among discordant couples.

Preventive Efforts by Mandatory Disclosure of HIV Status

Because HIV is incurable, efforts to control its spread have focused on preventive measures, care, and support for the PLWH (AVERT, 2017b). Voluntary disclosure

efforts have been adopted in most countries in SSA; however, recent efforts made by governments in SSA to further curb the spread of HIV include the development of programs and policies that encourage or mandate disclosure including Partner Notification Services (PNS), criminalization of HIV transmission and exposure, and adoption of physicians' duty to-warn law enforcement agencies and similar policies (Bott & Obermeyer, 2013). According to Bott and Obermeyer (2013), some public health interventions mandate or encourage status disclosure to sexual partners on the assumption that disclosure will increase the safety of subsequent sex with informed partners. In PNS, the physician, patient, and medical department trace and contact sexual partners of an infected patient to inform them of the status of the patient to protect such partners from becoming infected (Cherutich et al., 2016). Where a physician knows the identity of the person at risk, the duty -to-warn law warrants disclosure to the person at risk without consent of the HIV (index) patient and may require disclosing the identity of the index (Laar, DeBruin, & Craddock, 2015). These approaches have been described as converting the voluntary disclosure process that respects confidentiality to a mandatory process that is invasive to privacy (Laar et al., 2015).

Programs that mandate status disclosure are widely implemented in the developed countries and have been demonstrated to be highly effective in reducing the incidence of HIV, however; researchers are still working to demonstrate their feasibility and effectiveness in resource-constrained settings (Cherutich et al. 2016, Laar et al., 2015; Wamuti, et al. 2015). In Nigeria, no law explicitly accords physicians the duty to warn partners at risk or effectively provides PNS despite its large number of PLWH (Iyioha &

Nwabueze, 2016; Odunsi, 2007; Salihu et al., 2018). According to Odunsi (2007), decisions made to provide PNS or implement the duty-to-warn law are left to the discretion of the physician.

In 32 African counties Nigeria inclusive, the transmission of HIV by an infected person has been criminalized (Kazatchkine, 2010; Schwart, et al., 2015) and some researchers argue that criminalization of HIV transmission disregards human rights and serves little public health benefits (Adam, et al., 2014; Bott & Obermeyer, 2013, Iyioha & Nwabueze, 2016). Action for West African Region-HIV/AIDS (AWARE-HIV/AIDS) model legislation was developed to protect the rights of individuals exposed to HIV and the rights of PLWH. Its provision on HIV status disclosure required that the HIV positive individual disclosure status to sexual partners within six weeks of diagnosis, if not disclosure, the health provider is mandated to notify sex partners of the risk of exposure (Bott & Obermeyer, 2013, Iyioha & Nwabueze, 2016). Disclosure in this model law is voluntary within 6 weeks of diagnosis after which it becomes mandatory; the model law has been adopted to law in Benin, Burkina Faso, Burundi, Cape Verde, Cote d'Ivoire, the Central African Republic, Chad, Democratic Republic of Congo, Djibouti, Equatorial Guinea, Guinea, Mali, Mozambique, Niger, Senegal, and Uganda (Bott & Obermeyer, 2013; Iyioha & Nwabueze, 2016). Nigeria has not yet adopted this model to the law (Iyioha & Nwabueze, 2016)

Rising Policy Issues in Nigeria

The rising issues in Nigeria and other SSA countries are whether to adopt mandating status disclosing policies, to empower physicians by law to warn the third

party and to provide PNS. These laws and services could assist in curbing the spread of infection, because sexual partners when informed can take measures to avoid infection and prevent chains of infections that can be experienced in sexual relationships (Iyioha & Nwabueze, 2016; Odunsi, 2007). The duty to warn law gives the physician the right to breach confidentiality when it is necessary and ensure that at least a partner is saved from the infection, thereby reducing the spread of the infection (Iyioha & Nwabueze, 2016). On the contrary, confidentiality is required for full and effective disclosure of patient conditions to the physician. Confidentiality is critical in HIV patients because the disease is highly stigmatized in Nigeria and PLWH may prefer to conceal their positive status (Odunsi, 2007; Dahlui et al., 2015; Odunsi, 2007; Salihu et al., 2018). Breach in confidentiality exposes the patient to adverse circumstances of status disclosure including abandonments. According to Dawns (2015), when people are unsure that their information would be kept confidential, they would not willingly accept HIV testing necessary for controlling the spread of the disease and the infection would keep spreading underground.

Imposing mandatory disclosure policies and programs may appear stronger in its appeal but researchers are yet to demonstrate the superiority of mandatory PNS in terms of results achieved in resource-constrained settings, to voluntary notification currently employed in Nigeria and some countries in SSA (Iyioha & Nwabueze, 2016). What had always been carefully considered are the consequences of mandatory PNS in an unequal relationship particularly where women generally are economically dependent on men, which is typical of relationships in SSA (Iyioha & Nwabueze, 2016). Women are usually

tested first through mandatory testing at antenatal care before their male partners but being first to be tested positive may not translate to being first to contract the disease and disclosing the HIV status of such vulnerable individual increases their vulnerability (Bott & Obermeyer, 2013; Iyioha & Nwabueze, 2016, Odunsi, 2007). It is mainly on this reasoning that the Nigerian government hesitated in adopting the physician's duty to warn into public health protection (Iyioha & Nwabueze, 2016). The government maintains that individuals should be responsible for ensuring their protection from HIV infection through the enormous efforts on public health education on HIV tests, uptake of preventive measures, adopting less risky behavior and early appropriate management of the infection. (Iyioha & Nwabueze, 2016). The protection of the third party solely the responsibility of the third party (Khan, 2016; Iyioha &Nwabueze, 2016). These researchers argue that the physician's duty to protect does not extend to the third party but is for the patient only (Khan, 2016; Iyioha & Nwabueze, 2016).

On weighing pros and cons of HIV mandatory disclosure policies, UNAID's Reference Group on HIV and Human Rights concluded that policies and programs mandating disclosure of HIV status were more harmful than beneficial to all concern and suggested the adoption of programs and policies that support safe and voluntary disclosure of HIV status, that would protect the human rights of all concerned (Bott & Obermeyer, 2013). Based on these suggestions policymakers of some African countries have begun to reconsider or have rejected the criminalization of HIV transmission/ exposure which created challenging situations for physicians on confidentiality decisions (Iyioha & Nwabueze, 2016). Contrarily, West African countries including Togo, Benin,

Sierra Leone, Niger, Mali, Guinea, Guinea-Bissau have moved away from voluntary disclosure policies to adopted as policy, the duty to warn the third party based on the model law proposed by AWARE-HIV/AIDS legislature (Iyioha & Nwabueze, 2016). Although this model law was created in Niger, West Africa, it was funded by USAID and has been criticized for not being an African-based initiative (Iyioha & Nwabueze, 2016). It has also been criticized for supporting violence against women, and for not being patient-centered (Bott & Obermeyer, 2013; Iyioha & Nwabueze, 2016). It is unlike the Southern African Development Community Parliamentary Forum (SADC PF) adopted in 2008 by the southern African region that is patient-centered and will not adopt mandatory disclosure provisions when the patient is at risk of violence, abandonment or any adverse disclosure consequences (Iyioha & Nwabueze, 2016). According to Bott and Obermeyer (2013), in search of HIV preventive measures, many other countries, Nigeria inclusive have considered adopting the AWARE-HIV/AIDS legislative model that mandates HIV disclosure. Basic knowledge of the traditions and ways of the life of people are also important in making confidentiality decisions, for instance, patient's autonomy is highly esteemed in Western life, however in the African tradition, and communal life is supreme compared to individualism (Odunsi, 2007). This brings down the force of individual autonomy in traditional Africa and tends to favor the imposition of the duty to warn, however HIV is still highly stigmatized and the fear of associated adverse disclosure consequences particularly on the female gender, decides against the imposition of the duty to warm (Klopper, Stellenberg, &Van de Merwe, 2014).

Amid conflicting issues, confidentiality decisions are left to the discretion of the physicians who have expressed a desire to be guided by policy and best practice (Bott & Obermeyer, 2013). This problem does not concern only physicians but other health workers, policymakers and regulatory bodies who must determine their positions in this conflict between human rights and public health interest in an attempt to control the spread of HIV infection. According to Bott and Obermeyer (2013), researchers may not know which factors may affect physicians' decisions to maintain or breach confidentiality to protect sexual partners potentially exposed to the risk of the infection in SSA. Further research is warranted that could examine this scarcity of research and address the problem. In this study, I examined patient and physician's characteristic features related to physician's confidentiality decisions and the findings may be used to guide physician's confidentiality decisions for good practice; could inform policies and programs aimed at HIV status disclosure and prevention. In the next session of this review, I discussed medical confidentiality, limits to confidentiality, HIV and confidentiality, and studies relating to HIV confidentiality decisions.

Medical Confidentiality

Medical confidentiality is a professional, ethical and legal concept requiring that information communicated at patient-physician therapeutic sessions shall not be disclosed to a third party without the consent and authorization of the patient. (Iyioha & Nwabueze, 2016; Beauchamp & Childress, 2001). The obligation to respect patient's confidences dates back to the Hippocrates oath of the medical profession contained in the *Declaration of Geneva* also used in the Code of Medical Ethics by the MDCN The code

of medical ethics in Nigerian additionally requires that (a) irrespective of physician's opinion, confidentiality should be maintained, (b) except where patient's identity is needed all data should be anonymous (c) when confidentiality is breached, disclosure must be kept at the minimum required to achieve the purpose (Iyioha & Nwabueze, 2016). According to Iyioha and Nwabueze, maintaining patient confidentiality serves as a self -regulatory standard on which the public can relate with the medical profession and legislators have created policies on maintaining medical confidentiality as in the American Health Insurance Portability and Accountability Act (HIPAA). Confidentiality is breached when information is divulged without the patient's consent; privacy is violated when a third party has access to the patient's information (Iyioha & Nwabueze, 2016; Odunsi, 2007). The patient-physician relationship is emphasized in the medical professional ethics (Hodson & Bewley, 2017). Therefore, physicians focus on ensuring that patients have their benefits and may not violate confidentiality, even the welfare of the public as a whole may not override this confidence. However, policies mandating HIV status disclosure violate medical confidentiality creating a dilemma for physicians managing HIV cases on whether to maintain or breach confidentiality (Downs, 2015; Iyioha & Nwabueze, 2016). This could be burdensome for physicians in the absence of clear guidance on this issue from regulatory bodies (Odunsi, 2007; Salihu et al., 2018). Patient and physician's features that influence confidentiality decisions was investigated in this study, the findings may be used to enhance the physician's decision making.

Limits to Confidentiality

Physician's duty to maintain confidentiality is vital to achieving and sustaining patient-physician relationship but does not impose an absolute obligation (Khan, 2016, Odunsi, 2007). In the context of HIV, there is a limit to confidentiality and physicians have to balance between patient's right to confidentiality and public interest (Alghazo et al., 2011). There are identified and acceptable circumstances that constitute an exception to maintaining confidentiality which include evidence of patient's written consent, for emergency medical treatment, protection of health professionals, legally required disclosure, medical research, protection of the public, and prevention of crime (Iyioha & Nwabueze, 2016). Laws regulating such ethical dilemmas differ from country to country but common ground is that physicians are allowed to breach confidentiality where the sexual partner is identified, at potential risk, and there are no alternative ways of protecting the partner. For instance, if the partner is a woman of child-bearing age confidentiality could be breached to prevent transmission of infection to mother and child in-vitro (Iyioha & Nwabueze, 2016). In the United States, the Tarasoff's law in recognition of the limit to confidentiality declares that the protective privilege of the patient ends where the public peril begins and this law bestowed on physicians the duty to warn/protect the public at risk (Dawns, 2015; Iyioha & Nwabueze, 2016). In Nigeria and other countries where there is no expressed law on this issue, the legal stand of the duty to warn remains unclear (Iyioha & Nwabueze, 2016). In this dilemma, it can be burdensome in reaching a decision that would protect sexual partners without destroying the therapeutic trust between patients and physicians. In practice, physicians struggle

with the challenges of non-disclosure and have expressed a need for guidance and support in this area (Bott & Obermeyer, 2013). I investigated physician and patient characteristics that may influence confidentiality decisions; the findings may be used to enhance the physician's practice by informing HIV disclosure guidelines and policies.

HIV and Medical Confidentiality

Confidentiality is crucial in HIV issues because of associated stigma and discrimination (Maman et al., 2014). Persons infected with HIV may desire to maintain the privacy of their health status from unnecessary disclosure and negative consequences of disclosure and physicians by law and professional ethics have to protect medical confidentiality (Alghazo et al., 2011). Some researchers hold the view that protecting the medical confidentiality of PLWH would help prevent HIV transmission (Alghazo et al., 2011; Downs, 2015, Khan, 2016). The rationale behind this view is that PLWH and people exposed to the potential risk of the infection would freely seek HIV testing necessary for halting transmission with confidence and assurance that their medical information would not be disclosed (Dawns 2015). Maintaining confidentiality is justified by first, patient's autonomy which is the right of every citizen that should be respected; second, a breach in confidentiality may expose an HIV positive patient to unwanted consequences of status disclosure (Dawns, 2015, Khan, 2016). Third, maintaining confidential enables the patient to give vital health and behavioral information required for treatment and care, and last, patients have the right to expect medical confidentiality because it is central to trust between the physician and the patient, the patient may withhold information if confidentiality is breached (Odunsi, 2007).

The issue of confidentiality decisions has been extensively considered in the developed countries (Alghazo et al., 2011; Daly et al., 2011; DiMarco & Zoline, 2004; Dawns, 2015; Khan, 2016). I found few studies where researchers investigated whether health workers would maintain confidentiality in the management of HIV patients in SSA (Bott, Neuman, Helleringer, Desclaux, El Asmar, Obermeyer, 2015; Reis, Heisle, Amowitz, Moreland et al., 2005). The study by Reis et al. was a survey carried out in 111 health centers in Nigeria; the researchers interviewed 1,021 health workers including 324 physicians. They reported that 62% of participants would maintain confidentiality. Ten years after this study, Bott et al. (2015), in a mixed method survey at 275 HIV testing centers in Burkina Faso, Kenya, and Uganda, reported that only 17% of participants thought that confidentiality should be maintained. The researchers reported that 83% of health workers interviewed would disclose HIV positive status to patients' sexual partners, family or friends. These researchers in SSA did not investigate features that could influence confidentiality decisions. These studies are related to my proposed study where the outcome variable will be confidentiality options among physicians in the management of HIV discordant couples in Nigeria. In my literature review, I could not find any study where researchers investigated physicians' patterns of confidentiality decision making in SSA and Nigeria, or determine what factors were taken into consideration to maintain confidentiality. I hope to fill this gap in the literature by carrying out my study in Plateau State, central Nigeria. This study is needed because the findings could enhance physician's practice in the management of HIV patients and may clarify confidentiality decision guidelines at the health centers. I hope to contribute to

public health evidence and to inform programs and policies that mandating HIV status disclosure in Plateau State, Nigeria and SSA.

Previous Hypothetical Studies on HIV Confidentiality Decisions

Although in SSA, there is dearth of researches on physicians and patient's features that influence confidentiality decisions; however, there are substantial studies that used vignettes as a tool to examine the willingness of physicians in the developed countries to breach confidentiality with HIV positive patients who pose potential danger to the public or third party (Totten, Lamb and Reeder 1990; McGuire, Niefi, Abbott, Sheridan & Fisher, 1995, Stewart & Reppucci, 1994; Kozlowski, Rupert & Crawford, 1997; Palma & Ianneli, 2002; DiMarco & Zoline, 2004; Schwartzbaum et al., 1990; Daly et al., 2011). These studies involved psychotherapist or physician's responses to a hypothetical vignette with manipulated factors that might be expected to influence responses on confidentiality decisions. Although they were published over five years ago these studies were included in my review in the absence of recent ones and because they were relevant to my study. The study by Schwartzbaum et al., I advanced is a 1990 publication.

Patient and Physician's Characteristics and Confidentiality Decisions

In this study, I investigated the physician's response to a hypothetical case involving HIV positive patients in diverse relationship types and whose behavior may place sexual partners at potential risk of infection. Previous studies I reviewed that the researchers examined confidentiality decisions (Daly et al., 2011; DiMarco & Zoline, 2004; Schwartzbaum et al., 1990) engaged the survey design using the vignette

questionnaire as an instrument. A survey is appropriate to investigate attitudes of sampled physicians for generalization (Creswell, 2013) and the use of vignette questionnaire as a research instrument combines the survey and experimental methods to provide aspects of both the high external validity of the survey and high internal validity of experiments (Evans et al., 2014). Vignettes as a research tool enable the researcher to simultaneously manipulate many variables, collect data from many participants, remove the observer's effect, and avoid ethical dilemmas (Evans et al., 2014). DiMarco and Zoline (2004) manipulated gender orientation as heterosexual, homosexual, and bisexual. Kozlowski et al. (1998) manipulated gender orientation (homosexuality and heterosexuality) and duration of relationship as in long-term relationships (above 15 years) and shorter relationships of less than 2 months. Using vignettes, Schwartzbaum et al. (1990) manipulated the variables race (Black, White), gender (male and female), and gender orientation (homosexuality, heterosexuality). The use of vignettes as a research tool could help to avoid eliciting socially desirable responses (Gourlay et al., 2014). In my study, I also adopted the experimental methodology, and vignettes were used to describe relationships of potential risk exposure to HIV infection in different sexual relationships and orientations (homosexual, monogamy, polygamous) by different gender (male, female).

For data analysis in the reviewed studies, regression analysis was employed to demonstrate how the independent variables significantly predicted confidentiality decisions. Logistic regression was applied by Schwartzbaum et al., (1990); Daly et al. (2011) employed multiple regression analysis. Considering participants' responses across

manipulated variables, results on the average indicated a tendency to breach rather than maintain confidentiality; 57% of participants in the study by Daly et al. probably or breached confidentiality while 17% probably or maintained confidentiality. Daly et al. findings suggested that safety is closely related to physicians' decisions. DiMarco and Zoline examined gender orientation of heterosexuality, homosexuality, and bisexuality, and found that 67% of participants (*n*=57) would breach confidentiality. This finding was similar to the finding of Kozlowski et al. (1998) who reported that more participants breached confidentiality than maintained confidentiality based on the degree of dangerousness presented by the patient to the sexual partner rather than on physicians' bias as hypothesized. DiMarco and Zoline found that 51% of participants (*n*=43) reported that they breached confidentiality when the patient was engaged in more frequent risky behavior with multiple partners.

