

FACTORS THAT IMPACT CONDOM USE SELF-EFFICACY IN  
POSTMENOPAUSAL WOMEN

BY

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DISSERTATION

Submitted in partial fulfillment of the requirements for  
the degree of Doctor of Philosophy in Social Work  
in the Graduate College of Social Work of the  
University of Houston, 2012

Houston, Texas  
May, 2012

## Acknowledgments

So many people made this dissertation a reality, and this acknowledgment section provides just a glimpse of the vast support I received and the unyielding appreciation I feel towards those listed. First I would like to thank my editor Rachel Haag. I know you are about to read this beast of a document, I hope that this cheers you up and makes the load an easier one to carry. I am so proud of you and what you have accomplished. Second the members of my family: Vince Rose, Janet Rose, Amy Rose, Mattie Rose, Molly Rose, Lee Ann Dyess, Scott Dyess, and even Alex Dyess who have been emotionally and financially supportive. Thanks for all the help Mom; this would have never happened without you and your support. Third, thank you my honey badgers for givin' a s---; Christine Bakos-Black, Katy Collins, Elizabeth McIngvale, and Maria Wilson. Thank you for all the emotional support, the kombucha, the chocolate, and the sparkling water. Fourth, thank you to my little Irish brothers Alan Taylor and Nigel Alley, my stats tutors Amir Pourmoghaddam and Yi Ren, and the rest of my urban family Max Nisenbaum, Yessica Lopez, Ligita Kuklyte, Amanda Butch, Anna Tran, Nadia Kalinchuk, Andrew Martin, Ada Cheung, Corrine Walijarvi, and Roberta Leal for listening to my constant complaining and reminding me why I chose this degree. You all are some of the best people I know, and I'm very honored to call you friends. Fifth, I want to thank my family at Methodist Hospital Department of OB/GYN. Dr. Tri Dinh, you are much missed and I wish you all the best in your new appointment. Veronica and Sonia, I can't thank you enough for taking a chance and letting a stranger interview your patients about sex. Thank you Dr. Alan Kaplan, Lorrie, and Ophelia for all your help, too.

Dr. Christopher Hobday, I can't begin to thank you. You had so much faith in me before I even had faith in myself, and as a reward you will never be rid of me. Sonia "Carol" Hodgson, what would I ever do without you? Please don't ever let me answer that question! I have a feeling that when I'm finally finished working, meeting you will be viewed as the beginning of my career and me. Sixth, I would like to thank the members of my large committee: Dr. Patrick Bordnick, Dr. Maxine Epstein, Dr. Alfredo Gei, and Dr. Suzanne Pritzker. Dr. Bordnick, I know you don't like being told thank you, but I really appreciate your feedback, your instructions, and mostly your patience. Dr. Epstein, thank you for all the help with getting me started at Methodist and all your positive encouragement. Dr. Gei, I have had so many wonderful opportunities because of you and am so honored to have you on my committee. I hope that this starts a magnificent relationship with you and our college, as you will be a brilliant resource. Dr. Pritzker, thank you for all your aid, feedback about writing, and walking me through the steps of publication. Seventh, I want to thank Richard Rodgers, my partner in life. I also want to say sorry to Richard Rodgers, my partner in life. I promise that if I ever get another degree, I will take my time and not take it out on you. Eighth is the chair himself, Dr. Achenbaum. Every thank you that I have written about so far can also be applied to you. You have been more than a mentor; you have been a model of what to live by. You have turned, to use your words, "ashes into sculpture." I think we both know that I actually can't put into words what you mean to me, but I will try. You are the first person in academia who made me feel like I belonged. I would have never made it through my first term if not for you, your honesty, and your support. To me, you are the Eighth Sage of Greece. Last, but not least, is my rock, my sister from another mister, and my dear friend,

Tawana Cummings. I know you don't like it when I praise you in public, so I will keep it brief and just say meeting you is probably one of the best things to ever happen to me. I thank you, and all in this section, from the bottom of my heart. I share this degree with all of you.

## **Abstract**

**Background:** In the 1980's, researchers at the Centers for Disease Control and Prevention (CDC) assumed that Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) grew to epidemic proportions due to unsafe practices by sexually active gay men and intravenous drug users. Policymakers who did not wish to associate themselves with these two populations did not promote educational tactics for prevention among the general population. Times have changed since then, but there are still populations mistakenly assumed to be safe from Sexually Transmitted Diseases (STDs). Older Baby Boomer Women are in a different world than their mothers and grandmothers. This population also has different sexual histories, emphasizing the need for greater awareness of STDs. There is a need for preventive action to protect older women against STDs, particularly Human Papillomvirus (HPV). This virus causes over 97% of cervical cancer and is related to the causes of vulva, vagina, penis, and oropharynx cancers.

Because their rates of STDs are increasing fast, this dissertation strives to examine and explore the factors that impact condom use self-efficacy and sexual activity among postmenopausal women. As a result of improvements in healthcare and a decrease in disability, postmenopausal women experience higher life expectancies and are now becoming victims of STDs. Many women place themselves at greater risk for STDs by not using protection during intercourse.

**Research Objective:** To better understand the factors that impact current condom use self-efficacy among postmenopausal women, the researcher examined factors that also

impacted younger populations. Furthermore, this study sought to understand if there are differences of these factors between sexually active and sexually inactive women.

**Methods:** The conceptual framework of this study utilized many assumptions related to the Health Belief Model (HBM) (Rosenstock, 1974), the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), the Theory of Planned Behavior (TPB) (Ajzen & Fishbein, 1980), and the AIDS Risk Reduction Model (ARRM) (Catania, 1990). This exploratory study design examined these factors among a purposive sample recruited at an outpatient OB/GYN clinic in a major hospital.

**Results:** The major findings about condom use and STDs did not differ between sexually active and inactive women. Results are presented in terms of descriptive statistics due to the risk of type 1 errors. On a bivariate level high number of lifetime partners, being aware of HPV, perceiving limited partner barriers, and having positive views about self-perceived behavior control all significantly contributed to higher levels of condom use self-efficacy. The overall results, however, showed a mostly homogeneous group of women in terms of their awareness, attitudes, knowledge, and behaviors. The results of this dissertation emphasize that there is a strong need for more awareness of STD risks. The outcomes of this awareness could lead to more tolerance of condom use and knowledge of risk among this population.

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## Chapter 1

### **Factors that Predict Condom Use Self-Efficacy in Postmenopausal Women**

In the 1980's, researchers at the Centers for Disease Control and Prevention (CDC) assumed that Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) grew to epidemic proportions due to unsafe practices by sexually active gay men and intravenous drug users. Policymakers who did not wish to associate themselves with these two populations did not promote educational tactics for prevention among the general population (Nelson, 1998). At the time, prevention through education was the only tool available to fight the growing numbers of HIV/AIDS cases, and leaders in America wished to distance themselves from the populations they believed would most benefit from these interventions: gay men and drug users. The policymakers and Congress went as far to remove themselves fiscally from any education material that would aid in the reduction of HIV/AIDS through education (Seelye, 1995). Times have changed since then, but once again, there is a need for action to prevent another potential medical epidemic of older women infected by Sexually Transmitted Diseases (STDs), particularly Human Papillomavirus (HPV). This virus causes over 97% of cervical cancer and is related to the causes of vulva, vagina, penis, and oropharynx cancers (CDC, 2010a). These cancers overwhelmingly affect women and are concerned with female sexual health. Having faced the medical implications of preventative neglect with early HIV/AIDS, one would assume that current medical issues would take a high priority among those concerned with disease prevention. Because their rates of STDs are

increasing fast (CDC, 2008a), this dissertation strives to examine and explore the factors that impact condom use self-efficacy and sexual activity among postmenopausal women. Older Baby Boomer Women are in a different world than their mothers and grandmothers. This population also has different sexual histories, emphasizing the need for greater awareness of STDs. The researcher hopes that this initial study will lead to evidence that will inform practice, policymakers, and future research.

Sex is a lifelong, pleasurable activity that is enjoyed by most older adults in this society (Howard, O'Neil, & Travers, 2006; Lindau, Schumm, Laumann, Levinson, O'Muirheartaigh, & Waite, 2007). Sexually active adults, including postmenopausal women, must act responsibly and have awareness of their susceptibility regarding STDs. While postmenopausal women are at risk for contracting STDs, these women are often not routinely tested or the target of interventions, thus they lack awareness at a basic level of any risk they may experience. STDs are infections that are spread through fluid transmission that occurs during oral, vaginal, and anal sex (CDC, 2009). Among postmenopausal women, heterosexual contact with an infected partner is the primary means of spreading STDs (Emlet, Scott, & Dumont, 2002; Paranjape, Bernstein, St. George, Doyle, Henderson, & Corbie-Smith, 2006). When an individual is susceptible to infection, the spread of STDs can be prevented through the use of condoms.

The literature implies that postmenopausal women over the age of 50 do not use condoms. Unaware of their unique STD susceptibility, postmenopausal women generally disregard the importance of condoms and are often mistaken about their effectiveness in preventing the spread of STDs (Henderson, Bernstein, St. George, Doyle, Paranjape, & Corbie-Smith 2004). Because many women view condoms as a means of pregnancy

prevention, their use seems no longer applicable once these women are no longer at risk of conceiving a child. This notion, along with lack of awareness that they are susceptible to STD infection, contributes to potentially risky sexual situations.

### **The Increase of HIV/AIDS among Older Adults**

While there are several STDs postmenopausal women are at risk of contracting, the STD that has been studied the most and thus will be used the most to support the argument of this research is HIV/AIDS. HIV/AIDS gets the most attention because of its heavy cost of treatment and the stigma associated with it. HIV/AIDS treatments can cost, on average, \$182,000 annually per individual (Dauner, Oglesby, Richter, LaRose, & Holtgrave, 2008). To say HIV/AIDS in combination is misleading because these are two very different diseases. However, as most of the statistics combine these two diseases and they often share the same stigma, little time or attention will be used to discuss the differences (CDC, 2011a) for the purpose of this dissertation.

As the prevalence of HIV/AIDS quintupled among older adults early in the past decade, researchers passionately advocated for susceptibility awareness (Levy, Ory, & Crystal, 2003). Most individuals infected with HIV are between the ages of 20 and 44, but 31% of total HIV/AIDS cases in 2005 occurred among adults over the age of 50 (Administration on Aging, 2011). This number has increased. Now over 200,000 people over the age of 50 are currently living with HIV/AIDS (CDC, 2011a). While specific data does not appear to be available as to the ages at which older adults with HIV contracted the disease, there is evidence that new HIV cases are being contracted in older adults at an increasing rate. Currently, 15% of all new HIV cases occur among individuals over

the age of 50, up 4% from 2002 (CDC, 2008a). These numbers are all projected to increase because by the year 2015, half of all people infected with HIV/AIDS in this society will be over the age of 50 (Justice, 2010).

Older adults have been the fastest growing population to become infected with HIV/AIDS over the past decade (Moore & Amburgey, 2000). Sadly, this problem will continue to grow, and this population will remain at risk since research indicates that those older adults who are HIV-positive often do not practice risk reduction behaviors (Golub, Tomssilli, Pantalone, Brennan, Karpiak, & Parsons, 2010; Joyce et al., 2005). These numbers are inclusive of both men and women over the age of 50, but the current estimate of infected postmenopausal women over the age of 50 are not readily found on the CDC's website.

Further justification for the focus on just women, versus women and men, derives from heterosexual intercourse as a dominant mode of HIV/AIDS transmission for women. Postmenopausal women over the age of 50 are the highest prevalence of new infections of HIV/AIDS from a heterosexual intercourse encounter (Williams & Donnelly, 2002). Those who tested positive within the last five years, compared to those who tested positive more than 10 years ago, cited vaginal sex as the mode of transmission 61% of the time. Needle sharing declined from 41% to 24% (Karpiak, Shippy, & Cantor, 2006). Often times, HIV/AIDS is not the only STD contracted. Over a third of individuals who reported HIV/AIDS reported other positive statuses of STDs in a comprehensive study among older adults. Among those who suffer from HIV/AIDS, 30% also suffer from hepatitis, 15% also suffer from herpes, and about 12% suffer from another STD (Karpiak et al., 2006).

### **The Impact of Non-HIV/AIDS on Older Adults**

While HIV/AIDS is the most studied STD in history, it is not the most prevalent STD in older adults. The American Association of Retired Persons (AARP) (2010) studied sexual behavior in individuals 45 and older. Their researchers found that only 0.5% of females were living with HIV/AIDS. At 5%, HPV was the most common STD found in this sample. As for other STDs, 2% to 3% of the sample had contracted STDs such as hepatitis, herpes, pelvic inflammatory disease, and syphilis. These numbers, based on self-reporting, do not take into account women who are not aware of a positive STD status.

While the national prevalence rate of HPV among older adults is unclear, Lindau and colleagues (2008) have conducted several studies on high-risk HPV (HR HPV), the form most likely to cause cervical cancer. In one study HR HPV was found in one-sixteenth of the study's total population (roughly 6%), similar numbers were found in other samples based on self-reporting (Datta et al., 2008). However, HR HPV was identified in nearly one-third of the older women when HPV testing was administered (Lindau, et al., 2009). The difference in these two prevalence levels indicates that awareness of STDs is not even known among women who are already infected. This is highly problematic because HR HPV is the most common way to get cervical cancer (CDC, 2010a). The serious consequences of infection from STDs like HR HPV, which harms women but not men, give justification for the specific focus on women's sexual behaviors.

The few empirical articles that examine other STDs, including Chlamydia, trichomoniasis, herpes, gonorrhea, and syphilis, similarly show more rapid increases of infection among older adults than younger populations. One clinic-based study found an increase of 127% in cases of Chlamydia, herpes, gonorrhea, and syphilis at a clinic for individuals over age 45, compared to a 97% increase for younger patients (Bodley-Tickell et al., 2008). Since 2005, the rate of syphilis among older adults aged 55 and over has been projected to increase 67% (Helmer, 2011). While gonorrhea has been projected to decrease among the general older adult population, it still remains an issue for all populations. Chlamydia is also projected to increase among older adults by 40.5% (Helmer, 2011). Currently, no evidence exists as to the age at which postmenopausal women with an STD contracted their diseases nor the degree to which older adults with an STD are aware they have been infected.

STDs have numerous negative impacts, regardless of the age of the infected person. Older adults with STDs may be more intensely affected when compared to their younger counterparts, however, because their immune systems tend to be less effective in fighting disease (Fang et al., 2010; Wooten-Bielski, 1999). Furthermore, research suggests that older women who contract HPV are less likely to be screened for cervical cancer and consequently present with later stages of cervical cancer than their younger counterparts because of the lack of awareness of risk by the women and the health professional treating them (Gulifoyle, Franco, & Gorin, 2007). A rise in non-HIV STDs in older adults may lead to serious consequences such as increased susceptibility to other STDs, including HIV, social stigma, and painful morbidity (Smith & Christakis, 2009).



## **Older Adults in the United States**

It is the time to study the awareness of STDs with the hopes of prevention in postmenopausal women because the documented increases in STDs will continue to grow as the population in general grows. As a result of improvements in healthcare and a decrease in disability, postmenopausal women are experiencing higher life expectancies (Butler, 2008). As a person ages the chances of suffering from a disability; like dementia, diabetes, or physical impairments; increases. The oldest old, those aged 85 and older, are likely to suffer from some health related complication. Even though women are expected to live longer than their grandparents, every year the likelihood of suffering from a health impairment increases (Butler 2008; Hooyman, 2006). The increase in longevity shown by this coming-of-age generation speaks to the importance of protecting one's quality of life by proactively keeping oneself healthy at all levels of aging.

In 2000, 13% of the population in the United States was over the age of 65. This figure encompasses 35 million individuals. This population will continue to grow. It is projected that in the year 2030, 70 million individuals in the United States will be aged 65 years or older — this is an estimated 20% of the population (Federal Interagency Forum on Aging Related Statistics, 2008). The trend will likely continue as it is estimated that from 2000 to 2050, the number of individuals aged 65 and older will increase by 147% in this country (Hooyman, 2006).

Not only is the population of older adults in America increasing at an unprecedented rate, longevity among this group is also increasing. While still a minority, the number of individuals over the age of 85 is projected to jump from 2% of the population in 2000 to 5% of the population in 2050. These individuals are part of the

fastest growing group in America, followed by those individuals who live to be 100 years of age. In the past decade, this group of 100+ has increased by over 50%, growing from 37,000 individuals in 1990 to 50,000 individuals in 2000 (US Census Bureau, 2007). As of 2009, the population has grown to 70,000 individuals (US Census Bureau, 2007). It is projected that by the year 2050, this number will be over 800,000 (US Census Bureau, 2007).

The projected increase in the aging population is associated with the 76 million-member Baby Boom Generation, who were born between the end of World War II and 1964 (US Census Bureau, 2009). Currently, the youngest baby boomers are 48, therefore most of these women have entered menopause (Hooyman & Kiyak, 2011). This recent increase in the population of postmenopausal women, as a combined result of the Baby Boomer generation and increases in longevity among older adults, shows that the sexual activity of this population needs more attention than it has previously attracted. Without more attention to this topic, it is unlikely that awareness of possible STD risk will surface.

### **Postmenopausal Women**

Changes in the body occur as women age. Menopause, or climacteric, is the loss of the reproductive ability in women marked by the cessation of the menstrual cycle. While there is no set age for the onset of menopause, most women start to experience symptoms between the ages of 45 to 55 with an average onset age of around 50 (Fantry, Zhan, Taylor, Sil, & Flaws, 2005; Jean Hailes Foundation, 2009).

Menopause takes place in three main stages: premenopause, menopause, and postmenopause. In the first stage, premenopause, a woman's ovaries stop producing eggs and reduce their production of estrogen. A woman becomes postmenopausal after 12 months with no menstrual periods. During menopause, physical changes like hot flashes, genital atrophy, and bone loss are common due to changes in the production of hormones. Other symptoms that are indirectly related to menopause include headache, dizziness, palpitation, and depression. Weight fluctuations are also common during this time of change. These symptoms can last up to two years with most finding that these changes do not interfere with activities of daily living. With the diminishment of these symptoms, women then enter the last stage, postmenopause (Hooyman & Kiyak, 2011). This study will focus on postmenopausal women and define it as those women who have not had a menstrual cycle in 12 months. This definition has long been used in empirical literature (Hooyman & Kiyak, 2011).

As females age and move through the stages of menopause, the wall of the vagina loses elasticity and releases less lubrication. This can be avoided by continual stimulation of the genitals through sexual activity or masturbation since such behaviors maintain lubrication abilities (Hooyman & Kiyak, 2011). With the loss of lubrication and the thinning of the vaginal wall, older women are more prone to damage from intercourse and thus more likely to become infected by STDs during an exchange of bodily fluids with an infected partner (Mack & Ory, 2003; Williams & Donnelly, 2002). Postmenopausal women are more prone to receive vaginal injury from their partner and therefore have more susceptibility to their blood system, facilitating infection.

Postmenopausal women are the forgotten victims of STDs because there are so many factors that merge, placing them at a unique risk. The divorce rate, limited number of male peers, and the increase in incidences of sex among older adults as a result of the prevalence of erectile dysfunction medications all place females in an easier position to become infected with STDs (Levy et al., 2003). Many women place themselves at greater risk for contracting STDs by not using protection. Many do not worry about protection once they believe that they can no longer get pregnant because they think of condoms merely as contraceptives. Additionally, postmenopausal women generally think of themselves at low risk for contracting STDs (Jimenez, 2003; Altschuler, Katz, & Tynan, 2004). This belief is widely held among underserved and Black women, the greatest percentage of the women who are infected with STDs like HIV/AIDS (Cohan & Atwood, 1994, Sormanti, Pereira, El-Bassel, Witte, & Gilbert, 2001). In these studies, underserved and Black women reported low levels of self-susceptibility and awareness of risk to STDs but lived in areas of high STD prevalence with self-reported low condom use.

### **Statement of the Problem**

This study seeks to better understand the factors, like awareness of risk, that impact current condom use self-efficacy among postmenopausal women. Furthermore, this study seeks to better understand the differences of these factors between sexually active and sexually inactive women. Because condom use is limited in this population and many women do not see themselves at risk, a valuable variable of study that is relevant to predicting condom use would be condom use self-efficacy, regardless of sexual activity status. The theoretical framework of this study utilizes many assumptions

related to the Health Belief Model (HBM) (Rosenstock, 1974), the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), the Theory of Planned Behavior (TPB) (Ajzen & Fishbein, 1980), and the AIDS Risk Reduction Model (ARRM) (Catania, 1990) to address this research question. The National Institute of Mental Health (NIMH) justifies the use of aspects of these theories for this statement problem, as the HBM, TRA and TPB are three of the five major theories relevant in examining health-related behavior. The ARRM is based on social cognitive theory, another of the five major theories supported by the NIMH. Further justification for the use of the ARRM comes from it being the only STD-specific behavior theory. Based on these sources, this study seeks to apply the major assumptions of these theories to the population of postmenopausal women in order to predict condom use self-efficacy, with the ultimate goal of seeing which factors increase awareness of risk of STDs in this population.

