AIDS Education and Women's Autonomy

The Prevention of Sexual Contraction and Spread of HIV/AIDS in Mozambique

by

Kelli Williams

A Thesis Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Approved November 2011 by the
Graduate Supervisory Committee:

Sarah Hayford, Chair
Victor Agadjanian
Scott Yabiku

ARIZONA STATE UNIVERSITY

December 2011

ABSTRACT

The AIDS epidemic has tremendously impacted the population of Mozambique. The rate of newly infected young women continues to grow disproportionately which is why consideration of health interventions specific to this population to combat the spread of the disease is critical. The Health Belief Model emphasizes the importance of self efficiency in the process of health related behavioral changes. Previous research has found that low levels of autonomy increase one's risk of contracting HIV/AIDS. This research uses data from a study conducted in 2006 in Mozambique to test whether higher levels of autonomy are associated with the practice of self protective behaviors related to the contraction of HIV/AIDS. Results suggest that some measures of autonomy such as education are positively associated with the practice of self protective behaviors. However, higher levels of decision making powers were negatively associated with the practice of self protective behaviors.

ACKNOWLEDGMENTS

Thank you for your support Horatio and Penelope.

TABLE OF CONTENTS

LIST OF TABLES

Table Page

INTRODUCTION

Mozambique is currently one of the most affected nations by the AIDS pandemic. As of 2004 approximately 16.2% of the population in Mozambique was infected among adults (ages 15-49) and 1.6 million Mozambicans are living with HIV/AIDS (UNICEF, 2010). AIDS is now the primary cause of death in Mozambique (Pridmore and Yates, 2005). The prevalence of HIV/AIDS in Mozambique differs depending on one's gender and age. The HIV/AIDS rate is more prevalent in the young and the rate of infection is estimated to be 11% in women and 2.9% in men ages 15-19 (US Census Bureau, 2009; Machel, 2001; UNAIDS/WHO, 2008). Not only is HIV/AIDS affecting the life expectancy of the population of Mozambique, there are many additional consequences of this health crisis, including loss of social supports, political turmoil, distorted age distribution, disruption of the family, and lack of economic growth, to name just a few (Pridmore and Yates, 2005; Stanecki, 2004).

AIDS Prevention in Mozambique

The prevention of HIV/AIDS in Mozambique has primarily been approached in an autonomic manner. Epidemiologists have methodically gathered information on the disease and have approached disease prevention in a risk reduction style, assuming that through the spread of knowledge about the disease, the spread of infection would be reduced (Chan and Reidpath, 2003). Most HIV/AIDS prevention campaigns in sub-Saharan Africa have been geared to "high risk" individuals such as prostitutes and individuals who engage in casual sex. However, researchers have consistently shown that HIV is contracted primarily through heterosexual intercourse between couples (Desgrees-du-Lou and Gliemann, 2008; Karlyn, 2005). The rate of new infections in sub-Saharan Africa was 1.7 million in 2007, meaning that 1.7 million individuals were newly diagnosed (Desgrees-du-Lou and Gliemann, 2008). The rate of new infections clearly shows that prevention strategies are still necessary. However, there are obstacles to women practicing protective behaviors such as utilizing condoms to prevent the spread of HIV.

There are many barriers for women to practicing self-protective behaviors to guard against the HIV virus in Mozambique. Women may be apprehensive to request their partner use a condom as this may produce suspicion of infidelity or they may fear abandonment or abuse if they make such a request (Ghosh and

Kalipeni, 2005; Machel, 2001). According to Gliemann and Desgrees-du-Lou (2008) women are increasingly using condoms when they fear infection. However, overall attitudes regarding condom use are still negative. Because Mozambique is a patriarchal society, men are often the decision maker when it comes to family planning and the use of contraception. Men are often resistant to condom use due to perceptions that its use may inhibit their joy of sex, cause infertility, injury and make women frigid (Agadjanian, 2002). Condom use is often associated with disease and promiscuity and per previous qualitative research; men expressed concerns that condoms promote prostitution and encourage wives to engage in infidelity (Agadjanian, 2002).

Religious opposition to condom use poses an additional barrier to women practicing this self-protective behavior in Mozambique. Mozambique is characterized by a number of different religions including Catholicism, Muslim, and African Independent Churches (Agadjanian, 2001). Approximately 50% of the population belongs to the African Independent Church (Pfeiffer, 2004). African Independent Churches and Catholic Churches oppose condom use and promote monogamy. The AIC opposes the use of contraception and many church members believe that there is an association between the rise in HIV and the use and promotion of safe sex (use of contraception). However, prior research has shown that the association between contraceptive use and HIV is not significant

after controlling for other factors such as educational attainment and urban living (Agadjanian, 2001).

Theory

Researchers have increasingly pointed to gender inequality as the root cause of HIV/AIDS higher prevalence in women in sub-Saharan Africa and have argued for implementing strategies in AIDS prevention programs to address this issue (Greig and Koopman, 2003). Other research has pointed to a lack of education regarding contraception or women's biological makeup. (Karlyn, 2005; Desgrees-du-Lou and Gliemann, 2008). Some factors, which are believed to predispose women to risky sexual behaviors and therefore to increase their risk of HIV contraction are imbedded in the culture and society such as, gender roles, power differences, involvement in a polygamous relationship, spousal migration and early age at marriage (Karlyn, 2005; Macleod-Downes, Albertyn, and Mayers, 2008).