Patient Features Investigated in Previous Studies

My literature review identified patient features frequently investigated to include the perceived degree of dangerousness; identifiable sexual partners, patient gender, race, and gender orientation.

Degree of Dangerousness

The degree of dangerousness or level of risk perception was described in connection to the practice of risky or unsafe sexual behavior which included not using protection during intercourse, anal sex, multiple sexual partners in a relationship and prolonged period between diagnosis and disclosure (Daly et al., 2011; DiMarco & Zoline, 2004). I reviewed the influence of the patient's degree of dangerousness on

confidentiality decisions in these three studies: Totten, Lamb and Reeder 1990; McGuire, Niefi, Abbott, Sheridan and Fisher, 1995 and Stewart and Reppucci, 1994. Totten et al., (1990) demonstrated that HIV therapists were more likely to breach confidentiality if there was a high danger of transmission as detected among prostitutes, homosexuals and unprotected sexual activity. Five years later, McGuire, et al., (1995) replicated the study by Totten et al, found that respondents were more likely to breach confidentiality if they rated the patient at a higher degree of dangerousness, indicating a strong chance of transmission. In another study, Stewart and Reppucci (1994) found that mental health professionals rated HIV positive patients, in both homosexual and heterosexual relationships, more dangerous than persons with homicide intention but were less likely to warn the sexual partners of HIV patients when a patient expresses homicidal intention. It could be deduced from these studies that the degree of dangerousness presented by the patient influenced the physician's confidentiality decisions. Other researchers had similar findings; Kozlowski et al. (1998), Palma and Ianneli (2002), and Daly et al. (2011) investigated patient's risk behavior on confidentiality decision making. Daly et al. found a higher likelihood of breach in confidentiality when the patient reported previous engagement in unprotected sexual intercourse than when protection was used. According to Daly et al. (2011), it is difficult to establish, in practice, the exact risk level associated with risky behavior including sexual practices because behaviors interact with clinical factors, particularly with the patients' viral load**.** In my study dangerousness of the patient will not be estimated, because the vignette will be constructed to portray an infected patient involved in a relationship and who will not disclose status to sexual partner as

already posing a potential danger. Although the degree of dangerousness is not included among my study variables, these studies are relevant to my study because they provide an insight into an important factor that influenced physicians' confidentiality decisions.

Identifiable Sexual Partner

Whether the sexual partner(s) of the HIV positive patient could be identified or not was a common feature investigated in some previous studies (DiMarco & Zoline, 2004; Kozlowski et al., 1998). Where the sexual partner was identifiable the likelihood of breaching confidentiality was higher than where the sexual partner could not be identified. In the study by Kozlowski et al. (1998) psychotherapists were more likely to breach confidentiality if the sexual partner potentially at risk of infection was easily identifiable. A similar finding was reported by DiMarco and Zoline who demonstrated in their study that scenario, where the sexual partner potentially at risk was identifiable, tended to increase the likelihood of physicians to breach patient's confidentiality to protect partner. In the construction of my study vignette, the sexual partner(s) will be identified as potentially at risk because they are in a sexual relationship, but I will not investigate physician's confidentiality decisions where the sex partner potentially at risk is identifiable because in real clinical setting the feasibility of partner identification is complicated in resource constrained settings (Iyioha & Nwabueze, 2016; Odunsi, 2007). However, the finding of the studies reviewed in this section provided insight into factors influencing confidentiality decisions which are related to the aim of my study.

Patient's Sexual Relationship

In my literature review, monogamous relationships were commonly reviewed as shown in these studies by Daly et al. (2011), Kozlowski et al. (1998), and Schwartzbaum et al. (1990). None of the literature found investigated polygamous relationships for comparison; my study will investigate physician's confidentiality options in polygamous relationships in Central Nigeria. Kozlowski et al. 1998, investigated patient's relationship in terms of its duration (long or short); physicians attributed greater responsibility to the patient's sexual partners for self- protection in short-term (two months) homosexual relationships, while the responsibility for protection was attributed to the patient in long time relationship of over 15 years. These studies are related to my study; I investigated the influence of sexual relationship to physician's confidentiality decisions and compared the influence of monogamy versus polygamy on confidentiality decisions. The findings may be used to enhance physician care for HIV discordant partners.

Patient's Gender Orientation

The patient's gender orientation has also been investigated by researchers. In previous studies, the researchers hypothesized that the physician's decision to breach confidentiality was influenced by the client's gender orientation (DiMarco & Zoline, 2004; Kozlowski et al., 1998). This was based on the evidence that the attitude of physicians towards patient gender orientation offered an insight into their confidentiality decisions (McGuire, Niefi, Abbott, Sheridan & Fisher, 1995). However, Kozlowski et al. found that respondents attributed more responsibility to the male patient to protect his

partner when the relationship was heterosexual rather than homosexual. They reported that regardless of the gender orientation, most physicians felt an ethical responsibility to protect the partner at risk and seemed willing to breach confidentiality if necessary. DiMarco and Zoline (2004) investigated in Illinois, psychologists' perception of their duty to warn uniformed sexual partners of HIV positive patients who reported unsafe sexual practice. They found that 68% of 84 respondents would breach confidentiality regardless of whether the patient was homosexual, bisexual or heterosexual. Although, respondents who demonstrated high scores on homophobia were more likely to breach confidentiality. DiMarco and Zoline demonstrated that confidentiality decisions were not swayed by a bias towards the patient as a function of gender orientation. The studies cited in this section are relevant to my study because I investigated homosexuality and heterosexuality as they relate to physician's confidentiality decisions and the findings may be used to enhance physician's practice, inform policy and programs aimed at status disclosure and HIV prevention.

Patient's Race

Schwartzbaum et al. (1990) found that White male physician's decisions to breach patient's confidentiality were influenced by race, gender, and gender orientation. They examined the responses of 199 White physicians on confidentiality decisions for White and Black patients and reported that the physicians were more likely to breach confidentiality for Blacks than their White counterparts. Black homosexuals and heterosexuals were less likely to have their confidentiality maintained. Black patients were 10.7 times more likely to have their HIV positive status reported to the Health

department than Whites. Black patients were 3.6 times more likely to have both their names and HIV status reported to the Health Department. This research was done among predominantly White physicians and demonstrated that race influenced White physician's confidentiality decisions. Although these studies provide an insight into the relationship between patient's race and physician confidentiality decisions, the race was not chosen as a variable or construct in my study because my setting is predominantly Black without diversity for manipulation.

Patient's Gender

The patient's gender is another feature that has been examined that could influence decision making. Schwartzbaum et al. (1990), demonstrated that being male or female patient influenced the physician's decision to maintain confidentiality, or to breach by informing the health authority or inform the patient's sexual partners. These researchers found that female patients were more likely to be persuaded to disclose status than male patients. If a male was the HIV patient, physicians were 2.8 times more likely to inform the sexual partner, 2.6 times more likely to report both name and HIV status of the patient to Health Department and 2 times more likely to report the patient's status only to Health Department.

In my literature review, I could not find any study where researchers investigated physicians' patterns on confidentiality decision -making in SSA and Nigeria, or determine whether a patient's gender influenced physician's confidentiality decisions. My findings filled this gap in the literature. Studies reviewed in this section were relevant to my study: I examined male and female as variables of gender construct in relation to

confidentiality decisions and my findings may be used to enhance physician's practice in the management of HIV patients, help to clarify confidentiality decision guidelines at the health centers and may inform programs and policies aimed at mandating HIV status disclosure in Plateau State, Nigeria and SSA.

Physician's Features investigated in Previous Studies

The physician's demography and features have also been investigated as they relate to confidentiality decisions. DiMarco & Zoline, (2004), reported that physician's confidential decision making was based on a combination of clinical, moral and legal factors related to the patient, sexual partner, and physicians. Physician's features and demography investigated include physician's age, gender, practice location, year of qualification, breach of confidentiality in the past, specialty, respondent's moral obligation to third party, fear of litigation, physician's knowledge of HIV, knowledge of state laws and status, number of sessions with patients among others. Physicians who were older in age, had not breached confidentiality before, who were more experienced in managing HIV cases and who practiced in urban locations indicated in the hypothetical studies that they were less likely to breach confidentiality (Daly et al., 2011, DiMarco & Zoline, 2004; Kozlowski et al., 1998). In another study, the researchers investigated attitudes of the therapist to different groups of HIV patients and how confidentiality decisions may be affected by prejudices towards these groups; Simone and Fulero, (2001) found that psychologists had a less positive attitude towards homosexuals. Daly et al. 2011 extended the study by Kozlowski et al. (1998) to investigate the role of patient and physician characteristics in determining risk perception and decision-making in situations

where confidentiality would need to be breached to protect a third party. They demonstrated that less experienced physicians and those who had broken confidentiality before were more likely to breach confidentiality again. DiMarco and Zoline, (2004), found that physician's knowledge of HIV and the law did not significantly influence confidentiality decisions however the moral obligation to sexual partners and the longer the victim was exposed to unsafe sexual practices were rated as significant factors physicians considered to make confidentiality decisions.

Together, these studies provide possible evidence of the influence of physician characteristics on their patterns of confidentiality decision making in developed countries. In my literature search, I found few studies where researchers investigated weather physicians would maintain or breach confidentiality in the management of HIV positive patients in SSA (Bott, Neuman, Helleringer, Desclaux, El Asmar, Obermeyer, 2015; Reis, Heisle, Amowitz, Moreland et al., 2005). However, I could not find any study where the researchers investigated the influence of physicians' patterns on confidentiality decision -making in SSA and Nigeria, or determine what factors were taken into consideration to maintain confidentiality. Investigating the influence of physician and patient characteristics that may influence physician's confidentiality decisions is necessary because my findings may fill this gap in the literature. Evidence from these studies reviewed in this section was relevant in evaluating the relationship between physician's socio-demography and their HIV confidentiality decisions. The findings of my research may be used to enhance the physician's practice in the management of HIV

patients at the health centers, inform programs and policies aimed at mandating HIV status disclosure in Plateau State, Nigeria and SSA.

The Rationale for Research in SSA

Analysis of these reviewed studies demonstrated that physicians are concerned about the danger posed by HIV positive patients to their partners and the public, and feel obligated to protect others (Daly et al., 2011; DiMarco & Zoline, 2004; Kozlowski et al., 1998). These studies also demonstrated that certain characteristic features of the disease, of the patient, third party and the physician influenced confidentiality decisions with HIV positive patients that needed to be further investigated (Daly et al., 2011). In SSA, there is a paucity of published information on health professionals breaching confidentiality, two studies only were found that determined if health workers would breach or maintain confidentiality (Reis et al in 2005 &Bott et al 2015). In some other studies, it was the patients that reported observing health worker disclose their confidential information without their consent (Bott & Obermeyer, 2013, Weiser et al., 2006). Bott and Obermeyer suggested the need to pay attention to the dilemma faced by physicians concerning confidentiality decisions. I investigated patient and physicians' characteristics that may influence physician confidentiality decisions in discordant relationships; the influence of patient's gender, gender orientation and relationship, and physicians' socio-demography.

The selection of my study variables was guided first, by evidence from studies in SSA that demonstrated significant positive associations between HIV transmission and having multiple partners, homosexuality and gender inequalities where young females are

primarily affected (Mwamwenda, 2014; Noor et al., 2015), and second, on the evidence that physician and patient socio-demographic features like gender, ethnicity, location, and cultural factors have been demonstrated to independently affect physicians' practice or influence an ideal therapeutic relationship (Berger, 2009; Oginni et al., 2014).

Selected Variables for my Study

Patient's Features that may Influence Physician's Confidentiality Decisions

Gender. Gender describes the roles or characteristics of men and women that are socially and culturally created (WHO, 2017). Sex refers to biological difference as in sex organs, sex hormones and chromosomes, and physiological characteristics that define male and female. (APA, 2012; WHO, 2017). Both sex and gender are essential determinants of health; they interact to produce differential risks and vulnerability to ill health, differences in health-seeking behavior, and health outcomes for men and women (WHO, 2017). The patient's gender and sex play important roles in access to, and uptake of health services and on the health outcome experienced throughout life-course (WHO, 2017). Patient's gender was investigated because previous research demonstrated that a persons' disclosure behavior and health care practices regarding HIV confidentiality are significantly determined by gender in SSA. (Bhatia, Harrison, Kubeka, Milford et al., 2017; Bott & Obermeyer, 2013). According to WHO, 2017, there are differences in the factors determining the health and burden of ill health for men and women.

Globally and particularly in SSA, women and young girls are disproportionally affected by HIV infection because of poverty, violence, and inequality in education among the female gender (Amin, 2015; AVERT, 2017d; Turmen, 2003). Although, the

rate of male to female transmission of 11.8per 100person-years was not significantly different from female to male transmission recorded at 12per 100person-years (Kozlowski et al., 1997), women are more likely than men to be HIV positive, more likely to be tested because of increased testing efforts and mandatory testing at antenatal clinics (Bott& Obermeyer, 2013). According to Salami, Fadeyi, Ogunmodele & Desalu, (2011) women in a monogamous relationships with high HIV knowledge and who were aware of their spouses' status, correlated well with high disclosure rate. Although women appeared more accepting of disclosure, they were generally more affected by gender inequality within relationships and more concerned about negative consequences; they experience difficulty negotiating safer sex practices, or communicating about intimacy, adding to the difficulty of discussing HIV serostatus (Bhatia, Harrison, Kubeka, …Matthew, 2017). Socially and culturally rooted gender power inequality within relationships and intimate partner violence place women in SSA at increased risk of HIV infection compared to men and because of mistrust, stigma, and the potential loss of a relationship and its social and economic security, many women lived with partners for some time without disclosing their HIV status (Bhatia et al., 2017). Importantly, men, women, and their partners experience disclosure as stressful and as a complex process (Bhatia et al., 2017).

Based on the above evidence, it is important to determine the influence of different gender on physician's pattern of HIV confidentiality decisions. Schwartzbaum et al. (1990) investigated at Tennessee, the influence of gender on physician's confidentiality decisions when the HIV patient was female, physicians were more likely

to maintain confidentiality than in male HIV patient. The male physicians in their study indicated that they were more likely to persuade the female patients to disclose status than male patients. In SSA however, physician's pattern of confidentiality decisions as it relates to different gender have not been investigated (Bott & Obermeyer, 2013). This created the need for my study; I investigated whether being male or female patient influenced physicians' confidentiality decisions and applied my findings at enhancing physicians' practice, and at informing programs and policies that mandate HIV status disclosure.

Gender Orientation. Gender orientation is a pattern of sexual attraction to persons of the opposite or same gender, and or both described as in heterosexuality, homosexuality, and bisexuality respectively (APA, 2012). Approximately 80% of HIV transmission in SSA and Nigeria has been reported to be through heterosexual relationships (Maeri, El Ayadi, Getahun, Charlebois, et al, 2016). The acceptance of homosexuality which was initially rejected by Nigerians has improved by 4-7% (Anazaki, 2018; Sallar & Somda, 2011; Vu et al, 2013). The US Pew Research Center, (Pew Global Attitudes Project, p35, 83 and 117), as of 2015, reported that 90-94% of Nigerians believe that homosexuality is a way of life that society should not accept as compared to 97% in 2007. The law criminalizing homosexuality further reflected the position of Nigerians on the matter of sexual preferences as a majority did not complain (Anazaki, 2018). Homosexuality remains illegal in most countries in SSA, Nigeria inclusive, but has constituted a burden in the prevention of HIV; although more people became homosexual in the last decade in Nigeria, they practice secretly, thereby making

it difficult to have access to this group for testing and treatment (Sallar, & Somda, 2011; Vu et al., 2013). Furthermore, a research study demonstrated homophobia among health workers (Mapayi, Oginni, Akinsulore, & Aloba, 2016). I chose homosexuality as a variable in my study to elicit its relationship to confidentiality breach options in HIV cases. The findings of my research could be applied to guide physicians' practice, to improve the care of HIV discordant couples and could inform policies that mandate HIV status disclosure.

Researchers who earlier investigated the influence of gender orientation on physician's confidentiality decisions reported that the attitude of physicians towards patient gender orientation offered an insight into their confidentiality decisions (McGuire, Niefi, Abbott, Sheridan & Fisher, 1995). Years later, DiMarco and Zoline (2004), demonstrated that confidentiality decisions were not swayed by a bias towards the patient as a function of gender orientation. They reported that regardless of the gender orientation, most physicians felt an ethical responsibility to protect the partner at risk and seemed willing to breach confidentiality if necessary. Daly et al. (2011), reported that physician's decision to breach confidentiality was related to a high level of risk perception and not significantly related to gender orientation. Homosexuality falls into risky behavior concerning HIV transmission.

While homosexuality is associated with a higher rate of transmission of HIV infection than heterosexuality, the risk of female-to-female sexual transmission is very low among lesbians because little quantity of bodily fluids are exchanged between women (AVERT, 2017d). However, women in heterosexual relationships are twice likely

as males to be infected with the virus; homosexual men are at greater risk, they are more than 20 times more likely to contract infection from an infected partner than partners in heterosexual relationship because of the greater risks involved in anal sex than in vaginal sex (Quinn, Wawer, Sewankambo, Serwadda, Li, Wabwire-Mangen et al., 2000). Physicians by gender, specialty and year of practice have been found to exhibit diverse attitudes of homophobia toward homosexuals (DiMarco & Zoline, 2004; Smith, & Mathews, 2008). In making confidentiality decisions physicians were found to have fewer positive attitudes towards homosexuals than heterosexual patients (Simone & Fulero, 2001). Homosexuals in short relationships were accorded more responsibility to protect themselves hence the physicians investigated by Kozlowski et al. (1997) would not breach confidentiality to protect homosexual sex partners. Stewart and Reppucci (1995), demonstrated that homosexuality was rated more dangerous than homicide; but physicians were more likely to breach confidentiality for homicidal cases than for HIV cases. Cragun and Sumerau (2014), investigated attitudes of health workers to categories of sexuality and found that heterosexuality had the most positive rating followed in order of rating by homosexuals and lesbians, bisexuals, transgender persons, and then polygamists. I could not find similar studies in which researchers rated attitudes to categories of sexuality and relating to HIV confidentiality breach options in SSA. I included heterosexuality and homosexuality as study variables to elicit in Central Nigeria, their relationships to physician's confidentiality decisions in HIV cases and to compare with those found in studies in the developed countries in my discussion in chapter five. This is important because many nations in the west uphold the rights of Lesbians, Gays

Bisexuals, and Transgender (LGBT) persons and the arguments for and against LGBT rights have kept African countries against western countries (Anazaki, 2018). In analyzing this issue, the law of any nation reflects its culture, religion, societal beliefs and customs and the African values and costumes are different from those of the West (Anazaki, 2018). The findings from my study could be applied to enhance physician practice in SSA, inform related policies, address HIV risky behaviors and improve HIV preventive measures.