## **Chapter 2**

### **Conceptual Framework**

#### **Theoretical Framework**

Theory building aids in the prediction of condom use self-efficacy in postmenopausal women by providing a life-course of awareness framework for analyzing empirical relationships and current sexual practices. The theoretical framework of this study utilizes many assumptions related to the HBM (Rosenstock, 1974a), TRA/TPB (Ajzen & Fishbein, 1980), and the ARRM (Catania, 1990) to logically address the major research question, “What impacts condom use self-efficacy in Postmenopausal women?” Several of these theories are based on the National Institute of Mental Health’s recommendations. In comparison, this study sought to apply these major assumptions to the population of postmenopausal women to examine a life-course of behaviors, assumptions, and consequences that currently impact condom use self-efficacy. These three theories provide empirical evidence linking them to condom use and STD risk awareness. This evidence makes them an appropriate starting point to examine the life-course of postmenopausal women to aid the examination of condom use self-efficacy.

#### **Health Belief Model**

Created in the 1950’s by Hochbaum, Rosenstock, and Kegels to address the prevalence of failed health screenings, the HBM focuses on cognitive behaviors and avoidance. The purpose of this model is to understand why individuals do not seek

treatment until they are at serious risk. The major assumption of this model is that individuals can change their behavior if they feel that a current behavior is placing their health at more risk than its absence would. In such circumstances, the HBM postulates that there are core situations that predict health-related behaviors (Rosenstock, 1974a). These core situations are related to perceived barriers, benefits, severity, and susceptibility.

Perceived susceptibility refers to the belief that one's health may be in danger. Once the individual is aware that a lack of preventative action may cause his or her health to decline, the person must examine the seriousness of the situation, or the possible severity of their health's decline. The individual will examine how serious the consequences will be if they are diagnosed with the condition or illness to which they feel susceptible. If the threat of illness is real, an individual will have to deal with the barriers that prevent a change in health-related behavior, such as failure to adopt condom use during intercourse (Champion, 1984). These barriers become variably tangible, intangible, or psychological. They can also take the form of projected costs that will occur should risky behavior take place. Barriers to behavioral change are removed when the individual sees the benefit of making behavioral changes to protect their health. Benefits, in this case, are the belief that the required action will bring positive consequences (Rosenstock, 1974; Rosenstock, Strecher, & Becker, 1988). These four factors (susceptibility, severity, barriers, and benefits) all influence the attitude one has towards changing behavior.

The HBM has long been used to examine condom use by probing an individual's perceived risk of contracting STDs. Using STDs as the disease in question, individuals

take cues from their environment to assess their own risk (Semaan, Lauby, & Walls, 1997). These cues from their environment may include knowing an individual affected with an STD or becoming increasingly aware of the condition through exposure to media. Without barriers, individuals will be more inclined to use condoms (Detzer, Wendt, Solomon, Dorsch, Geller,... Friedman, 1995; Wulfert & Wan, 1995) since there are clear benefits to this practice, the disease in question is severe, and they find themselves to be susceptible. However, there are clear barriers to using condoms, such as inconvenience (DiClemente, Salazar, & Crosby 2007) and decreased pleasure (Prata, Vahidnia, & Fraser, 2005). Individuals are usually aware of the severity of the disease but then deny their susceptibility to it because of the barriers and lack of perceived benefits associated with condom use.

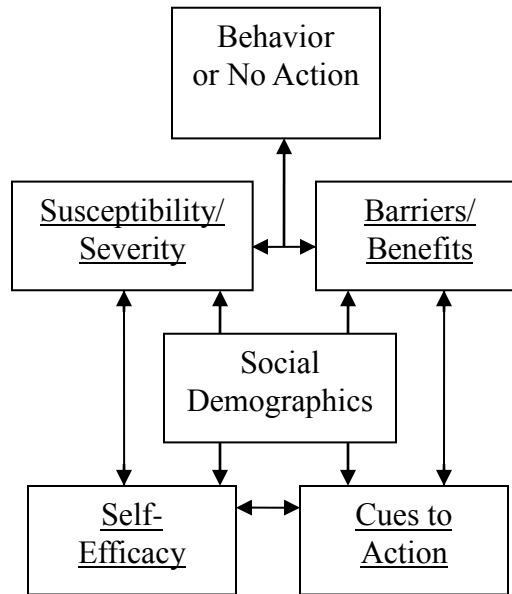
### **HBM's Self-Efficacy and Cues to Action in Postmenopausal Women**

The HBM was modified to include elements of Social Control Theory and self-efficacy. Rosenstock et al., (1988) added self-efficacy because it has been shown to be an effective strategy in understanding reduction of health risk behaviors. Self-efficacy is defined as the individual's confidence in performing an action (Bandura, 1977). Similar to behavior control, self-efficacy concerns an individual's perceived ability to perform an action (Ajzen, 2002). This helps to improve the predictive nature of the HBM, as this factor gives more insight into the motivations of the individual (Lin, Simoni, & Zemon, 2005). Along with the elements of the HBM (susceptibility, severity, barriers, and benefits), self-efficacy is able to influence factors like condom use in a theoretical framework (Fernandez, Atkinson, Diamond, Useche, Mediola, & 2004). Without the self-



efficacy to discuss condom use with a partner, it is highly unlikely that the behavior of condom use will occur, as condom use self-efficacy has consistently shown a connection to the behavior in all populations (Farmer & Meston, 2006).

Another assumption animating HBM concerns cues to action. Usually, an individual does not begin the process of changing attitudes towards a health belief without acquiring some basic knowledge. Cues to action may enable individuals to act despite perceived barriers, unknown susceptibility, unawareness of severity, or a lack of perceived benefits (see Figure 1.). The environment, in which the person resides, including the people within that environment, can also be cues to action (Small, 2009). For example, if a postmenopausal woman lives in a highly STD prevalent area or knows someone who is infected with an STD, that situation would be a cue to action to adopt a behavior like condom use in order to prevent her risk of contracting an STD (Allison-Ottey, Weston, Hennawi, Nichols, Eldred, & Ferguson, 1999; Paranjape et al., 2006). In these studies, the participants who lived in areas with a high prevalence of STDs and were familiar with individuals who suffered from these diseases were more likely to use condoms. Another possible cue to action is self-suffering from an STD. In a prediction model for condoms, having HIV and knowing others with HIV were found to be determining factors for condom use (Sormanti & Shibusawa, 2007) (See Figure 1.).



*Figure 1.* Health Belief Model for predicting behavior.

### **HBM for Postmenopausal Women and Condom Use**

The HBM was designed to explain or predict behaviors by focusing on the individual's attitudes. The major assumption of this model is that individuals can change their behavior if they feel that their current behavior is placing them at serious health risk. When an individual feels that his or her health is at risk, this model postulates that there are core situations that can predict health-related behaviors (Rosenstock, 1974a). In applying this model to health behavior, individuals examine their vulnerability (susceptibility), how serious the condition will be if they do nothing (severity), how much preventable measures will cost (barriers), and the advantages/disadvantages of changing a behavior (benefits) (Champion, 1984). Even though this model has not been used in studies including postmenopausal women and condom use self-efficacy, the HBM has a

long history of providing knowledge about the complex relationships among variables concerning the prevention of STDs in varied populations (Allard, 1989).

Knowledge, as it relates to risk awareness, is another variable that contributes to condom use in populations of postmenopausal women. Often times, knowledge also relates to susceptibility given that the knowledge of risk increases condom use in this population (Allison-Ottey et al., 1999). In this study, the postmenopausal women were aware that they were more likely to contract HIV/AIDS because they lived in an area with high prevalence. They were therefore more likely to use condoms with their sexual partners because of the perceived susceptibility to and severity of STDs like HIV/AIDS (Allison-Ottey et al.).

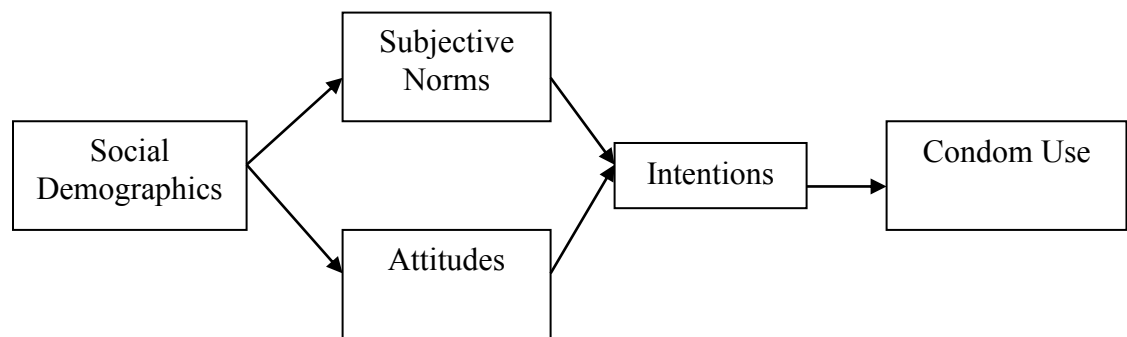
### **The Theory of Reasoned Action**

The Theory of Reasoned Action (TRA) provides a complementary framework to predict the behaviors of individuals. The idea that individuals are reasonable when making decisions and use cues from their environment to make these decisions is a basic assumption in this theory. Individuals create motivations based on subjective norms and attitudes. These subjective norms and attitudes then form intentions. In these theories, intentions inform behaviors (Ajzen & Fishbein, 1980). These intentions drive the behavior, and according to this theory, if there are no intentions to perform the behavior, the behavior will not occur. Intentions, and the motivation behind those intentions, are the driving force of behavior.

According to this model, attitudes play a critical role in influencing behavior (Ajzen & Fishbein, 1980). These attitudes are also formed by beliefs and evaluations

within the individual's environment. Another component of this theory are the subjective norms that inform intentions and subsequent behaviors. The TRA sees subjective norms as the perceived expectations that come from influential individuals and the general society (Small, 2009). These societal pressures construct an individual's perception of whether society deems a particular behavior acceptable, and this perception may actually influence their engagement in or avoidance of that behavior (Ajzen & Fishbein, 1980).

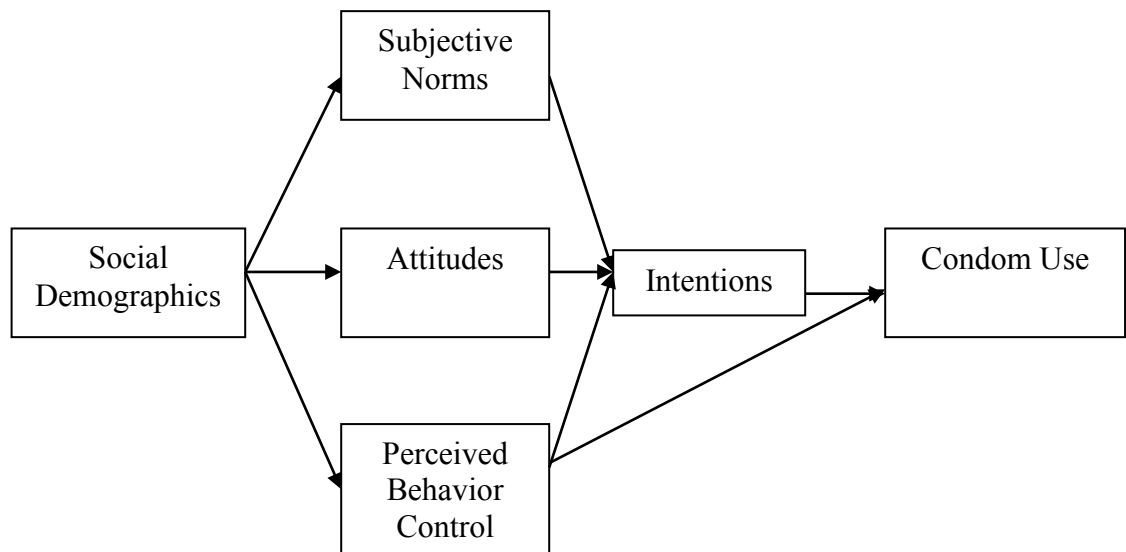
The TRA (See Figure 2.) assumes that there are intentions influenced by the control the individual has over his or her behavior. These factors influence both the individual's willingness and motivation to perform a behavior (Small, 2009). If the individual is able to change his or her intentions, this theory predicts that the behavior can change (Webb & Sheeran, 2006). An individual's intentions are influenced by his or her motivation, which derives from a combination of his or her willingness and strength to perform a behavior. These intentions, however, are not always under the person's control (Ajzen, 2002).



*Figure 2.* Theory of Reasoned Action for predicting condom use in postmenopausal women.

## The Theory of Planned Behavior

As stated earlier, the TRA assumes that there are intentions that influence the control over behavior. Some behaviors are not in the complete control of an individual, which is a serious limitation of the TRA. For example, condom use is not in the complete control of a woman, as it is a male driven behavior. To address this limitation, Ajzen and Fishbein (1980) created the Theory of Planned Behavior (TPB). The use of the TPB significantly increases the explained variance of behavior models (Munoz-Silva, Sanchez-Garcia, Nunes, & Martins, 2007). This theory has an added component called perceived behavior control (See Figure 3.). If someone has more motivation and control to perform a behavior, it is more likely that he or she will in fact engage in that behavior.



*Figure 3.* Theory of Planned Behavior for predicting condom use in postmenopausal women.

### **Theory of Reasoned Action/Theory of Planned Behavior and Self-Efficacy**

Self-efficacy has been described as one's confidence in his or her ability to do a task (Semaan et al., 1997). Without self-efficacy, it is unlikely that the behavior will occur. Other studies show that self-efficacy has a stronger relationship with behavior than either attitudes or subjective norms. In predicting contraceptive use among Indian women, self-efficacy was not mediated by intentions when predicting behavior. Instead, self-efficacy had a direct relationship with behavior when using structural equation modeling (Kulkarni, 2007). Because perceived behavior control is an aspect of self-efficacy, there is often a direct line in the model of the TPB among perceived behavior control, self-efficacy, and behavior. Both of these variables can include external and internal control factors, and both are needed to truly test behavior (Ajzen, 2002). Many of the studies that do not support this direct relationship have problematic elements or address complicated situations in which self-efficacy may not apply. A study that found no superior relationship between self-efficacy and behavior compared to attitude and subjective norms was one that studied female condom use rather than the use of the traditional male condom. This study was performed in a population that has had extremely limited knowledge on the application of female condoms during sexual intercourse (Bogart, Pinkerton, & Cecil, 2000).

### **TRA/TPB and Condom Use**

While neither TRA nor TPB has been used to study condom use self-efficacy with older adults, this theory has a long history of prediction for both condom use in younger populations and health behavior models for adult women (Bennett & Bozionelos, 2000;

Gullatte, 2006). These theories support the assumption that when a younger individual's perception of the risks, motivations, and knowledge of obstacles change because of an intervention that increases his/her awareness, that individual's intentions and behaviors are then more likely to change. These changes increase intentions to use a condom in the future to protect against STDs (Ellen, Adler, Gurvey, Dunlop, Millstein, & Tschann, 2002). A large portion of empirical literature supports the assumption that a reasoned individual's intention to perform a behavior can be used to predict future behavior (Ajzen & Fishbein, 1980; Buhi & Goodson, 2007; Feeley, 2008; Sable, Schwartz, Kelly, Lisbon & Hall, 2006; Small, 2009).

These theories have been applied in a variety of research situations and subjects, including many health models. Other studies have used the TRA/TPB to make predictions about the likelihood that women will screen for cervical cancer (Barling, 1996). Researchers have used TRA/TPB to show the likelihood a younger adult women, like sex workers, will use condoms while engaged in high-risk sexual behaviors (Morrison, 1995).

### **AIDS Risk Reduction Model**

The only theory that specifically focuses on the reduction of STDs is the AIDS Risk Reduction Model (ARRM) (Catania Kegeles, & Coates, 1990). This is a staged model to examine awareness of risk and harm reduction behaviors. This model focuses on an individual with a risk factor for contracting an STD and studies that individual's sexual activity (Catania, Coates, & Kegeles, 1994). This model has primarily been studied with middle-aged populations. Within this model, there are three stages that build

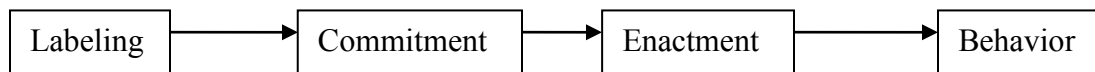
upon one another to predict behavior. These stages are labeling, commitment, and enactment (See Figure 4).

Labeling entails identifying a behavior that increases the risk of contracting an STD. This term is derived from Weinstein's (1989) model of harm reduction. Labeling predicts that perceived risk is needed in order for a change in behavior to occur (Catania et al., 1990). For example, a married postmenopausal woman who believes her husband to be faithful will not perceive engaging in sexual behavior without using a condom as a risk for contracting an STD. If she does not believe her husband to be faithful, she would be more likely to perceive the risk of contracting an STD from unprotected intercourse with her husband and label herself at risk. If an individual is able to make the decision that she is at risk, she is more likely to move onto the next stage in which she will commit to change the risky behavior (Catania et al., 1994).

In the commitment stage, an individual knows that her actions are placing her at serious risk for contracting an STD; therefore, the individual decides to make a change. This stage is derived from the cognitive-social learning theory. If a postmenopausal woman has no experience with condom use, this stage predicts that in order to successfully incorporate this behavior into her regular routine of sexual activity, she must commit to changing the behavior (Catania et al., 1990). In this stage, there are strong ties to self-efficacy, and those with higher levels of self-efficacy will be more likely to achieve that next stage in the ARRM (Catania, et al., 1994; Sheeran, Abraham, & Orbell, 1999). In heterosexual samples, this model has found a strong association between self-efficacy and behavior. Weinstock (1993) found that when there was a low score of self-efficacy associated with condom use, the behavior change failed with this model.



After committing to changing their behavior, postmenopausal women must then be able to negotiate safe sex and condom use with their partners. Before adaption can take place, individuals must seek and perform the preliminary steps that are necessary to impact the change in behavior (Catania et al., 1990). In some models there is a fifth step of maintenance that will not be examined here.



*Figure 4.* STD reduction model for postmenopausal women.

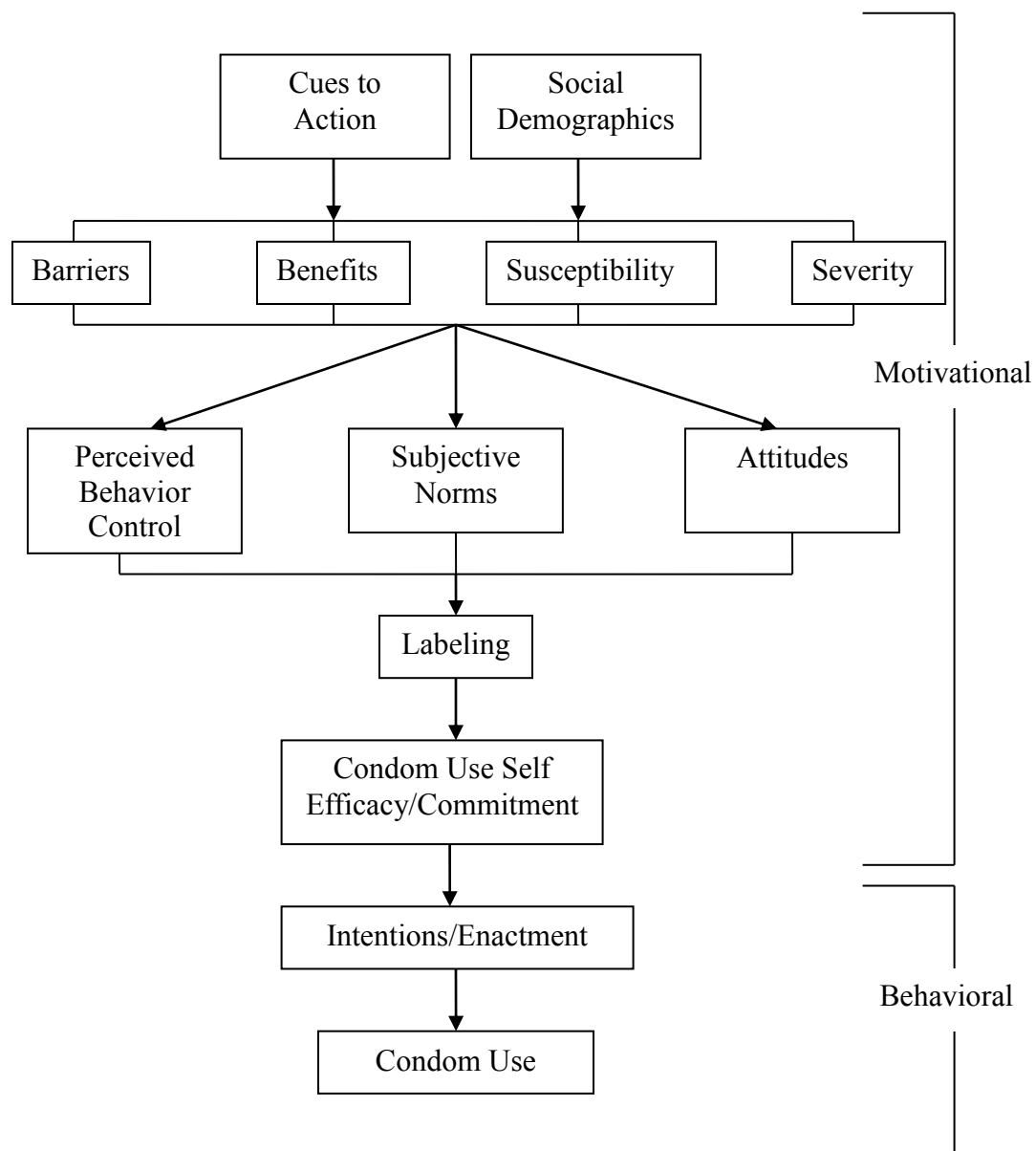
This model has been applied successfully to examine how women perceive their risk of contracting STDs. In one study, ARRM was used as a framework to test correlations among behavior, attitude, and norms in a population of women at risk. This framework allowed researchers to examine this population's denial of risk (Morrison-Beady, 1997).