Two complimentary theories were used to frame this research. The vulnerability theory was utilized as a guide to identify why women have a higher prevalence of HIV contraction in Mozambique while the Health Belief Model was used to predict and explain health related behavioral changes. Both theories stress the importance of autonomy with regards to health related behaviors. Feminist theory frames the risk of HIV/AIDS contraction by examining the level of

vulnerability to disease within the social context in which women live. Women are more vulnerable to HIV/AIDS due to physiological differences as well as socially constructed power differences (Craddock, 2000). Ones social status determines rights, opportunities, and position within society. Vulnerability theory identifies differing levels of risk by examining the social and economic factors which place certain individuals at a higher risk of contraction (Kalipini, 2000). Women in Mozambique have limited access to paid employment as well as low levels of autonomy, which influences their ability to exercise rights over their own body. A lack of economic opportunity can lead women to engage in sex in exchange for food and other basic essentials in order to survive.

According to the Health Belief Model, behavior changes result if the perception of risk is high and if the individual believes a behavior change will result in a reduction of vulnerability to the illness. Additionally, behavior changes result if there are few barriers to changes and individuals believe in their ability (self efficacy) to make the behavior change (Jurich, Adams, and Schulenberg, 1992). Women in Mozambique experience lower levels of autonomy and therefore even if provided AIDS education they may not have the ability to evaluate and act on self protective behaviors due to a lack of decision making powers or unstable sense of self.

Autonomy

Social science research is extensive with regards to women's autonomy and its relationship to HIV/AIDS. Autonomy is defined by Dyson and Moore (1983) as the ability to have control over one's environment and to procure and use information, (technical, social and psychological) in order to make personal and house hold decisions. Researchers have historically used conventional measures of autonomy such as education, literacy, and participation in paid work (Takyi and Broughton, 2006). Women's status is often measured by her ability to contribute to household decisions and is viewed in macro terms- i.e. within society (Hindin, 2000). Autonomy (often referred to as independence) is difficult to measure, which is why this research uses a number of proximal variables such as age at marriage, participation in employment, and decision-making powers. Education and employment is often associated with increased decision-making powers (Hindin, 2000). Women in this study may have increased autonomy due to their husband's temporary migration status and as a result an increase in household decision-making powers (Yabiku, Agadjanian, and Sevoyan, 2010). However, according to Archambault, (2010) women may experience a decreased level of autonomy when their husband migrates as they may begin to rely on

relatives for support. In order to account for such an effect, women's household composition was included in the study.

Vulnerability and Age at Marriage

vulnerability theory.

Early age of marriage is often viewed in developing countries as a means to encourage women to maintain their virginity until marriage (Mensch, Grant, and Blanc, 2006). Expectations regarding sex are very different for men and women. Women are told to delay sex until marriage while men view sex as a means to gain status (Karlyn, 2005). Most women in Mozambique marry by age 20 while over 50% of women marry by the age of 18 (DHS, 2003). In Mozambique women marry at a young age as compared to the Western world. Women who marry at a young age often marry older men and are more likely to contract HIV and less likely to have negotiating powers in the relationship (Clark, Bruce, and Dude, 2006). Young women who enter marriage are more likely to be less educated and have less exposure to the media (Clark et al., 2006). Those women who marry at a younger age are also more likely to enter into a polygamous relationship and to be less informed about ways to avoid contracting AIDS. Additionally, young women are at risk due to their unsafe sexual practices, which have been attributed to feelings of invisibility (Macleod-Downes, Albertyn, and Mayers, 2008).

Vulnerability and Gender Roles in Mozambique

vulnerability theory.

Sociologists have long argued that gender is a social construct creating conformative roles, which can limit and drive behaviors. Gender has historically and continues to be influential in determining ones social status and health choices (Bird, Conrad and Fremont, 2000). Gender influences ones likelihood of contracting HIV/AIDS through different social mechanisms, such as participation in gender specific roles and power differences.

Men and women hold "traditional" and specific gender roles in Mozambique. Mozambique has high fertility rates, highly gendered work, as well as gendered sexual behavior expectations. As of 2009, the fertility rate in Mozambique was 5.2 (U.S. Census Bureau International Database, 2009). High fertility rates are associated with limited freedom and lower levels of women's autonomy due to the consequences of having high numbers of children such as financial dependency, limitations on freedom and primary role restriction (Mason, 1987; Yabiku et al., 2010). Sexual behaviors typically conform to gendered types as well. Men are often viewed as dominant and are encouraged to behave in a promiscuous manner while women are encouraged to behave in a passive manner and be sexually inexperienced.

Because men and women engage in gendered work there is often a social separation (even within marriage) and conversations regarding sex are rare (Agadjanian, 2002). Men and women often communicate with only those who are like them, meaning that they socialize with the same gender. Women predominately work in the home and consequently have limited contact with others and a lack of economic resources. This has an influence on ones development of autonomy and can interact with whether one exercises rights over their own body. To account for gender role influence and limitations on freedom (women's primary role is often "mother"), I have included the number of children who are presently living with the respondents in the study.

Education and Employment

health belief model.