Sexual Relationship. Sexual relationship describes relationships that include sexual behavior under which this study will consider polygamy described as having more than two persons in the relationship, while monogamy is a relationship of just two persons (Diop & Stewart, 2016; Fox, 2014). Polygamy, a tradition that allows men to keep several partners at the same time, has contributed to the spread of HIV (Fox, 2014). Under the civil law, Nigeria does not recognize polygamous unions but customary law in Nigeria and Islamic Sharia law recognize polygamous unions (Fox, 2014; Oono, Ong, Shahaduz & Pearce, 2015 & Phiri & Phiri, 2016). Although polygamy has been linked to the spread of HIV in Africa because of the increased number of sexual contacts involved, some researchers argue otherwise, suggesting that the spread of HIV should be linked to unprotected sex outside an exclusive relationship which increases the number of contacts exponentially and the growth rate of the epidemic (Fox, 2014; Phiri & Phiri, 2016). They suggested that the constancy of partners in polygamy may help prevent the spread of HIV, a claim that requires investigation. Monogamy is commoner and widely accepted across nations (Fox, 2014). Monogamy can help reduce the risk of HIV infection if both

partners are negative and remain faithful, and if protection is used where one or both are affected (Fox, 2014). Transmission of HIV is high in monogamous discordant couples where protection is not used (Mitchell, Harvey, Chapeau & seal, 2014).

Polygamy is illegal in western countries; substantial studies conducted on physician's pattern of making confidentiality decisions among HIV cases in these countries were conducted among monogamous relationships (Daly et al., 2011, DiMarco & Zoline, 2004, Schwartzbaum et al., 1990) It is important to find out how polygamous and monogamous relationships would influence HIV confidentiality. DiMarco & Zoline (2004) investigated the influence of gender orientation in physician confidentiality decisions and found that physicians were more likely to breach confidentiality in heterosexual monogamous female partners. Although homosexuality is a risk factor of HIV transmission, Homosexual monogamists in a faithful relationship has less risk of transmission (Mitchell, Harvey, Chapeau & seal, 2014). In this study, I investigated in Nigeria, physician's confidentiality decisions towards heterosexual polygamous and monogamous relationships. Polygamous relationships, where males dominate, and sexually engaging more than one woman are common in Nigeria (Fenske, 2015). Also practiced in Nigeria and SSA are relationships where the female keeps multiple male sex partners mainly for commercial purposes (Exavery, Kante, Tani, Hingora, & Philip, 2015; Folayan, Adebajo, Adeyemi, & Ogungbemi, 2015). From my literature review, no researcher investigated polygamy as it affects physician's confidentiality decisions. These relationship types were investigated to elicit their influence on physician's confidentiality decisions among HIV cases and my findings may be used to enhance physician's practice

and to inform policies and programs aimed at HIV status disclosure.

Physicians Socio-demography and Confidentiality Decisions

Researchers in previous studies demonstrated that physician and patient socio-demographic features including sex, age, ethnicity, practice location, and cultural factors independently affect physicians' practice or influence an ideal therapeutic relationship (Berger, 2009; Oginni et al., 2014). In medical practice it is assumed that clinician's operations are neutral, influenced only by objective science and unaffected by personal characteristics, however, Berger (2008) described how physician's practice patterns were influenced by their demographic characteristics. Physicians' agreement or disagreement in the patient–physician relationship affected the patient's care (Berger, 2009). Understanding the influence of physician demography on physician's medical confidentiality decisions would provide information for guidelines and policies, improve the quality and efficacy of patient care and medical education (Berger, 2008).

Physician's demographic features that have been investigated in previous studies in the developed countries include age, gender, race, specialty/degree, years in practice, practice location, risk perception, experience in HIV management, breached confidentiality before, knowledge of HIV/AIDS, knowledge of ethics and law (Daly et al., 2011; DiMarco & Zoline, 2004; Schwartzbaum et al., 1990). These features were studied in various combinations. Physicians who were older were more likely to maintain confidentiality than younger physicians (Daly et al., 2011; DiMarco & Zoline, 2004). The race of a physician was found to be associated with confidentiality decisions. Schwartzbaum et al. (1990) evaluated the responses of 199 White physicians and

documented that White male physicians were more likely to breach confidentiality for Black homosexual males and Black heterosexual male than White homosexual female and Black homosexual females. These evaluations were carried out in the developed countries where participants were predominantly White. Researchers have suggested the need to investigate the physician's pattern of confidentiality decisions in SSA where the participants are predominantly Black (Bott & Obermeyer, 2013, Daly et al., 2014; Odunsi, 2007).

The physician's previous breaches of confidentiality, years of practice, knowledge of HIV and experience in the management of HIV were investigated by Daly et al. and physicians who had breached confidentiality before (19.6%) were more likely to breach confidentiality again. Physicians who had long years of practice were more likely to maintain confidentiality while having more experience in the management of HIV or more knowledge of HIV did not influence decision making. Other features investigated in previous studies were the physician's location of practice and specialty (DiMarco & Zoline, 2004; Schwartzbaum et al., 2011), both features did not significantly influence confidentiality decision, but specialized participants were more likely to maintain confidentiality; physicians with practices located in urban areas were more likely to maintain confidentiality (Daly et al., 2011; Schwartzbaum et al., 2011). Physicians were more likely to breach confidentiality where the third party was easily identifiable and if the therapist had no previous experience handling HIV discordant couples (Totten, Lamb and Reeder 1990). In my literature review, I did not find studies where the researchers investigated in Nigeria the physician's characteristics that may influence confidentiality

decisions. In my study, physician's demography was included as covariates because they were predictive of the study outcome; they may be confounding or interacting variables, I had interest in eliciting relationships to confidentiality decisions in HIV cases. The findings from my study could also guide improved physician's practices in Nigeria and SSA.

Summary

HIV/AIDS is a global public health burden. Although progress has been made in the aspects of prevention and treatment there is still much to be done (CDC, 2014). Policies and programs mandating HIV status disclosure in an attempt to decrease HIV incidence have raised ethical and policy arguments (Bott & Obermeyer, 2013). These include policies adopted from the AWARE-HIV/AIDS model legislation, criminalization of HIV transmission/exposure, the duty to warn and the PNS. Physicians encounter challenges in making confidentiality decisions (Bott & Obermeyer, 2013; Dawns, 2015). For physicians, maintaining medical confidentiality is important for the therapeutic relationship, and particularly on issues of HIV/AIDS that are highly stigmatized in Nigeria and SSA and patients may desire that their status should not be disclosed. Though there are limits to confidentiality and circumstances when a breach becomes a better option; however, in deciding to breach or maintain confidentiality, the physician put into consideration ethical and other factors peculiar to the patient and physicians in the SSA region to decide on an option that benefits the maximum population. There is evidence of physician and patient characteristics influencing confidentiality decisions from the developed countries but such studies are scarce in SSA.

The patient's gender, gender orientation, and sexual relationship and physician's demography were discussed and investigated in my study because they are relevant to physician's practice and public health policies and programs that mandate HIV status disclosure. My findings may be used to enhance the physician's practice.

In chapter three, I discussed my research methodology which includes the study research design and rationale, study variables, study population, sampling, recruitment, instrumentation, data analysis, consideration of ethics and threats to validity.

Chapter 3: Research Method

Introduction

The purpose of my study was to evaluate the effect of patients' gender, gender orientation, sexual relationship, and physician characteristics on physicians' decision to maintain or breach medical confidentiality among HIV discordant couples. In this chapter, I describe the research methodology. My research design and rationale are described first, followed by a detailed description of my study methodology including the study population, sampling, recruitment procedure, instrumentation, and data analysis plan. Lastly, I discuss ethical considerations and the threats to validity

Research Design and Rationale

I used a quantitative, experimental design to test and measure the relationships between variables (see Creswell, 2013). The quantitative method is justified where variables have been identified and the researcher seeks to investigate quantifiable factors that influence an outcome (Creswell, 2013). Independent variables for my study were identified as patient characteristic features of gender, gender orientation, and sexual relationship; covariables were physician socio demography of age, gender, years of practice, specialty, and previous breach of confidentiality. Dependent variables were physicians' confidentiality decisions. An experimental design was justified because it represents a general approach to the research questions and hypotheses of this study in which I sought to statistically test, measure, and compare through logistic regression analysis the relationships between physicians' confidentiality decision and patient/physician characteristics. My study design was experimental because I

manipulated the independent variables of hypothetical patients' gender, gender orientation, and sexual relationships using the variants of the vignette questionnaire (research instrument) to elicit any effect of these independent variables on the outcome variable (breach or maintain confidentiality).

My study, however, was not randomized. In the spectrum of quantitative designs, it falls between a true experiment that is randomized and manipulated and the quasi-experimental design that is not randomized and is not manipulated. The quasi-experimental design is frequently used when it is not logically feasible or ethical to perform randomized controlled trials, which is the gold standard of casual research (Frankfort-Nachmias & Nachmias, 2015). In some similar studies, researchers successfully achieved randomization and operated in a true experimental research design (Daly et al., 2011; Schwartzbaum et al., 1990). However, along the spectrum of quantitative research designs spanning from descriptive through correlation and quasi-experiment to true experiments are blends between designs (Frankfort-Nachmias & Nachmias, 2015). For the second research question, an experimental design was applied; the effect of the independent variable of physicians' demography of gender (male/ female), age in years (21-30, 31-40, 41-50, 51-60, 60+), specialty (not specialized/ specialized), years of practice (never practiced, 1-5years, 6-10years, above 10years), and previous confidentiality breaches (never, once, twice, thrice, more than thrice) on the outcome variable of physician decisions to maintain or breach confidentiality was investigated. Investigating physicians' demography may lead to the recognition of trends and patterns and may not necessarily prove causes for the observed patterns (see

Frankfort-Nachmias & Nachmias, 2015). Control for the experiments was obtained from a reference category assigned to variables as baseline values (see Walliman, 2015).

Data were collected at one a point in time; this saved time and resources in comparison to longitudinal studies (see Creswell, 2013). An experimental research design was consistent with research designs needed to advance knowledge in my discipline because it can be used to test hypotheses for cause and effect relationships, generate data for inference, and identify general trends from results (Frankfort-Nachmias & Nachmias, 2015). Although these features may be restricted in the absence of randomization, the quasi-experimental design may be more feasible in social sciences because it does not require the time, resources, and logistic constraint associated with experimental design. In this study, I documented information on the relationship between my variables that may have clarified confidentiality decisions, enhance physician practice, and may inform policies and programs that mandate HIV status disclosure.

I used the vignette questionnaire as a research instrument and combined the survey and experimental methods to provide aspects of both the high external validity of survey and high internal validity of experiments (see Evans, Roberts, Keeley, Blossom, & Amaro, 2014). Concerns have been raised as to whether vignettes accurately reflect natural environmental phenomena; this is considered a weakness of vignette surveys as it compromises the rich external validity of surveys done in a real-world environment. However, using vignettes as a research tool has numerous advantages including the ability to simultaneously manipulate many variables in a manner not possible in an observational study, the ability to collect data from many participants simultaneously, the

ability to remove observer's effect, and the ability to avoid ethical dilemmas (Evans et al., 2014).

I choose to do a quantitative experimental study using a vignette as an instrument because I could collect quantifiable data for my variables from my study population in central Nigeria at one point in time. An experiment helped me to test and evaluate the relationships between physicians' confidentiality decisions and patient/physician characteristics. The use of vignette was appropriate for my study because they are used to investigate decision-making behaviors; they are tools for evaluating how various factors influence clinicians' judgment and decisions (Evans et al., 2014). The use of vignettes helped me manipulate the predictor variables for various outcome responses as indicated in Appendix B. Time and financial constraints were other reasons why I chose this design. I chose to replicate the quantitative study by Schwartzbaum et al. (1990) using the same methodology but with different subjects, a different experimenter, and at a different location to determine its application to real-world situations in SSA and to ensure that the results obtained are valid and reliable; a replication also determines extraneous variables and could inspire new research in combination of previous findings (Jain et al., 2016; Morin, 2013).

Methodology

Population and Location

Study participants were practicing physicians in Plateau state, Central Nigeria, who were registered with the NMDC. Plateau state has about 800 physicians for a population of over 3 million, and all practicing physicians register with the council

annually (author, year). Specialized physicians and those who have practiced for over 10 years subscribe with a higher fee than those not specialized and have practiced for fewer than 10 years. About 10% of these physicians practice in rural areas consistent with fewer than 20% (Oladipo, 2014) practicing in rural Nigeria. In recruiting the sample, physicians were only included because they possess some knowledge that helped evaluate any risk involved to determine whether to maintain or breach patients' confidentiality while protecting a third party from potential exposure from a person with HIV infection. Physicians who had no experience in the management of HIV cases were excluded. My study location was at three health centers that I identified as x, y, and z in an urban city. For confidentiality reasons, it was estimated that in the urban City A there were about 750 physicians of the 800 physicians practicing in Plateau State.

Sampling and Sampling Procedures

A convenience sampling strategy was used for sampling. It is a nonprobability sampling technique where the study participants are selected because of their convenient accessibility and proximity to the research (Patton, 2015). In social sciences, nonprobability sampling is used when a sampling population cannot be defined for exploratory research and when convenience and economy outweigh other benefits of using probability sampling (Frankfort-Nachmias & Nachmias, 2015). Major designs that use nonprobability samples and were relevant to my study were convenience and purposive sampling. Convenience samples use whatever sampling units are available, and purposive sampling engages participants who are readily available to be researched, meet inclusion criteria, and appear to represent the population (Frankfort-Nachmias &

Nachmias, 2015). Both sampling types share some limitations of the nonrandom selection of participants; however, Etikan, Musa, and Alkassim (2016) reported that convenience sampling was frequently used in quantitative designs, although it could also be used in qualitative designs, while purposive sampling was used frequently in qualitative designs.

Randomization, a probability sampling method, is the gold standard for quantitative research; however, convenience sampling is the choice of sampling where randomization is not possible (Etikan et al., 2016). For this study, physicians from the study sites were approached to be recruited as was convenient, preferably on clinic days at the post clinic period. Generally, convenience sampling is limited because it may lead to bias; its sample frame is unknown; and as a nonprobability sampling, the sample may not represent the population studied and will reduce the researcher's ability to make generalizations to the study population. However, it was a preferred choice of sampling because of its low cost and ease of use and because the subjects were readily available (see Etikan et al., 2016).

Sample Size

Determining the optimal sample size before research execution can maximize statistical power and minimize sampling costs (Wan, Wang, Liu & Tong; 2014). In this quantitative study, the sample size was statistically determined to ensure a reasonable likelihood of detecting a difference if it really existed in the population: G* power, a free online statistical software for power analysis, was conducted to determine the required sample size for logistic regression (see Faul, Erdfelder, Lang, & Buchner, 2007 Field, 2013. The sample size is related to the power level, alpha level, and effect size. The

power for analysis and the significance (i.e., alpha) level was set to the conventional levels of .80, and .05 respectively. For the logistic regression model, odds ratio (OR) was applied as the effect size; OR measures how many times bigger the odds of one outcome is for one value of the independent variable compared to another value (Field, 2013). When conducting research, an a priori power analysis is often necessary and because the analysis was conducted in advance of the actual study, the type of power analysis was set to a priori (see Faul et al., 2007). The test family setting in G*Power was *z*-tests for logistic regression. A two-tail test was chosen because it tested for the possibility of a relationship regardless of the direction hypothesized. In a two-tailed test, the alternative hypothesis would be accepted instead of the null hypothesis if the sample being tested falls into either of the critical areas of distribution (Field, 2013). To calculate sample size for my study using the G*Power 3.1 software, these parameters and analysis setting were my input; - test family setting at *z* test, statistical test of logistic regression, A priori: sample size analysis, two-tailed -test, power of .80, alpha level of .05 and calculated OR of 2.3 based on assumption from previous pilot/ studies, and a minimum sample size of 190 participants was calculated. The study I replicated recruited 222 participants (Schwartzbaum et al., 1990), and I chose to recruit 240 participants.

In my study, the between-subject design was used. It is an experimental design in which every subject is tested in only one condition, and it is unlike the within-subject design where the same groups of subjects serve in more than one experimental condition (Charness, Gneezy, & Kuhn, 2012). In similar studies where HIV confidentiality decisions were investigated, between-subject design was used, and each participant rated

only one of three (DiMarco & Zoline, 2004) or one of four vignette variants (Kozlowski et al., 1998). Between-subject design requires a large sample size to generate useful analyzable data but has the advantage of avoiding carryover effects that may affect performance (Charness et al., 2012). I chose to apply between-subject design in my study because it provided the opportunity to conduct each experiment with fresh groups with little or no contamination from extraneous factors. It helped avoid the chances of participants experiencing fatigue or boredom from responding to six similar but different vignette variants as well as avoid skewing the results by providing desirable responses through practice and experience (see Charness et al., 2012). In my study, six between-subject groups were required for the vignette variations, and for each group, 30-36 participants were recruited. I reviewed the sample sizes of two similar hypothetical studies that evaluated physicians' confidentiality decisions. In the study conducted by Daly et al. (2011), 207 participants were analyzed in three between-subject groups. I replicated the study by Schwartzbaum et al. (1990), where the researchers analyzed a sample size of 222 participants in eight between-subject groups.