### **Conceptual Framework**

Sex and decisions regarding sexual behavior involve some of the most complex decision models that are made in the course of life. This is one of the least studied behaviors (Wasserheit, 1991) in a population that has historically been neglected in STD research because they are viewed as sexless (Gott, Hinchliff, & Galena, 2004). There is limited opportunity for testing an empirically based theoretical prediction model. Combining the aspects of the three theories listed above, all having strong empirical evidence supporting their use as condom-use prediction models, one would be able to conceptualize a model for exploring sexual behavior in postmenopausal women. Users of

a model integrating these three theories would have to include the limited use of condoms in many subsets of postmenopausal women (Rose, 2010). This model allows for examining what the risk processes are pre-behavior, and which of those processes impact the ability to reduce risk.

In many cases, each of these models shows a strong association between self-efficacy and condom use. By starting at the initial level with the HMB concepts, the model will allow a chance to test progression to TPB to see if all those factors influence whether or not postmenopausal women will label themselves as at risk. By focusing the outcome variable on self-efficacy, specifically condom use self-efficacy, a theoretical and conceptual framework was designed to understand the association between protective behaviors and attitudes in this population to determine if there is a linear relationship among them from HMB→TPB→ARRM→Condom Use Self-Efficacy. Should this model present a linear relationship, future research will go further by examining if there is a linear relationship among Intentions→Condom Use (See Figure 5). While postmenopausal women may limit their condom use behavior, the exploration of their awareness of risk is empirically limited. This model would not only give theoretical guidelines to study awareness, attitude, and behaviors, but would also show the association among all the variables. Justification for this model stems from the lack of research about this high-risk population, as well as the strong empirical links between self-efficacy and behavior that relates to condom use.



*Figure 5.* Conceptual framework integrating aspects of HMB, TPB, and ARRM in predicting condom use in postmenopausal women.

### **Limitations of Theories and Models**

The strengths of the theoretical framework are greater than its limitations. Working together, these aspects are designed to examine, over the life-course of postmenopausal women, factors that will predict their condom use self-efficacy. As with any model, frame, or just theory, there are limitations that reduce the validity of this study.

The HBM has several criticisms, the most common being its focus on the subjective state of the participants and the ignorance of relevant environmental factors, relationships, and support (Davihizer, 1983). This theory may ignore the irrational portion of decision making, such as when one believes to not have control of a situation (Waite, 2008). Other criticisms include the lack of peer influence and peer norms regarding this theory's application to sex related models. Adding these variables has been shown to increase explained variance (Boone & Lefkowitz, 2004).

The TRA and TPB have several limitations of their own in predicting behavior. While these theories function to predict behavior, they also help explain the underlying assumptions that contribute to behavior change. This has been explored most commonly in alcohol and drug education programs, which is problematic because it can be unclear which attributes contribute to the change in behavior (Sheppard, Hartwick, & Warshaw, 1988). Like most western theories, there are cultural limitations associated with this theory (Ogden, 2003).

The ARRM has shown to be unsuccessful in certain populations, like adults with several partners but no lifetime partner. Boyer, Barrett, Peterman, & Bolan (1997) used this model with limited success when the individual had more than one partner. The

ARRM, however, has been successfully applied when studying monogamous relationships, though results may vary when individuals with multiple partners are incorporated into the sample populations. A study about heterosexual decisions reported that individuals with multiple partners who have a main partner yield similar correlations to condom use as individuals in monogamous relationships. However, those individuals who have multiple partners but no main partner did not (Dolcini, Coates, Catania, Kegeles, & Hauk, 1995). Therefore, steps will need to be taken in data collection to address the possible confounding variables, such as level of commitment to partners. This limitation is actually a strength of this model's use to study this population as the majority of postmenopausal women report just one partner (Rose, 2010).

While these theories and models all have limitations, combining the different theories reduces these limitations. By adding the TPB element of perceived behavior control, the conceptualization of this overall model encompasses more diverse decision-making that incorporates a perception of a lack of control. This balances the use of the HBM and TRA, theories that exist under the assumption that behavior is strictly rational. Through combination, this model is able to measure both rational and irrational behavior. The incorporation of HBM, TRA, and TPB also reduces the limitations of AARM, to this researcher, by providing an explanation of why a woman would label herself at risk. Also, these theories are supported by the NIMH and have a long list of empirical support for studying a phenomenon such as condom use self-efficacy in diverse populations.

## **Chapter 3**

### **Literature Review**

#### **Sex and Postmenopausal Women**

In contrast to popular opinion, empirical literature supports the belief that postmenopausal women continue to enjoy a healthy sex life regardless of health or age (Binkowska, Debski, & Dynowski, 2005; DeLamater & Still, 2005; Howard, O'Neil, & Travers, 2006; Johnson, 1998). In later life, sexuality in all forms—sexual intercourse, kissing, petting, masturbation, massage, and being held—continue to bring enjoyment and pleasure to individuals. There are, however, several factors that relate to the way older adults are predisposed to express and enjoy their sexual needs. Among these factors are past histories of sexual activity, attitudes of self and others towards sexuality, physiological or physical changes, illnesses, and availability or opportunity (Hooyman & Kiyak, 2011).

Opportunity and availability of a partner greatly affect a postmenopausal woman's ability to express and satisfy her sexual needs. The average life expectancy of females in this society is much longer than that of males. This fact, combined with the generally higher health status of females, contributes to females having more sexual desire in their later life than males (DeLamater & Sill, 2005). Older females are more likely to be without a partner for sexual expression. There is support that the presence of a partner correlates significantly with feelings of sexual desire experienced by females (DeLamater & Sill, 2005). Some research states that lack of availability of a partner is one of the

biggest barriers to sexual interest when ranked among heart disease, diabetes, stroke, or cancer (Ginsberg, Pomerantz, & Kramer-Feeley, 2005). Even if a partner is available, some postmenopausal women are institutionalized and are unable to find the opportunity to have sexual relations. They may not have access to privacy, or the staff that serves them may have unfavorable opinions about sexuality in older adults (Hooyman & Kiyak, 2011). The unfavorable opinions of an institution's staff can contribute to the discouragement of sexual activity among older adults because the staff is unwilling to educate their patrons about appropriate places to engage in sexual activity or practice risk reduction behavior.

Findings show that sexuality in healthy individuals is stable and continuous across a life span (Hooyman & Kiyak, 2011). While frequency of sexual intercourse declines with age, sexual desire declines at a far slower rate (Ginsberg et al., 2005). Therefore, it is important those desires are satisfied safely, regardless of health status or age.

### **Condom Use and Public Awareness**

The consistent use of a correctly placed condom greatly reduces the risk of STD infection (CDC, 2011). The only true way to avoid the spread of STDs is to abstain from sexual intercourse of any kind. As stated earlier, many postmenopausal women remain sexually active and unaware that they are at risk of contracting STDs (Lindau et al., 2007). Therefore, it's imperative to discuss the impact of condom use and effectiveness.

In the 1980's, the world became aware of HIV/AIDS through a series of commercials, public outreach programs, and key activists (Merson, O'Malley, Serwadda, Apisuk, 2008). The major message of these campaigns was to abstain from sex or to use a

condom correctly and consistently. This model was considered the ABC Model and was very effective at capping the spread of HIV/AIDS in Uganda (Allen, Mbonye, Seelye, Birungi, Wolff, Coutinho, & Jaffar, 2011; Gersovitz, 2007). The model broke down to three strategies: Abstain, Be Faithful, and Use Condoms. These campaigns were designed to be inclusive of everyone, and bring awareness to anyone listening that they were at risk. Condoms are a successful and important piece of this model.

### **Condom Use in Postmenopausal Women**

As there has not been a campaign to promote condom use among postmenopausal women though the rate of STDs are increasing through at risk heterosexual intercourse, condom use is the only protective device that has been approved by the Food and Drug Administration for the prevention of STDs (2008a). Unaware of their unique STD risk, postmenopausal women are generally mistaken about the need for and effectiveness of condoms in order to prevent the spread of STDs (Henderson et al., 2004). By assuming that condoms are primarily used for preventing pregnancy and not as a tool for the prevention of STDs, postmenopausal women potentially place themselves in risky sexual situations by foregoing condom use.

Research has shown that condom use reduces dramatically once a woman becomes postmenopausal (Tawk, Simpson, & Mindell, 2004). For example, one study found that only 12% of minority women in this population (living in an urban, high-prevalence STD area) reported condom use (Sormanti & Shibusawa, 2007). Another study looked at condom use over a decade to find that only 28% of postmenopausal women in the study reported condom use (Tessler, Leitsch, Lundberg, & Jerome, 2006).



While this percentage is higher than in other studies, it should be noted that over the course of a decade, many of these women would have been in their childbearing years. In a highly HIV prevalent area, one study found that 38% of women over the age of 50 used condoms at least half the time (Allison-Ottey et al., 1999). In addressing condom use for women who are HIV positive and over the age of 50, most did not use condoms prior to their positive status (Schable, Chu, & Diaz, 1996). These studies illustrate that when aware that they are at risk, even postmenopausal women will take precautions to reduce their chances of becoming infected.

In a comprehensive sex survey, the AARP found that 32% of women aged 45+ who reported that they were “single and dating” used a condom “all the time.” This was slightly higher than those who reported that they “rarely or never” use condoms (29%). Surprisingly, this survey excluded those who were sexually inactive. Among the women who were “single and dating,” 35% reported that condom use was “not applicable.” For all females, 9% used condoms “all the time,” 33% reported “rarely or never,” and an alarming 55% of sexually active females reported that condom use was “not applicable” (AARP, 2010). Again, these numbers were for women aged 45+, and might include women who still need to use condoms as a measure for pregnancy prevention. These attitudes about “not applicable” indicate that many women, even though “single and dating” had little awareness of possible STD risk.

Historically, the present cohort of postmenopausal women has not used condoms as a mode of protection. A decade before, Stall and Catania (1994) reported that middle aged and older adults did not use condoms as often as their younger counterparts. Around the same time, Murphree and DeHaven (1995) reached similar conclusions about this

population. Age was inversely correlated with condom use. Other factors that were related to condom use were history of STDs in an individual or partner, being single, and being African American.

Postmenopausal women are not the only group to neglect condom use when at risk for STDs. Even younger generations report lower use of condoms. One study found that only 13% of individuals surveyed in a sample of individuals aged 15-30 used condoms every time. The reason stated is that the prevention of pregnancy, as opposed to the prevention of STDs, is the primary reason the population utilizes contraceptives (Detzer et al., 1995). Other figures report between 18% to 20% of younger populations use condoms every time, regardless of perceived risk (Catania, Canchola, Binson, Dolicini, Paul,...Fisher, 2001; Ozakinci & Weinman, 2006).

In a study that examined the condom use of Chinese sex workers, researchers found that Chinese sex workers were more likely to discuss condom use with their clients than their partners. Only 45% consistently used condoms with their clients. The Chinese sex workers reported using condoms less with their primary partner. This was due to anxiety about their partners' mistrust over fidelity and a reduction in the expression of intimacy (Zhao, Wang, Fang, Li, Stanton, 2008). In a qualitative study, these issues were addressed among at-risk couples. When couples are in a serious relationship, they are less likely to use condoms because they love and trust one another. In other words, if sex is the main resource for the relationship, condoms are used, but if there is a deep emotional connection, it is perceived that condoms hinder intimacy (Corbett, Dickson-Gomez, Hilario, & Weeks, 2009).

Since the postmenopausal population historically has not used condoms to prevent the contraction of STDs, the aging of the Baby Boomer generation will also increase the prevalence of STDs in this older population. It is critical to explore condom use and ways to increase awareness of STD risk because heterosexual intercourse is the primary way for postmenopausal heterosexual women to become infected with STDs (Emlet et al., 2002; Paranjape et al., 2004). Further, many postmenopausal women underestimate their risk (Ward, Disch, Levy, & Schensul, 2004), making them less likely to take preventative, protective action. Based on a number of variables related to condom use, women in this population make judgments about their risk, and these judgments determine their likelihood of using condoms. The women in this population are mostly ill informed about the risks of STD contraction and therefore make poor judgments that place them at great risk.

This empirical evidence highlights that at any age, the use of condoms is very low. This is a reflection of the current condom use intervention strategies, which are not evidence-based. Rather than putting focus on protection during sexual intercourse, they emphasize abstinence from sexual intercourse. This expensive (costs up to \$102 million a year in 2002) and ineffective policy has lasting impacts like unplanned pregnancies and STD infections in all age groups. The rates of these incidences have increased consistently in the areas that do not use evidence-based prevention models (Collins, Alagiri, & Summers, 2002). With the proposed budget cuts in STD prevention programs (Good, 2011), it is now imperative to examine factors that influence condom use and to try to understand this way of reducing STDs. This study seeks to achieve this goal by focusing on the neglected population of postmenopausal women and on condom use self-

efficacy. If education and more awareness are the keys, it is important to understand what factors across a life-course will have an impact on risk reduction behaviors.

### **Condom Use Self-Efficacy**

The literature associated with the prevention of STD infection is also associated with the ability of an individual to practice self-control over his or her behavior (Casey, Timmermann, Allen, Krahn, & Turkiewicz, 2009). Bandura (1990) saw this in terms of response-efficacy and self-efficacy. Response-efficacy is a person's belief about their ability to control risk, while self-efficacy is their belief about their ability to perform a behavior.

Response-efficacy refers to the extent to which a person believes he or she may handle a problem effectively. Response-efficacy is associated with the attitude that a person has towards a threat. Self-efficacy is strongly associated with the actual performance of a behavior, like condom use. In empirical literature, it has been supported that self-efficacy can play a moderating or a mediating role between attributes like psychological distress and sexual practices with condom use (Seth, Raiji, DiClemente, Wingood, & Rose, 2009). This role has been largely supported in teenage or younger populations. In a meta-analysis, it was found that response-efficacy has a positive correlation with condom use, but this only indicates that individuals believe that condom use is an effective method of sexual protection. Response-efficacy is not even studied with several of theories like HBM, TRA/TPB, and the ARRM theoretical perspectives. This is due to the wide spread belief that condoms are an effective means of reducing the likelihood of contracting STDs. As there is more variance in individuals' attitudes toward

their ability to effectively use condoms, a stronger predictor of condom use is self-efficacy (Casey et al., 2009).

Self-efficacy is a belief that one can accomplish a behavior, and is often present when negotiating power dynamics among sexual behavior (Casey et al., 2009). Events and activities like drinking alcohol or having diminished mental capabilities due to dementia negatively affect condom use self-efficacy because the individual loses control of their perceptions and intentions (Peterson & Gabany, 2001; Yeager & Lee, 2008).

While the diminished ability to perform certain behaviors has a negative relationship with condom use self-efficacy (i.e. if someone were drunk), there are also simple factors that tend to increase condom use self-efficacy. There is evidence that personally obtaining a condom has a relationship with the use of a condom, as this may be a simple display of condom use self-efficacy (Paranjape et al., 2006). There is support that self-efficacy also has a relationship to peer behavior; when an individual's peers have positive views of condom use, that individual is then more likely to exhibit a higher level of condom use self-efficacy (Wulfert & Wan, 1993).

When it comes to condom use, it is appropriate to study condom use self-efficacy in women. Females in heterosexual couples are often placed at a disadvantage for condom use self-efficacy because most condoms use is a behavior performed by males. There are condoms made for females, but these are difficult to use and there is not a high level of usage among most populations (Bogart et al., 2000). Women must have the negotiating skills to persuade their partner to use condoms. Self-efficacy, in terms of condom use, focuses on the following variables: confidence to use condoms, refusal of sex if condoms are not used, and the ability to persuade one's partner to use condoms

under all circumstances (Kaneko, 2007). Women are not able to perform the behavior of using a condom themselves. Instead, they must depend on the male to perform the behavior (Fernandez-Esquer, Atkinson, Diamon, Useche, & Mendiola, 2004). While women do not perform the behavior directly, they do rely on their ability to apply condoms, negotiate condom use, and exert self-control in order to persuade their partner to perform the behavior (Farmer & Meston, 2006).

There is empirical evidence that in younger populations, regardless of education or ethnicity, females have higher rates of condom use self-efficacy than their male counterparts (Farmer & Meston; Fernandez et al., 2004). These results reflect that women are established as the negotiators of condoms use. These rates have not been established in postmenopausal women. Currently, there is a gap in research of the postmenopausal population that needs to be filled.

### **Condom Use and Condom Use Self-Efficacy**

Previous literature gives support that an older woman is at a disadvantage when it comes to knowledge of how to protect herself from STDs because she is unable to negotiate condom use with her partner(s). Typically, postmenopausal women see negotiation as pointless and do not put forth the effort to change their partners' attitude. The ability to put forth an effort when confronted with obstacles is self-efficacy (Bandura, 1977). When the effort involves condom use, this is called condom use self-efficacy (Brafford & Beck, 1991). Condom use self-efficacy is an important variable because it helps explain why individuals would have the negotiating skills needed to successfully use condoms but still engage in unprotected sex (Wulfert & Wan, 1993).

Condom users have been found to have significantly higher levels of condom use self-efficacy (Brien & Thombs, 1994). Condom use self-efficacy is one of the strongest predictors of current or past condom use. It is also strongly, positively linked to intended (future) condom use (Baele, Dusseldorp, & Maes, 2001). Therefore, condom use self-efficacy has a strong positive correlation to whether someone has used a condom in the past and if they plan on using a condom in the future.

Despite this correlation, some studies have found limited to no significant relationship between condom use during last intercourse and condom use self-efficacy. For example, one study found a weak link between condom use and condom use self-efficacy in a group of females. Researchers concluded that even though the women had a high level of condom use self-efficacy, they lacked the ability to influence their partners (Shercliffe, Hampton, McKay-McNabb, Jeffery, Beattie, & McWatters, 2007). Other studies have reported even weaker links between condom use and condom use self-efficacy. In a study of younger Hispanic men and women, condom use was more associated with relationship risk than self-efficacy. In this study, women were more likely to use and intend to use condoms than men and had higher self-efficacy. This study, however, is problematic because the overall population did not use condoms consistently and had low condom use self-efficacy (Fernandez-Esquer et al., 2004).

There is further evidence that however strong the link is between condom use and condom use self-efficacy, condom use self-efficacy is not a perfect predictor of condom use and needs to be studied further for better understanding. One study, using TPB as a framework, supported the assumption that self-efficacy was a better predictor of actual behavior, while attitudes and subjective norms were better predictors of intentions

(Harvey, Beckman, Gerend, Bird, Posner, Huszti, & Galavotti, 2006). In another study that used the HBM, condom use self-efficacy was significantly associated with condom use at a bivariate level but yielded insignificant results when loaded into a regression model. This particular study used a hierarchical regression model, and condom use self-efficacy was loaded last (Boone & Lefkowitz, 2004).

In a younger population, condom use self-efficacy is related to women's condom use but not men's. This study found that women with higher levels of condom use self-efficacy had higher levels of actual condom use. Men, however, had no significant relationship (Boone & Lefkowitz, 2004). Another study supported this finding with the use of path analysis. This study among college-aged students found that there is a significant path from condom use self-efficacy to condom use (Lindberg, 2000). In a study about younger Japanese women and condom use self-efficacy, it was found that all aspects of their operational definition of condom use self-efficacy was significantly associated with actual condom use behavior (Kaneko, 2007). In these cases, self-efficacy increased the performance of the health-related behavior of condom use.

In a meta-analysis for condom use self-efficacy, the greatest link between condom use and condom use self-efficacy was found in college age populations while the smallest link was found among adult populations. However, there are more studies on condom use concerning college aged and other younger populations than there are of similar studies concerned with an older population. Only 16 studies were geared towards adult, while 41 were designed to examine condom use and condom use self-efficacy in college aged populations (Casey et al., 2009). Therefore, much of the empirical evidence used to create the argument for this study will be collected from condom use self-efficacy studies



in younger populations with the hypothesis that similar results will occur when looking at postmenopausal women.