Women with higher levels of education are advantaged. High levels of education are said to be associated with an increase in autonomy and independence. Individuals who have more education are better able to process and utilize the information (Glick and Sahn, 2007). Additionally, those individuals with higher levels of education and income are more likely to be vested in protecting their health because of the efforts made toward their future as well as their exposure to the media through the radio and access to a health clinic. Because women in Mozambique have limited decision making powers they may

have difficulty completing protective health behaviors such as using a condom, refusing sexual intercourse, and obtaining an HIV/AIDS test. Low levels of autonomy increases ones vulnerability to HIV/AIDS (Macleod-Downes, Albertyn, and Mayers, 2008). If women had higher levels of autonomy, women would be less vulnerable to HIV contraction and more likely to carry out prevention strategies such as condom use and exercising rights over their body. Perhaps women with higher levels of education would be able to easily understand information regarding prevention strategies and their own risk of infection.

ANALYTIC APPROACH

One way to measure the success of HIV/AIDS intervention is to assess whether those who participate in education (through a health care establishment, business, village or church) practice behaviors to avoid HIV contraction. Often when researchers examine the efficacy of a campaign such as the "Jeito" campaign or the targeted radio campaign, they use exposure to education as well as retention of the material as measures of success (Karlyn, 2001). In this study, I will not use exposure to education to measure success; rather I will primarily look at self-efficacy behaviors such as condom use, whether women reported being faithful to their husband, and whether women practiced abstinence, in order to prevent the contraction of HIV. Although participation in AIDS education may

reflect accessibility and exposure to knowledge, it does not necessarily contribute to the success of reducing HIV/AIDS contraction and its spread, as it does not illustrate preventative and protective practices. This study is limited as the timing of women's participation in the HIV/AIDS lecture and engagement in protective behaviors is unknown.

This research will explore, 1) The relationship between autonomy and married women's engagement in self-protective behaviors to avoid contracting HIV/AIDS in Mozambique. I hypothesize that autonomy will be significantly associated with practicing self protective behaviors. Women with higher levels of autonomy will be more likely to practice protective behaviors such as using a condom or remaining faithful to their husband as they are better able to exercise rights over their body (refuse sex, request condom use) and women with higher levels of autonomy likely have more resources (economic, educational) to avoid sexual relations for financial compensation. 2) This research will investigate whether women with higher levels of autonomy who attended an AIDS lecture, practice more self-protective behaviors when compared to those women who have lower levels of autonomy. I hypothesize that women who have a higher level of autonomy will be more likely to practice self-protective behaviors when compared to those women with lower levels of autonomy who attended an HIV lecture. Women with higher levels of autonomy will be better able to process the

education provided and utilize the information by actively engaging in self-protective behaviors.

Hypotheses

In Model 1, I will include demographic controls such as age and religious affiliation as well as women's perception of their own risk of contraction, participation in an AIDS lecture in the last twelve months, and measures of autonomy such as educational level, age at marriage, level of decision making powers, participation in employment, and household composition. H1) I hypothesize that women who have higher levels of autonomy will be more likely to practice self protective behaviors. As previously stated, autonomy will be measured using proximate variables such as employment status, education level, household headship and decision making powers. According to the HBM, self efficacy influences health related behavioral changes. H2) Women who married at a young age will be less likely to practice self-protective behaviors as will women who belong to a polygamous relationship. As previously stated women who marry young often enter into a polygamous relationship and are less likely to have negotiating powers or an awareness regarding their risk of contraction. This hypothesis is guided by the HBM which states that in order to make behavior changes one must believe in their own ability to do so. H3) I hypothesize that

women who participated in an AIDS lecture and women who perceive high levels of risk will be more likely to practice self-protective behaviors. According to the HBM when perception of risk is high, behavioral changes related to health often follow (Smith and Watkins, 2005; Akwara, Madise, and Hinde, 2003). In Model 2, I will include measures of autonomy, demographic controls, perception of risk, and create an interaction variable of autonomy and aids education. H4) I hypothesize women with higher levels of autonomy that participated in an AIDS lecture will be more likely to engage in self-protective behaviors. Individuals who have the knowledge, as well as the ability to assert control over their body will be able to better utilize and act upon the information provided during the AIDS lecture. According to the HBM, self efficacy is a critical part of health related behavioral changes. Self efficacy is defined as an individual's belief in their ability to perform behavioral changes (Strecher, DeVellis, Becker, and Rosenstock, 1986).

Data and Methods

The sample population used in this study is from survey responses during structured interviews with married women in Mozambique in 2006. The sample includes married women from four rural districts ages 17-41. A total of 56 villages were selected and married women were divided into two groups, those who were married to a migrant and those who were not. Fifteen households were

randomly selected to participate from the two groups (married to migrant, not married to migrant). Structured interviews with 1680 married women were conducted, or with 420 women per district. The survey data included demographic information, socio-economic data, migration status data, HIV/AIDS awareness information, gender attitudes, and data regarding family planning.

Dependent Variable

The practice of self-protective behaviors was categorized into a dichotomous variable, those women who reported practicing self-protective behaviors were coded 1 and those who reported that they did not were coded 0. Women who indicated that they have done at least one of the following to avoid contracting HIV/AIDS: used a condom, were faithful to their husband, abstained from sex, or did 'other' self protective behaviors were categorized as practicing self protective behaviors. The practice of avoiding contact with blood cutting instruments or injections was removed from the variable, "self-protective behavior" as this research is specific to autonomy as it relates to sex, women's ability to exercise rights over their body and HIV/AIDS contraction. Women who reported that they have not practiced any self-protective behaviors were included in the second category. These protective behaviors are directly related to the transmission of HIV/AIDS as well as the prevention of the disease.