In calculating sample size, small effects may be considered meaningful if it produces big consequences (Lipsey & Wilson, 1993). In the context of my study, a small effect size may be the difference between maintaining and breaching confidentiality. For social science, a research power level of .80 is used to increase the chances of rejecting the null hypothesis when the alternative hypothesis is true and to avoid Type II error (Frankfort-Nachmias & Nachmias, 2015). According to Frankfort-Nachmias and Nachmias (2015), an alpha level is set at .05 to increase the chances of not falsely

rejecting the null hypothesis and to avoid a Type1 error.

Procedures for Recruitment, Participation, and Data Collection

The method of contacting respondents, the medium of delivering the questionnaire to the respondents, and the administration of questions could affect the quality of data differently (Bowling, 2005). The health centers x, y, z in urban city A, in the Plateau state of Nigeria were the centers for this study. I located these centers/addresses in the urban city through the Plateau State Ministry of Health. I first contacted the research and ethics committee of these centers with my proposal and obtained their permission to conduct my research in these centers (Appendix E). After approval from Walden University and the institutional review board (IRB), I commenced data collection first for the pilot study in October 2018 and for the parent study in November 2018. Within the period of data collection, estimated to last 1-3 weeks, these three centers were visited one after the other on each scheduled visit because they were located in the same city. First, I informed the research and ethics centers and various departments of my intension to commence data collection; I also became familiarized with participants' meeting times and venues and strategized the most effective time to distribute questionnaires with minimal distraction. The clinical review sessions and post clinic periods were most convenient and had a large pool of physicians. Consent forms attached to the questionnaires were distributed to all physicians at such meetings, and the participants were asked to carefully study the consent form. Participants who consented to participate in the research completed and returned the questionnaire via a locked mailbox provided at the main section by the following day. Third, follow-up visits were

scheduled the following week to retrieve uncollected questionnaires, ensure my sample size was attained, and answer any question raised and to assure participants that the findings of the study would be shared with them via centers or a website created for this research.

Advancement in technology has made the use of online surveys popular especially in developed countries; online surveys cost less, are faster, and make data management easier (Bowling, 2005). For my study carried out in Nigeria where power supply and an Internet connection could be erratic and expensive, the questionnaires were distributed in person via the traditional pen and paper method to ensure a good response rate. Physicians in SSA may not be adequately enlightened to support research via e-mails (Adomi, Ayo, & Nakpodia, 2007). Personal administration may be time and resource consuming, complex in the management of data, and allow for researcher errors; however, according to Bowling, (2005), it can be done anywhere, can get hard-to-reach participants, and could provide a higher response rate.

The questionnaire had a cover page that informed participants about the research, its title, and my aim to investigate physicians' patterns of decision among HIV discordant couples when the infected is unwilling to disclose status. The cover page of the questionnaire also informed participants about me, the importance of the research, why they should participate, their gains, and of any risk involved. Participants were instructed on how to complete the questionnaire and vignette; they were informed that it took about 10 minutes to complete the questionnaire and that they were free to opt out at any time. Participants were assured that their identity and responses would remain confidential

throughout the research process. Those who consented to participate in the study went further to complete and return the questionnaire.

The six variations of vignette containing manipulations of the independent variables (Appendix B) were purposefully distributed to recruit 33– 40 participants for each variant. Each participant was not informed of the different varieties to avoid eliciting desirable or moral responses. Data were collected personally in a sealed envelope as soon as the questionnaires were completed on the same day, or on following days. Data extracted from the responses were entered into an Excel spreadsheet and computed into the system of SPSS 25 version for data processing and analysis. Data collected on paper were stored in a personally locked safe. The computed data were stored on my research laptop and saved on a pen drive with a secure password for protection. All forms of data will be kept for 5 years as instructed by Walden University Research Center before data can be securely discarded.

During these processes, no personal information was collected or associated. Data collected excluded all respondent information (e.g., name, e-mail address). Participants were informed that their questionnaire data could not be retrieved once transferred into the system because no participant identifiers were collected or used. Anonymous collection techniques and the anonymity of participants were assured because only aggregate data were displayed/ published. Overall study results were made available to participants once completed, and they were allowed to contact me concerning any questions or concerns. The information concerning the post research data web link/ blog was provided at the end of the survey.

Pilot Study

A pilot study is a mini scale test on research protocols, data collection instruments, sample recruitment, and other research technique in preparation for a larger study (Leon, Davis, & Kraemer, 2012; Wolfe, 2013). It is essential in research because it increases the likelihood of successful research (Hassan, Schatterner, & Mazza, 2006). A pilot study was conducted to detect deficiencies in the research protocols and instruments and to identify potential problem sections before implementing the full research. It can help the research team familiar with research protocol and procedures, and it can help in decision making between two conflicting methods as in the use of interview versus the use of a questionnaire (Hassan et al., 2006).

This study was an extension of the study conducted in Tennessee by Schwartzbaum et al. (1990) to evaluate the influence of patients' and physicians' characteristic features on physicians' decision to maintain or breach confidentiality when an HIV patient is unwilling to disclose status to sex partner unaware of the patient's positive status. Extending the study of Schwartzbuam et al. to an African setting in Central Nigeria required a slight modification of the research instrument to a standard that is suitable for SSA setting.t

The purpose of the pilot study, also called a feasibility study, was to test and validate the data collecting instrument, ensuring that it is suitable for the participants and the setting it was to evaluate. Conducting a pilot study was useful in identifying potential problem areas of the main study, and helped me familiarize the research process

particularly the recruitment process that could affect the internal validity of the study if it is not consistent (see Wolfe, 2015). After the IRB review and approval of my study, a pilot study was conducted before the parent study. Different researchers suggested different methods of estimating sample sizes for pilot studies, ranging from recruiting 10% of the sample size projected for the parent study to recruiting 10-30 participants (Connelly, 2008; Hertzog, 2008). From health centers in three suburban towns in Plateau state, Nigeria, 30 Physicians were recruited for the pilot study, 5 for each of the 6 variants in the between-group design. The procedure for conducting the pilot was as described for the parent study.

Instrumentation and Operationalization of Constructs

Trochim (2006) suggested that researchers of quality studies should clearly distinguish between constructs, that is the concept the research intends to study (e.g. gender), and the variables used to measure the constructs (male, female). My survey instrument was a vignette questionnaire developed by Schwartzbaum et al. (1990) in a similar study at Tennessee, which was slightly modified to suit the targeted population in SSA. Schwartzbaum et al., (1990) extended the study by Kelly et al. (1987) who had investigated the nature of physician's attitudes to AIDS, Leukemia, and homosexuality, and reported physicians' negative attitudes towards patients infected with HIV. Schwartzbaum et al. developed their research instrument to examine how in monogamous relationships, patient's race, gender, gender orientation, and physician demography had influenced physician's HIV confidentiality decisions in the US. The instrument was developed in a multi-racial society where there were predominantly White physicians but

allowed for racial manipulation among White and Black patients. My study was an extension of Schwartzbaum et al.'s study in Nigeria, Africa; which is predominantly a black society and would not allow for manipulation of the patient's race, hence race was not included in my vignette. Gender and gender orientation were examined. Polygamy, a sexual relationship type practiced in African was examined along with the monogamous relationships in their vignette (Appendices, A and B).

Schwartzbaum et al. (1990) in their discussion described threats to validity; that the study was externally validated is suggested in randomization of their sample and by the equality of the population distribution of physician's location and specialty among the respondents to that of the sample. They reported that despite low response rate, internal validity was not compromised by altering the methodology; the response rate to their study could have been better if the survey was not anonymous (They researchers explained that they could not contact participants for more responses, they could have improved on the response rate if it was not anonymous). Although the selection of my study participants was by convenience sampling and not randomized, I did the following to minimize threats to internal validity: Much attention was paid to the instrument because it formed the pivot of the study. I conducted a pilot study to test and validate my instrument; I ensured that the procedures of administering the vignettes and data collection were standardized to control instrumentation threats to validity. To avoid mortality and selection threats, large sample size was selected ensuring that each vignette variant had enough participants. A follow-up procedure was incorporated, and participants had a clear explanation of how the question should be completed to ensure no

data was missed. Vignettes were purposely assigned to participants to avoid multiple treatment design that could be a threat to external validity; one vignette type was given to each participant. Questions and response options were written to avoid ambiguity (see Jain et al., 2016). Widely accepted definitions of variables that were meaningful beyond my setting were used to enhance generalization.

The vignette instrument was redesigned for the SSA context and a pilot study was needed to validate this instrument. A pilot study was necessary and useful in providing the groundwork in my research project and was conducted to identify potential problems and deficiencies in the project instruments and protocols before the full study was done. (Hassan et al., 2006; Wolfe, 2013). Conducting the pilot study helped determine the feasibility of the main study, in testing the research tool and the data analysis method. Knowledge and experience acquired from the pilot study made the recruitment process easy and fast. HIV/AIDS is a sensitive topic associated with stigma (Gourlay et al., 2014); I chose to use Vignettes (short stories) in my study instrument to help respondents provide truthful answers and to avoid eliciting socially desirable or expected moral answers. Vignettes described relationships of potential risk exposure to HIV infection in different sexual relationships (monogamy, polygamous) by different gender (male, female) and gender orientation (homosexuality, heterosexuality). The questionnaire covered sections on demography, and questions on confidentiality decisions. It was presented below as a modified version of the vignette developed by Schwartzbaum et al. (1990).

"John is a 30- year-male in a monogamous homosexual relationship, who tested positive for HIV 1 & 2 by the Determine Test Strip and confirmed by the UniGold and Stat-Pak test kits. You have counseled and persuaded him to disclosure status to sexual partners. He has asked you not to tell the partner the results of the test because he believes that the knowledge would complicate matters."

The subject was described as one of the six possible combinations of gender, gender orientation, and relationship to obtain the six possible variations of sex, and sexual orientation/relationship that were examined as follows-:

- John is in a monogamous heterosexual relationship (He has a female partner)
- Joan is in a monogamous heterosexual relationship (She has a male partner)
- John is in a monogamous homosexual relationship (He has a male partner)
- Joan is in a monogamous Lesbian relationship (She has a female partner)
- John is in a polygamous heterosexual relationship (He has female partners)
- Joan is in a polygamous heterosexual relationship (She has male partners)

Each of the six versions was followed by these progressively intrusive five statements (the first of the five statements was intended to infringe on the patient's privacy the least and the last statement the most). Options 1and 2 were categorized and analyzed as maintain confidentiality, options 3, 4 and 5 were categorized as breach confidentiality. The options consist of the following:

1. The knowledge of the antibody status would remain between my patient and me.
2. I would attempt to persuade the patient to inform any partners who might be infected.

3. I would notify the public health department of the antibody status and not the name of the patient
4. The name of the person and the antibody status would be reported to the health department (AIDS Prevention Initiative in Nigeria, APIN).
5. If the person would not inform any partners who might be infected, I would attempt to do so if the person identified them.

Physicians were asked to indicate which of these statements would characterize their actions. More than one selection was permitted and the option closer to a breach was assessed.

The constructs of gender, gender orientation, and relationships are biological and social constructs that described ways in which meanings are created, changed, and modified as the nature of social discourse and personal experience changes (APA, 2012; WHO, 2017). Gender was used to describe the anatomical and physiological differences between male and female which was expressed as being feminine or masculine (APA, 2012). Sexuality is a social construct shaped by social, political and economic influences and modified throughout life (APA, 2012). Gender orientation refers to attractions or preferences and how one is identified with sexual expression and is designated as sexual orientation including heterosexual, homosexual, and bisexual (APA, 2012). Homosexuality and heterosexuality were assessed in the study conducted by Schwartzbaum et al. (1990). Di Marco and Zoline (2004) in a similar study included bisexuals in their assessment. Monogamy and polygamy describe sexual relationship or commitment to a sexual partner or partners and has been described diversely (Diop &

Stewart, 2016). A male having many female sexual partners and a female keeping multiple causal partners are relationship types in Africa (Fox, 2014). Polygamy and monogamy as variables were included in my study; I found out in my literature review that polygamous relationships had not been investigated with HIV confidentiality decisions.

Socio-Demographic Questionnaire

A questionnaire for collecting physician's socio-demography was developed and information collected included physicians age in years, gender (male or female), years of practice (never practiced, 1-5years, 6-10years, above ten years), specialty (specialized, not specialized), breached confidentiality before (never, once, twice, thrice, more than thrice), and location. The questionnaire did not require testing against a standard questionnaire (Creswell, 2013). It was used solely to collect demographic information.

Operationalization of Variables

Variables are measurable or observable characteristics/features/attributes of a person or an organization that differs among persons or organizations that is studied; in quantitative studies it is important to identify and understand the variables being investigated because they may need to be measured, manipulated or and controlled (Creswell, 2016). Independent variable, also known as a predictor or experimental variable can be manipulated to observe its effect on the dependent variable; while the dependent variable also known as the outcome or criterion variable depends on the independent variable (Creswell, 2015). The dependent variables that were evaluated for my study were physician confidentiality decision which was categorized as maintain

confidentiality (0) or breach confidentiality (1) while the independent variables were patient socio-demography as gender (male, female), and gender orientation (heterosexual, homosexual), sexual relationship type (polygamy, monogamy) and the co-variables were physician's socio-demography of age in years, gender (male, female), years of practice (never practiced, 1-5years, 6-10years, above ten years) specialty (specialized, not specialized), breached confidentiality before (never, once, twice, thrice, more than thrice).

Study variables could be continuous or categorical (gender, gender orientation, and sexual relationship). Continuous variables can take on an infinite number of possibilities while discrete variables can only take on a certain number of values (Statistics Solutions, 2016). Two types of variables, quantitative and categorical were used for my statistics analysis. Categorical variables are distinct groups and include nominal, dichotomous and ordinal which have levels of measure, ordered or ranked (Creswell, 2016). Nominal variables have two or more categories in no intrinsic order and dichotomous variables are nominal variables with only two levels designed to provide an either or-response. My study dependent variables were dichotomous and align with the study plan for data analysis and the use of logistic regression (Fields, 2013). Also, in logistic regression models, discrete variables (numerical such as age in years) were treated as continuous co-variables to imply that a simple linear model can show adequately any relationship between the independent and dependent variables (Fields, 2013). The years of physician practice were categorized so that a distinct response value was fixed to each level of this variable disregarding order of the variable (Fields, 2013).

Covariates are predictive of outcome and may be of direct interest or confounding. The inclusion of a physician's demography as covariates allowed improved estimates of the trend of physician's confidentiality decisions.

Measurement of Study Variables

The dependent variable was the breach options (options 1 and 2 were categorized as maintain confidentiality = 0, options 3, 4 and 5 were categorized as breach confidentiality = 1) as described in vignette of Appendix B. The independent variables were patient and physician's socio-demography of patient's Sex (male, female), Sexual orientation (homosexual, heterosexual), Sexual relationship (monogamy, polygamy). This information was collected from the description provided in the vignette in Appendix B. The questionnaire (Appendix B) provided information on the independent variables of physician's demography which were categorized for analysis as Age in years (21-30, 31-40, 41-50, 51- 60, 60+), gender (male, female), years of practice (never practiced, 1-5, 6-10, above 10years), specialty (specialized, not specialized), breached confidentiality before (never, once, twice, thrice, more than thrice).

Data Analysis Plan

Data collected were computed in the system and analyzed by SPSS statistics program version 25. For data analysis, the outcome variable was categorized as maintain confidentiality (participant response options 1 and 2) or breached confidentiality (participants response options 3, 4 and 5). This enabled the use of logistic regression, a predictive data analysis to explain the relationship between one dependent binary variable and one or more nominal, ordinal or interval independent variable. With the view

variable button, my variables were inputted into SPSS and the responses of each participant against each variable were recorded at view data. Descriptive analysis and inferential statistics to test the hypothesis to the scales of the variables were created (Creswell, 2013). Data were analyzed using binary logistic regression analysis to determine odds ratios of a combination of variables and physician's likelihood to maintained or breach confidentiality concerning patient/physician characteristic features.

Data Management

Quantitative data were collected from primary sources, regarded as a rich and detailed source (Herrett, Gallagher, Bhaskaran, Forbes, et al., 2015). I ensured that study data were collected accurately by providing clear and simple instructions to the study participants on how to complete the questionnaire. Participants were also instructed to ask questions for clarity on any issue in the questionnaire. All data collected were safely and securely stored and I transferred data to the data analysis tool. The issue of ensuring that any database used was accurate does not arise because secondary data were not used.

Research Questions

My research questions were:

RQ1. Do patient's characteristic features (gender- male/female; gender orientation-homosexuality /heterosexuality and sexual relationship-monogamous/polygamous) have any statistically significant influence on (or predict) physician's confidential decision making (maintain, breach) among HIV discordant couples?

*H0*1: Patient's characteristic features (gender- male/ female, gender orientation- homosexual/ heterosexual, sexual relationship- monogamous/ polygamous) do not have a statistically significant influence on (cannot predict) physician's confidentiality decision making (maintain, breach) among HIV discordant couples.

*Ha*1: Patient's characteristic features (gender- male/ female, gender orientation- homosexual/ heterosexual, sexual relationship- monogamous/ polygamous) have a statistically significant influence on (can predict) physician's confidentiality decision making (maintain, breach) among HIV discordant couples.

RQ2. Do physician's demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) have any statistically significant influence on (can predict) physician's confidentiality decision making (maintain, breach) among HIV discordant couples?

$\underline{H_0}$2: Physician's demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) do not have any statistically significant influence on (cannot predict) physician's confidentiality decision making (maintain, breach) among HIV discordant couples.

*Ha*2: Physician's demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) have a statistically significant influence on (can predict) physician's confidentiality decision making (maintain, breach) among HIV discordant couples.