### **Condom Use Self-Efficacy in Postmenopausal Women**

Many research studies examine condom use self-efficacy as the ability to use a condom under exigent circumstances (Fernandez et al., 2004). Without the self-efficacy to discuss condom use with a partner, it is highly unlikely that the behavior will occur (Farmer & Meston, 2006). This statement, however, does not include postmenopausal women, as the literature is scant about the implications of condom use and condom use self-efficacy in this population. Only one article was found that studied condom use self-efficacy in postmenopausal women. This study concluded that women who engaged in high-risk sexual behavior had lower levels of condom use self-efficacy (Winningham, Corwin, Moore, Richter, Sargent, Gore-Felton, 2004). This gives credence to the problem and potential increase of STDs among this older population. There is limited research about how the factors that relate to condom use self-efficacy generalize to this population. Using models and literature that examine condom use self-efficacy in other populations, it is possible to make assumptions about how such variables would be related in postmenopausal women.

### **Subgroups of Postmenopausal Women: Sexual Activity Status**

The researcher did not find any studies that explore condom use self-efficacy among sexually inactive postmenopausal women over the age of 50, but there are studies of condom use self-efficacy in younger populations that are sexuality inactive

(Breakwell, Fife-Schaw, & Clayden, 1991; Farmer & Meston, 2006; Troth & Peterson, 2000). The results of one study supported that self-efficacy and feelings of control contributed to the ability to negotiate condom use (Breakwell, Fife-Schaw, & Clayden, 1991). The other explored attitudes toward the discussion of condom use and STD status with potential sexual partners among virgins and individuals with previous sexual experience. Women, regardless of sexual activity status, were more likely to discuss condom use and STD status than men (Troth & Peterson, 2000).

### **Social Demographic Variables and Condom Use Self-Efficacy**

There are several social demographic variables that empirically relate to condom use self-efficacy. Most of the studies that examine this variable were done with younger populations. Among these studies, the age of the participants has been a significant variable in predicting the level of condom use self-efficacy found in the results. In a study that focused on young, middle-aged, and older minority women living in an inner city setting, younger women were more likely to report higher levels of condom use self-efficacy than their older counterparts (Sterk, Klein, & Elifson, 2003). Other studies did not focus on the relationship of age and condom use self-efficacy (Lindberg, 2000) or had limited variety in their age groups and did not focus on this variable (Baele, Dusseldorp, & Maes, 2001; Farmer & Meston, 2006; Sanders, Graham, Yarber, Crosby, Dodge, & Milhausen, 2006).

Ethnicity affects condom use self-efficacy. Whites and Blacks have repeatedly been found to have higher levels of condom use self-efficacy compared to Asians and Hispanics (Farmer & Meston, 2006; Fernandez-Esquer et al., 2004). Other studies have

found no differences among women in terms of ethnicity and condom use (Sanders et al., 2006). One study that examined condom use self-efficacy in postmenopausal women focused heavily on minority and Black women but did not report the impact of ethnicity on condom use self-efficacy (Winningham et al., 2004).

Another variable with a great deal of empirical support linking it to condom use self-efficacy is education. Higher levels of education have been linked to higher reports of condom use self-efficacy. In a study that focused on inner city, middle-aged African American women, it was found that those with higher levels of education were more likely to have higher condom use self-efficacy. Those who did not complete high school had lower condom use self-efficacy (Sterk et al., 2003). This relationship is generalizable to other populations, as studies in other cultures have found this empirical link as well. In a study set in rural Africa that looked at a population of married couples, less educated African women were less likely to have low levels of condom use self-efficacy (Maharaj & Cleland, 2006). Among postmenopausal women, education is also empirically linked to the reduction of risk behaviors in terms of condom use (Winningham et al., 2004).

Empirical research shows that there are several social variables that impact condom use self-efficacy over a life-course. Some have found that heterosexuals have lower condom use self-efficacy than homosexuals, regardless of gender. This finding might be linked to homosexuals being the target of interventions (Casey et al., 2009) and therefore support these interventions as an effective method of raising condom use in a population at risk. Others have found that image confidence was associated with condom use self-efficacy in a young population (Baele et al., 2001). Similarly, younger minority women with higher self-esteem tend to have higher levels of condom use self-efficacy

(Sterk et al., 2003). This same study stated that younger women who reported that they were religious had higher levels of condom use self-efficacy, and that younger women who had been emotionally abused or neglected during childhood had lower levels of condom use self-efficacy. There is also empirical support that women of all ages with high levels of communication with their primary partner have higher levels of condom use self-efficacy (Sterk et al., 2003).

### **Cues to Action and Condom Use Self-Efficacy**

Cues to action are concepts present in an individual's surroundings that may impact their health behaviors. Their environment, which includes the people within that environment, is an example of a cue to action (Small, 2009). There is evidence that when a cue to action is present, it positively impacts condom use (McDonnell, 2006). Even if one is married, condom use might still take place since individuals are aware of the risk of unprotected sexual intercourse. In married, heterosexual African couples, it was found that couples who felt at risk, perceived, or knew their partner to be infected with HIV were more likely to use condoms, and the women in this study reported higher levels of condom use self-efficacy (Maharaj & Cleland, 2006). This shows that among married couples, condom use does take place for the purpose of preventing infection when there is a cue from their environment to act.

### **Barriers/Benefits and Condom Use Self-Efficacy**

The attitude of one's sexual partner plays a role in condom use (Finkelstein & Brannick, 2000). Women of all ages experience difficulty getting their partner to use

protection if their partners do not wish to comply (Pulerwitz, Amaro, De Jong, Gortmaker, & Rudd, 2002). Asking a partner to use a condom, particularly when the request has not been made before, may imply mistrust or a lack of caring (Sormanti et al., 2001). Because of this, bringing up condom use can have negative effects on a couple's sexual welfare, which functions as a clear barrier of discussing condom use (Wingood & DiClemente, 1998). Therefore, if there is no seeming need or benefit to make a request for condom use, negotiation does not occur. It is important to study this issue in postmenopausal women, as there are a number of factors that uniquely contribute to negative partner attitude in this population.

Negative partner attitude is a clear barrier to condom use, but there is research in younger populations supporting that assertiveness acts as a buffer to this barrier. In one study the researchers examined how self-efficacy affected intended condom use and past condom use in adolescents and youths. They found evidence to support that women with more assertiveness had higher levels of condom use self-efficacy, intentions to use condoms, and past condom use behaviors (Baele et al., 2001). This assertiveness allowed the individuals to express, verbally and physically, the skills needed to use condoms.

Another study that examined assertiveness in terms of applying condoms and condom use self-efficacy did a comparison of women who applied condoms. These were younger women, and the groups were divided into users who apply condoms, users who had the male apply condoms, and nonusers. This is a concept of self-efficacy (applying skills), and it was significantly related to sexual attitudes and sexual activity such that those who applied condoms themselves had more positive attitudes and were more sexually active (Sanders et al., 2006).

Another barrier to condom use and condom use self-efficacy is psychological distress. Psychological distresses linked to risky sexual practices, like inconsistent condom use, are empirically common. In a study on adolescents, those with psychological distress were more likely to yield to peer pressure because they wanted to avoid rejection (Seth et al., 2009). This study supports that the emotional and psychological barriers to condom use self-efficacy found in younger populations might also be found in older populations like postmenopausal women, particularly because this study's results supported females having more psychological distress than their male counterparts.

There can also be physical barriers to condom use self-efficacy. In a study about individuals with multiple partners, embarrassment over purchasing condoms and other barriers to condom use showed no significant relationship to condom use self-efficacy (Catania et al., 1994). In a study about younger Japanese women and condom use self-efficacy, it was found that those who believe that condoms reduce sexual sensation, are expensive, and are a nuisance displayed lower levels of condom use (Kaneko, 2007).

### **Susceptibility/Severity and Condom Use Self-Efficacy**

In a study about married women, knowing that AIDS was fatal and salient had no impact on condom use behavior (Maharaja & Cleland, 2005). Women who felt susceptible to contracting HIV/AIDS from their partners, however, reported higher condom use. Therefore, one's awareness of their own susceptibility to a disease is what impacts their condom use and condom use self-efficacy, not what the severity of the disease's symptoms happens to be. In a study about condom use self-efficacy, a college-

aged population had high knowledge of STDs and was aware of the opportunity for the transmission of STDs. However, over 70% of this population did not use condoms because they did not feel susceptible to contracting STDs (Wulfert & Wan, 1993). In terms of knowledge among this population, postmenopausal women are at a disadvantage because they have been shown to know less about sexuality and condom use than men of a comparable age (Hillman, 2007).

In a population of teenagers, the association between condom use self-efficacy and knowledge of STDs, in terms of severity and susceptibility, is unclear. There is little support that mere knowledge about transmission is enough to encourage condom use (Shercliffe et al., 2007). In examining the relationship between knowledge and severity of STDs, self-efficacy, and condom use in a younger population, it was found that knowledge has no direct link to condom use. Instead, a significant link was found, through the use of path analysis modeling, between knowledge and condom use self-efficacy, which is directly linked to condom use. Therefore, knowledge is indirectly related to condom use but directly related to condom use self-efficacy (Lindberg, 2000). It is unclear what role knowledge of severity and knowledge of susceptibility will play in postmenopausal women and their reported levels of condom use self-efficacy, but with a younger population there is support of these variables (severity and susceptibility) being directly linked to condom use self-efficacy.

While the empirical literature is scant, there is some evidence that postmenopausal women do not feel susceptible to contracting STDs. In a study that focused on older minority women, women who reported lower sexual-risk behaviors also had higher levels of condom use self-efficacy. As a whole, these women did not feel

susceptible to STDs (Winningham et al., 2004). Most empirical literature supports that only individuals aware of their risk feel susceptible. Usually, individuals who seek treatment for STDs do so because they feel susceptible and have awareness of their vulnerability (Casey et al., 2009).

Even though there is scant empirical literature among postmenopausal women among the relationship of condom use self-efficacy, susceptibility, and condom use, there is evidence based on studies that focus on other health related behaviors. When postmenopausal women feel susceptible to contracting a disease, they are likely to have higher levels of self-efficacy towards disease prevention behavior. For example, breast self-examinations studies have found that women with higher levels of susceptibility also had higher self-efficacy (Baker, 1988). Women that felt at risk of breast cancer were likely to report higher levels of self-efficacy and actually perform self-examinations. These women felt susceptible because they were aware and educated about the possibility of this deadly disease happening to them. They did not want to become a victim of cancer and were motivated to act to prevent such a fate from occurring. While this study gives support that there is a relationship between susceptibility, women, and self-efficacy, postmenopausal women who are aware of their susceptibility to STDs might still be reluctant to use condoms because of other factors like attitudes and subjective norms concerning STDs. Without knowing how these variables impact self-efficacy, education on severity and susceptibility alone will never be enough.



### **Attitudes and Condom Use Self-Efficacy**

In behavior models, attitudes play a critical role in influencing behavior (Ajzen & Fishbein, 1980). Attitude is defined by Fishbein and Ajzen (1975) as how an individual perceives the consequences of a behavior. In health models, attitude reflects how one perceives the consequences of his or her current behavior and how those consequences impact his or her health. These attitudes are also formed by the beliefs and evaluations of the individual's environment and social systems.

When condom use and condom use self-efficacy are studied as variables, attitudes are used as behavior models. The relationship between condom use self-efficacy and attitude has been strongly linked through empirical literature. In a study about young African adults and condom use, attitudes toward condoms were significantly correlated with condom use self-efficacy (Boer & Mashamba, 2007). If one has a positive attitude towards condoms, they are more likely to have high condom use self-efficacy (Gabler, Kropp, Silvera, & Lavack, 2004).

Attitude in a condom use self-efficacy model can focus on more than just condom use. A study that used a convenient sample found that sexual attitude in general had no impact on condom use or condom use self-efficacy. In this study, the authors found that attitude towards sexuality in general, like attitude towards oral sex, and direct behavior, like use of condoms, did not have a strong relationship with condom use (Wulfert & Wan, 1993). Therefore, concerning attitudes, it is important to ensure that one is capturing attitude towards condom and not sexuality in general.

### **Subjective Norms and Condom Use Self-Efficacy**

Subjective norms have been defined as the combined expectations of influential figures and societal pressures as perceived by an individual (Small, 2009). These norms are the framework from which a person decides whether or not their society would allow them to engage in a particular behavior. Azjen and Fishbein (1980) coined the term to encompass both societal and greater cultural norms. In terms of condom use and condom use self-efficacy models, subjective norms are linked to condom use self-efficacy. In a study focused on young African adults and condom use, subjective norms were positively and significantly correlated with condom use self-efficacy (Boer & Mashamba, 2007).

Other factors relating to subjective norms do have empirical evidence linking them to condom use and condom use self-efficacy in postmenopausal women. Trust of a partner(s) may be a barrier or benefit within the populations of postmenopausal women. Postmenopausal women usually report that they have one partner (Hillman, 2007; Sormanti & Shibusawa, 2007). Having one partner versus many partners has also been linked to the likeliness of condom use and condom use self-efficacy. When one reports having just one partner at any age group, it is less likely that the couple will use condoms, as trust has been established (Foulkes, Pettigrew, Livingston, & Niccolai, 2009). Having one partner makes it more difficult for this population to assess their unique STD risk or negotiate condom use because they are more likely to trust their partner's faithfulness (Ross & Williams, 2001). Often in these situations, there is a powerful dynamic wherein women may not be able to ask for or negotiate condom use (Sormanti & Shibusawa, 2007). Often, when committed to one partner, trust develops even when the partner is unfaithful (Wingood & DiClemente, 1998). In a study that examined the impact of

condom use self-efficacy on intentions to use condoms among women, it was found that women in a committed relationship have more trust in their partner. This trust leads to a decrease in condom use self-efficacy, condom use intentions, and actual condom use (Harvey, Beckman, Gerend, Bird, Posner, Huszti, & Galavotti, 2006). These studies did not focus on postmenopausal women, but they demonstrate how difficult it is to negotiate condom use when one does not see the behavior as beneficial, only negative.

Partner attitudes may be negative for a number of reasons. One reason could be that both males and females recognize that condoms reduce sensations during sexual acts (Roberts, 1999). Another possible reason, which happens in all populations but receives the most attention in the elderly population, is sexual dysfunction. Condom use can be difficult unless a full erection is achieved. Negative attitudes towards condom use may reflect fears or realistic expectations of sexual dysfunction in older adults (Tessler et al., 2006). Postmenopausal women may fear causing offense because of the negative or perceived negative partner attitude. There is a risk that asking a partner to use condoms would lead to accusations of infidelity (Casey et al., 2009). This contributes to lower levels of condom use self-efficacy in postmenopausal women because they have often never asked their partner to use a condom. Postmenopausal women can no longer bear children and often do not see the benefit or need for contraception (Roberta & Noyes, 2009), so the request for condom use at this stage in their lives would clearly be for STD protection, possibly implying their partner/s unfaithfulness.

In examining the use of the TPB, researchers concluded that men are more likely to base condom use behavior on subjective norms like influence of partner. This finding was compared to the female population, in which attitude was more likely to predict

condom use (Munoz et al., 2007). Subjective norms, combined with how the couple communicates and the persuasiveness of the female, influence men to use condoms. Therefore, if the female has poor condom use self-efficacy, the norms of the men are more likely to prevent condom use. In terms of condom use self-efficacy, these individual factors that are associated with condom use might help explain why women display low rates of condom use. They have positive attitudes towards condom use and report higher levels of use than their male counterparts, but they are still not using condoms (Farmer & Meston, 2006). Women may lack the ability to overcome the subjective factors in male attitudes that inhibit condom use with their partner because they lack the self-assertiveness to overcome their partner's subjective norms (Farmer & Meston).

### **Perceived Behavior Control and Condom Use Self-Efficacy**

The main assumption of perceived behavior control is that one has the self-control to make a difference in their personal health behavior. This variable has many similarities to self-efficacy, but perceived behavior control also deals with elements that are not in the complete control of the individual (Ajzen, 2002). Concerning the ability to control behavior, a simple way to establish some control is the purchase of condoms. Empirical literature supports that when one buys condoms, then that individual is more likely to have high condom use self-efficacy (Gableret et al., 2004).

In condom use, the participants in one study, particularly women, did not see themselves as the ones in control of the situation (Munoz-Silva et al., 2007). Therefore, women did not believe they had the self-efficacy to perform the behavior. It was found that perceived behavioral control was correlated significantly with condom use self-

efficacy among females only. It was not significant among males (Boer & Mashamba, 2007). Therefore, this variable, having been scantily researched in postmenopausal women but proving significant in other populations, would be a timely variable to examine.

### **Label and Condom Use Self-Efficacy**

The literature on self-efficacy and self-labeling in terms of health behavior has limited empirical data. Only a handful of studies were located that looked at both concepts. In a study about multiple partners, the labeling factor of self-risk, as determined in this study by problem recognition, was found to be an important variable for health promotion. Only those already suffering from an STD found it necessary to change behavior (Catania et al., 1994). Therefore, they had labeled themselves as at risk and sought to change their health behavior to prevent future complications.

### **Hypothesis**

Regardless of age, individuals in this society do not use condoms frequently enough to effectively prevent the contraction of STDs. Younger individuals who have high levels of condom use self-efficacy tend to have more education, awareness of STD risk, positive attitudes towards practicing sexual risk reduction behavior, perception that others have positive attitudes about condom use, and feelings of susceptibility. I hypothesize that condom use among older adults is lower than younger populations because of a lack of STD risk awareness; therefore condom use self-efficacy will be studied in a population of postmenopausal women. It is predicted that this population will

have average levels of condom use self-efficacy. Most of the females in this sample have some college experience and several have a college/graduate degree. It is predicted that they mostly will not feel susceptible or perceive their peers/partners to be susceptible to contracting STDs because of a strong lack of STD risk awareness.

### **Research Questions and Specific Aims**

The relationship between self-efficacy and condom use has not been given proper attention by researchers in this field. No known study examines which variables have an impact on condom use self-efficacy in postmenopausal women. This study will examine the impact of condom use self-efficacy on postmenopausal women by using the assumptions of the HBM (Cues To Action, Susceptibility/Severity, Barriers/Benefits, Perceived Partner's/s' Susceptibility/Severity, and Perceived Partner's/s' Barriers/Benefits), the concepts of the TPB (Attitudes, Subjective Norms, and Perceived Behavior Control), and the stages of the ARRM (Labeling). Justification for the study of these assumptions, concepts, and stages comes from the empirical links among the variables in younger populations and the increasing prevalence of STDs in postmenopausal women.

*S.A.1. To examine the prevalence of current condom use self-efficacy between sexually active and sexually inactive postmenopausal women.*

The relationship between differences of sexual activity in postmenopausal women and its impact on condom use self-efficacy is unclear. It is hypothesized, based on pilot work, that women who are sexually active will report lower levels of condom use self-efficacy than sexually inactive women as operationally defined by Zhao et al. (2008). It is

hypothesized, based on pilot work on feelings towards susceptibility, that condom use will be very low.

*S.A.2. To examine social demographic factors that relate to current condom use self-efficacy between sexually active and sexually inactive postmenopausal women.*

It is hypothesized, based on pilot work and empirical literature, that women who are younger and are in a relationship will be more likely to be sexually active. It is hypothesized, based on pilot work and empirical literature, that women who are white, educated, not in a relationship, have more awareness/knowledge of HPV, and have a higher number of lifetime partners will exhibit higher levels of condom use self-efficacy.

*S.A.3. To examine factors of the HBM that relate to Cues to Action that apply to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

It is hypothesized that Cues to Action will be low in this sample and there will not be a difference between the two sexual activity statuses. It is hypothesized, based on empirical literature, that women who know someone suffering from an STD will report higher levels of condom use self-efficacy than women who do not know someone suffering from an STD.

*S.A.4. To examine factors of the HBM that relate to a self-awareness of Susceptibility/Severity and Benefits/Barriers and how that awareness affects current condom use self-efficacy in sexually active and sexually inactive postmenopausal women.*

It is hypothesized, based on pilot work, that this sample will report low levels of Susceptibility/Severity regardless of sexual activity status. It is further hypothesized that women who report higher levels of Susceptibility/Severity will report higher levels of

condom use self-efficacy than women who report lower levels of Susceptibility/Severity. It is hypothesized that this sample will report high levels of Benefits/Barriers regardless of sexual activity status. It is further hypothesized that those women who report lower levels of Benefits/Barriers will report higher levels of condom use self-efficacy than women who report higher levels of Benefits/Barriers.

*S.A.5. To examine factors of the HBM that relate to the participants' perception of their partner's/s' attitudes about Susceptibility/Severity and Benefits/Barriers and how that perception of attitude affects the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

It is hypothesized, based on pilot work, that this sample will report low levels of perceived partner's/s' Susceptibility/Severity regardless of sexual activity status. It is further hypothesized that women who report higher levels of perceived partner's/s' Susceptibility/Severity will report higher levels of condom use self-efficacy than women who report lower levels of perceived partner's/s' Susceptibility/Severity. It is hypothesized that this sample will report high levels of perceived partner's/s' Benefits/Barriers regardless of sexual activity status. It is further hypothesized that those women who report lower levels of perceived partner's/s' Benefits/Barriers will report higher levels of condom use self-efficacy than women who report higher levels of perceived partner's/s' Benefits/Barriers.