Independent Variables

This research used a number of proximal variables to measure whether women's autonomy, participation in HIV/AIDS education, and risk perception, is significantly associated with the practice of self protective behavior. Autonomy has been operationalized as participation in employment, decision making powers, and power over economic resources (Berkman and Kawachi, 2000; Mason, 1987; Greig and Koopman, 2003). Other measures of autonomy are age at marriage, education, and household headship (Greig and Koopman, 2003). In this study women's autonomy is measured in two ways. A 3 point autonomy scale was created within the questionnaire and includes levels of decision-making power regarding traveling, working, and spending money. Women were asked to report whether they had to ask permission, inform, or not inform their husband prior to making various decisions like, to spend money, travel, or work. The autonomy scale was converted into a mean of the overall responses to 7 questions. If women reported they had to ask permission to perform tasks such as visit a neighbor or spend money on family needs, the response was categorized as a 1, if they had to inform, 2, and finally, if women reported that they did not even have to inform, 3. One question regarding whether the women had to ask permission to take their sick child to a health center was removed from the autonomy scale as it did not pertain to the entire sample. Additional measures of women's autonomy was

included such as, educational attainment, ability to read, age at marriage, husband's migration status, woman's employment status, number of children, whether the women are involved in a polygamous relationship, and household composition.

I created categorical variables for religious affiliation, age at marriage, and ability to read. Religious affiliation was categorized into three groups, those who reported no religious affiliation, those who identified themselves as one of the following: Catholic, Anglican, or Baptist and lastly those who reported an affiliation to "other" religions such as Jehovah Witness, Muslim, or New or Old Apostles. To measure ability to read, I combined those respondents who reported that they can "read a little" and "can't read at all" into one group "can't read" and the other category includes those women who reported that they can read one of the following languages: Portuguese, Changana, Chope or other. I am interested in using the ability to read as a measure of autonomy. Those women who reported definitively the ability to read will be able to utilize health information given during an AIDS lecture, or within educational pamphlets, or other educational materials which may influence their level of autonomy. The survey question, "how old were you when you started living with your husband" is used to determine the women's age at marriage. The variable was categorized into three groups; women who married at or before the age of 17, women who married

between the ages of 18 and 22, and women who married at 23 or later. The missing responses were categorized, "missing" to account for the high number of women who reported that they did not know when they began living with their husband.

To measure levels of autonomy within the household I included the husband's migration status, number of children within the household, as well as whether women reported living with their in-laws. As previously stated, women experience a decrease in levels of autonomy associated with house hold decisions and independence when living with in-laws. Women who have high number of children also experience limitations on freedom as their primary role creates limitations on their movement and no financial rewards. The household survey question regarding in-laws will be categorized into two separate groups: those women who reported living with their in-laws and those who did not. Dummy variables will be created for the following: Employment, participation in aids education, polygamous relationship, family planning, migration status (of husband), live with in-laws, and refusal of sex. The perception of risk variable includes the mean score of the women's responses to two questions regarding their level of worry concerning contracting HIV (not worried =3, little worried=2, or very worried=1) from their husband or another partner.

Method

I will be using logistic regression analysis to determine whether autonomy, risk perception, and HIV education is significantly associated with a women's practice of self- protective behaviors.

RESULT

Table one includes descriptive statistics such as the age, religion, and measures of autonomy. The average age of the women in the study was significantly less than their husbands. The mean age of participants was 27 and their husband's average age was 49. Most women reported marrying between the ages of 18 and 22 (47%). A portion of women could not recall the age at which they married 10%. The decision to marry was most often made solely by the women (49%) or with parents and relatives input (31%). The average number of years of formal education among the sample was just less than three years (2.89) while just over a quarter of respondents reported having no formal education. 35% of the women surveyed reported having the ability to read. The majority of women reported that they had not worked to earn money in the last month. Women's household frequently included children (average 3.38) as well as in-laws (60%). A minority of women reported not having children in the household. The study was designed to include migrant husbands in half of the sample. 84% indicated that their husband was living with them in their home but just over 50%

identified their husband as a migrant. It can be assumed that although the women reported their husband's lived with them, they were likely away periodically due to their migration status.

Most of the women surveyed reported a religious affiliation (87%). Just less than half of the women reported that they participated in an AIDS lecture or meeting in the last twelve months and most women reported that they were a 'little worried' about contracting the AIDS virus from their husband or another man. The autonomy scale indicates that most women have to ask permission to do much of their daily activities. Over 60% of respondents had an average of less than 2 on the autonomy scale. There are two tables which include detail regarding women's practice of self protective behaviors. The first table includes those women who reported practicing at least one self protective behavior and those who reported not practicing any. The majority of women reported practicing at least one self protective behavior (72%). The second table outlines all those who reported practicing self protective behavior by type. This number includes women who may have reported engaging in more than one self protective behavior. The overwhelming majority of women reported that they practice being faithful to their husband.

Table two includes additional descriptive variables which were not used in the analysis. As previously mentioned, the overwhelming majority of women

reported being faithful to their husband in order to avoid contracting HIV/AIDS. However, when women were asked if it was common for other women to have sex with men other than their husbands, 45% reported that this was common practice. This contradiction may be due to respondents' concerns of judgment and desire to provide a socially acceptable response. Most women reported that they have not refused to have sex with their husband and when asked if their husband was willing to use a condom 57% reported that they were unsure.