My study variables for RQ1 will include:

Independent Variables: Patient's characteristics features

Gender- male/female;

Gender orientation- homosexuality/heterosexuality

Sexual relationship- monogamous/polygamous

Dependent Variable: Physician's Confidentiality Decision

Maintain Confidentiality = 0, Breach confidentiality = 1

For RQ2 study variables will include:

Independent Variable: Physician's demographic features

Gender-male/female

Age in years- 21-30, 31-40, 41-50, 51-60, 60+

Years of Practice- Never practice, 1-5, 6-10, 10+years

Specialty- Not specialized, Specialized

Number of breaches in confidentiality before- Never, once, twice, thrice, >thrice

Dependent Variable: Physician's Confidentiality Decision

Maintain Confidentiality = 0, Breach Confidentiality = 1

Threats to Validity

The use of a non-probability sampling technique created a threat to external validity and limited the generalization of this study (Frankfort-Nachmias, & Nachmias, 2015). External validity was also threatened by the use of vignette. It was difficult to determine if the use of hypothetical vignettes responses reflected clinical decisions making with real cases for generalization to the encounters of real-world situations (Evans et al., 2014). The study instrumentation, if not consistent, would create threats to internal validity and construct validity. The weight of the study was concentrated on the

vignette, poorly written unrealistic vignette would have low construct validity which could affect both internal and external validity, and the result of the study may not elicit the degree to which changes in the dependent variable could accurately be attributed to the changes in the independent variables. (Evans et al. 2014). Therefore, I ensured that the vignette used for my study simulated certain aspects of the real world, a facet of construct validity which was the degree to which a variable measured the intended theoretical construct (Evans et al. 2014). I ensured consistency in the messages related to the participants and ensured that the vignette was constructed with relevant and real-life questions (Hughes & Huby, 2002; Jain et al., 2016). It was intended to elicit an effect hypothesized to exist independently in the real world, a function related to internal validity. According to Evans et al. (2014), the use of the vignette questionnaire as a research instrument combines the survey and experimental methods to provide aspects of both the high external validity of the survey and the high internal validity of experiments. The study was not conducted in my workplace, there were no conflicts of interest and no incentives were used.

Ethical Procedures

According to Patton, (2015), the entire research process should be guided by ethical principles, ethics should be integrated to every step from selecting the research problem to carrying out the research, including interpretation and reporting of findings. In my study ethical considerations were addressed to ensure the protection and confidentiality of participants. Areas, where research may pose ethical concerns, include the use of human participants, vulnerable groups as participants or using research designs

where risks were not minimized but out-weigh the benefits of the research (Laureate Education, 2010). I maintained ethical standards as stated by Walden University and the health centers involved. All research involving the collection or analysis of data requires approval from the Institutional Review Board (IRB). The categories that do not require IRB review are literature reviews, hypothetical research designs, and faculty projects conducted independently of Walden resources (Laureate Education, 2010). My research required IRB review because I recruited human participants but I also used a hypothetical research design (vignettes) that minimized risks, enhanced safety such that the benefits of using vignettes far out-weighed any risk elicited (Laureate Education, 2010). Participants for my study were practicing and registered physicians, a group not included among vulnerable groups who cannot consent, persons with diminished mental capacity or economically and educationally disadvantaged persons were not included (Laureate Education, 2010).

Other areas that posed ethical concern were the area of informed consent and coercion to participate in the research. My study participants were fully informed about the nature of the study and participated voluntarily. Participants were assured that their identity would not be disclosed and their information would be kept confidential. They could opt-out at any stage of the research and none was coerced to participate neither were my subordinates or relatives engaged. All of the various research risks and burdens were minimized in order to protect participants. Psychological risks were minimized by the use of a standardized, validated, and reliable instrument. There were minimal relationships, economic, professional, or physical risks.

All information was held securely and privately. All primary data and analyzed results were kept on a password-protected research computer and were backed up with a USB drive. During all research steps, security procedures were adopted to protect data including data collection, data transfer, data analysis, and archiving (e.g., password-protection and locks). All transferred data were de-identified, as specified, and data were password protected, secured, locked, and protected for 5 years as recommended by Walden University research Center after which period all data would be destroyed.

Summary

This quantitative study used the cross-sectional experimental methodology and data were collected with vignettes questionnaires; the use of a vignette questionnaire as a research instrument combined the survey and experimental methods to provide aspects of both the high external validity of the survey and the high internal validity of experiments. The target population was the practicing physicians in Plateau State, Central Nigeria, who were registered with the NMDC. The estimated sample size was 190 participants who were recruited by a convenience sampling strategy. Great attention was paid to data collection, ethical matters and research approval obtained from the ethics committee at Walden University and the various health centers to be visited. Primary data was collected from participants and analyzed by a logistic regression model.

The next chapter gave an overview of the findings of the study. The results of the study were included in Chapter 4 under three sections (i.e., data collection, results, and summary). Under data collection section response rates, discrepancies, and baseline characteristics of participants during the survey process were reported. The results section

contained descriptive statistics, complete statistical analysis, hypothesis, and assumption evaluation, and post-hoc inferential results. Under the summary section, I summarized the research questions, the study design and hypotheses results, and introduced the reader to the content of Chapter.

Chapter 4: Results

Introduction

The purpose of my quantitative study was to investigate patient and physician characteristics that may predict physicians' decision to maintain or breach HIV confidentiality when a patent is unwilling to disclose an HIV positive status to an HIV negative sexual partner or partners in Central Nigeria. Considering the persistent incidence of HIV infection in SSA (Kharsany & Karim, 2016; UNAIDS, 2015), how physicians in these resource-constrained areas can most ethically serve infected patients and protect their sex partners from potential exposure is crucial to lowering HIV incidence (Bott & Obermeyer, 2013). Knowing what factors to consider and when to decide to breach confidentiality would enhance physicians' practice with this population regarding to the needs and rights of all concerned (Bott & Obermeyer, 2013; Salihu et al., 2018).

This chapter is an overview of the findings of this study. I first state the research purpose and questions. I then summarize the procedure and findings of the pilot study. I demonstrate baseline descriptive statistics of the main study and detail analysis of the research questions and hypotheses obtained by using version 24 of IBM SPSS for data analysis. Finally, I summarize the entire chapter.

Research Questions and Hypotheses

Two RQs and corresponding null and alternative hypotheses were derived, and they provided the focus for this study.

Do patients' characteristic features (gender- male/female; gender orientation-homosexuality /heterosexuality and sexual relationship-monogamous/polygamous) have any statistically significant influence on (or predict) physicians' confidential decision making (maintain, breach) among HIV discordant couples?

$H_0$1: Patients' characteristic features (gender- male/ female, gender orientation-homosexual/ heterosexual, sexual relationship- monogamous/ polygamous) do not have a statistically significant influence on (cannot predict) physicians confidentiality decision making (maintain, breach) among HIV discordant couples.

H_a1: Patients' characteristic features (gender- male/ female, gender orientation-homosexual/ heterosexual, sexual relationship- monogamous/ polygamous) have a statistically significant influence on (can predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples.

Do physicians' demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) have any statistically significant influence on (can predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples?

$H_0$2: Physicians' demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) do not have any statistically significant influence on (cannot predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples.

H_a2: Physicians' demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) have a

statistically significant influence on (can predict) physicians' confidentiality decision making (maintain, breach) among HIV discordant couples.

The Pilot Study

The purpose of the pilot study was to test and validate the research instrument adapted from Schwartzbaum et al. (1990). The research instrument was a vignette questionnaire that required self-completion. In the pilot study, I examined whether the selected validated tool was appropriate for this study's targeted population, whether the questions were relevant to the objectives of the study, and whether the items and format of the questionnaire were clearly understood by participants to make responses. The pilot was conducted separately from the parent study as described in Chapter 3. Data were collected from October 30th to Nov 2^{nd,} 2018, for 4 days using the pilot study questionnaire and consent form (Appendices C & E). All participants evaluated the research instrument using the evaluation form attached to the pilot study questionnaire.

Data Analysis

Descriptive data analysis was performed for frequencies, and for Research Questions 1 and 2, logistic regression analysis was done for statistical significance and OR estimations. I found that the patients' gender, gender orientation, and sexual relationship and the physicians' demography did not significantly influence or predict physicians' confidentiality decisions. The Null Hypotheses 1 and 2 that patients' characteristic features and physicians' demography do not have a significant influence on (cannot predict) physician's confidentiality decision making among HIV discordant couples could not be rejected.

Time taken to complete the questionnaire was less than 10 minutes for 96.7% of participants; over 90% of participants rated the questionnaire as relevant to the objectives of the study, as having comprehensive instructions, clearly understood items ordered to respond, and suitable for the targeted population. Cronbach alpha was estimated at 0.736 and could be as high as .815 if the item on relevancy was removed. This item was, however, considered relevant and was retained.

Discussion on the Pilot Study

In the pilot study, I demonstrated that the study protocol was feasible in the study sites and feasible in Nigeria and SSA; the participants understood and responded to all questions. It was possible to recruit participants based on the study criteria. A greater number of physicians were accessible at the early morning clinical review sessions than at the post clinic session. The project did not appear to be disruptive to the clinic sessions or have a significant impact on physicians' time; for most participants, it took less than 10 minutes to complete the questionnaire. The response rate for the pilot using the pen and paper method was very high (100%); all respondents returned their questionnaire. Similar studies conducted as online surveys demonstrated less than a 30% response rate (Daly et al., 2011; Schwartzbuam et al., 1990). The sample size was attainable and by convenience sampling, it was aimed at recruiting a representative sample of the study population from health centers in suburban towns. The pilot provided a better understanding of how to implement the parent study; data collection with the questionnaire was sufficient, data entry was not problematic, and data analysis may require consultation with a statistician. In the models created in logistic regression

analysis, the tested independent variables did not significantly contribute to the model; however, the estimated ORs demonstrated the likelihood of a confidentiality breach for the categories of the predictor variables.

The pilot study was a necessary first step in exploring this novel intervention. Testing the instrument in time and resources was worthwhile and necessary; statistically, it indicated a high level of internal consistency for the scales with this sample and demonstrated the effectiveness of the pilot study that can be used for the parent study. The pilot study also tested and confirmed the validity of the study instrument for the location it was used. Results of the pilot study also inform feasibility, which demonstrated that further modification was not necessary for the planning and design of the parent study.

Parent Study

Data Collection

Data for the parent study were collected from November 6-30th 2018 at the three study locations (x, y, and z) situated in an urban town. A total of 240 questionnaires were distributed, 140 to location x that accommodates over 500 physicians and 50 each to locations x and z that accommodates about 100 physicians. The procedure described for data collection in Chapter 3 was adhered to because results from the pilot study demonstrated that there was no need for further modification of the procedure. Fifteen respondents did not return their questionnaires; the overall response rate was 93.75%, and three of the returned questionnaires were not analyzed because the respondents did not provide information on their confidentiality decisions or their years of experience in the

management of HIV infection. Two hundred and twenty -two responses were computerized for analysis, which represents about 26% of the total number of physicians in Plateau state. During the data collection timeframe, I answered questions directly from participants and requested that they retain the consent form containing my contact should they have further questions.

Data Analysis of Parent Study

SPSS version 25 was used to further code, screen, and organize the collected survey data. Appropriate summarized values were tabulated including demographic frequency counts and percentages with SPSS. Before research question analysis, tests were performed to ensure statistical assumptions were met; these included not having linearity between dependent and independent variables, no need for normal distribution of variables, homoscedasticity was not required, and the dependent variable was not measured on interval or ratio scale. Displayed in Table 2 below is a summary of the dependent, independent variables, and statistical analyses used to evaluate the two research questions.

Table 2

Variables and Statistical Tests Used to Evaluate Research Questions

Research Question	Dependent Variable	Independent Variable	Analysis
	Physicians' confidentiality Decisions	Patient's Gender, Gender Orientation, Sexual Relationship	Logistic Regression
	Physicians' confidentiality Decision	Physician's Gender Age, Specialty. Duration of Practice, Previous Breaches	Logistic Regression

Results of the Parent Study

Demography

Demographic information on age, gender, duration of practice, previous confidentiality breaches, and management of HIV cases were completed by respondents. All participants for the main study were residents of an urban city. Of the 222 participants analyzed, 138 (62.2%) were men and 84 (37.8%) were women; there was an age range of 21-65years, of which approximately 75% were below 51 years. More than half of the participants had less than 10 years of practice experience, 43.2% had over 10 years of practice experience. Almost half of the participants practiced in different specialties and 55.4% were not in residency for specialty; 87.8% of the total participants had managed more than three cases of HIV infection, and 31.2% of participants had breached confidentiality before to reveal patients' HIV status to the third party without the patients' consent. Table 3 summarizes the participants' demography.

Table 3

Frequency and Percentage of Statistics of Participant in the Parent study

Demographics	Frequency (n)	Percentage (%)
Age Group		
21-30	45	20.3
31-40	98	44.1
41-50	45	20.3
51-60	23	10.4
60+	11	5.0
Gender		
Male	138	62.2
Female	84	37.8
Years of Practice	83	37.4
1-5	43	19.4
6-10	96	43.2
10+		
Specialty	123	55.4
Not Specialized	99	44.6
Specialized		
Managed HIV Cases	4	1.8
Once	8	3.8
Twice	15	6.6
Thrice	195	87.8
More than Thrice		
Previous Confidentiality breaches	153	68.5
Never	13	5.9
Once	18	8.1
Twice	10	4.5
Thrice	29	13.1
More than Thrice		

Note. Total Population (N=222)

Statistical Analysis of Parent Study

Logistic regression analysis was applied to (a) elicit factors that statistically significantly predict physicians' decision and (b) estimate for each variable the OR and likelihood of a breach. The 222 participants were distributed across the six vignette variants describing hypothetical patient characteristics as displayed in Table 4. There were 112 male hypothetical patients (50.5%) and 110 females (49.5%); 70 (31.5%) were polygamous heterosexual, 78 (35.1%) were monogamous heterosexuals, and 74 (33.3%) were monogamous homosexuals.

Table 4

Six Patient Characteristic Variants and Their Frequencies and Percent statistics

Patient characteristics	Frequency	Percentage
Female Monogamous Homosexual Lesbian	35	15.7
Female monogamous heterosexual	38	17.1
Female polygamous heterosexual	37	16.7
Male monogamous homosexual	39	17.6
Male monogamous heterosexual	40	18.0
Male polygamous heterosexual	33	14.9
Total	222	100

Each participant responded to the course of action taken to make confidentiality decision. Participants could take more than one option (course of action) over a variant of described patient characteristics; a total of N=525 options were obtained, with an average

of 2.35 options to each of the study participants. Table 5 displays the frequency and distribution of physicians' course of action to making confidentiality decisions.

Table 5

Frequency of Physicians' Course of Action to Making Confidentiality Decisions

Option	Action	number of times chosen	% of total options	% of the total number of physicians
1	Will not disclose HIV status	117	22.3	52.7
2	Will persuade patent to disclose	190	36.2	85.6
3	Will disclose status only	63	12.0	28.4
4	Will disclose status and name	112	21.3	50.5
5	Will disclose to partner	43	8.2	19.4
	Total	525	100	

*Not totaling 100%, multiple choices were made by each participant.

Physicians indicated in their choices that they were more likely to persuade patients to disclose status to a partner than intruding into their privacy; in over half of the 222 participants, 52.7% (*n*=117) would not disclose status (Option 1). The majority of the participants (85.6%, *n*=190) would persuade patient to disclose (Option 2); less than a third -28.4% (*n*=63) would disclose status only (Option 3), about half of all participants (50.5%, *n*=112) would disclose both name and status (Option 4), and about one fifth of participants (19.4%, *n*=43) would disclose to partner (Option 5). For logistic regression analysis that requires a dichotomous outcome of either to breach or maintain

confidentiality, Options 1 and 2 were categorized as maintain confidentiality and Options 3, 4, and 5 as breach confidentiality. The responses from participants tended towards breach options; 154 (69.4%) would breach confidentiality for the hypothetical patient described; about 30% of participants (*n*=68, 30.6%) would maintain confidentiality. Table 6 displayed physicians' decisions by patients' category.

Table 6

Physician's Confidentiality Decisions Across Patient's Category

Patient's Category	*n*	%	Breach	%	Maintain	%
Female MoHo	35	15.8	22	62.9	13	37.1
Female MoHe	38	17.1	25	65.8	13	34.2
Female PoHe	37	16.7	25	67.6	12	32.4
Male MoHo	39	17.6	28	71.8	11	28.2
Male MoHe	40	18.0	29	72.5	11	27.5
Male PoHe	33	14.9	25	75.8	8	24.2
Total/ Average%	222	100	154	69.4	68	30.6

Note: MoHo = Monogamous Homosexual, MoHe = Monogamous Heterosexual, PoHe = Polygamous Heterosexual

The predicted probability is of membership for breach option. The male categories had higher percentages of breaches than the female category with male polygamous heterosexual having the highest at approximately 76%. This was followed by male monogamous category and male monogamous homosexual respectively. Female monogamous homosexuals had the lowest breach percentage. Table 7 demonstrated breach frequency across participants' characteristics.

Table 7

Physician's Breach Options Across Participant's characteristics

Demographics	n	%	Breaches	%	Maintains	%
Age Group						
21-40	143	64.4	101	70.6	41	29.4
41-60+	79	35.6	53	67.0	27	33.0
Total	222	100	154		68	
Gender						
Male	138	62.2	96	69.5	42	30.5
Female	84	37.8	58	69.0	26	31.0
Total	222	100	154		68	
Years of Practice						
1-10	126	56.8	93	73.8	38	26.2
10+	96	43.2	61	63.5	30	36.5
Total	222	100	154		68	
Specialty						
Not Specialized	123	55.4	86	69.9	37	30.1
Specialized	99	44.6	68	68.7	31	31.3
Total	222	100	154		68	
Previous Breaches						
Never breached	152	68.5	87	57.2	65	42.8
Breached before	70	31.5	67	95.7	3	4.3
Total/ Average%	222	100	154		68	

Almost all (95.7%) respondents who had breached confidentiality before indicated that they will breach again. Approximately 69% of male respondents (96) indicated that they will breach and 69% of female respondents (58) indicated that they will also breach confidentiality. More respondents (70.6%) in the younger age group (21-40 years) indicated that they will breach compared to 67% that would breach in the older age group (41-65+) and 73.8% with fewer years of practice (1-10 years) will breach compared to 63.5% that will breach among respondents who had practiced for over ten years.