*S.A.6. To examine factors of the TPB that relate to Attitude, Subjective Norms, and Perceived Behavioral Control that relate to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*



It is hypothesized, based on empirical literature, that sexually active women have less favorable attitudes towards condom use. It is hypothesized, based on pilot data, that this sample will report positive subjective norms regardless of sexual activity status. It is hypothesized based on empirical literature that this sample will report low levels of Perceived Behavior Control regardless of sexual activity status. It is hypothesized that women with positive Attitudes, Subjective Norms, and Perceived Behavior Control will have higher levels of condom use self-efficacy than those with negative Attitudes, Subjective Norms, and Perceived Behavior Control.

*S.A.7. To examine factors of Labeling and how it relates to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

It is hypothesized, based on pilot work, that women will not Label themselves as concerned that they may have an STD, regardless of sexual activity status. It is hypothesized that women who Label themselves as concerned that they may have an STD will report lower levels of condom use self-efficacy than women who Label themselves as not concerned that they may have an STD.

## **Chapter 4**

### **Methods**

#### **Research Design**

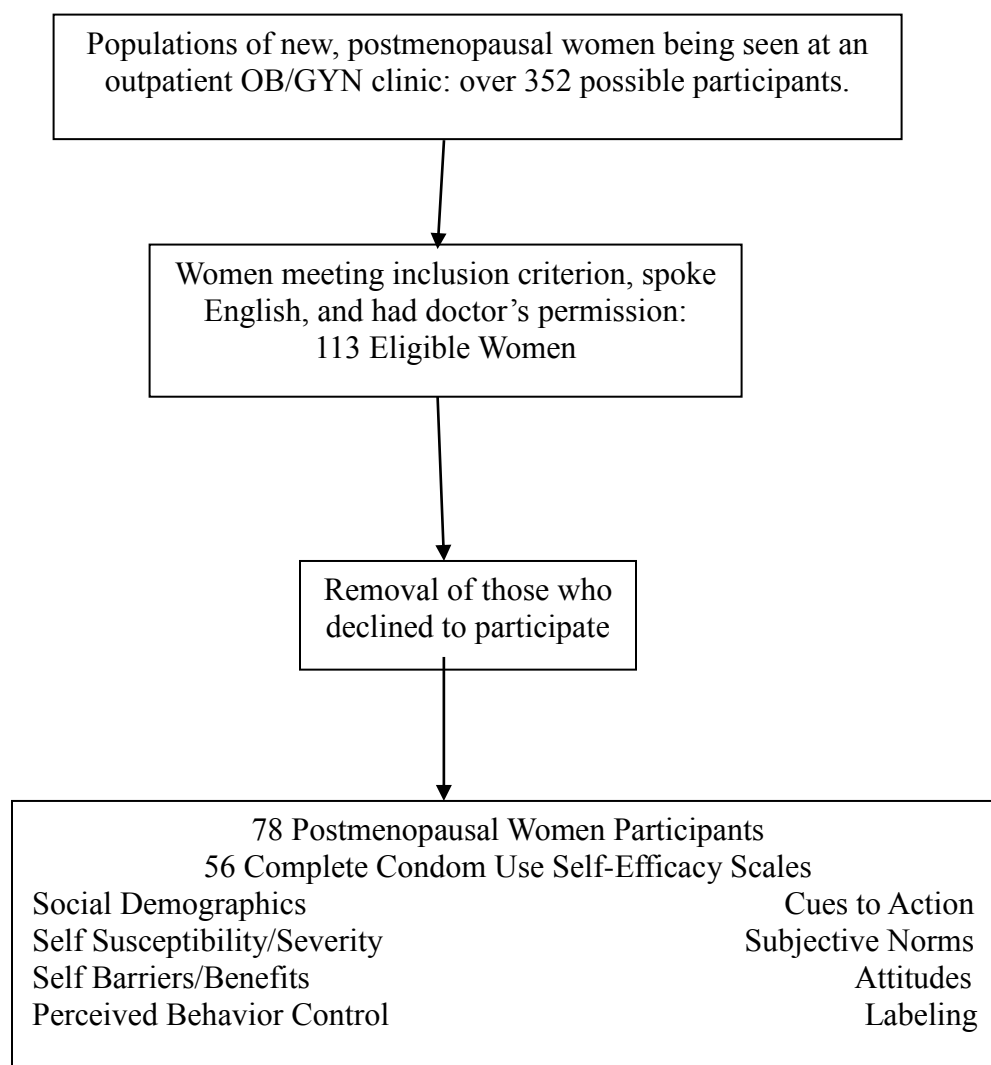
The study used an exploratory study design to examine how the selected variables affected condom use self-efficacy. Due to the paucity of research literature on condom use self-efficacy among sexually active postmenopausal women in the United States, it was important to identify related factors that have hindered or facilitated condom use self-efficacy in this population. The independent variables, derived from the HBM, TRA/TPB, and ARRM consist of social demographic and theory factors. The dependent variable was current condom use self-efficacy, as measured by a standardized scale.

#### **Subjects/Sampling**

A purposive sample was recruited at an outpatient OB/GYN clinic in a major hospital. Both informed consents comprised inclusion criteria for the consideration of potential participants. These criteria include that the subject must be postmenopausal (it has been at least 12 months since last menstruation cycle), 50 years or older, and has the potential for heterosexual sexual encounters. This was meant to be inclusive of women who might not identify as strictly heterosexual or women who are currently not sexually active. Sexually active was defined as those women who have had intercourse with a male in the past 12 months and foresee having intercourse with a male in the next 12 months. The researcher did not base this criterion on the quantity of sexual activity but

rather the self-disclosure of sexual activity. The questionnaire was provided in English only, therefore the participants had to read and write English. Justification for this sample derives from the research being in an early stage, and the goals of the findings include exploratory findings, not generalizability (Singleton & Strait, 2005).

The final sample size was 78 ( $n=78$ ). This number was achieved within 4 months. The researcher was present for 3 clinics a week, and each clinic received an average of 15 participants a week. Of the 45 (3 clinics each with 15 participants) possible participants seen each week, half of those did not qualify as they were repeat patients or not postmenopausal. Of the 22 possible participants who were eligible, about a third declined to participate, about 15% English was not their primary language, and about 20% were unable to be seen due to the doctor's request (these denied requested include flow of clinic or sensitive of appointment). Based on these considerations, the researcher was able to achieve the final sample size (see Figure 6.).



*Figure 6.* Flowchart of Intent to Sample

## Procedure

A major hospital department of Obstetrics and Gynecology (OB/GYN), located in the largest medical center in the world, has been increasingly working with postmenopausal women with STDs. This location was appropriate because the Southern region of the United States is the region with the highest rates of STDs (CDC, 2009).

While the patients waited for their doctors in the exam room, the researcher entered the room to ask these women if they would like to participate in the study. Those who accepted were handed a packet that included a questionnaire, a cover letter with an informed consent waiver from the University of Houston, and an informed consent waiver from the hospital. It is noted that human subject protection approval is required from both institutions, and approval was granted. Signed informed consent waivers were collected prior to the women filling out the questionnaire to ensure that identifying information did not exist between the participants' names and their completed questionnaires. The researcher remained on hand, outside the room, to answer all questions. The participants placed the completed packets in a large envelope provided by the researcher and sealed the envelope before turning it over to the researcher. No advertisements or incentives were used. The total time to interview the women and complete the questionnaire was approximately 20 minutes.

### **Protection of Human Subjects**

The Committee to Protect Human Subjects (CPHS) at the hospital of Houston and the University of Houston approved all documentation prior to data collection.

### **Measurements and Data Analysis**

A major independent variable is sexual activity status (sexually active verses sexually inactive). This was defined through self-disclosure and piloted prior to analysis to ensure face and content validity. Participants were asked to disclose whether they have had sexual intercourse in the past 12 months. Those who answered that they have not

were asked if they are a virgin. Those who were not virgins or sexually active were asked if they wish to resume sexual activity.

*S.A.1. To examine the prevalence of current condom use self-efficacy between sexually active and sexually inactive postmenopausal women.*

To examine condom use, a dichotomous response constituted the dependent variables. To address frequency of current (in last 12 months) condom use, participants were given the choices of never, sometimes, often, and always. Responses of *never* indicated no use and were coded as 0. All other answers indicated use and were coded as 1. Similar coding was used in Sormanti's and Shibusawa's (2007) study on condom use in postmenopausal and middle-aged women. The researchers broke down this variable to use versus not use. These variables were reported using descriptive statistics and compared to other empirical studies.

There are several standardized scales that can address condom use self-efficacy, but many are designed for populations younger than postmenopausal women (Brien & Thombs, 1994; Bryan, Aiken, & West, 2004). The use of the Condom Use Self-Efficacy Scale (CUSE) (Brafford & Beck, 1991) was piloted in a population of postmenopausal women; however, the results were poor, as most women felt that the questions were not applicable to them or to their circumstances. Most women reported that those questions would be better suited for a younger person (Rose, 2010). Other scales solely focus on youth and youth related activities not applicable to postmenopausal women. Overall, the concept of condom use self-efficacy is ambiguous (Farmer & Meston, 2006) and has been scantily studied in postmenopausal women.

To examine condom use self-efficacy, a scale consisting of five questions was used. This scale was created by Zhao et al. (2008) to examine self-efficacy with female Chinese sex workers. This scale is appropriate since it has been used in an adult female population that does not traditionally use condoms, like this subset of postmenopausal women. The five questions are rated on a 4-point Likert scale with 1 being strongly disagree and 4 being strongly agree. The answers were averaged and the mean score represents the overall score. Participants who answered all 5 questions were included. Those who answered less than five questions were removed from the sample to prevent skewing. As condom use self-efficacy is the dependent variable, these questions were placed right after the social demographic questions in an effort to prevent attrition. The reliability of this scale found by Zhao et al. (2008) was medium (Cronbach's  $\alpha = 0.6$ ); therefore pilot testing with this scale was done to ensure that it has good face validity and reliability in this population (Cronbach's  $\alpha = 0.6$ ).

*S.A.2. To examine social demographic factors that relate to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

All variables were based on self-disclosure. Age is a continuous variable. Ethnicity was treated as a categorical variable and the following choices were listed: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, Hispanic, and Latino. The U.S. Census designated these ethnicities (2007). Participants were able to list as many as apply. This variable was collapsed into a dichotomous variable of White or Minority to prevent violating statistical tests. Education level was treated as a categorical variable; the participant disclosed the highest level completed. This variable was collapsed into a dichotomous variable of

College Degree or No College Degree to prevent violating statistical tests. Relationship status was collapsed into a dichotomous variable of In a Relationship or Not in a Relationship to prevent violating statistical tests. Other questions such as the self-reporting of current STD status, religious or spiritual practice, faith in partner, confidence in sexual encounters, and HPV awareness/knowledge were also included. Confidence in sexual encounters was taken from a few questions from the Sexual Self-Esteem Subscale of the Sexuality Scale (Snell, 1989). Sexual self-esteem was not fully studied, but the questions concerning sexual confidence were used as a control since sexual confidence has been linked to condom use self-efficacy in younger populations and was not otherwise measured by the current questions (Baele et al., 2001; Kaneko, 2007). The participant's HPV knowledge was measured with a questionnaire of 13 true/false statements called the Knowledge and Perception Survey (KAPS) (McPartland et al., 2005). This scale was found to have low reliability with this sample (Cronbach's  $\alpha = 0.4$ ).

*S.A.3. To examine factors of the HBM that relate to how Cues to Action apply to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Cues to Action: Participants were asked if they know/have known anyone who has/had an STD. Choices for answering included yes/no. Aid for this assumption was derived from McDonnell's (2005) doctoral thesis on women's attitudes towards condoms.

*S.A.4. To examine factors of the HBM that relate to a self-awareness of Susceptibility/Severity and Benefits/Barriers and how that awareness affects current condom use self-efficacy in sexually active and sexually inactive postmenopausal women.*



Susceptibility/Severity: Susceptibility was measured using a scale that measured self-susceptibility. Participants were asked to answer two items that were used to measure perceived susceptibility. The participants were asked to rate the following statements on a 4 point Likert scale, with 1 being strongly disagree and 4 being strongly agree: *I am not the kind of person who could have a STD* and *I do not have sex with the kind of person who could have an STD*. These items have been modified from Catania et al. (1994). These questions have been modified from *AIDS* to *STD* to include all STDs. These items were reliable (Cronbach's alpha = 0.9). As this scale has not been used in this population, piloting was done to ensure good reliability prior to data collection. Only the mean scores of those who answered all questions were included in the analysis.

Benefits/Barriers: Participants were asked a brief 3-item scale. This scale was created by Catania et al. (1994) and has been found to be highly correlated with condom use and have reliability (Cronbach's alpha = 0.7). This scale has not been used in this population; pilot testing with this scale was done to ensure that it has good face validity and reliability. This scale includes the statements *Using condoms is immoral*, *It is embarrassing to buy condoms*, and *Its hard to find a place to buy condoms*. These five questions are rated on a 4-point Likert scale with 1 being strongly disagree and 4 being strongly agree. Only the mean scores of participants who answered all questions were included in the analysis.

*S.A.5. To examine factors of the HBM that relate to the participants' perception of their partner's/s' attitudes about Susceptibility/Severity and Benefits/Barriers and how that perception of attitude affects the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Susceptibility/Severity: Perceived partner susceptibility was measured using the same scale that measured self-susceptibility. Participants were asked to answer the questions from the point of view of their partner/s. The participants were asked to rate the following statements on a 4 point Likert scale, with 1 being strongly disagree and 4 being strongly agree: *My partner is not the kind of person who could have a STD* and *My partner does not have sex with the kind of person who could have a STD*. These items have been modified from Catania et al. (1994). These items were reliable (Cronbach's  $\alpha = 0.9$ ). As this scale has not been used in this population, piloting was done to ensure good reliability prior to data collection. Only the mean scores of those who answered all questions were included in the analysis.

Barriers/Benefits: Partner/s' attitudes were measured using nine statements that assess the negative aspects of perceived condom use. This instrument has been referred to as the Perceived Negative Attitude Scale and was found to be reliable (Cronbach's  $\alpha = 0.9$ ) (Pallonen, Timpson, Williams, & Ross, 2009). Participants were asked to rate how they presume their partner/s would answer. Statements were rated on a 4-point Likert scale, with 1 being strongly disagree and 4 being strongly agree. Only the mean scores of those who answered all questions were included in the analysis.

*S.A.6. To examine factors of the TPB that relate to Attitude, Subjective Norms, and Perceived Behavioral Control that relate to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Attitude: Participants were asked to rate the following statements on a 4 point Likert scale, with 1 being strong disagree and 4 being strongly agree: *Using condoms during sexual intercourse would be pleasant*. This question has been modified from a

scale created by Ozakinci and Weinman (2006). This question was designed to examine attitude in postmenopausal women, but has not been used in this population. To ensure good face validity, pilot testing was done prior to data collection. This variable was collected as an ordinal variable and collapsed into 3 categories, Strongly Disagree, Disagree, and Agree, to prevent violating statistical tests. The coding of these factors were arranged to not violate assumptions of ANOVA. Those that either agreed or strongly agreed were combined to prevent that violation.

Subjective Norms: Participants were asked to rate the following statement on a 4 point Likert scale, with 1 being strongly disagree and 4 being strongly agree: *Friends and family would approve of the use of condoms during sexual intercourse*. This question has been modified from a scale created by Ozakinci and Weinman (2006). This question was designed to examine subjective norms in postmenopausal women, but has not been used in this population. To ensure good face validity, pilot testing was done prior to data collection. This variable was collected as an ordinal variable.

Perceived Behavior Control: Participants were asked to rate the following statement on a 4 point Likert scale, with 1 being strongly disagree and 4 being strongly agree: *I could persuade my partner to use a condom even if they did not want to use one*. This question was by Munoz-Silva et al. (2007). To ensure good face validity, pilot testing was done prior to data collection. This variable was collected as an ordinal variable and collapsed into 3 categories, Disagree, Agree, and Strongly Agree, to prevent violating statistical tests. The coding of these factors were arranged to not violate assumptions of ANOVA. Those that either disagreed or strongly disagreed were combined to prevent that violation.

*S.A.7. To examine factors of Labeling and how it relates to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Labeling: A question from Catania et al. (1994) was used. This question concerned the labeling of one's past behaviors as risky versus not risky. The participants were asked the question: *How concerned are you that you may have had sex with someone in the past who may have given you an STD?* This question has been modified to say STD rather than AIDS to be inclusive of all STDs. This question was ranked on a 4 point Likert scale, with 1 being not at all concerned and 4 being very concerned. To ensure good face validity, pilot testing was done prior to data collection. This variable was collected as an ordinal variable and was collapsed into a dichotomous variable of Disagree or Agree to prevent violating statistical tests.

## Chapter 5

### Results

Of the 121 women who were approached to complete the questionnaire, 78 agreed (N=78). Among those 78, 56 completed all the questions regarding the dependent variable, condom use self-efficacy (N=56). The variables were analyzed with Statistical Package for Social Sciences Version 18 (SPSS). Bivariate analysis was done initial to examine the impact the variables had a on the dependent variable, condom use self-efficacy (see Table 1.). An ANOVCA was to be use to control for type 1 errors for those significant variables, however the dependent variable violated the assumption of normality. Therefore, the dependent variable was recoded into a dichotomous variable (those who answers all questions as strongly agree versus those who answered 4 or less as strongly agree). Bivariate analysis with the recoded, categorical dependent variable was done (see Tables 2.).A logistical regression analysis was conducted to predict condom use self-efficacy using perceived behavior control and partner's/s' perceived barriers/benefits as predictors. A test of the full model against a constant only model was statistically significant ( $X^2=9.6$ ,  $p<0.01$ ,  $df=2$ ). Nagelkerke's  $R^2$  of 0.3 indicated a moderately weak relationship among the prediction and grouping. The Wald criterion demonstrated that neither of the variables made significant contributions to prediction (perceived behavior control  $p=0.07$ ; partner's/s' perceived barriers/benefits  $p=0.09$ ) (see Table 10.). The results of each specific aim are discussed in terms of significant findings of the bivariate tests of the continuous dependent variable and if there were significant

findings with the recoding. However, due to the limited significance of the logistical regression, all results are should be interpreted as trends.

Overall, the sample consisted of postmenopausal women between the ages of 50 and 82 (mean= 63.4, SD=8.0). The sample was mostly white (60%) and in a relationship (62%%). The differences between sexually active and sexually inactive women were in terms of age (younger women were more likely to be sexually active) and relationship status (those in a relationship were more likely to be sexually active) (See Table 3. and 4.).