The first model includes demographic variables such as age and religion as well as measures of autonomy, risk perception, and participation in an AIDS lecture. Hypothesis 1 was partially supported. Some measures of autonomy such as education and decision to marry are significantly associated with the practice of self protective behaviors. Women with higher levels of education are more likely to report practicing self protective behaviors. Every one year increase in education is associated with an 8.5% increase in the predicted odds of practicing self protective behaviors. The predicted odds of women practicing self protective behaviors who made the decision to marry in collaboration with family and/or relatives is 2.65 higher than those women who were not involved in the decision to marry. Women who reported making the decision to marry independently were not more likely to practice self protective behaviors. Women who had higher levels of decision making powers were significantly less likely to report

practicing self protective behaviors (p=<.001). This result is unexpected and contrary to the hypothesis. Perhaps women with higher levels of decision making powers reflect those women who lack social and economic resources which may lead them to exchange sexual favors to meet their basic needs. In order to clarify this result I tested whether there was a non linear relationship between level of decision making powers (autonomy) and self protective behaviors. The result was significant (p=0.0019).

Results in model 1 partially support hypothesis 2. Women who reported marrying at an early age (less than 17) were not significantly less likely to practice self protective behaviors as hypothesized. However, women who reported that they did not know or could not remember at what age they married were less likely to practice self protective behavior (p=<.01). Women who did not belong to a polygamous relationship are more likely to practice self protective behaviors (p=<.05) when compared to women who do. Household composition variables were not significantly associated with the practice of self protective behaviors nor were some autonomy measures such as employment, family planning, ability to read, or refusal of sex.

Hypothesis 3 was partially supported. Women who participated in an AIDS lecture were more likely to practice self protective behavior (p=<.001). The predicted odds of practicing self protective behavior for women who participated

in an AIDS lecture in the last 12 months is 1.60 higher when compared to women who did not participate in an AIDS lecture. Risk perception was also associated with the practice of self-protective behaviors. Women who perceived themselves less at risk of HIV/AIDS have 1.57 increase in the predicted odds of practicing self protective behaviors when compared to women who perceive themselves at higher risk of contracting HIV/AIDS. This result, although seemingly contrary, may be due to women feeling less worried as a result of practicing self protective behaviors. Model 2 includes the interaction variable, participation in AIDS education and autonomy. Hypothesis 4 was not supported. Women with higher levels of autonomy who attended an AIDS lecture were not more likely to practice self protective behaviors. The interaction was not significant.

Religious affiliation was positively associated with the practice of self protective behaviors. Although religion is identified as a barrier to the use of condoms, religious institutions encourage monogamy which is the most commonly identified self protective behavior. The age of respondents is significantly associated with the practice of self protective behaviors. Every one year increase in age is associated with a 2.8% increase in the predicted odds of practicing protective behavior.

Conclusion

This research tested four hypotheses related to women's autonomy and the practice of self protective behaviors to avoid HIV/AIDS contraction. The hypotheses were guided by the vulnerability theory and Health Belief Model theory. The vulnerability theory states that within society, individuals face different levels of risk based on their social and economic position (Kalepini, 2000). The Health Belief Model tells us that health related behavioral changes are contingent upon: perception of risk and severity of the illness, perception of the benefits of the behavior change, as well as self-efficacy (Jurich, Adams, and Schulenberg, 1992).

Results illustrate partial support for hypothesis 1. Some measures of autonomy were positively associated with the practice of self protective behaviors. Education, which was used as a proxy for autonomy, was positively associated with the practice of self protective behaviors as hypothesized. Women with higher levels of education likely have a more vested interest in their health and higher levels of autonomy. The measure of decision making powers as a proxy for autonomy revealed mixed results. Women who made the decision to marry in conjunction with family were more likely to practice self protective behaviors when compared to women who were not involved in the decision or solely made the decision. This result indicates that some natural support and

guidance is beneficial. However, the removal of guidance or the allowance of complete autonomy does not positively influence the practice of self protective behaviors.

Women with higher levels of decision making powers (mean of decision powers in response to seven questions) were significantly less likely to practice self protective behaviors. This is contrary to the hypothesis. The majority of women in the study reported that they have to ask permission to perform activities of daily living such as spending money or visiting friends while 37% reported that they have to at least inform. This outcome may be similar to the result regarding "decision to marry" in that individuals benefit from being a part of the decision making process rather than independently making the decision without the input of their family or husband or not being a part of the decision making process at all. As previously stated, this result may also reflect women who lack social and economic support, and therefore, are more vulnerable. I tested whether there was a non linear relationship between level of decision making powers and self protective behaviors. The results support a non linear relationship.

Additional measures of autonomy such as refusal of sex, participation in paid employment, the ability to read, and family planning were not significantly associated with the practice of self protective behaviors. However, the coefficients were positive. Household composition was not significantly associated with the

practice of self protective behaviors. Living with in-laws was negatively associated with the practice of self protective behaviors, although the association was not significant, while living with children and having a husband who migrates was positively associated with the practice of self protective behaviors, although the association was not significant. Hypothesis 2 was partially supported. Women who married at a young age were not significantly less likely to practice self protective behaviors although women who could not recall their age at marriage were less likely to practice self protective behaviors. Perhaps the inability to recall age at marriage is related to a longer length of time in which the event occurred. As hypothesized, women who were engaged in a polygamous relationship were less likely to practice self protective behaviors.