Logistic Regression Analysis for RQ1

The predictor variables of gender, gender orientation, and sexual relationship were tested a priori to verify there were no violations of the assumptions of the linearity of logit. Using the enter method, logistic regression analysis was performed to ascertain the effects of a hypothetical patient's gender, gender orientation and sexual relationship on the likelihood that a physician will decide to maintain or breach patient's confidentiality regarding HIV status when the positive patient is reluctant to disclose positive status to sexual partner. With $p > .05$, the predictor variables, gender, gender orientation and sexual relationship did not contribute to the model; for this model, the unstandardized Beta weight for the constant: B = (-.664), $p = .148$. These results of the model are displayed in table 8.

Table 8

Association between Patient's Characteristics and Physician's Decision

Patient Characteristics	*B*	Sig	Exp (*B*)	95% CI	
				Lower	Upper
Gender (1)	.374	.202	1.454	.818	2.585
Sexual Relationship (1)	-.122	.737	.885	.435	1.801
Gender Orientation	.083	.813	1.086	.547	2.159
Constant	-.664	.148	.649		

The null hypotheses that patient's characteristic features (gender, gender preference, sexual relationship) do not have statistical significant influence on (cannot predict) physician's confidentiality decision making among HIV discordant couples could not be rejected and the alternative hypothesis stating that patient's characteristic features (gender, gender orientation, sexual relationship) have significant influence on (can predict) physician's confidentiality decision making among HIV discordant couples was rejected. The estimated odds ratio for gender favored an increase of 45% *[Exp (B) =1.454, 95% CI (.818, 2.585)]* for breach option for females; Physicians were approximately 1.45 times more likely to breach confidentiality for male than for female patients. For sexual relationship, physicians were approximately .885 times (11.5%) less likely to breach confidentiality for hypothetical patient in monogamy than in polygamy *[Exp(B) =2.921, 95%CI (.784, 3.631*)]; they were 1.086 times (8.6%) more likely to

breach for a hypothetical patient in heterosexuality than in homosexuality. For this model, the prediction accuracy remained 69.4% at the intercept and further step. The Pseudo R^2 (Nagelkerke R square) indicated that a 1% variance in breach option was explained by the patient characteristics and the Hosmer and Lemeshow test demonstrated 100% of the goodness of fit.

In a second logistic regression model for the main study, the independent variables were represented by five dummy variables, corresponding to the different vignette combinations of gender, gender orientation, and sexual relationship. The category of a female monogamous homosexual was not represented in the model because it was used as the reference category. Using this category for reference made the odds ratio easier to interpret. These dummy variables did not contribute significantly to the model with Constant as: B = (.526), p = .133. Table 9 below demonstrated the results for the analysis. The null hypotheses could not be rejected and the alternatives were rejected for these categories describing patient characteristics. Physicians were 1.1 to 1.8times more likely to breach for these categories describing patient characteristics than for the reference category of female monogamous homosexual. The odds ratio for each category is displayed in the Exp (*B)* column in Table 9.

Table 9

Influence of Hypothetical Patient Category on Physician's Decision

	B	Sig	Exp(*B*)	95% CI	
				Lower	Upper
Patient Category			.863		
Female MoHe	.128	.794	1.136	.436	2.964
Female PoHe	.208	.675	1.231	.466	3.252
Male MoHo	.408	.413	1.504	.566	4.000
Male MoHe	.443	.373	1.558	.587	4.133
Male PoHe	.613	.253	1.847	.646	5.281
Constant	.526	.133	1.692		

Note: MoHo=Monogamous Homosexual, MoHe=Monogamous Heterosexual, PoHe= Polygamous Heterosexual

The difference between beta values of these categories expressed as exponential Exp (*B*) displayed the likelihood of a breach between the categories not used as the reference category. Physicians were approximately .50 to .80 less likely to breach for these categories than for males in the polygamous heterosexual category. For this model, the prediction accuracy remained 69.4% at the intercept and further step. The Pseudo R^2 (Nagelkerke R square) indicated that 12 % variance in breach option was explained by the patient characteristics and the Hosmer and Lemeshow test demonstrated a 100% goodness of fit.

The overall association between hypothetical patient characteristics in categories and the physician's decision were not significant. Data available for this estimation was sparse so a Monte Carlo estimation was applied to estimate exact *p*-value and the estimated *p*-value was identical to large sample hence I went ahead to analyze my data and report my findings above. Monte Carlo Simulation is a risk analysis technique for quantitative analysis and decision making. It shows the decision-maker a range of possible outcomes and probability that could occur for any choice of action. Schwartzbuam et al., (1990) also applied this estimation in their study that was also limited by sparse data and cautioned on the use of statistical significance alone as a standard for interpreting results from observational studies.

Additionally, I obtained from the Walden Research Center this reference as a backup to my explanation: Vittinghoff, & McCulloch (2007) described as conservative the rule of thumb that logistic models should be used with a minimum of 10 participants per predictor variable (EPV), which was based on two simulation studies. These researchers concluded that this rule can be relaxed, in particular for sensitivity analyses undertaken to demonstrate adequate control of confounding.

Logistic Regression Analysis for RQ2

For the RQ2 logistic regression analysis in a third model was performed to ascertain the effects of a physician's characteristics of age, gender, number of years of practice, specialty, and previous breach in confidentiality on the likelihood that a physician will make the decision to maintain or breach patient's confidentiality regarding

HIV status when the positive patient is reluctant to disclose positive status to sexual partner. The enter method was used and analysis is displayed in table 10.

Table 10

Association Between Physician's Demography and Confidentiality Decision

Physician's Demography	B	Sig	Exp(B)	95%CI	
				Lower	Upper
Specialty (1)	-.139	.687	.871	.444	1.707
Age	-.212	.329	.809	.528	2.215
Practice Duration	-.054	.842	.948	.560	1.604
Previous Breaches	.296	.028	1.345	1.032	1.753
Gender	.161	.619	1.174	.632	2.215
Constance	.971	.070	1.641		

The model for Q2 was not significant at constant $B = (.975)$, $p = .070$ as shown in table 10. However, the physician characteristic of previous confidentiality breach had statistically significant value at p =.028, the null hypothesis is rejected and the alternative accepted that physician's previous breach in confidentiality can predict the physician's decision to breach confidentiality in a patient that would not disclose HIV positive status. The p values for variables of physician's age, gender, specialty and duration of practice were not significant; hence the null hypothesis could not be rejected.

Male physicians were 1.17 times (17%) more likely to breach confidentiality relative to female physicians [*Exp (B) =1.174, 95%CI (.623, 2.215)]*. Physicians who had

breached confidentiality before were 1.34 times (34%) more likely to breach again in the described situation than those who had never breached confidentiality before. *Exp (B) =.1.345, 95%CI (1.032, 1.753)]*. The negative *beta coefficient* (B) values for variables age, specialty and practice duration demonstrated a less likelihood of breach; physicians without specialty were .87times (13%) less likely to breach confidentiality than those in specialty *[Exp (B) =.871, 95% CI (.444, 1.707*)]. As physicians moved from one age group to the next they were .8 times (19%) less likely to breach confidentiality *[Exp (B) =.809, 95% CI (.528, 2.215)]*. Physicians who had long years of practice were .948 times less likely to breach confidentiality; an increase in the categorized number of years of practice was associated with about 5% less likelihood of a breach in confidentiality [Exp (B) =.948, 95% CI (.560, 1.604)].

Summary

The purpose of my quantitative study was to investigate patient and physician characteristics that may predict physician's decision to maintain or breach HIV confidentiality when a patent is unwilling to disclose a positive status to sexual partners in Central Nigeria. Considering the persistent incidence of HIV infection in SSA (Kharsany & Karim, 2016; UNAIDS, 2015), how physicians in these resource-constrained areas can most ethically serve infected patients and protect their sex partners from potential exposure is crucial to lowering HIV incidence (Bott, & Obermeyer, 2013). Knowing what factors to consider and when to decide to breach confidentiality would enhance physicians' practice with this population and to put into consideration the needs and rights of all concerned (Bott & Obermeyer, 2013).

I had earlier provided the summary of the data collection procedure, information on the operationalization of variables, details of the baseline descriptive statistics, detailed analysis of the research questions and hypotheses using the SPSS Version 25 and an overview of the findings from the result of data analysis both for the pilot study and the main study. Twenty-nine males and a female (n=30) with age range of 21-60+ participated in the pilot study. Results demonstrated the validity of the study instrument (questionnaire's Cronbach alpha was estimated at 0.736) and the feasibility of the study. The pilot study further demonstrated that there was no further modification required for the instrument which could be used for the main study.

Descriptive statistics for the main study showed that 222 participants who represented a quarter of the study population were recruited for the study, they had an age range of 21-65+years, 62.2% were men and 37.8% women. Forty-three percent had over 10 years of practice experience. Almost half of the participants practiced in different specialties; 87.8% of total participants had managed more than three cases of HIV infection, and 31.5% of participants had breached confidentiality before to reveal the patient's HIV status to the third party without the patient's consent.

Research Questions 1 and 2 were analyzed using logistic regression analysis and the summary of results is displayed in table 11.

In RQ1 the patient characteristic- gender, gender orientation, and sexual relationship were not significant in predicting physician's confidentiality decision, hence the null hypothesis could not be rejected. The odds of physician breaching confidentiality for the hypothetical male patient was 1. 5 times more than for female

patient; dummy variables created out of the six variant combining patient characteristics did not significantly influence physician's decision. Physicians were more likely to breach for male homosexual, male heterosexual and male polygamists than for the female category groups.

In RQ2 Previous confidentiality breaches significantly influence the decision at p=.028, hence the null is rejected for the alternative hypothesis. Also, physicians that had breached confidentiality previous were more likely to breach again. Male physicians were more likely to breach than female physicians. However, older physicians, those who had a longer duration of practice, and physicians in specialties were less likely to breach than younger physicians, those with fewer years in practice, and physicians not in any specialty respectively. The overall results for the main study are summarized in table 11.

Table 11

Summary of Main Study Results for Research Questions 1 and 2

RQ	Independent Variable	Dependent Variable	Analysis	B	Sig (p)	95% CI Lower	Upper
RQ1	Confidentiality Decision	Patient Features	Logistic Regression				
		Gender		.202	1.5	.435	1.801
		G/Orientation		.813	1.1	.547	2.159
		S/Relationship		.737	.9	.547	2.159
		Female Mo Ho Ref. Category					
		Female MoHe		.794	1.1	.436	2.964
		Female PoHe		.675	1.2	.466	3.252
		Male MoHo		.413	1.5	.566	4.000
		Male MoHe		.373	1.6	.587	4.133
		Male PoHe		.253	1.8	.646	5.281
RQ2	Confidentiality Decision	Physician's Features Age	Logistic Regression	.239	.8	.528	2.215
		Gender		.619	1.174	.623	2.15
		Specialty		.687	.87	.444	1,707
		Practice Duration		.842	.95	.560	1.604
		Previous Breaches		.028	1.3	1.032	1.753

Note:For Table 11 MoHo=Monogamous Homosexual, MoHe=Monogamous Heterosexual, PoHe= Polygamous Heterosexual, G/Preference =Gender orientation, S/Relationship= Sexual Relationship, RQ= Research Question

In Chapter 5 of this study, I provided an overview of the importance of this study and its contribution to the understanding of the topic. Specific findings, limitations, and recommendations based on the data analyses were discussed; theoretical and future implications, including positive social change and recommendations for future research, were also be discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative study was to investigate patient and physician characteristics that may predict physicians' decisions to maintain or breach HIV confidentiality when a patent is unwilling to disclose a positive status to sexual partners in Central Nigeria. Considering the persistent incidence of HIV infection in SSA (Kharsany & Karim, 2016; UNAIDS, 2015), how physicians in these resource-constrained areas can most ethically serve infected patients and protect their sex partners from potential exposure is crucial ethical/policy issue to lowering HIV incidence (Bott & Obermeyer, 2013). Working with a clear policy/guideline and knowing what factors to consider when making breach decisions would enhance physicians' practice with this population regarding the needs and rights of all concerned.

In this quantitative study, I examined policy issues and physician practice. It was based on the utilitarian theory, a normative ethical system concerned with the consequences of ethical decisions; the study included the use of a vignette questionnaire in experimental research design, with descriptive statistics. Logistic regression data analysis was used to evaluate associations between variables of interest stated in my research questions and hypotheses. Outcome variables were physicians' confidentiality decisions to maintain or breach confidentiality, and the independent or predictor variables were patients' features of gender, gender orientation, sexual relationships, and physicians' demographic features. Responses from 222 physicians were analyzed, with 138 males and 84 females within the age range 21-60+. A tendency to breach rather than maintain confidentiality was observed across conditions. About 70% of physicians

indicated that they would breach the confidentiality of the hypothetical patient either by disclosing to partners or reporting the incidence and patients' names to the health department. Patients' gender, gender orientation, and sexual relationship were not significant in predicting physicians' confidentiality decisions; however, respondents said they were more likely to breach when the patient was male, heterosexual, or polygamous. Among physicians' features investigated, the previous breach of confidentiality significantly predicted physician's decision (p=.028). The previous breach of confidentiality and being male physician were associated with the likelihood of a breach.

Interpretation of Findings

Making Confidentiality Decision

The finding that the majority (70%) of respondents indicated a breach rather than maintain confidentiality aligned with similar previous studies in Europe and the United States (Daly et al., 2011; DiMarco & Zoline, 2004; Kozlowski et al., 1998; Schwartzbuam, et al., 1990). About 57% of physician participants in the study by Daly et al. (2011), who indicated that they would breach confidentiality; DiMarco and Zoline (2004) found that 64% indicated a breach. However, my finding was inconsistent with the findings of Guedj, Munoz-Sastre, Mullet, and Sorum, (2006) in Southern Europe where a majority of respondents indicated that they would maintain confidentiality as breaching was an unacceptable option to their population.

In contrast to this population, a majority of study participants in SSA would breach confidentiality. My study findings were consistent with the findings from the survey carried out at 275 HIV testing centers in Burkina Faso, Kenya, and Uganda; Bott

et al. (2015). Bott et al. reported that 83% of health workers interviewed would disclose HIV positive status to patients' sexual partners, family, or friends. Reis et al. (2005) also demonstrated that physicians would breach patients' HIV confidentiality, although at about half the rate. This study was performed in 111 health centers in Nigeria; Reis et al. interviewed 1,021 health workers including 324 physicians and reported that 38% of participants would breach confidentiality for HIV patients.

Although maintaining confidentiality is legal, ethical, and professional responsibility, physicians realize that there is also a limit to confidentiality (Khan, 2016) when other lives are exposed to the risk of infection. Physicians have to maintain patients' confidentiality and the duty to protect or warn sex partners/public potentially at risk of infection but in dilemma situations. Applying the utilitarian concept facilitates decision making (Khan, 2016). This study presents a scenario where physicians' duty to confidentiality conflicts with the duty to protect the public at risk. Physicians choosing to breach confidentiality in my study reflected the utilitarian approach that maximizes good for the maximum number of persons rather than holds on to an individual's right to privacy. Although physicians have the responsibility to protect the public potentially at risk, in Nigeria and some other SSA counties there is no corresponding legal backing on the duty to protect (Salihu et al., 2018). Physicians require the duty to warn to operate legally and ethically in maximizing well in their decision making (Salihu et al., 2018).

Deciding on the Course of Action

Participants could take more than one option (course of action) over a variant of described patient characteristics; an average of 2.3 options from each of the study

participants was recorded in the study. This average was close to the average of 2.4 obtained in the pilot study described earlier and in the study by Daly et al. (2011). When faced with an ethical dilemma, difficult decision must be made that could affect physicians' practice, the lives of PLWH, and the lives of their sex partners. There may not be a single definitive answer when managing HIV discordant couples. Alghazo et al. (2011) concluded that physicians' confidentiality decisions do not necessarily provide perfect solutions, and such solutions may not exist in all cases. In addition to being aware of state laws and professional ethics, a guideline/policy for decision making in such conflicting situations would go a long way to enhancing physicians' practice (Daly et al., 2011; Salihu et al., 2018; Schwartzbuam et al., 1990).

Nonmaleficence is an ethical responsibility of physicians aside from maintaining patients' confidentiality. However, in conditions that present with conflicts of responsibilities, the utilitarian approach facilitates decisions; according to Pezaro, Clines, and Gerada (2018), in addressing the utilitarian concept, physicians' responsibility should be upheld in pursuit of the greatest benefit for the greatest number of people. In my study, around 70% would breach in one way or another either by informing the health department, referring to APIN, or directly informing sexual partners. By this action, they would sacrifice their therapeutic relationship and violate patients' confidentiality. They indicated this by choosing Options 3, 4, or 5 in the course of action to be taken. About a fifth of participants indicated that where the patient still refuses to disclose status after counseling, they would directly inform sex partners at risk of contracting the virus. These participants indicated this by choosing Option 5 only in the course of action to be taken.

The finding that a fifth of participants would directly inform sex partners is in alignment with the findings in similar studies where 5-20% of participants indicated that they would directly inform sex partners (Daly et al., 2011; Schwartzbuam et al., 1990). Daly et al. (2011) argued that physicians would take this course of action when it becomes optimal to save another person from contracting the virus and to curb disease incidence. Making this decision to directly inform sexual partners is restricted in countries where there is no policy or law on physicians' duty to warn sexual partners at risk. (Salihu et al., 2018). Physicians should be accorded the duty to warn to enhance their ethical role in the principle of nonmaleficence (Salihu et al., 2018).

About one-third of participants (30.6% which represented 68 out of 222 participants) were concerned with maintaining a therapeutic relationship and patients' privacy; hence, they indicated that they would maintain patient confidentiality. This aligned with the results of similar studies where the authors reported that 32% of participants indicated that they would maintain confidentiality (DiMarco & Zoline, 2004). Participants were allowed to make more than a choice from the five options provided, and a total of 525 options were made by 222 participants. The finding that a majority of participants (85.6%) indicated that they would persuade patients to disclose status to sex partners indicated that physicians would consider maintaining confidentiality before intruding into a patient's privacy to violate confidentiality.