Table 1. Variable Assessment Table by Specific Aim for Continuous Dependent Variable

Specific Aim	Variables	Coding	Methods
S.A.1	Condom Use Self-Efficacy (CUSE)	Continuous	
	Sexual activity (SA)	Sexual Active=0 Sexual Inactive=1	Independent T-Test
S.A.2	Ethnicity	White=0 Minority=1	Chi-Squared (SA) Independent T-Test (CUSE)
	Education	College Degree=1 Less than College Degree=0	Chi-Squared (SA) Independent T-Test (CUSE)
	Relationship Status	In a Relationship=0 Not in a Relationship=1	Chi-Squared (SA) Independent T-Test (CUSE)
	Lifetime Number of Partners	1-2=1 3-4=2 5-10=3 11+=4	Chi-Squared (SA) One Way ANOVA (CUSE)
	Age	Continuous	Independent T-Test (SA) Pearson's R Correlation (CUSE)
	HPV Awareness	Aware=0 Not Aware=1	Chi-Squared (SA) Independent T-Test (CUSE)
	HPV Knowledge	Continuous	Independent T-Test (SA) Pearson's R Correlation (CUSE)

S.A.3	Cues to Action	Yes=0 No=1	Chi-Squared (SA) Independent T-Test (CUSE)
S.A.4	Susceptibility/Severity	Continuous	Independent T-Test (SA) Pearson's R Correlation (CUSE)
	Benefits/Barriers	Continuous	Independent T-Test (SA) Pearson's R Correlation (CUSE)
S.A.5	Partner's/s' Susceptibility/Severity	Continuous	Independent T-Test (SA) Pearson's R Correlation (CUSE)
	Partner's/s' Benefits/Barriers	Continuous	Independent T-Test (SA) Pearson's R Correlation (CUSE)
S.A.6	Attitude	Strongly Disagree=1 Disagree=2 Agree= 3	Chi-Squared (SA) One Way ANOVA (CUSE)
	Subjective Norms*	Disagree= 1 Agree= 2 Strongly Agree= 3	Chi-Squared (SA)
	Perceived Behavior Control	Disagree= 1 Agree= 2 Strongly Agree= 3	Chi-Squared (SA) One Way ANOVA (CUSE)
S.A.7	Labeling	Disagree=0 Agree=1	Chi-Squared (SA) Independent T-Test (CUSE)

\*Analysis not performed due to less than 5 cases

Table 2. Variable Assessment Table by Specific Aim for Categorical Dependent Variable

Specific Aim	Variables	Coding	Methods
S.A.1	Condom Use Self-Efficacy (CUSE)	5 Strongly Agrees on CUSE 4 or less Strongly Agrees on CUSE	Chi-Squared
	Sexual activity (SA)	Sexual Active=0 Sexual Inactive=1	
S.A.2	Ethnicity	White=0 Minority=1	Chi-Squared (CUSE)

	Education	College Degree=1 Less than College Degree=0	Chi-Squared (CUSE)
	Relationship Status	In a Relationship=0 Not in a Relationship=1	Chi-Squared (CUSE)
	Lifetime Number of Partners	1-2=1 3-4=2 5-10=3 11+=4	Chi-Squared (CUSE)
	Age	Continuous	Independent T-Test (CUSE)
	HPV Awareness	Aware=0 Not Aware=1	
	HPV Knowledge	Continuous	Independent T-Test (CUSE)
S.A.3	Cues to Action	Yes=0 No=1	Chi-Squared (CUSE)
S.A.4	Susceptibility/Severity	Continuous	Independent T-Test (CUSE)
	Benefits/Barriers	Continuous	Independent T-Test (CUSE)
S.A.5	Partner's/s' Susceptibility/Severity	Continuous	Independent T-Test (CUSE)
	Partner's/s' Benefits/Barriers	Continuous	Independent T-Test (CUSE)
S.A.6	Attitude	Strongly Disagree=1 Disagree=2 Agree= 3	Chi-Squared (CUSE)
	Subjective Norms*	Disagree= 1 Agree= 2 Strongly Agree= 3	
	Perceived Behavior Control	Disagree= 1 Agree= 2 Strongly Agree= 3	Chi-Squared (CUSE)
S.A.7	Labeling	Disagree=0 Agree=1	Chi-Squared (CUSE)



\*Analysis not performed due to less than 5 cases

Table 3. Categorical Variables Divided by Sexual Activity

<b>Variable</b>	<b>Sexually Active %</b>	<b>Sexually Inactive %</b>	<b>Total Frequency %</b>
<b>Ethnicity</b>			
American Indian	1(3%)	2(5%)	3(4%)
Asian	2(5%)	2(5%)	4(5%)
Black	6(16%)	8(20%)	14(18%)
Native Hawaiian	0(0%)	1(3%)	1(1%)
White	24(63%)	23(58%)	47(60%)
Hispanic/Latina	5(13%)	3(8%)	8(10%)
Minority	14(37%)	16(41%)	30(39%)
<b>Age Range</b>			
50-55	9(24%)	5(13%)	14(18%)
56-60	9(24%)	4(10%)	13(17%)
61-65	11(29%)	8(20%)	19(24%)
66-70	5(13%)	9(23%)	14(18%)
71-75	3(8%)	8(20%)	11(14%)
76+	0(0%)	4(10%)	4(5%)
<b>Relationship Status***</b>			
Married	28(74%)	18(45%)	46(59%)
Divorced	4(11%)	8(20%)	12(15%)
Single	2(5%)	5(13%)	7(9%)
Cohabiting	3(8%)	0(0%)	3(4%)
Widow	1(3%)	8(20%)	9(12%)
In a Relationship	31(82%)	18(46%)	49(64%)
Not in a Relationship	7(18%)	21(54%)	28(36%)
<b>Lifetime Number of Sexual Partners</b>			
0	1(3%)	0(0%)	1(1%)
1 or 2	17(44.7%)	15(38%)	32(41)
3 or 4	8(21%)	10(25%)	18(23%)
5 to 10	9(24%)	5(13%)	14(18%)
11+	3(8%)	7(18%)	10(13%)
<b>Education</b>			
12th grade or lower	3(8%)	1(3%)	4(5%)

	GED	0(0%)	1(3%)	1(1%)
	High School Graduate	6(16%)	7(18%)	13(17%)
	Trade School	3(8%)	1(3%)	4(5%)
	Some College	8(21%)	9(23%)	17(22%)
	College Graduate	13(34%)	14(35%)	27(35%)
	Graduate School Degree	5(13%)	6(15%)	11(14%)
	Has College Degree	18(47%)	20(51%)	38(49%)
	Less than College Degree	20(52%)	19(48%)	28(36%)
Religion				
	Yes	29(76%)	33(83%)	62(84%)
	No	7(18%)	5(13%)	12(16%)
Spirituality				
	Yes	19(50%)	27(68%)	46(61%)
	No	18(47%)	11(28%)	29(39%)
Smoke Cigarettes				
	Yes	4(11%)	5(13%)	9(12%)
	No	34(90%)	32(87%)	66(85%)
Drink Alcohol				
	Yes	21(55%)	16(40%)	37(47%)
	No	17(45%)	21(53%)	38(49%)
HPV Awareness				
	Yes	32(87%)	29(85%)	61(86%)
	No	5(13%)	5(15%)	10(14%)
Cues to Action				
	Yes	16(42%)	14(37%)	30(40%)
	No	22(58%)	24(63%)	46(61%)
Attitude				
	Strongly Disagree	9(26%)	17(52%)	26(38%)
	Disagree	12(34%)	8(20%)	20(29%)
	Agree	14(40%)	8(24%)	22(32%)
Subjective Norms				
	Disagree	6(16%)	4(12%)	10(14%)
	Agree	10(27%)	11(32%)	21(30%)
	Strongly Agree	21(57%)	19(56%)	40(56%)
Perceived Behavior Control				
	Disagree	8(22%)	6(15%)	14(21%)

Labeling	Agree	9(25%)	9(23%)	18(27%)
	Strongly Agree	19(53%)	17(43%)	36(53%)
	Disagree	27(75%)	22(71%)	49(73%)
	Agree	9(25%)	9(29%)	18(27%)

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Table 4. Continuous Variables Divided by Sexual Activity

Variable	Sexually Active (SD)	Sexually Inactive (SD)	Total Frequency (SD)
Age**	60.6(6.5)	66.1(8.4)	63.3(8.0)
Age of First Intercourse	19.0(3.2)	19.3(3.8)	19.1(3.5)
HPV Knowledge	8.2(3.0)	7.3(3.9)	7.75(3.5)
Susceptibility/Severity	2.8(1.1)	2.7(1.2)	2.8(1.2)
Benefits/Barriers	1.7(0.9)	1.4(0.6)	1.6(0.8)
Partner's/s' Susceptibility/Severity	3.1(1.1)	2.7(1.3)	2.9(1.2)
Partner's/s' Benefits/Barriers	2.3(0.9)	2.1(0.8)	2.2(0.9)

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

*S.A.1. To examine the prevalence of current condom use self-efficacy between sexually active and sexually inactive postmenopausal women.*

It was hypothesized that those women who are sexually active will report lower levels of condom use self-efficacy than sexually inactive women. Among this sample 49% were sexually active and 51% were sexually inactive. The average score of condom use self-efficacy was 3.3 (SD= 0.6). An independent-sample T-test was conducted to compare condom use self-efficacy and sexual activity. There was not a significant difference in condom use self-efficacy between sexually active women (M=3.2, SD=0.6)

and women who were sexually inactive ( $M=3.4$ ,  $SD=0.6$ );  $t(54)= 1.2$ ,  $p= 0.2$  (See Table 5.). This relationship was not significant between the recoded condom use self-efficacy and sexual activity (see Table 8.).

*S.A.2. To examine social demographic factors that relate to current condom use self-efficacy between sexually active and sexually inactive postmenopausal women.*

It was hypothesized that women who are younger and are in a relationship will be more likely to be sexually active. A chi-squared test of independence was conducted to compare relationship status and sexual activity. There was a significant difference in the distribution of relationship statuses of sexually active women and sexually inactive women. Women in a relationship were more likely to be sexually active,  $X^2 (1, N=77) = 10.4$ ,  $p< 0.01$  (See Table 3.). An independent-sample T-test was conducted to compare age with sexual activity. There was a significant difference in the age of sexually active women ( $M=60.6$ ,  $SD=6.5$ ) and sexually inactive women ( $M=66.1$ ,  $SD=8.4$ );  $t(73)= 1.4$ ,  $p= 0.02$  (see Table 4.).

It was hypothesized that those women who are white, had college degree, had higher numbers of lifetime partners, not in a relationship, and have more awareness/knowledge of HPV would have higher levels of condom use self-efficacy. An independent-sample T-test was conducted to compare the condom use self-efficacy rates between those with and without HPV awareness. There was a significant difference in the condom use self-efficacy of women who were aware of HPV ( $M=3.4$ ,  $SD=0.6$ ) and women who were not aware of HPV ( $M=2.8$ ,  $SD=0.6$ );  $t(49)= 2.3$ ,  $p= 0.03$  (See Table 5.). An ANOVA was conducted to compare the condom use self-efficacy rates of the different values of lifetime number of partners provided by the participants. The main effect of

lifetime number of partners was significant,  $F(3, 70) = 5.0, p < 0.01$ . Post hoc analyses using Scheffe post hoc criterion for significance indicated that women who had 1 to 2 partners ( $M=2.9, SD=0.6$ ) in their lifetime had significantly lower levels of condom use self-efficacy than in women who had 3 to 4 partners ( $M=3.5, SD=0.4$ ) and women who had 11+ partners ( $M=3.3, SD=0.6$ ) (see Table 6.). The other hypothesized variables were not significant related to condom use self-efficacy (Age, Ethnicity, Education, and Relationship Status) (see Table 5. and Table 7.). None of the variables had a significant relationship with the recoded condom use self-efficacy (see Table 8.).

*S.A.3. To examine factors of the HBM that relate to Cues to Action that apply to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Participants were asked if they know/have known anyone who has/had an STD. It was hypothesized that Cues to Action would be low in this sample and that there would not be a difference in sexual activity status. The majority of the sample did not know someone who was infected with an STD (59%). Among participants who were sexually active, 42% knew someone who was infected with an STD. Those who were sexually inactive, 37% knew someone who was infected with an STD. A chi-squared test of independence was conducted to compare Cues to Action and sexual activity. The relationship between Cues to Action and sexual activity was not significant,  $X^2 (1, N=76) = 0.2, p=0.6$  (see Table 4.). It was hypothesized that women who know someone suffering from an STD would report higher levels of condom use self-efficacy than women who do not know someone suffering from an STD. An independent-sample T-test was conducted to compare Cues to Action and condom use self-efficacy. There was not a significant

difference in condom use self-efficacy between women who reported Cues to Action (M=3.3, SD=0.6) and those who did not report Cues to Action (M=3.3, SD=0.6);  $t(53)=0.1$ ,  $p=0.9$  (see Table 5.). Cues to Action did not have a significant relationship with the recoded condom use self-efficacy (see Table 8.).

*S.A.4. To examine factors of the HBM that relate to a self-awareness of Susceptibility/Severity and Benefits/Barriers and how that awareness affects current condom use self-efficacy in sexually active and sexually inactive postmenopausal women.*

Susceptibility/Severity: Participants were asked “*I am not the kind of person who could have a STD and I do not have sex with the kind of person who could have a STD.*” It was hypothesized that this sample would report low levels of Susceptibility/Severity regardless of sexual activity status. The average score was 2.8 (SD=1.2). An independent-sample T-test was conducted to compare the awareness of Susceptibility/Severity and sexual activity. There was not a significant difference in the Susceptibility/Severity of sexually active women (M=2.8, SD=1.1) and women who were sexually inactive (M=2.7, SD=1.2);  $t(64)=0.5$ ,  $p=0.6$  (see Table 4.). It was hypothesized that women who report higher levels of Susceptibility/Severity will report higher levels of condom use self-efficacy. A Pearson’s R correlation was conducted to compare Susceptibility/Severity and condom use self-efficacy. Susceptibility/Severity and condom use self-efficacy were not significantly correlated,  $r=0.1$ ,  $p=0.1$  (see Table 7.). Susceptibility/Severity did not have a significant relationship with the recoded condom use self-efficacy (see Table 9.).

Benefits/Barriers: Participants were asked to rate the statements *Using condoms is immoral*, *It is embarrassing to buy condoms*, and *Its hard to find a place to buy condoms*. It was hypothesized that this sample would report high levels of Benefits/Barriers

regardless of sexual activity status. The average score was 1.6 (SD=0.8). An independent-sample T-test was conducted to compare Benefits/Barriers and sexual activity. There was not a significant difference in the Benefits/Barriers of sexually active women (M=1.7, SD=0.9) and women who were sexually inactive (M=1.4, SD=0.6);  $t(68)= 1.7$   $p= 0.09$  (see Table 4.). It was hypothesized that women who report lower levels of Benefits/Barriers will report higher levels of condom use self-efficacy. A Pearson's R correlation was conducted to compare Benefits/Barriers and condom use self-efficacy. Benefits/Barriers and condom use self-efficacy were not significantly correlated,  $r=-0.1$ ,  $p=0.3$  (see Table 7.). Benefits/Barriers did not have a significant relationship with the recoded condom use self-efficacy (see Table 9.).

*S.A.5. To examine factors of the HBM that relate to the participants' perception of their partner's/s' attitudes about Susceptibility/Severity and Benefits/Barriers and how that perception of attitude affects the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Susceptibility/Severity: Participants were asked to rate the statement *My partner is not the kind of person who could have a STD, and My partner does not have sex with the kind of person who could have a STD*. It was hypothesized that this sample will report low levels of perceived partner's/s' Susceptibility/Severity regardless of sexual activity status. The average score was 2.9 (SD=1.2). An independent-sample T-test was conducted to compare perceived partner's/s' Susceptibility/Severity and sexual activity. There was not a significant difference in the perceived partner's/s' Susceptibility/Severity of sexually active women (M=3.1, SD=1.0) and women who were sexually inactive (M=2.7, SD=1.3);  $t(58)= 1.4$ ,  $p= 0.2$  (see Table 4.). It is hypothesized that women who

report higher levels of perceived partner's/s' Susceptibility/Severity will report higher levels of condom use self-efficacy. A Pearson's R correlation was conducted to compare perceived partner's/s' Susceptibility/Severity and condom use self-efficacy. Perceived partner's/s' Susceptibility/Severity and condom use self-efficacy were not significantly correlated,  $r=-0.01$ ,  $p=0.9$  (see Table 7.). Perceived partner's/s' Susceptibility/Severity did not have a significant relationship with the recoded condom use self-efficacy (see Table 9.).

Benefits/Barriers: Participants were asked nine statements that assess the negative aspects of perceived condom use. It is hypothesized that this sample will report high levels of perceived partner's/s' Benefits/Barriers regardless of sexual activity status. The average score was 2.2 (SD=0.9). An independent-sample T-test was conducted to compare perceived partner's/s' Benefits/Barriers and sexual activity. There was not a significant difference in the perceived partner's/s' Benefits/Barriers of sexually active women ( $M=2.3$ ,  $SD=0.9$ ) and women who were sexually inactive ( $M=2.1$ ,  $SD=0.8$ );  $t(56)=1.0$ ,  $p=0.3$  (see Table 3.). It is hypothesized that those women who report lower levels of perceived partner's/s' Benefits/Barriers will report higher levels of condom use self-efficacy. A Pearson's R correlation was conducted to compare perceived partner's/s' Benefits/Barriers and condom use self-efficacy. Perceived partner's/s' Benefits/Barriers and condom use self-efficacy were significantly correlated,  $r=-0.4$ ,  $p<0.01$  (see Table 7.). Perceived partner's/s' Benefits/Barriers did have a significant relationship with the recoded condom use self-efficacy. An independent-sample T-test was conducted to compare the average score of perceived partner's/s' Benefits/Barriers between high and low condom use self-efficacy. There was a significant difference in perceived partner's/s'



Benefits/Barriers between high levels of condom use self-efficacy ( $M=3.3$ ,  $SD=0.6$ ) and low levels of condom use self-efficacy ( $M=3.3$ ,  $SD=0.6$ );  $t(53)=0.1$ ,  $p=0.9$  (see Table 9.). This variable was loaded into the logistic regression model using the standard model. This variable was not a significant predictor in the regression model ( $p=0.09$ ) (see Table 10.)

*S.A.6. To examine factors of the TPB that relate to Attitude, Subjective Norms, and Perceived Behavioral Control that relate to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Attitude: Participants were asked to rate the statement *Using condoms during sexual intercourse would be*. It was hypothesized that sexually active women have less favorable attitudes toward condom use. The mode was Strongly Disagree (38%). A chi-squared test was conducted to compare Attitude and sexual activity. There was not a significant difference in the distribution of Attitude of sexually active women and sexually inactive women,  $X^2(1, N=68)=4.8$ ,  $p=0.09$  (see Table 3.). It is hypothesized that those women with positive Attitudes will have higher levels of condom use self-efficacy. An ANOVA was conducted to compare Attitude to condom use self-efficacy. The main effect of Attitude was significant,  $F(2, 29)=4.0$ ,  $p=0.03$ . Post hoc analyses using Scheffe post hoc criterion for significance indicated that women who Strongly Disagreed ( $M=3.7$ ,  $SD=0.4$ ) had significantly higher levels of condom use self-efficacy than women who Disagreed ( $M=3.2$ ,  $SD=0.6$ ) and Agreed ( $M=3.2$ ,  $SD=0.6$ ) (see Table 6.). Attitude did not have a significant relationship with the recoded condom use self-efficacy (see Table 9.).

Subjective Norms: Participants were asked to rate the statement *Friends and family would approve of the use of condoms during sexual intercourse*. It was hypothesized that this sample would report positive subjective norms regardless of sexual activity status. It was hypothesized that women with positive Subjective Norms would have higher levels of condom use self-efficacy. The mode was Strongly Agree (56%). Due to the number of cases of Disagree (N=10), chi-squared and ANOVA statistics were not performed due to test violations.

Perceived Behavioral Control: Participants were asked to rate the statement *I could persuade my partner to use a condom even if they did not want to use one*. It is hypothesized that this sample will report low levels of perceived behavior control regardless of sexual activity status. The mode was Strongly Agree (53%). A chi-squared test was conducted to compare Perceived Behavioral Control and sexual activity. There was not a significant difference in the distribution of Perceived Behavioral Control of sexually active women and sexually inactive women,  $X^2 (1, N= 68) = 4.8, p = 0.09$  (see Table 3.). It was hypothesized that women with positive Perceived Behavior Control would have higher levels of condom use self-efficacy. An ANOVA was conducted to compare Perceived Behavioral Control to condom use self-efficacy. The main effect of Perceived Behavioral Control was significant,  $F(2, 51) = 7.5, p=0.001$ . Post hoc analyses using Scheffe post hoc criterion for significance indicated that women who Strongly Agree ( $M=3.5, SD=0.5$ ) had significantly higher levels of condom use self-efficacy than women who Agreed ( $M=3.1, SD=0.6$ ) or Disagreed ( $M=2.8, SD=0.4$ ) (see Table 6.). This variable was recoded into a dummy variable (Strongly Agree versus ELSE) and loaded

into the logistic regression model using the standard model. This variable was not a significant predictor in the regression model ( $p=0.07$ ) (see Table 10.)

*S.A.7. To examine factors of Labeling and how it relates to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Participants were asked “*How concerned are you that you may have had sex with someone in the past who may have given you an STD?*” It was hypothesized that women would not Label themselves as Concerned, regardless of sexual activity status. The average score was 1.9 (SD=1.2). A chi-squared test of independence was conducted to compare Labeling and sexual activity. The relationship between Labeling and sexual activity was not significant,  $X^2 (1, N=67) = 0.1, p=0.7$ (see Table 3.). It was hypothesized that women who Label themselves as Concerned would report lower levels of condom use self-efficacy. An independent-sample T-test was conducted to compare Labeling and condom use self-efficacy. There was not a significant difference in condom use self-efficacy between women who agreed with Labeling ( $M=3.5, SD=0.6$ ) and those who disagreed with Labeling ( $M=3.2, SD=0.6$ );  $t(50)= 1.8, p= 0.1$  (see Table 5.). Labeling did not have a significant relationship with the recoded condom use self-efficacy (see Table 9.).