Hypothesis 3 was partially supported. Women who participated in an AIDS lecture in the last twelve months were more likely to engage in self protective behaviors. This result is limited as the timing of the participation in an AIDS lecture in relation to practicing self protective behaviors is unknown. Women who perceived themselves less at risk of contracting AIDS were more likely to report practicing self protective behaviors rather than women who perceived greater risk. This result may be a reflection of a reduction of perceived risk after carrying out protective behaviors. Hypothesis 4 was not supported. The Health Belief Model suggests that women with higher levels of autonomy will be

more likely to change their health related behavior. However, there was not an interaction between higher levels of autonomy (as measured by decision making powers) and AIDS education. In fact, the coefficient of the interaction was negative.

The results of this research suggest some support for the influence of women's autonomy as it relates to the AIDS pandemic. Additional research may be helpful regarding how women's levels of decision making powers influence changes in relation to health behaviors. This research was limited as women in the study most often identified the protective behavior "faithful." However, the respondents contrarily reported that fidelity was not as common. Future research may gleam additional insight into this region by exploring a more confidential manner to elicit responses related to sexual behaviors.

REFERENCES

Agadjanian, V. (2001). Religion, social milieu, and the contraceptive revolution. *Population Studies*, 55,135-148.

Agadjanian, V. (2002). Men's talk about women's matters: Gender, communication and contraception in urban Mozambique. *Gender and Society*, 16(2): 194-215.

Archambault, C. (2010). Women left behind? Migration, spousal separation, and autonomy of rural women in Ugweno, Tanzania. *Signs: Journal of Women in Culture and Society*, 35, 919-942.

Akwara, P., Madise, N. & Hinde, A. (2003). Perception of risk of HIV/AIDS and sexual behavior in Kenya. *Journal of Biosocial Science*, 35, 385-411.

Bird, C. E. Conrad, P. & Freemont, A. M (2000). *The Handbook of Medical Sociology* (5th ed). Upper Saddle River, NJ: Prentice Hall.

Berkman, L. & Kawachi, I. (2000). *Social epidemiology*. Oxford University Press.

Chan, K. & Reidpath, D. (2003). "Typhoid Mary" and "HIV Jane": Responsibility, Agency and Disease Prevention. *Reproductive Health Matters*, 11(22), 40-50.

Clark, S., Bruce, J. & Dude, A. (2006). Protecting young women from HIV/AIDS: The case against child and adolescent marriage. *International Family Planning Perspectives*, 32, 79-88.

Craddock, S. (2000). Disease, social identity, and risk: Rethinking the geography of AIDS. *Transactions of the Institute of British Geographers, New Series*, 25, 153-168.

DHS data (2003). Population Council, New York. Retrieved from DHS web site March 21, 2010: http://www.measuredhs.com/topics/Youth-Corner/mozambique-dhs-key-indicators.cfm

Desgrees-du-Lou, A. & Gliemann, J. (2008). Couple-centered testing and counseling for HIV serodiscordant heterosexual couples in sub-Saharan Africa. *Reproductive Health Matters,* 16(32), 151-161.

Dyson, T. & Moore, M. (1983). On kinship structure, female autonomy, and demographic behavior in India. *Population and Development Review*, 9(1), 234-259.

Ghosh, J. & Kalipeni, E. (2005). Women in Chinsapo Malawai: Vulnerability and risk to HIV. *Journal of Social Aspects of HIV/AIDS,* 2(3), 320-332.

Glick, P. & Sahn, D. (2007). Changes in HIV/AIDS knowledge and testing behavior in Africa: How much and for whom? *Journal of Population Economics,* 20, 383–422.

Greig, F. & Koopman, C (2003). Multilevel Analysis of Women's Empowerment and HIV Prevention: Quantitative Survey Results from a Preliminary Study in Botswana. *AIDS and Behavior*, 7(2), 195-208.

Hindin, M. (2000). Women's autonomy, women's status and fertility-related behavior in Zimbabwe. *Population Research and Policy Review*, 19, 255-282.

Jurich, J.A., Adams, R.A. & Schulenberg, J.E. (1992). Factors related to behavior change in response to AIDS. *Family Relations*, 41, 97-103.

Kalipeni, E. (2000). Health and Disease in Southern Africa: A comparative and vulnerability perspective. *Social Science and Medicine,* 50, 965-983.

Karlyn, A.S. (2005). Intimacy Revealed: Sexual experimentation and construction of risk among young people in Mozambique. *International Family Planning Perspectives*, 7, 279-292.

Karlyn, A. (2001). The impact of a targeted radio campaign to prevent STIs and HIV/Aids in Mozambique. *AIDS Education and Prevention*, 13(5), 438-451.

Machel, J. (2001). Unsafe sexual behaviour among schoolgirls in Mozambique: A matter of gender and class *Reproductive Health Matters,* 9, 82-90.

Macleod-Downes L., Albertyn, R. & Mayers, P. (2008). Factors determining the vulnerability of women to sexually transmitted HIV: A literature review. *Health*, 13, 69-82.

Mason, K. O. (1987). The impact of women's social position on fertility in developing countries. *Sociological Forum, 2*(4), 718-745.

Mensch, B., Grant, M. & Blanc, A. (2006). The changing context of sexual initiation in sub-Saharan Africa. *Population and Development Review*, 32, 699-727.