The pattern of underreporting of HIV-infected individuals is evident by the finding that less than one third (28.4%) of the participants indicated that they would report only the incidence to the health department. However, reporting both patients'

names and status facilitates initiation of treatment and other preventive measures (Sule Agaba, Patrick, & Mseheli, 2016) and was indicated by a higher percentage (50.5%) of participants. The findings of Schwartzbaum et al. (1990) also reflected underreporting of HIV incidence, particularly among White patients compared to Black patients. The authors attributed physicians' underreporting to the diagnosis made by private physicians. For accurate estimation of the incidence of HIV, physicians should be made aware of this unconscious bias of underreporting (AVERT, 2017e, Schwartzbaum et al., 1990).

Research Question 1

Do patients' characteristic features (gender- male/female; gender orientation-homosexuality /heterosexuality and sexual relationship-monogamous/polygamous) have any statistically significant influence on (or predict) physicians' confidential decision making (maintain, breach) among HIV discordant couples?

In my study, physicians' confidentiality decision was not influenced by the patient being male or female, homosexual or heterosexual, or in a polygamous or monogamous relationship. This finding was consistent with some previous studies (Daly et al., 2011; Kozlowski et al., 1998; Schwartzbaum et al., 1990). Daly et al. (2011) explained that physicians probably made decisions based on the risk of contracting HIV present in the case scenario and not on the features of the patient. Kozlowski et al. (1998) enumerated risk factors to include anal or vaginal sex without protection, nondisclosure of positive status to a sex partner, and delay in disclosure. Scenarios presented in my study portrayed risk of in infection in nondisclosure of positive status and possibly sexual intercourse. However, risk perception in the presented scenarios was not evaluated in this study.

Gender. Patients' gender did not significantly predict physicians' decision to maintain or breach confidentiality to protect sex partners potentially at risk of HIV infection. This finding was consistent with findings from some previous studies (Daly et al., 2011; Kozlowski et al., 1998; Schwartzbaum et al., 1990). Daly et al. (2011), who also investigated physician risk perception in the case scenario presented as to whether the patient used a condom or not, concluded that physician decision was not significantly influenced by patients' gender but by the potential risk of infection presented in the case.

The estimated odds ratio for gender however favored an increase in breach option for males over females; physicians were 1.45 times more likely to breach confidentiality for males than for female patients. Although women appeared more accepting of disclosure, they were generally more affected by gender inequality within relationships and more concerned about the negative consequences of disclosure or non-disclosure (Amin, 2015). This explains why Physicians were more likely to breach for a male patient to protect or warn the sex partner than for the female; women experience difficulty negotiating safer sex practices, or communicating about intimacy (Bhatia et al., 2017). To buttress this explanation other researchers reported that socially and culturally rooted gender power inequality within relationships and intimate partner violence place women in SSA at increased risk of HIV infection compared to men (Maeri, Ayadi, Getahun, Charlebois, Akatukwasa, …Camlin; 2016). Males were less prone to adverse disclosure reactions and were assumed capable of handling disclosure issues better than females (Maeri et al., 2016). It is also possible that physicians felt a greater responsibility to protect females rather than men. Schwartzbaum et al. (1990) investigated at Tennessee,

the US, the influence of gender on physician's confidentiality decisions, when the HIV patient was female, physicians were more likely to maintain confidentiality than in male HIV patient. The male physicians in their study indicated that they were more likely to persuade the female patients to disclose status than male patients.

Gender Orientation. In my study gender orientation did not significantly predict the physician's decisions. My finding was inconsistent with the finding of Kelly et al., (1987) who promulgated that physicians due to bias and homophobia, were more likely to breach if the patient was homosexual. Researchers who earlier investigated the influence of gender orientation on physician's confidentiality decisions reported that the attitude of physicians towards patient gender orientation offered an insight into their confidentiality decisions (McGuire, Niefi, Abbott, Sheridan & Fisher, 1995). Findings from my study, however, aligned with the finding from some previous studies (Kozlowski et al., 1998, Daly, Hevey, and Regan (2014), and Schwartzbaum et al. (1990). These researchers reported that the patient's gender orientation did not significantly influence the physician's confidentiality decisions.

Odds ration estimation in my study revealed that physicians were marginally more likely to breach confidentiality when the patient was heterosexual than for homosexual patients. This odds ratio finding was consistent with the findings of some previous studies (Kozlowski et al., 1998; Daly, Hevey, & Regan (2014), and Schwartzbaum et al. (1990) where physicians also indicate a greater likelihood to breach confidentiality when the patient is heterosexual than for females in homosexuality. In their study Schwartzbaum et al. investigated the physician's confidentiality decision

among female homosexuals and had similar findings to my study. They explained that physicians were more likely to breach for heterosexuals than for female homosexual patients because less bodily fluids are exchanged and hence less risk of transmission of HIV infection in female to female intercourse.

This finding and explanation is however different for male homosexual patients; Daly et al. (2011) explained that homosexual men were more likely to contract infection from an infected partner than partners in heterosexual relationship because of the greater risks involved in anal sex than in vaginal sex (Quinn et al., 2000). While male homosexuality is associated with higher rates of transmission of HIV infection than heterosexuality (AVERT, 2017d), physicians indicated that they were more likely to contact the partner of a patient in heterosexual relationship rather than partners in homosexual relationship that had high risk of infection (Di Marco & Zoline, 2004; Kozlowski et al.,1998). This could be explained as the physician's bias/homophobia to deal directly with homosexuals; more so, homosexuality is not openly accepted in most Nigerian culture and religion (Anazaki, 2018). It is also illegal, less commonly addressed in the Nigeria health sector even though it is an issue that needs to be addressed in the prevention of HIV in Nigeria. (Anazaki, 2018). Some other researchers have explained this finding differently indicating that physicians may assume homosexuals are more aware of the risk of HIV than heterosexuals and accorded sex partners in homosexuality the responsibility of protecting themselves than those in heterosexuality (Daly et al., 2011; Kozlowski et al., 1998).

Another explanation to physicians' breaching more for heterosexuals than homosexual relationships could be attributed to the finding that heterosexual transmission is commoner among couples in SSA (AVERT, 2017e). DiMarco and Zoline (2004), in their study, demonstrated that confidentiality decisions were not swayed by a bias towards the patient as a function of gender orientation. They reported that regardless of the gender orientation, most physicians felt an ethical responsibility to protect the partner at risk and seemed willing to breach confidentiality if necessary. Although patient gender orientation did not significantly influence physician confidentiality decisions in my study, physicians were more likely to breach confidentiality for heterosexuals than homosexuals that present a greater risk of HIV infection (Anazaki, 2018; AVERT, 2017d). This is important because many nations in the West uphold the rights of Lesbians, Gays Bisexuals and Transgender (LGBT) persons and their physicians may freely and with ease work among homosexuals unlike in SSA where homosexuality is still illegal with much arguments against LGBT rights. (Anazaki, 2018). In explaining this issue, it is important to put into consideration the laws of the nation's bearing in mind that the African values and costumes are different from that of the West (Anazaki, 2018).

Sex Relationship. The sexual relationship of the patient did not significantly predict physician's confidentiality decisions. In my literature search, I could not find similar studies that have investigated the influence of polygamy and monogamy on physician's confidentiality decisions for comparisons. Previous studies reviewed investigated patient's features in monogamous relationships alone (see Daly et al., 2011, DiMarco & Zoline, 2004, Schwartzbaum et al., 1990). This is the first study to include

polygamy and monogamy in patient factors influencing physician's confidentiality decision making.

From odds ratio estimations in my study physicians were more likely to breach confidentiality for both males and patients in polygamy than in patients in monogamy. Polygamy, however, has been linked to the spread of HIV in Africa because of the increased number of sexual contacts involved (Fox, 2014). This could explain why physicians indicated more likelihood of breach for patients in polygamy than those in monogamy to warn sex partners of the risk of exposure. Some researchers do not share the view that polygamy is linked to the spread of HIV, they explained that the constancy of partners in polygamy may help prevent the spread of HIV and have insisted that the spread of HIV should be linked to unprotected sex outside an exclusive relationship which increases the number of contacts exponentially and the growth rate of the epidemic (Phiri & Phiri, 2016). My study demonstrated that physicians were less likely to breach for patients in monogamy. Maintaining fidelity in a monogamous relationship reduces the risk of HIV infection transmission (Fox, 2014).

Combination of Patient Characteristic

The overall association between hypothetical patient characteristics in categories and the physician's decision were not significant. Data available for this estimation was sparse but a Monte Carlo estimation was applied to estimate exact *p*-value and the estimated *p*-value was identical to that of large sample. Schwartzbuam et al., (1990) also applied this estimation in their study which was also limited by sparse data and cautioned on the use of statistical significance alone as a standard for interpreting results from

observational studies. I went ahead to analyze and reported findings. Additionally, Vittinghoff, & McCulloch (2007) described as conservative the rule of thumb that logistic models should be used with a minimum of 10 participants per predictor variable (EPV) and suggested that this rule can be relaxed, in particular for sensitivity analyses undertaken to demonstrate adequate control of confounding.

Odds ratio estimations from my study indicated high breach options associated with combinations of being male, in polygamy, homosexual and heterosexual relationships. The combination of female monogamous lesbian was the least violated. Whether these combinations motivated a physician's decision or the risk of transmission associated with these combinations cannot be determined. DiMarco and Zoline (2004), establish in their study that a combination of patient features influenced physician's decision while other researchers have demonstrated contrary findings; Kozlowski et al. (1998) concluded that the risk involved rather than combination of patient features influenced decision.

Research Question 2

Do physician's demographic features (gender-male/female, age in years, years of practice, specialty, and the number of breaches in confidentiality before) have any statistically significant influence on (can predict) physician's confidentiality decision making (maintain, breach) among HIV discordant couples?

Physician's demography

The previous breach in confidentiality alone was the physician feature that significantly predicted the physician's decision. This finding lends support to the findings

in a similar study (Daly et al., 2011). They also demonstrated that physicians who had breached confidentiality before were more likely to breach again compared with physicians who had never breached confidentiality. This finding could be explained based on psychology literature that explained that past behavior can contribute to behavioral intentions (Daly et al., 2011). Other physician's features including gender, age, specialty, and number of years of practice, did not influence confidentiality decision making.

Odds ratio estimations demonstrated that older physicians as well as those who had practice for a long period were more likely to maintain confidentiality and less likely to breach confidentiality to protect sexual partners that may be potentially at risk of infection. This finding was consistent with the finding in similar studies (Daly et al., 2011; Schwartzbuam et al., 1990). They explained that physicians who had been recently educated about discordant couples and partner notification may view breaching without patient consent as a legitimate option. The finding that older physicians as well as those who had practiced for longer period were less likely to breach (more likely to maintain confidentiality) was also consistent with the finding of Kozlowski et al. They explained that it could be that such physicians may have acquired knowledge on alternative strategies for convincing the patient to disclose to partner. Such strategies may include helping patient to come to terms with the HIV positive status, to overcome fears of rejection and disapproval, and it could be in educating the patient on the risk posed to the partner, in advising on the use of protection and other strategies to ensure the virus is not passed on could trigger disclosure by the patient.

Study limitations

In this study, I attempted to identify patient and physicians' features that may influence physician decisions and the likelihood of a breach of confidentiality; my findings have been demonstrated in the study results section. The study design, however, was limited in some ways. The use of a non-probability sampling technique created a threat to external validity and limited the generalization of this study (Frankfort-Nachmias, & Nachmias, 2015). I used a convenient sampling method, a non-probability technique that reduced the reliability of the study making it difficult for replication elsewhere (Frankfort- Nachmias & Nachmias, 2015). Also, the sample drawn by convenient sampling may have included a disproportionate number of physicians with an interest in HIV issues of confidentiality whose responses may skew findings. The use of hypothetical vignettes represented an easy and quick method of accessing decision making but it was also a limitation to the study because it was difficult determining if the vignette responses reflected clinical decision making with real cases (Evans et al. 2014). To maintain construct validity, I ensured that the vignette was constructed with relevant and real-life questions that simulated certain aspects of the real world,

I collected data for this study from subjective information given by participants who may have brought about social desirability bias; participants could have given information they felt would be socially more acceptable and the respondents may have withheld relevant information to the findings. To prevent information or response bias, my data collection was done anonymously.

The non-generalizability of findings from the design limits the reliability of the study including the different scales used in the logistic regression model that may have had some effect on the output from the regression model as the different scales were measuring similar factors. Although the participants spoke English, their use of the English language varied widely. This may have affected their understanding of the questions asked in the questionnaires and their responses may not accurately inform the findings of the study. The study instrumentation, if not consistent, would create threats to internal validity and construct validity. There may have been inconsistencies in the manner that the study participants completed their questionnaire. To the best of my ability, I ensured that there was consistency in the instructions related to the participants on completing the questionnaires (Jain et al., 2016).

Recommendations

In my study, I examined features influencing physicians' confidentiality decisions addressing the conflict between individual interest and public health interest, intending to enhance physician's practice to the vulnerable group of HIV discordant couples and to sensitize policymakers about the implication of leaving these confidentiality challenges unattended. There are relevant findings of this study that should be recommended to concerned stakeholders to addresses challenges enumerated including the persistent HIV incidence, physician's challenges in managing discordant couples with an unclear guideline and conflicting policies mandating disclosure. Findings in my study aligned with findings from previous studies and the implications of these

alignment drive recommendations for medical practitioners, health policy-makers and researchers.

For Medical Students and Practitioners

My findings could be a source of information and education for physicians, medical students and residents in training (Rich, 2018). Some physicians may not be aware that their HIV related ethical decisions are influenced to some extent, by their demography and patient characteristics, such results in themselves can be educational and may also explain some of the patterns of under reporting of HIV infected individuals, and may explain physician's pattern of decision making through the options indicated in the findings. Findings that physician's under-reported HIV incidence to the health department would breach more for heterosexuals rather than homosexuals associated with a higher transmission rate of infection could be corrective information and should be further investigated. I recommend my findings to the medical schools' board for review and incorporation to ethics training programs that could create awareness of dilemmas encountered in HIV management and would guide decision making on confidentiality.

My study findings could also be used to offer solutions to challenges. The main study indicated that physicians experience ethical challenges in practice and are expected to make principled decisions, however, their level of decision making requires improvement. This study is recommended to guide/assist with confidentiality policies, to improve levels of principled thinking at decision making for HIV discordant couples. The physician's decision to breach was influenced in some cases by patient and physician characteristics. Further studies from both empirical and philosophical perspectives may

broaden our understanding of the relationship between physicians' professional behaviors and ethical decision-making.

I recommend these findings and discussion to the local branches of associations of physicians and the NMDA; my findings could be useful in promoting the good medical practice and in advocating for policies that address the challenges of managing HIV discordant couples based on the current policies. As strong interest groups and policy demanders, they can play a vital part in the formation and implementation of health policies at state and federal levels by contributing to the formation, amendment, and implementation of related policies (Shi & Singh, 2012).

For Policymakers

In this study I raised the issue of policies mandating status disclosure and thereby creating conflict between patient's right to confidentiality, physicians' corresponding duty to protect patient's confidentiality with their public health duty to warn; and that related laws in Nigeria do not have adequate provision ensuring the protection of these laws nor provisions that would provide reconciliation where there is such a conflict. The need to have a legal framework to bridge this gap has been demonstrated in earlier discussions. Physician's pattern of decision making was evaluated in this study with the view of recommending the development of guidelines/policy that would enhance practice (Salihu et al., 2018)

It is recommended that the confidentiality law be redressed to have provisions on the limit of confidentiality. In circumstances where the patient –physician's relation is in jeopardy, a possible way out of this dilemma is to delegate disclosure to public health

officials to inform partners that they have been exposed to HIV infection, encourage testing and preventive measures without exposing the source of infection. In so doing the patient-physician trust is maintained. For good practice, it is recommended that the Medical Council develop a guideline for physicians to make decisions when presented with an HIV confidentiality dilemma.

It is also recommended that laws from other countries and states be reviewed to adopt laws that are suitable for that population. India adopted Michigan's law in her *Indian Penal Code Act No 45 1860* where it is an offense if anyone deliberately or negligently behaves in a way likely to spread HIV (Salihu et al., 2018). In this law use of protection without disclosure of positive status before intercourse does not stand as a defense, disclosure is paramount. The law is helpful in HIV prevention without the breach in confidentiality and physicians are saved from breaching professional ethic (Salihu et al., 2018) C. The national health ACT 2014, a recent Act regulates and investigates erring medical practice through the medical council disciplinary tribunal and permits each state in Nigeria to adopt her laws on Status disclosure (Salihu et al. 2018). It is recommended that plateau state and other states amend laws on status disclosure and confidentiality that will maximize benefits for all involved. There is the need to the harmonization of regulatory laws over the similar subject matter in a similar environment to avoid difficulties in the enforcement and implementation of confidentiality rules

For Researchers

HIV and its consequences continue to pose a public health problem in SSA. In this study, patient and physician's characteristics that influence physician's

confidentiality decisions evaluated with a view of enhancing physician's practice and sensitizing policymakers to the need of a guide or policy needed to make decisions that maximize utility, caring for the needs of all concerned. The findings of my study were in some ways consistent with similar studies carried out in other parts of the world, some of my findings are however new. Findings that physicians' underreported HIV incidence to the health department and would breach more for heterosexuals rather than homosexuals associated with a higher transmission rate of infection should be further investigated.

There is the need to carry out similar research in other centers across the country and SSA for accurate generalization. Although the calculated sample size for this study was minimally adequate, having a larger sample size would have given more power to the findings and may have produced more significant results. Larger sample size will be a better representation of the study population and would provide more significant analysis of the combination of patient characteristics. Extending the data collection time to months could help approach more participants for recruitment, creating a multi-center study by collecting data from several health centers across the nation /SSA will provide a larger sample size, increase the power of the study, and increase its generalizability.

It would also be important to explore physicians' characteristics as well as their perceptions on confidentiality decisions, a qualitative approach in a mixed study may provide more information on physician confidentiality decision making, exploring /elaborating more on the breach options. I recommend the research instrument I used as valid and reliable for similar researches. The pilot study demonstrated that the vignette questionnaire applied to this study can be used for assessing physician's confidentiality

decision making among HIV discordant couples. However, additional testing of validity and reliability is needed.