Table 5. Independent T-Test Scores of Categorical Variables with 2 levels  
compared to Continuous Condom Use Self Efficacy

Variable	Grouping	Mean	t	df	sig
Sexual activity	Sexually Active	3.2(0.6)	1.2	54	0.2
	Sexually Inactive	3.4(0.6)			
Ethnicity	White	3.3(0.6)	0.1	54	0.9
	Minority	3.3(0.6)			

Education	Less than College Degree	3.3(0.6)	0.03	53	0.9
	College Degree	3.3(0.6)			
Relationship Status	In a Relationship	3.3(0.6)	0.7	53	0.5
	Not in a Relationship	3.3(0.6)			
HPV Awareness	Yes	3.4(0.6)	2.3	49	0.03*
	No	2.8(0.6)			
Cues to Action	Yes	3.3(0.6)	0.1	53	0.9
	No	3.3(0.6)			
Labeling	Disagree	3.2(0.6)	1.8	50	0.07
	Agree	3.5(0.5)			

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Table 6. ANOVA scores of Categorical Variables with more than 2 levels compared to

Continuous Condom Use Self Efficacy

Variable	Grouping	Mean	F	df	sig
Lifetime Number of Partners	1-2	2.9(0.6)	5.0	3, 50	0.004**
	3-4	3.5(0.50)			
	5-10	3.4(0.4)			
	11+	3.7(0.5)			
Attitude	Strongly Disagree	3.7(0.4)	4.0	2, 49	0.03*
	Disagree	3.2(0.6)			
	Agree	3.2(0.6)			
Perceived Behavior Control	Disagree	2.8(0.4)	7.5	2, 51	0.001**
	Agree	3.1(0.6)			
	Strongly Agree	3.5(0.5)			

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Table 7. Pearson's R Correlation Scores for Continuous Variables and Continuous

## Condom Use Self-Efficacy

<b>Variable</b>	<b>Mean</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
1. Condom Use Self-Efficacy	3.3(0.6)	1						
2. Age	60.6(6.5)	0.03	1					
3. HPV Knowledge	8.2(3.0)	-0.1	-0.4**	1				
4. Susceptibility/Severity	2.8(1.1)	0.1	0.4**	0.2	1			
5. Benefits/ Barriers	1.7(0.9)	-0.1	0.1	0.2	-0.4**	1		
6. Partner's/s' Susceptibility/Severity	3.1(1.1)	0.01	0.2	-0.3*	0.6**	0.3*	1	
7. Partner's/s' Benefits/Barriers	2.3(0.9)	-0.4**	-0.1	0.1	-0.2	0.03	0.1	1

\*p&lt;0.05, \*\*p&lt;0.01, \*\*\*p&lt;0.001

Table 8. Chi-Squared Scores of Categorical Variables compared to Categorical Condom

## Use Self Efficacy

<b>Variable</b>	<b>5 Strongly Agrees</b>	<b>4 or Less Strongly Agrees</b>
Sexual activity		
Yes	6	27
No	8	15
Ethnicity		
White	8	26
Minority	6	16
Education		
College Degree	8	20
Less Than College	5	22
Degree		
Relationship Status		
In a Relationship	7	29
Not in a Relationship	6	13
HPV Awareness		
Yes	13	32
No	1	5
Cues to Action		
Yes	4	19
No	9	23

Attitude		
Strongly Disagree	7	8
Agree	2	14
Strongly Agree	4	17
Subjective Norms		
Disagree	1	3
Agree	2	15
Strongly Agree	11	22
Perceived Behavior Control*		
Disagree	0	10
Agree	2	12
Strongly Agree	12	18
Labeling		
Disagree	7	31
Agree	5	9

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Table 9. Independent T-Test Scores for Continuous Variables and Categorical Condom

Use Self-Efficacy					
Variable	Grouping	Mean	t	df	sig
Age	5 Strongly Agrees	63.2 (7.4)	-0.5	53	0.6
	4 or less Strongly Agrees	61.9 (8.1)			
HPV Knowledge	5 Strongly Agrees	7.4 (4.3)	0.9	46	0.3
	4 or less Strongly Agrees	8.4 (3.1)			
Susceptibility/ Severity	5 Strongly Agrees	2.9 (1.2)	-0.8	50	0.4
	4 or less Strongly Agrees	2.6 (1.1)			
Benefits/ Barriers	5 Strongly Agrees	1.6 (0.9)	-0.1	51	0.9
	4 or less Strongly Agrees	1.6 (0.7)			
Partner's/s' Susceptibility/Severity	5 Strongly Agrees	2.9 (1.1)	2.5	43	0.02*
	4 or less Strongly Agrees	3.2 (1.2)			
Partner's/s' Benefits/Barriers	5 Strongly Agrees	3.3(0.6)	0.1	53	0.9

4 or less  
Strongly Agrees 3.3(0.6)

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Table 10. Logistic Regression Analysis of Categorical Condom Use Self-Efficacy

Variable	B	S.E.	Sig.	Odd ratio
Perceived Behavior Control (1=Strongly Agree, 0=ELSE)	-1.0	.6	.07	0.4
Average Score of Perceived Partner's/s' Barriers/Benefits	-1.5	.9	.09	0.2
Constant	1.7	1.2	.2	5.4

### Summary of Results

The major finding of this research is that there are not many differences between sexually active and sexually inactive postmenopausal women. Those who are sexually active tend to be younger and in a relationship. Very limited inference can be concluded from this data, as the dependent variable violated the assumption of normality. This means that this sample was very homogenous in terms of the dependent variable. Most of the sample reported a high level of condom use self-efficacy and had a high level of HPV awareness, even though they had lower than expected levels of HPV knowledge (regardless of demographic variables). The bivariate statistics should be interpreted as trends for future testing. The only two variables that were significantly related to the recoded dependent variable, condom use self-efficacy, were not significantly related to the regression model. Therefore, inference from these variables cannot be made as the bivariate statistics might have type 1 errors. Overall, the results of this sample were very homogeneous and the only inferences that can be made at this time are descriptive.

## Chapter 6

### Discussion

#### Demographics

This dissertation sought to make comparisons between sexually active and sexually inactive postmenopausal women over the age of 50 and to see which factors impacted this population's condom use self-efficacy levels. The analysis was done using descriptive and quantitative data about the demographics. Major variables were derived from the HBM, the TRA/TPB, and the ARRM. The inclusion of these factors and the characteristics of the population made this study innovative.

This sample was unique compared to other studies that examine condom use, sexual activity, and STD awareness among older adults. This sample's mean age, while similar to other studies' mean ages, were more educated than other samples (Henderson et al., 2004; Hillman, 2007). This sample was further set apart because of the number of lifetime partners reported by participants. Like many other research samples, the highest percentage reported 1 or 2 partners (41%), but 23% reported 3 or 4, 18% reported 5 to 10, and 13% reported more than 10. This study is innovative because there is no known study that has examined these factors among a sample similar to this one.

*S.A.1. To examine the prevalence of current condom use self-efficacy between sexually active and sexually inactive postmenopausal women.*

This sample was divided almost equally in terms of sexual activity, with 49% self-reporting that they had been sexually active in the past 12 months and 51% self-reporting



that they had not been. Of those who claimed to be sexually inactive, 72% reported that they had no desire to be sexually active in the future. It was hypothesized that women who are sexually active will report lower levels of condom use self-efficacy. This hypothesis was not supported, as there was not a significant difference or trend between the two groups in this sample. Further analysis provided more insight.

A chi-squared test of independence was conducted to compare those who completed the condom use self-efficacy scale and sexual activity. There was a significant difference in the distribution of sexually active women and sexually inactive women,  $X^2 (1, N=77) = 8.3, p = 0.004$ . A chi-squared test of independence was conducted among those who were not sexually active to compare those who completed the condom use self-efficacy scale and desire to resume sexual activity. There was a significant difference in the distribution of women who wished to resume sexual activity and those who did not,  $X^2 (1, N=44) = 4.0, p = 0.05$ . Those women who were sexually active were significantly more likely to complete the condom use self-efficacy scale. Therefore, this scale, like other piloted measures, might not be relatable to women who are sexually inactive, especially since those sexually inactive women who did not wish to resume sexual activity were the participants least likely to complete the scale.

An independent-sample T-test was conducted among those who were not sexually active to compare condom use self-efficacy scores and desire to resume sexual activity. There was not a significant difference in condom use self-efficacy between those who desired to resume sexual activity ( $M=3.4, SD=0.6$ ) and those who did not desire to resume sexual activity ( $M=3.4, SD=0.6$ );  $t(24) = 0.02, p = 0.9$ .

Because this group was more educated and had a large subpopulation of women not interested in sexual activity, they might feel that they have more negotiation power with their partners. It was clear that among this population, those who desire to resume sexual activity (27% of sexually inactive women) felt that their level of condom use self-efficacy was relevant, as the majority of these participants (over 80%) completed the scale. It was hypothesized that condom use and condom use self-efficacy would be low. The hypothesis that condom use would be low was supported; only 6% of the sample reported using condoms in the past year. While condom use was low in this population, condom use self-efficacy was higher than other studies that have used this scale (Zhao et al., 2008).

*S.A.2. To examine social demographic factors that relate to current condom use self-efficacy between sexually active and sexually inactive postmenopausal women.*

It was hypothesized that women who are younger and in a relationship would be more likely to be sexually active. There is vast research that women are more likely to remain sexually active if there is an available partner (Hooyman & Kiyak, 2008). In addition to relationship status, age plays a factor because there is research supporting that as one ages, they or their partner are more likely to suffer health consequences (Butler, 2008) and be less likely to engage in strenuous sexual activity. With more health consequences, sexual activity becomes more difficult (Hooyman & Kiyak, 2008; Ginsberg et al., 2005). Overall, there were not many differences in age or relationship status between sexually active and sexually inactive women.

It was hypothesized that women who are educated, have higher numbers of lifetime partners, and have more awareness/knowledge of HPV would report higher

levels of condom use self-efficacy. Only two of the demographic variables were significantly related to condom use self-efficacy: lifetime number of sexual partners and awareness of HPV. However, due to the risk of type 1 error, only inferences about descriptive statistics will be made. Lifetime number of sexual partners was broken up into categories, as pilot work shows that most women will leave the field blank if it is continuous (Rose, 2010). As stated earlier, this population self-reported a higher number of lifetime sexual partners than other studies (de Sanjose, Cortes, Mendez, Puig-Tintore, Torne, Roura, Bosch, and Castellsague, 2008). Perhaps this population had a high level of condom use self-efficacy because of their experience with multiple partners. In studies of younger populations, women who report higher numbers of sexual partners are more likely to report condom use and higher levels of condom use self-efficacy (Farmer & Meston, 2006).

HPV awareness was also significantly linked to condom use self-efficacy such that the women who were aware of HPV were more likely to report higher levels of condom use self-efficacy than women who were not aware of HPV. Again, inference cannot be made due to risk of type 1 error, but it was clear that this sample was aware of HPV and had higher condom use self-efficacy scores than expected.

While not being significant to sexual activity status or condom use self-efficacy, the variable KAPS HPV Knowledge Scale provided some insight into this population and their higher than expected awareness of HPV. Only 10 participants of this sample (13%) had never heard of HPV. This number is actually considered low, but this sample was more aware than other samples. A college-aged sample reported that 21% had never heard of HPV (Lopez & McMahan, 2007). While this sample was more aware of HPV

than other samples, that awareness did not equate to being knowledgeable about the STD. Of those who were aware of HPV, only 2 answered every question correctly. The mean score was 8.37 (2.74) and comparable to younger populations (Lopez & McMahan, 2007). It is clear that HPV awareness has reached this population, but there is a great deal of confusion and misinformation. This is especially alarming because the only STDs the participants reported suffering from was HPV, and many of the participants were attending this clinic because they suffered from cervical dysplasia caused by HPV (CDC, 2010a).

*S.A.3. To examine factors of the HBM that relate to Cues to Action that apply to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

It was hypothesized that Cues to Action would be low among this population, and there would not be a difference between sexual activity statuses. The majority of participants did not know someone that was infected with an STD. Among those who knew someone with an STD, 4% reported that their partner had the STD. There was no significant difference between the two groups of women, and this variable was not significantly related to condom use self-efficacy. However, among those who reported that their partner had an STD, 100% of them did not report sexual activity in the past 12 months. No information about the reasons for the lack of sexual activity was collected, but if the presence of an STD in a partner is the reason, these women could benefit from condom use educational interventions so that they could resume safe sexual activity. This would be impactful in this population as one-third of the sexually inactive participants in this sample reported a desire to resume sexual activity.

Overall, the percentage of women who reported knowing someone with an STD was relatively low compared to other studies (McDonnell, 2005; Small, 2009). It was hypothesized that women who knew someone suffering from an STD would report higher levels of condom use self-efficacy than women who did not know someone suffering from an STD. This hypothesis was not supported, as there was not a significant relationship between these two variables.

*S.A.4. To examine factors of the HBM that relate to a self-awareness of Susceptibility/Severity and Benefits/Barriers and how that awareness affects current condom use self-efficacy in sexually active and sexually inactive postmenopausal women.*

Susceptibility/Severity: It was hypothesized that this sample would report low levels of Susceptibility/Severity regardless of sexual activity status. While this score was not significantly different between the two groups of women or significantly related to condom use self-efficacy, 27% of this sample reported strong feelings of susceptibility for both questions. This is higher than other populations who are considered more “at-risk” (Catania et al., 1994). This result is surprising since only 2 participants (3%) self-reported to have an STD (both reported HPV), and 9 participants (15%) reported that they believed their partner to be unfaithful. More research on STD denial would be beneficial, as this population reported a higher than expected number of lifetime sexual partners. It is unclear if the women feel susceptible because of a previous partner or a current partner.

It was further hypothesized that women who report higher levels of Susceptibility/Severity would report higher levels of condom use self-efficacy than women who report lower levels of Susceptibility/Severity. This hypothesis was not supported, as there was not a significant relationship between these two variables.

Benefits/Barriers: It was hypothesized that this sample would report high levels of Benefits/Barriers regardless of sexual activity status. While this score was not significantly related between the two groups of women, there was a strong trend that sexually active women reported more barriers than sexually inactive women, and it was significant at the  $p < 0.1$  level. It was further hypothesized that women who report lower levels of Benefits/Barriers would report higher levels of condom use self-efficacy than women who report higher levels of Benefits/Barriers. This hypothesis was not supported as there was not significant relationship between these two variables. Homogeneity of the scores could have contributed to this as most of the participants reported consistently low levels of barriers.

*S.A.5. To examine factors of the HBM that relate to the participants' perception of their partner's/s' attitudes about Susceptibility/Severity and Benefits/Barriers and how that perception of attitude affects the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Susceptibility/Severity: It was hypothesized that this sample would report low levels of perceived partner's/s' Susceptibility/Severity regardless of sexual activity status. While this score was not significantly different between the two groups of women or significantly related to condom use self-efficacy, this population reported that they perceived their partners to be less susceptible than themselves (partner susceptibility 2.90, self-susceptibility 2.81, with 1 being the highest level of susceptibility and 4 being the lowest). However, these two variables were significantly related (Pearson's  $R = 0.6$ ,  $p < 0.01$ ), such that if a woman felt more susceptible, she also reported her partner to be more susceptible. It was further hypothesized that those women who report higher levels

of perceived partner's/s' Susceptibility/Severity would report higher levels of condom use self-efficacy than women who report lower levels of perceived partner's/s' Susceptibility/Severity. This hypothesis was not supported, as there was not a significant relationship between these two variables.

Benefits/Barriers: It was hypothesized that this sample would report low levels of perceived partner's/s' Benefits/Barriers regardless of sexual activity status. While this score was not significantly related between the two groups of women, this comparison is problematic as many sexually inactive women reported that they felt the scale did not relate to them and declined to complete it. In fact, those women who were sexually inactive were significantly less likely to complete this scale. Of those sexually inactive women who completed the scale, most of them were married (96%). It was further hypothesized that those women who report lower levels of perceived partner's/s' Benefits/Barriers would report higher levels of condom use self-efficacy than women who report higher levels of perceived partner's/s' Benefits/Barriers. These variables were significantly correlated to both the continuous and categorical version of dependent variable condom use self-efficacy. This means that if a woman felt that her partner had a more favorable view of condom use, she had higher condom use self-efficacy. Similar results have been found in younger populations (Farmer & Meston, 2006). This variable was not significant in the regression model; therefore inferences about this relationship run the risk of a type 1 error.

*S.A.6. To examine factors of the TPB that relate to Attitude, Subjective Norms, and Perceived Behavioral Control that relate to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

Attitude: It was hypothesized that women who are sexually active would have less favorable attitudes towards the use of condoms during sexual intercourse. This variable was not significantly related between the two groups of women; however there was a strong trend of sexually inactive women disagreeing that condoms would be unpleasant during sexual intercourse, thus reporting higher levels of Attitude ( $p < 0.1$ ) toward condom use. This may imply that sexually inactive women would not mind the idea of using a condom should they have sex again. Of the women who were sexually inactive, 75% were single (not in a relationship) and could potentially be sexually active again (19%). This might be a threat to reactivity, as STDs were the focus of this study and these women were aware of STDs while completing their survey. Thus at the time many may believe that condom use would not be unpleasant if they were with a new partner and that their partner's STD status was unknown. It was hypothesized that those women with positive Attitudes would have higher levels of condom use self-efficacy than those with negative Attitudes. This variable was significantly related to the continuous dependent variable condom use self-efficacy in that individuals who had more positive Attitudes were more likely to have higher levels of condom use self-efficacy. This is comparable to other studies; as individuals with high levels of condom use and condom use self-efficacy do not report condoms to be unpleasant during sexual intercourse (Ozakinci & Weinman, 2006). This inference is problematic and runs the risk of type 1 errors as this variable was not significantly related to the categorical dependent variable condom use self-efficacy.

Subjective Norms: It was hypothesized that this sample would report positive subjective norms regardless of sexual activity status. Bivariate statistics were not performed on this variable, as only 10 participants (14%) answered disagree, or reported



negative subjective norms. The division of this figure between sexually active and sexually inactive women reduced this number to 6 (8%) and 4 (6%) respectively. This sample overwhelming reported to have positive subjective norms about condom use. While there were no bivariate statistics done, the majority of sexually active and sexually inactive women reported to strongly agree that family or friends would approve of their use of condoms, 57% and 56% respectively. Only 16% of sexually active women and 12% of sexually inactive women disagreed. It was hypothesized that those women with positive Subjective Norms would have higher levels of condom use self-efficacy than those with negative Subjective Norms. While there is no statistical support of this hypothesis, as explained earlier, this sample had a high level of condom use self-efficacy. This is comparable to the findings of other studies that if an individual perceives others to have positive attitudes of condom use, they are more likely to have higher levels of condom use self-efficacy (Ozakinci & Weinman, 2006).

Perceived Behavioral Control: It was hypothesized that this sample would report low levels of perceived behavior control regardless of sexual activity status. This score was not significantly related between the two groups of women and the results did not support this hypothesis. It was hypothesized that those women with positive Perceived Behavior Control would have higher levels of condom use self-efficacy than those with negative Perceived Behavior Control. This variable was significantly correlated to both the continuous and categorical version of dependent variable condom use self-efficacy. Individuals, who strongly believed that they could persuade their partner to use a condom, exhibiting higher levels of Perceived Behavior Control, were more likely to have higher levels of condom use self-efficacy. This is comparable to other studies; if an

individual perceives to have more control over a sexual situation they are more likely to have higher levels of condom use self-efficacy (Munoz-Silva et al., 2007). This variable was not significant in the regression model; therefore inferences about this relationship run the risk of a type 1 error.

*S.A.7. To examine factors of Labeling and how it relates to the current condom use self-efficacy of sexually active and sexually inactive postmenopausal women.*

It was hypothesized women would not Label themselves as concerned that they may have an STD, regardless of sexual activity status, because empirical literature and pilot work largely show that this populations does not feel at risk. This hypothesis was supported; there was no significant relationship between these two variables. It was hypothesized that women who Label themselves as concerned that they may have an STD will report lower levels of condom use self-efficacy than women who Label themselves as not concerned that they may have an STD. This hypothesis was also not supported. This population was largely not concerned that they had slept with someone who had given them an STD (63%). This score was also not significantly related to self-susceptibility ( $p=0.1$ ) or partner susceptibility ( $p=0.7$ ). Therefore, even though this population felt that they might be susceptible to an STD, they do not tend to think that they have an STD. However, among those women who have a partner with an STD or reported that they themselves have an STD (6% of total sample), only 33% agreed that they were concerned that they had slept with someone who might have given them an STD. This is alarming as one of the women who self-reported to have HPV stated that she was not concerned that she had slept with someone in the past who may have given her an STD.

## Limitations

This research was new and exploratory and has several limitations. The design of this study was cross-sectional, and its procedure was designed to control for some threats to internal validity. These threats include attrition, history, instrumentation, maturation, and testing effect (Rubin & Babbie, 2008). The largest threat to internal validity was selection bias. All participants came from the same clinic in a major hospital in the South. The sample size affected the external validity of the sample. Condom use self-efficacy research is limited among postmenopausal women, so the results from this study will not be generalizable to other postmenopausal women attending different clinics in other hospital or institutions.

Among those who qualified, only 64% of individuals consented to participate. Reasons for lack of participation included: 1) being embarrassed concerning study topic; 2) being unable to concentrate on questionnaire as they were awaiting results of cancer screenings; 3) lacking information on STDs and condom use; 4) believing that the study was irrelevant to them; 5) worrying that their doctor would have access to their information. To combat these concerns, the researcher was respectful of those who declined to participate and made sure it was clear when obtaining informed consent that : 1) they were able to ask questions at any time, 2) their information was kept completely confidential, 3) and that any information they wished to disclose would be helpful.

Another issue with the study sample was the homogeneity of the sample. This was an exploratory study done on a largely white, middle class, and heterosexual female population. The author acknowledges that the exclusion of the LGBT population is a major limitation of this study. The author fully acknowledges that current policy and

gerontology research seeks to be inclusive of the LGBT population. This research could be called heterosexual bias. However, this is exploratory and is not meant to be inclusive or generalized to all older adults. Future research should include more of the LGBT population, specifically women who identify as bisexual, as research shows that this population tends to engage in risky sexual behaviors (Fredriksen-Goldsen et al., 2011). Due to these limitations, there will be no statements about external validity.

As with all research studies with similar designs, there was a possible threat to reactivity. It was possible that participants exaggerated or hid their answers to be more socially desirable. When obtaining informed consent, the researcher clearly stated the goals of this study and tried to bring awareness to the possible participants about the importance of providing true responses. However, with the high levels of condom use self-efficacy and the positive Attitudes, Subjective Norms, and Perceived Behavior Control scores, this threat to internal validity may have been present.