Pfiefer, J. (2004). Condom social marketing, Pentecostalism, and structural adjustment in Mozambique: A clash of AIDS prevention. *Medical Anthropology Quarterly*, 16, 176-199.

Pridmore, P. & Yates, C. (2005). Combating AIDS in South Africa and Mozambique: The role of open, distance, and flexible learning. *Comparative Education Review*, 49, 490-511.

Smith, K. & Watkins, S. (2005). Perceptions of risk and strategies for prevention: Responses to HIV/AIDS in rural Malwai. *Social Science & Medicine*, 60(3), 649-660.

Stretcher, V., DeVellis, B., Becker, M. & Rosenstock, I. The role of self efficacy in achieving behavior change. *Health Education Quarterly*, 13, 73-91.

Stanecki, K. (2004). The AIDS Pandemic in the 21st Century. *International Population Reports*. March, 1-20.

Takyi, B. & Broughton, C. (2006). Marital Stability in Sub-Saharan Africa: Do women's autonomy and socioeconomic situation Matter? *Journal of Family and Economic Issues*, 27(1), 113-132.

UNICEF (2010). Retrieved from the UNICEF web site March 21, 2010. Mozambique at a Glance. http://www.unicef.org/mozambique/overview.html

U.S. Census Bureau (2009). Retrieved from the Census Bureau web site March 21, 2010): http://www.census.gov/ipc/www/idb/country.php

Yabiku, S. T., Agadjanian, V. & Arusyak S. (2010). Husbands' labour migration and wives' autonomy, Mozambique 2000–2006, *Population Studies*, 64(3), 293-306.

APPENDIX A

SURVEY QUESTIONS

Dependent Variable- (protective behavior vs no protective behavior)
(H25) What do you do in order not to contract the AIDS virus? Tell me all the forms of prevention that you practice?

A. Has used condom
B. Has been faithful to husband
C. Has abstained from sex
D. Has avoided contacts with blood, cutting instruments, injections (removed)

Independent Variables-Demographic controls

(A2) What is your age?
(A10) To what religion or church do you belong to?

Independent Variable-Perception of Risk (the mean of H22 and H23)
Very worried, a little worried, not worried.
(H22) Are you very worried, a little worried, or not worried at all about the possibility of contracting the AIDS virus from your husband?
(H23) Are you very worried, a little worried, or not worried at all about the possibility of contracting the AIDS virus from another man or other men?

Independent Variables-Autonomy
(A9) What is the highest school grade that you finished?
(D1) How old were you when you started living with your husband?
(D3) When your husband came to ask for you to be his wife, who mainly made the decision: your parents, other relatives, or you?
(D12) Besides you, how many wives does your husband have? I mean, other women to whom he is married or lives with and you know about it?
(D19) Since the beginning of the year, did you ever refuse to have sex with your husband?
(E27) Who mainly decides on what to spend the money that your husband earns?
(F4) In the past month did you do any activity with an intention to make money or get products or things?
(F8) Who mainly decides on what to spend the money that you make?
(G13) Are you doing anything to avoid getting pregnant?

(B2) Who are those people to you? (living in the home)
F. Father and/or mother of husband
G. Father and/or mother or interviewee
H. Siblings of husband
I. Siblings of respondent
J. Uncles/Aunts or cousins of husband
K. Uncles/Aunts or cousins of respondent
L. Grandparents of husband
M. Grandparents of respondent
MIGRATION CATEGORY

Module K.
Women's Autonomy Scale (mean of K1 through K7): "Would have to ask for permission" "Would only have to inform" "Would not even have to inform" "Doesn't know"

(K1) To visit your parents or other relatives who live outside of this community.
(K2) To visit a friend or neighbor who lives in this community.
(K3) To go to the city or a district capital to buy or sell something or to take care of some other business.
(K4) To take a sick child to a health center, hospital, or a traditional healer. (removed)
(K5) To spend money on family needs (such as food, school materials, clothes for children).
(K6) To spend money on your personal needs (such as capulanas, clothes, shoes, or earings for you.
(K7) To get a job or to engage in commerce.
(K8) To do an AIDS test.

Independent Variables-AIDS education
(H1) In the past 12 months (since the National Vaccination Campaign started) did you participate in a lecture or meeting where they spoke about AIDS?

Table 1
Descriptive Statistics

Age	Mean	
Women	27	
Husband	49.4	
Age of Marriage	#	Rate
Ages less than 17	469	30.40%
Ages 18 to 22	732	47.44%
Ages 23 plus	184	11.92%
Missing	158	10.24%
TOTAL	1543	100.00%
Employment Status	#	Rate
Employed	335	21.71%
Not Employed	1208	78.29%
TOTAL	1543	100.00%
Children	MEAN	3.38
# of Children	#	Rate
No Children	132	8.55%
1 to 5 children	1144	74.14%
6 or more children	267	17.30%
TOTAL	1543	100.00%
Religious Affiliation	#	Rate
Mainland	408	26%
Non Traditional	927	60%
None	208	13%
TOTAL	1543	100%
Risk Perception	#	Rate
1 to 1.5 (VERY WORRIED)	279	18.08%
2 to 2.5 (A LITTLE WORRIED)	1041	67.47%
3 (NOT WORRIED)	223	14.45%
TOTAL	1543	100.00%
AUTONOMY SCALE	#	Rate
1 to 1.85 (WOULD HAVE TO ASK PERMISSION)	938	60.79%
2 to 2.85 (WOULD ONLY HAVE TO INFORM)	582	37.72%
3 (WOULD NOT EVEN HAVE TO INFORM)	23	1.49%
TOTAL	1543	100.00%
SELF PROTECTIVE BEHAVIOR	#	Rate
SELF PROTECTS	1115	72.26%
DOES NOT SELF PROTECT	428	27.74%
TOTAL	1543	100.00%