The Implication for Positive Social Change

This project is unique because it addresses an under-researched health practice and policy issue in SSA (Bott et al., 2015; Bott & Obermeyer, 2013; Salihu et al., 2018). The research findings filled the gap in the literature on patients and physicians' characteristic features that relate to physicians' confidentiality decisions in the management of HIV discordant patients and included decision making among polygamous relationships, an issue that is under-reported in Nigeria (Martins, Rampal, Munn-Sann, Sidik, Salau; 2016). My study highlighted the pattern of confidentiality decision making for Plateau State, Nigeria.

Findings from my study on various issues were consistent with the views of other researchers in previous studies. My research is capable of bringing about positive social change by strengthening the findings of these studies with similar findings. Where my study findings did not align with some previous studies particularly on physician's decisions among homosexuals, my study hopefully will bring about positive change by promoting more research to further clarify inconsistent findings.

The findings from this study could provide information to public health policymakers that may address ethical and policy issues on HIV status disclosure in SSA and may also inform public health initiatives aimed at preventing HIV transmission (Bott& Obermeyer, 2013; Odunsi, 2007). The study has the potential of bringing about positive social change by informing the development of physician's decision guidelines

that would enhance physician' practice with people living with HIV regarding the needs and rights of all concerned (Bott & Obermeyer, 2013). Different bodies have indicated their interest in this study, these groups including individual participants (physicians), various departments from health centers where the sample was drawn, the ethics departments of these health centers and health policymakers at hospitals, local, state government levels. I intend to share the findings from this study with these stakeholders, such information would provide guidance to decision making and enhance medical practice. This social change is intended to start with individual physicians, departments, and hospitals in Plateau State.

Another possible positive social change that could be affected is to inform policies and programs aimed at HIV prevention which could lower HIV incidence in my community and state. The findings of this study could sensitize policymakers at the level of various department, hospital, local, state and national governments to create/ redress confidentiality laws that could create conflicts with physicians' decision making. I hope to present these findings at doctors' clinical review sessions from where I collected most data, at conferences/ academic sessions and hopefully publish findings in national and international journals. Findings and discussions on this study will be presented for policy advocacy to the local branch of the NMDC and the Health legislator, Plateau House of Assembly I present my findings as a policy issue raised for deliberation on policy review and development/amendment.

Summary and Conclusion

Policies mandating HIV status disclosure to curb the spread of infection conflicts with the physician's duty to maintain the patient's confidentiality and the duty to warn sexual partners potentially at risk of contracting the infection. These policies and professional ethical conflicts and policy issues in Nigeria and SSA were elaborately discussed in my literature review. In this study physician's pattern of decision making was evaluated with the view of raising policy issues on confidentiality for amendments/development and to enhance physician's practice. There were relevant findings from this research that aligned with previous studies; physicians indicated that they would breach the confidentiality of patients with HIV to warn sex partners potentially at risk of contracting hence the findings contributed to public health and health policy. The previous breach of confidentiality significantly predicted physician's breach decision, however, in Nigeria, related laws lack adequate provisions ensuring the protection of such decisions, or provisions that would provide reconciliation where there is such a conflict (Salihu et al., 2018). To curb persistent HIV incidence, Nigeria needs to revisit her confidentiality law and the Medical professional Council should review confidentiality conduct relating to HIV positive patients to make necessary amendments by examining the laws in different countries. Confidentiality is not absolute at best it is contextual because the autonomy of another is at stake, the duty of the physician is not only towards the patient but also to maintain the duty to warn identifiable persons potentially exposed to risks. Disclosure of information to a third party is sometimes permissible and at other times even obligatory. A possible way out of this dilemma is to

delegate disclosure to public health officials to inform partners that they have been exposed to HIV infection, encourage testing and preventive measures without exposing the source. However, for good practice, it is recommended that the Medical council develop a guideline for physicians to make decisions when presented with HIV confidentiality dilemmas.

In conclusion, having previously breached confidentiality was a significant predictor of willingness to breach again while physician's characteristics and hypothetical patient characteristics were not significant in predicting physician's decision to breach or keep patient HIV positive status confidential when such a patient will not disclose status to sex partners. However, those characteristics did influence the physician's decision making to some extent in this study carried out in Plateau State, Nigeria. Although there is no clear guidance/policy for making confidentiality decisions in dilemma situations and physicians have no legal duty to protect the public at risk in Nigeria, yet the majority of participants in my study indicated that they would breach patient confidentiality to protect the sex partners potentially at risk of contracting the infection. Therefore, there is a need to redress the confidentiality laws in Nigeria and SSA and to make an amendment that would provide clear guidance on confidentiality decisions that would enhance physicians' practice among HIV discordant couples regarding the needs and rights of all concerned.

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Appendix A: Vignette Questionnaire used by Schwartzbaum et al.

"John (Joan) is a 30- year-old Black (White) heterosexual (homosexual) male (female) who tested positive for HIV by the ELISA antibodies test and confirmed by the Western Blot test. He (she) has not been getting along with his (her) partner. He (she) has asked you not to tell her (him, i.e., the partner) the results of the test because he (she) believes that the knowledge would complicate matters." The subject was described as one of the eight possible combinations of sex, race, and sexual preference (for example: Black homosexual female) until the eight possible combinations of sex, race, and sexual preference were exhausted.

Each of the eight vignettes was followed by these progressively intrusive five statements (the first of the five statements was intended to infringe on the patient's privacy the least and the last statement the most). Options 1 and 2 are categorize as maintain confidentiality, options 3, 4 and 5 as breach confidentiality.

1. The knowledge of the antibody status would remain between my patient and me.
2. I would attempt to persuade the patient to inform any partners who might be infected.
3. The antibody status, but not the name, would be reported to the health department.
4. The name of the person and the antibody status would be reported to the health department.
5. If the person would not inform any partners who might be infected, I would attempt to do so if the person identified them.

Physicians will be asked to indicate which of these statements would characterize their

actions. More than one selection was permitted and the option closer to a breach will be accessed.

(Collected from Schwartzbaum, J.A. Wheat, J. R., & Norton, R. (1990). Physician breach of patient confidentiality among individuals with human immunodeficiency virus (HIV) infection: patterns of decision. *American Journal of Public Health, 80* (7):829-34.

Appendix B: Modified Questionnaire/Vignette with permission for Parent Study in Nigeria

Introductory Statement

Thank you very much for agreeing to take part in my survey.

The purpose of this parent study is to investigate patient and physicians features that are related to physician's confidentiality decisions in managing HIV discordant couples. This may guide further decision making and inform programs and policies aimed at help such couples engage in preventive measures to decrease the incidence of HIV. Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as taking few minutes off your busy schedule or becoming upset however, being in the study would not pose risk to your safety or wellbeing and no compensation will be made for participating. The research findings would be made available for your review.

The questionnaires will evaluate physician's characteristics and the vignette, a short story, evaluates the HIV patient's characteristics. Completing the vignette questionnaire takes about 10minutes. Please carefully study these questions and story and provide answers. All information will be kept confidential and your real identity will not be disclosed in the study documents. Participation is voluntary. You may decide to opt out at any time as data is collect.

Questionnaire

Are you registered with the Nigerian Medical & Dental Council? Yes ☐ No ☐

Age in years: 21-30years ☐ 31-40years ☐ 41-50years ☐ 51- 60years ☐

60years + ☐

Gender: Male ☐ Female ☐

Specialty: Specialized ☐ Field of Specialty……

Not specialized ☐

Number of Years in practice- Never practiced ☐ 1-5years ☐

6-10years ☐ above 10years ☐

Location of practice: Urban City ☐ Sub-Urban Town ☐

Have you ever managed HIV patient before? Never ☐ Once ☐ Twice ☐

☐ Thrice ☐ More than thrice

Without consent have you revealed patient's HIV positive status to another person?

Never ☐ Once ☐ Twice ☐ Thrice ☐ More than thrice ☐

Vignette (Story)

"Joan is a 30- year-female in a monogamous heterosexual relationship, *she tested positive for HIV 1 & 2 by the Determine Test Strip and confirmed by the Uni-Gold and Stat-Pak test kits. You have counseled and persuaded her to disclosure status to sexual partner. She asked you not to tell the partner the results of the test because she believes that the knowledge would complicate matters."*

Kindly mark **(X)** on the action you would take in the given scenario.

Options

1	The knowledge of the antibody status would remain between my patient and me.	
2	I would attempt to persuade the patient to inform any partner(s) who might be infected.	
3	I would notify the public health department of the antibody status and not the name of the patient	

4	The name of the patient and the antibody status would be reported or referred to the appropriate health department (AIDS Prevention Initiative in Nigeria -APIN).	
5	If the patient would not inform any partner(s) who might be infected, I would attempt to do so if the person identified them.	

Multiple answers could be provided.

[However, the option with the highest number, which is the option closest to a breach, is selected for analysis. Options 1 and 2 are categorize and analyzed as maintain confidentiality, options 3, 4 and 5 as breach confidentiality.]

Vignette variants

1. John is in a monogamous heterosexual relationship (He has a female partner)
2. Joan is in a monogamous heterosexual relationship (She has a male partner)
3. John is in a monogamous homosexual relationship (He has a male partner)
4. Joan is in a monogamous Lesbian relationship (She has a female partner)
5. John is in a polygamous heterosexual relationship (He has female partners)
6. Joan is in a polygamous heterosexual relationship (She has male partners).

Appendix C: Modified Questionnaire/Vignette with permission for Pilot Study in Nigeria

Introductory Statement

Thank you very much for agreeing to take part in my survey.

The purpose of this pilot study is to investigate patient and physicians features that are related to physician's confidentiality decisions in managing HIV discordant couples. This may guide further decision making and inform programs and policies aimed at help such couples engage in preventive measures to decrease the incidence of HIV. Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as taking few minutes off your busy schedule or becoming upset however, being in the study would not pose risk to your safety or wellbeing and no compensation will be made for participating. The research findings would be made available for your review.

The questionnaires will evaluate physician's characteristics and the vignette, a short story, evaluates the HIV patient's characteristics. Completing the vignette questionnaire takes about 10minutes. Please carefully study these questions and story and provide answers. All information will be kept confidential and your real identity will not be disclosed in the study documents. Participation is voluntary. You may decide to opt out at any time as data is collect.

Questionnaire

Are you registered with the Nigerian Medical & Dental Council? Yes ☐ No ☐

Age in years: 21-30years ☐ 31-40years ☐ 41-50years ☐ 51- 60years ☐

60years + ☐

Gender: Male ☐ Female ☐

Specialty: Specialized ☐ Field of Specialty……

Not specialized ☐

Number of Years in practice- Never practiced ☐ 1-5years ☐

6-10years ☐ above 10years ☐

Location of practice: Urban City ☐ Sub-Urban Town ☐

Have you ever managed HIV patient before? Never ☐ Once ☐ Twice ☐

Thrice ☐ More than thrice ☐

Without consent have you revealed patient's HIV positive status to another person?

Never ☐ Once ☐ Twice ☐ Thrice ☐ More than thrice ☐

Vignette (Story)

"Joan is a 30- year-female in a monogamous heterosexual relationship, *she tested positive for HIV 1 & 2 by the Determine Test Strip and confirmed by the Uni-Gold and Stat-Pak test kits. You have counseled and persuaded her to disclosure status to sexual partner. She asked you not to tell the partner the results of the test because she believes that the knowledge would complicate matters."*

Kindly mark **(X)** on the action you would take in the given scenario.

Options

1	The knowledge of the antibody status would remain between my patient and me.	
2	I would attempt to persuade the patient to inform any partner(s) who might be infected.	
3	I would notify the public health department of the antibody status and not the name of the patient	

4	The name of the patient and the antibody status would be reported or referred to the appropriate health department (AIDS Prevention Initiative in Nigeria -APIN).	
5	If the patient would not inform any partner(s) who might be infected, I would attempt to do so if the person identified them.	

Multiple answers could be provided.

[However, the option with the highest number, which is the option closest to a breach, is selected for analysis. Options 1 and 2 are categorize and analyzed as maintain confidentiality, options 3, 4 and 5 as breach confidentiality.]

Vignette variants

1. John is in a monogamous heterosexual relationship (He has a female partner)
2. Joan is in a monogamous heterosexual relationship (She has a male partner)
3. John is in a monogamous homosexual relationship (He has a male partner)
4. Joan is in a monogamous Lesbian relationship (She has a female partner)
5. John is in a polygamous heterosexual relationship (He has female partners)
6. Joan is in a polygamous heterosexual relationship (She has male partners).

Participant's Feedback for Validating Study Instrument

Kindly rate this vignette questionnaire by circling the number that best answers the question

Rate your ability to comprehend the introductory instructions and the questions on a scale of 1 to 5 where 1 represents 'not understood' and 5 'clearly understood'

1 2 3 4 5

2. Rate your understanding of the terms used, flow of statement and order of questions on a scale of 1 to 5 where 1 represents 'not understood /not meaningful' and 5 'clearly understood/ meaning full'

1 2 3 4 5

3. Rate the relevancy of the questions to the purpose of the study on a scale of 1 to 5 where 1 represents ‘not relevant’ and 5 ‘very relevant’

1 2 3 4 5

4. Select (in minutes) time taken to complete the questionnaire

☐ 9-10 ☐ 11-12 ☐ 13-14 ☐ 15-16 ☐

Other Comments/Suggestions

Appendix: D Permission Letters to use Instrument

Division of Epidemiology

College of Public Health
300-D Cunz Hall
1841 Neil Avenue
Columbus, OH 43210-1351

Phone (614) 247-8916
Fax (614) 688-3533
Web: http://sph.osu.edu

May 10, 2018

Dear Dr. Ayaebene,

You have my permission to use the instrument described in the 1990 Schwartzbaum et al. paper entitled, “Physician breach of patient confidentiality among individuals with human immunodeficiency virus (HIV)” published in the American Journal of Public Health.

Sincerely,

Judith Schwartzbaum, PhD
Associate Professor
Division of Epidemiology
College of Public Health
Ohio State University
schwartzbaum.1@osu.edu
614-284-3975

Division of Epidemiology

College of Public Health
300-D Cunz Hall
1841 Neil Avenue
Columbus, OH 43210-1351

October 6, 2018

To Members of the Institutional Review Board,

I hereby approve Dr. Francess Ayaebene's use of the questionnaire associated with my publication (Schwartzbaum et al., 1990) entitled, "Physician breach of patient confidentiality among individuals with human immunodeficiency virus (HIV)" published in the American Journal of Public Health. Specifically, she has my permission to modify the research instrument. She may modify the question on race as shown in the attachment. Patient's race will not be used as an independent variable because Nigerians are predominantly black, and therefore have no racial variety for manipulation. She may also change "relationship type" to include both monogamy and polygamy, to determine whether this influences physician's confidentiality decisions.

Please contact me if you require further information.

Best Wishes,

Judith Schwartzbaum, PhD
Associate Professor
Division of Epidemiology

Appendix E Permission Letters to Collect Data from Health Facilities

Re: Maintaining Confidentiality among HIV infected Persons: Physician's Patterns of Decision in Nigeria

Name of Principal Investigator: Dr. Francess U. Ayaebene
Address of Principal Investigator: Waden University
Date of receipt of valid application: July 27, 2018.
Date of meeting when final determination of research was made: July 30, 2018.

This is to inform you that the research described in the submitted protocol, has been reviewed and *given expedited approval by the Health Research Ethics Committee.*

This approval dates from **30/07/2018** to **30/07/2019**. Note that no participant accrual or activity related to this research may be conducted outside of these dates. You may liaise with the Hospital records department for necessary cooperation / assistance.

All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of research. *The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification.*

Name of Principal Investigator:	**Dr. Francess U. Ayaebene**
Address of Principal Investigator:	**Health Services/Public Policy Walden University College London**
Date of receipt valid application:	**26th July, 2018**
Date of when final determination of research was made:	**6th August, 2018**

This is to inform you that we are in receipt of your research report and request for renewal of approval. In view of that, your approval is being renewed by the *Health Research Ethics Committee (BHUTH).*

This approval is for Six month duration, effective when approval is given. If there is delay in starting the research, please inform the HREC so that the dates of approval can be adjusted accordingly. Note that no participant accrual activity related to this research may be conducted outside of these dates. All informed consent forms used in this research Must carry the HREC assigned number and duration of HREC approval of the study. In a multiyear research, endeavor to submit your annual report to the HREC early in order to obtain renewal of your approval to avoid disruption of your research.

Find attached a report format to be used in writing your report.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct a compliance visit at your research site without previous notification

Francess Ayaebene,
Department of Health Services/Public Health Policy,
Walden University,
MPH, University College London.

RE: ETHICAL CLEARANCE/APPROVAL

I am directed to refer to your application dated 29th July, 2018 on the research proposal titled:

"Maintaining Confidentiality among HIV Infected Couple: Physician's Patterns of Decision in Plateau State, Nigeria"

Following recommendation from the Institutional Health Research Ethics Committee, I am to inform you that Management has given approval for you to proceed on your research topic as indicated.

You are however required to obtain a separate approval for use of patients and facilities from the department(s) you intend to use for your research.

The Principal Investigator is required to send a progress report to the Ethical Committee at the expiration of three (3) months after ethical clearance to enable the Committee carry out its oversight function.

Submission of final research work should be made to the Institutional Health Research Ethical Committee through the **Secretary, Administration Department,** please.

On behalf of the Management of this Hospital, I wish you a successful research outing.

Dr.Francess .U. Ayaebene,
Waden University Boston.

RE: MAINTAINING CONFIDENTIALITY AMONG HIV INFECTED PERSON'S PHYSICIAN'S PATTERNS OF DECISION IN NIGERIA (PILOT STUDY).

Following your application dated July 26, 2018 to conduct a research (pilot study) inGeneral Hospital and environs, I am pleased to inform you that the research and ethicalcommittee of the hospital after careful study of your proposal have given you the approval for the pilot study to be conducted in general hospital Shendam and environs.

This approval is for one year covering the period August 31st2018 to August 31st 2019. You are to note that any changes in your protocol must be done with the consent of the research and ethical committee of the hospital and you are also advice to adhere strictly with research guidelines of the hospital.