Education	MEAN	2.89
Education	#	Rate
None	410	26.57%
1 through 4	706	45.76%
5 plus	427	27.67%
TOTAL	1543	100.00%
Polygamy	Mean	
Polygamous	21%	
Decision to Marry	#	Rate
Mainly She	708	45.88%
Mainly Parents/Relatives	481	31.17%
Both She and Parents	265	17.17%
Decision Missing	89	5.77%
TOTAL	1543	100.00%
Ability to Read	#	Rate
Yes	541	35.06%
No	1002	64.94%
TOTAL	1543	100.00%
Household	#	Rate
Living with husband	1321	84.25%
Living with in-laws	937	59.76%
Living with children	1434	91.45%
Aids Education	#	Rate
Participated	744	48.22%
Did not Participate	799	51.78%
TOTAL	1543	100.00%
Sex Refusal	#	Rate
Refused Sex	371	24.04%
Not Refuse Sex	1172	75.96%
TOTAL	1543	100.00%
Self protective behavior	#	Rate
Other	31	2.56%
Abstain	41	3.39%
Faithful	1089	90.07%
Used Condom	48	3.97%
TOTAL	1209	100.00%

Table 2
Descriptive Statistics continued

Husband willing to use condom	#	Rate
Yes	131	9.17%
No	475	33.24%
Unsure	823	57.59%
TOTAL	1429	100.00%

Have you ever used a condom?	#	Rate
Yes	132	8.43%
No	1433	91.57%
TOTAL	1565	100.00%

Opinion-Women have sex with men other than husband?	#	Rate
Yes	709	45.25%
No	676	43.14%
Unsure	182	11.61%
TOTAL	1567	100.00%

MULTIVARIATE RESULTS

Table 3
Age, Religion, Autonomy, AIDS Education/Risk Perception

	Model 1			
	Coefficient	**Odds Ratio**	**SE**	**P Value**
Intercept	-.59		.60	0.33
Age	*.02	1.03	.01	.04
Religion (ref=no religion)				
Mainstream	.39	1.47	.20	.06
Other	**.43	1.54	.17	.01
Risk Perception (mean)	***.46	1.59	.11	<.0001
AIDS Education (ref=no educ)				
Participated in Lecture	***.47	1.56	.12	.0002
Autonomy				
Age married (ref=23 plus)				
Less than 17	-.07	.93	.23	.76
18 to 22	-.30	.74	.21	.16
missing	***-1.58	.21	.26	<.0001
Education	*.08	1.09	.04	.03
Decision to marry (ref=family)				
Mainly She	-0.15	.86	.14	.28
Both she and family	***.98	2.65	.21	<.0001
Missing	*.75	.21	.34	.03
Polygamy (ref=polygamous)	*.31	1.36	.15	.05
Refuse sex (ref=no)	.21	1.23	.15	.15
Employed (ref=unemployed)	.12	1.12	.16	.45
Read (ref=cant read)	-.11	.90	.18	.54
Children	.02	1.02	.03	.41
Family Planning (ref=nofamplan)	.12	1.13	.19	.51
Migrant Husband (ref=notmigrant)	.08	1.08	.13	.57
Live with in-law	-.20	.82	.14	.15
Decision making powers (mean)	***-.52	.60	.16	.001
AUTONOMY X AIDS EDUC				
N		1543		

Source: MOZAMBIQUE (2006). *p <.05 ** p<.01, ***p<.001

Table 4
Interaction

	Model 2			
	Coefficient	**Odds Ratio**	**SE**	**P Value**
Intercept	-.63		.65	0.36
Age	*.03	1.03	.01	.04
Religion (ref=no religion)				
Mainstream	.39	1.47	.20	.06
Other	**.43	1.54	.17	.01
Risk Perception (mean)	***.46	1.59	.11	<.0001
AIDS Education (ref=no educ)				
Participated in Lecture	.56		.58	.34
Autonomy				
Age married (ref=23 plus)				
Less than 17	-.07	.93	.23	.75
18 to 22	-.30	.74	.21	.16
missing	***-1.59	.21	.26	<.0001
Education	*.08	1.09	.04	.03
Decision to marry (ref=family)				
Mainly She	-.15	.86	.14	.28
Both she and family	***.98	2.65	.21	<.0001
Missing	*.75	2.11	.34	.03
Polygamy (ref=polygamous)	*.31	1.37	.16	.05
Refuse sex (ref=no)	.21	1.23	.15	.15
Employed (ref=unemployed)	.12	1.12	.16	.45
Read (ref=cant read)	-.11	.90	.18	.54
Children	.02	1.02	.03	.41
Family Planning (ref=nofamplan)	.12	1.13	.19	.51
Migrant Husband (ref=notmigrant)	.08	1.08	.13	.57
Live with in-law	-.20	.82	.14	.15
Decision making powers (mean)	*-.50		.21	.02
AUTONOMY X AIDS EDUC	-.05		.30	0.87
N		1543		

Source: MOZAMBIQUE (2006). *p <.05 ** p<.01, ***p<.001