Other than study designs, another limitation of this study is its methodology. All information was based on self-report without any data to validate the responses. This was especially true in the self-report of STD infection. When the STD prevalence is based on self-report, the prevalence is much lower than with STD testing (Lindau et al., 2009, Lindau et al., 2008). The clinic currently does not offer such statistics, but future access to medical records or access to the pathology department might show higher rates.

Lastly, this study design was purely quantitative, so no qualitative data was collected. The goals of this study do not include the depths of the answers, but are instead more focused on exploring the basic impact these factors have on condom use self-efficacy. Most of the methodology was modified from similar studies done in younger

populations to see if the same results would be found in older, postmenopausal women. Future research should be inclusive of more qualitative methods to ensure that these modified methods are validated in this population. The use of qualitative data would be helpful in the future to not only ensure that a study of this kind is valid, but that implications from this kind of research are impactful.

## **Chapter 7**

### **Innovation, Implications, and Conclusions**

#### **Innovation**

This research into condom use is innovative in that it is taking on a topic that is difficult to study. In the introduction, an argument is presented to support why this research matters, but critics may say, “The population is so small. Why should attention be given to this research? Is it significant? Why should social work and the greater scientific community care?” The women in this population are confused, scared, and unaware that a virus called Human Papillomavirus has caused their cancer. After doctors inform them of how they probably got the virus from their sexual partner and that they have most likely had it for several years, many are still confused. Also for the critics who claim that this population is too small for attention, the CDC spends millions a year on Variant Creutzfeldt-Jakob disease; a fatal brain disorder in humans that is similar to mad cow disease. As of 1996, 217 cases have been reported with 3 of those being in the United States (CDC, 2010b). There are at least 3 cases of postmenopausal women with HPV in each OB/GYN clinic at this hospital.

This research is about condom use and condom use self-efficacy. This specific study is an initial step towards giving postmenopausal women the tools they need to protect themselves and to explore the C of the ABC model; Abstain, Be Faithful, and Use Condoms. The only FDA approved, effective way to prevent STDs for sexually active people is a latex condom; hence, this research focuses on this specific intervention and

how to best understand it. This research gives rise to many types of implications. Raising condom use self-efficacy may reduce the spread of all STDs and potentially improve the quality of health of this population.

### **Implications of Findings: Practice, Policy, and Research**

This study sought to examine the condom use self-efficacy levels of sexually active and sexually inactive postmenopausal women in order to understand how factors that impact condom use self-efficacy in younger populations (as supplied by the literature) also impact postmenopausal women. This complex issue used the concepts of the HMB, the TRA/TPB, and the ARRM to create an integrated framework to aid in operationally defining the many empirical factors. Many of these factors were linked to awareness. This prediction model has several implications for social workers and healthcare providers on a practice, policy, and research level. This exploratory research is a preliminary step in examining what factors might have an impact on the complex variable of condom use self-efficacy in order to inform evidence-based practices and interventions. Major conclusion is that there is a need for more research and attention. The following implications support that conclusion by offering support and strategies.

#### **Practice Implications**

This research sought to better understand and profile what factors had an impact on condom use self-efficacy. While this is an initial study, there are implications from this research that are relevant to social work practitioners and healthcare providers. These implications arise in these areas of interest: 1) the interest in the topic from the sample

who agreed to participate, 2) the impact of legislation on attitudes towards sexual behavior, 3) the use of Pap tests among this sample and the greater postmenopausal population, and 4) the possible integration of the ABC Model in healthcare settings.

The first practice implication is that this population is eager for more knowledge about STD prevention. There were a surprising number of women who were interested in the research and agreed to participate. This sample was eager to help shed light on this particular issue, and the study was well received. While this group does not typically use condoms, the participants reported high levels of condom use self-efficacy. This implies that for practice and future research, this sample would be receptive to an intervention, more information on this topic, and might be aware of their lack of awareness. While sex education is not generally geared towards this population perhaps it should be. There are examples from the literature that support older women being interested in risk reduction research. Altschuler and researchers (2004) held a preliminary educational course on HIV/AIDS for older adults that found that women were more likely to be interested in the topic and more likely to participate than their male counterparts. The older women in that study believed that an intervention geared towards their population would be a good idea, and they felt empowered when discussing the topic. A similar intervention targeting condom use or STD prevention within this sample might result in similarly favorable attitudes like those reported in the Altschuler study.

The participants in this sample came of age during a time when women were not given the same opportunities as their male counterparts (National Organization of Women, 2011). However, this population reported higher numbers of lifetime partners, education, HPV awareness, and mean scores of condom use self-efficacy than expected.



This unique group might have been a part of the movements that led to more equality for women. In a time when the healthcare of women is being decided almost exclusively by older men (Flock, 2012), the results from this sample provide an example of the impact of one's past experiences on their future awareness. When a group comes of age during a time of great changes in legislation concerning women's sexual rights, that legislation can impact personal factors like education, condom use self-efficacy, and awareness of STDs. Attention and resources should be given now to the spikes in STD prevalence this population is currently experiencing to ensure that when future generations come of age, a procedure is in place to prevent the spread of STDs in the elderly population. The current cohorts of women are hearing negative commentary concerning access to women's healthcare and reproductive rights (Fard, 2012). In informing practice, this study sought to examine which characteristics of women would be related to higher condom use self-efficacy levels in order to understand patterns that might inform future interventions. Healthcare providers, like social workers, should not think macro factors like legislation will not impact sexual health. There is a need to provide awareness through evidence based, and empirically tested education interventions for this generation of postmenopausal women, and coming generations, that STDs are a life-long risk. Legislation factors, however, were not directly tested in this study, so future research should incorporate the impact of current legislation to better inform practice.

Another implication of this research lies in the danger of forgoing medical screening as one ages. The lack of postmenopausal women who get routine Pap tests is concerning. The current recommendation for postmenopausal women is to get a Pap test every 3 years (US Department of Health and Human Services, Office of Women's Health,

2010). If a woman has a history of normal Pap tests, she may discontinue the routine after 65 if her doctor agrees. This doctor does not need to be a gynecologist, but can be a primary care physician (US Department of Health and Human Services, Office of Women's Health, 2010). Detecting cancer early is the best way to provide effective treatment; however the doctors working in this clinic reported that many of the women in this population did not see a doctor until they had abnormal bleeding and were unaware of the serious risk this discharge indicated about their health. If these women had gone in for routine Pap tests, not only would they have more opportunity to prevent the sexual health crises that are often linked to HPV, they would have been provided with more opportunities to discuss their sexual health, continued risk for STDs, and effective risk reduction practices like condom use with their healthcare providers.

This research supports this course of action because even though 51% of women were sexually inactive, 27% of those women expressed a desire to be sexually active again. As long as one is sexually active, one is at risk for contracting STDs, regardless of age. Also 15% of this sample reported that they knew their partners were not faithful (and most of them did not report condom use), greatly increasing their risk for STDs. A routine Pap test would be an ideal time to increase awareness of risk and provide postmenopausal women with resources to keep themselves informed and safe, like condom use.

These practice implications are preliminary and should be further tested before they become guidelines in the fight to prevent STDs and their consequences. These practices will potentially bring about a change of policy, but again, further testing is needed to ensure that social workers and other healthcare professionals are implementing

evidence-based practices. Due to the implications from this study, there are some implications for future policy.

### **Policy Implications**

There are two major recommendations concerning policy that may be derived from this study: 1) The current Pap test recommendations for postmenopausal women should be explored, and 2) The knowledge and awareness of STDs should be expanded in the population of postmenopausal women. These are not policy recommendations per say, but are recommendations directed towards policymakers. True policy recommendations cannot be made based specifically on the findings of this research, as it is exploratory.

The first policy recommendation derived from this research is to advocate exploring the current routine Pap test recommendations for postmenopausal women. This researcher would recommend either dropping the option of discontinuing Pap tests after 65 or modifying it to include that a woman must be sexually inactive for 5 years and have no history of abnormal Pap tests. The woman should also be required to discuss the discontinuing of routine Pap test with a gynecologist. This would ensure that at least some discussion about women's reproductive health, STD risks, and even discussion about condom use would take place with a healthcare professional, giving a chance for more awareness. The doctor would also need to inform his or her patient that should sexual activity continue so too should the Pap tests and condom use because of the risk of STDs. This recommendation is based on the views of the research derived from this study, the feedback from doctors working at the clinics, and previous literature showing

that postmenopausal women are still at risk of STDs, like HPV, at any age if they have exposed themselves to risks (AARP, 2010).

With the high cost of cancer treatment for all populations and this sample largely using Medicare, it is projected that the added cost of Pap tests would not exceed treatment cost. Even if this proves to be cost inefficient, this detection recommendation might be well received by women, as efforts for early detection of breast cancer have been well received. The difference between cervical and other women's health cancers and breast cancer is that women nationwide are very aware of breast cancer risks. Research supported that it was not cost efficient to get routine breast exams until a woman was 50 (US Prevention Services Task Force, 2009). While this research did change the recommendations of healthcare professionals, women are still encouraged to get mammograms at the age of 40 if they wish and to practice self-examinations (policies that are not cost effective). While a formal policy recommendation cannot and should not be made based on this research, the researcher encourages healthcare policy makers and advocates, specifically the American Medical Association, the American Cancer Society, and the National Association of Social Workers, to explore this research into the lives and potential money it may save. Research on the cost effectiveness of these recommendations and the awareness they can bring should be explored.

The next policy recommendation derived by this research is the expansion of attention given to STDs, specifically HPV, among postmenopausal women. This research supported that this sample had limited knowledge of HPV, but many had at least heard of it. This result is unsurprising, as there is scant information on the prevalence levels of this STD among this population. Only a handful of studies have explored the extent of the

HPV problem among postmenopausal women (AARP, 2010; Datta et al., 2008; Lindau, et al., 2007; Lindau et al., 2008). It is the recommendation of this researcher that there be more research on ways to reduce the impact of HPV among postmenopausal women, starting with ways to increase awareness and knowledge. Federal organizations like the National Institute of Health, the CDC, and the Office of Research on Women's Health should allocate funds and support for research on this STD and the impacts it has on postmenopausal women. This recommendation unfortunately comes at a time when women's reproductive healthcare is under attack (Fard, 2012; Flock, 2012). It is a fear of this researcher that this recommendation will not be heard and postmenopausal women will continue to be neglected. As with the previous recommendation, it would be wise to examine the model that breast cancer had made in terms of bringing awareness and tolerance of the subject's discussion and applying that to STDs, condom use, and postmenopausal women.

Again, these are not specific policy recommendations, but recommendations to specific groups, derived from the results of this research, encouraging researchers, policy makers, and the general public to explore these issues further. Much more research is needed before this researcher may make any specific recommendations, but much of these results are in support of these suggestions to inform practice.

### **Research Implications**

No research is ever complete. The word itself directly dictates re-searching for answers. This study is no different, for it created more questions and needs more support on the connections made. As such, this initial research brings three topics to explore

before practice and policy may truly be informed: 1) research on the prevalence levels of HPV within this population, 2) research on the cost efficiency of Pap tests among postmenopausal women, and 3) more explanatory designs involving educational materials on STDs, specifically HPV.

A recommendation concerning policy is expanding research on STDs in older adults to include HPV. The AARP study showed that the prevalence level of HIV/AIDS for their sample of women was less than 1%. The HPV prevalence level for that same sample was 5%. This researcher does not wish to take away attention, support, and or resources from HIV/AIDS research in older adults, but more research on other STDs that have higher incident rates and may be just as painful physically and emotionally would well-serve this population. Specifically, this researcher would like more research on the prevalence level of HPV in postmenopausal women. While the women in this sample were not asked if they had heard of HIV/AIDS, 13% had never heard about HPV. It is projected that the percentage of this sample that has not heard about HIV/AIDS would be lower. Future research should examine the awareness of this population and the prevalence level of HPV, as there are serious consequences if a person is infected with HR HPV. The STD is responsible for 70% of cervical cancer and 90% of genital warts (CDC, 2011b).

Another recommendation concerning policy is to examine the cost efficiency of changing the current Pap test recommendations for postmenopausal women. As stated earlier, if the woman has no history of abnormal Pap tests, she may discontinue screening at the age of 65, even if she is sexually active (US Prevention Services Task Force, 2009). HPV is a slow progressing virus and may take years before any abnormal cell growth

occurs. Some of the women from this research study (3%) self-reported that they had HPV and had gotten cancer or precancerous cells because of their infection. One of these women was over the age of 65 when she started having abnormal bleeding due to cervical cancer (2% of total sample, 50% of self-report of HPV sample). Future research should focus on this researcher's recommended modifications and determined if it is cost effective to require screening for sexually active women past the age of 65. Retrospective data on cost of cancer treatment and current cost of seeing a doctor for routine Pap tests may be examined to review the efficiency of this recommendation. It is predicted by this researcher, due to the high cost of healthcare, that changing the recommendation might be cost effective.

This study was cross-sectional and exploratory in design. Due to its design, there are limited implications that can be directly derived from this research, but there are several future research studies opened by this study. These future research studies need to build upon the results of this study to be more explanatory and experimental in nature. One shocking result was the lack of knowledge in this population about HPV. There is a strong need for this sample to be aware of what the virus is, what the consequences of it are, how it is transmitted, and how to protect oneself through condom use. Future research might examine the impact of a small educational intervention about HPV and then examine attitudes toward condom use after the intervention. Other more explanatory studies would involve testing interventions within this population about condom use. Now that this initial step is complete, the implications should be tested to ensure that quality research would inform practice and policy.

## Conclusion

This dissertation sought to create an argument justifying the exploration of factors that impact condom use self-efficacy among sexually active and sexually inactive postmenopausal women. This argument focused heavily on the documented increase of HIV/AIDS among this population, the documented prevalence rates of all STDs, the lack of condom use in this population, and the factors that impact condom use self-efficacy in younger populations.

Major findings were that women who are younger and in a relationship are more likely to be sexually active. This was not surprising, as similar findings have been reported in previous literature (Hooyman & Kiyak, 2011). The results of this sample were largely homogenous and as a result violated the assumption for normality. Therefore, the inferences made from these results run the risk of type 1 errors. On a bivariate level, factors that impacted condom use self-efficacy were largely similar to those factors that also impact condom use self-efficacy in younger populations. Women who had a higher number of lifetime partners were more likely to report higher levels of condom use self-efficacy. If a woman was aware of HPV in this sample, she was more likely to have higher levels of condom use self-efficacy. Women who had positive attitudes towards condom use during sexual intercourse also had higher levels of condom use self-efficacy. Women who perceived their partners to have fewer barriers to condom use had higher levels of condom use self-efficacy. Lastly, women who perceived that they could get their partner to use a condom were more likely to have higher condom use self-efficacy.

Furthermore, this study gave us some insight into the differences between sexually active and sexually inactive women. Sexually inactive women largely felt that



questions on sexuality were not relevant to them, even though 27% reported a desire to be sexually active again. With this large subpopulation, the risk of unsafe future sexual activity must be discussed to prevent STDs and other health threats. Overall, the factors that impact condom use self-efficacy in younger populations also impacted this sample of postmenopausal women. While there were limitations with this research, there was also direction and awareness given for a logical next step. There are a number of implications that arise from this dissertation, many concerning the need for more attention and resources being given to this neglected population. Therefore, healthcare providers, like social workers, must take the lead to abate the growing prevalence of STDs among postmenopausal women. It is the major conclusion of this researcher based on this dissertation that the next step is more attention to the population.

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## **Appendix A**

### **UNIVERSITY OF HOUSTON CONSENT TO PARTICIPATE IN RESEARCH**

**TITLE:** Factors in Predicting Condom Use among Postmenopausal Women

You are being invited to participate in a research project conducted by Alexis Rose from the Graduate College of Social Work (GCSW) at the University of Houston. This project is a pilot study for her dissertation. This dissertation will be chaired by Andrew Achenbaum, PhD of the GCSW.

#### **NON-PARTICIPATION STATEMENT**

Your participation is voluntary. You may refuse to participate or withdraw at any time. You can withdraw without penalty or loss of benefits. You may also refuse to answer any questions. You are not required to sign this Consent and Authorization form. Your refusal will not affect your right to any of the services you are receiving or may receive from the University of Houston or Methodist Hospital Physician Organization. You may continue to participate in any programs or events from the University of Houston or from Methodist Hospital Physician Organization. You may withdraw your permission to participate in this study at any time. You also have the right to cancel your permission to use and disclose information collected about you at any time. If you cancel permission to use your information, the researcher will stop collecting additional information about you.

#### **PURPOSE OF THE STUDY**

The purpose of this study is to discover if socio-demographic variables (like age or ethnicity), knowledge about sexual protection, condom use self-efficacy (this is the belief that you have the capability to use a condom should you want to), and partner attitudes can predict condom use in postmenopausal women.

## PROCEDURES

You are one of approximately 156 subjects who will be asked to participate in this project. As a participant in this study, you will be asked to complete questionnaires to the best of your ability. When you have completed the questionnaires, you will be asked to place your questionnaires in a marked envelope provided by the researcher. If you have any questions at any time, please ask the researcher, Alexis Rose. If at any time you feel uncomfortable and do not wish to continue, you can withdraw from this study at any time, for any reason. The total time will be around 20 minutes.

## CONFIDENTIALITY

Your participation in this project is confidentiality. Please only write your name on the informed consent form from The Methodist Hospital and do not write your name on any of the other research materials to be returned to the principal investigator.

## RISKS/DISCOMFORTS

The questionnaires will take about 20 minutes to complete. There is no known risk or pain associated with this study. However, the questions are about personal and sensitive information related to sexual behaviors. This may make some feel uncomfortable.

Some questions that will be asked are below:

Have you had sexual intercourse in the past 12 months?

A. Yes

B. No

I feel confident in my ability to put a condom on my partner/s.

1      2      3      4

**1=Agree Strongly 2=Agree 3=Disagree 4=Disagree Strongly**

If you at any time feel uncomfortable you can withdraw from this study. If you want more information on the topics discussed in this study please see the researcher, Alexis Rose. The researcher can provide you with information on STD testing.

## BENEFITS

While you will not directly benefit from participating in this study, your participation may help researchers better understand factors that predict condom use in postmenopausal women that may reduce, the spread of HIV/AIDS.

## ALTERNATIVES



Participation in this project is voluntary and the only alternative is non-participation.

## PUBLICATION STATEMENT

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual subject will be identified.

If you have any questions, you may contact:

**Dr. Christopher Hobday**

Department of Obstetrics and Gynecology

The Methodist Hospital

Smith Tower; Suite 901

Houston, TX 77030

Phone: (713) 441-3206

**Fax: (713) 790-2506**

In addition, if you have questions about your rights as a research participant, or if you have complaints, concerns, or questions about the research, please contact Susan M. Miller, M.D., M.P.H., Chair, The Methodist Hospital Research Institute Institutional Review Board for the Protection of Human Subjects, at 713-441-2750. You may also contact the TMHRI Office of Research Protection at 713-441-1261.

For more information on HIV and other STD testing please contact

**Houston Area Community Services Incorporated**

3730 Kirby Dr Ste 820

Houston, Texas 77098  
713-526-0555 Extension 445

Principal Investigator's Name:

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Signature of Principal Investigator:

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**Appendix B**

Please select your ethnicity (**Select one or more responses.**)

- A. American Indian or Alaska Native
- B. Asian
- C. Black or African American
- D. Native Hawaiian or Other Pacific Islander
- E. White
- F. Hispanic
- G. Latino

Please state your age

\_\_\_\_\_

Please state your current employment status

- A. Full-Time
- B. Part-Time
- C. Retired
- D. No

Have you had sexual intercourse during the past 12 months?

- A. Yes
- B. No

If No, Do you want to resume sexual activity?

- A. Yes
- B. No

If Yes, Please state the number of sexually partners you had in the past 12 months

\_\_\_\_\_

Please select your relationship status

- A. Married
- B. Divorced
- C. Single
- D. Cohabiting
- E. Widow

Please state the length of your current relationship

---

Please state what age you first engaged in sexual intercourse

---

Please state your lifetime number of sexual partners

---

Please check the highest level of education you have completed

- A. 12<sup>th</sup> grade or less
- B. GED
- C. High School Graduate
- D. Trade School
- E. Some College
- F. College Graduate
- G. Graduate School Degree

In the last 12 months, please state how often your partner/s used condoms

- A. N/A
- B. Never
- C. Sometimes
- D. Most of the Time
- E. Always

Do you currently have an STD?

- A. Yes

B. No

Please state any STD you currently have:

Does/do your partner/s currently have an STD?

A. Yes

B. No

Do you believe your partner/s to be faithful?

A. Yes

B. No

Do you know/have known anyone who has/had an STD

A. Yes

B. No

**1=Disagree Strongly 2=Disagree 3=Agree 4=Agree Strongly**

You know where to get condoms

**1      2      3      4**

If your partner/s was/were unwilling to use a condom, you could persuade him to use it

**1      2      3      4**

If your partner/s was/were unwilling to use a condom you would refuse to have sex with him

**1      2      3      4**

You know how to correctly use a condom

**1      2      3      4**

You use condoms during sexual intercourse to prevent an infection from a Sexual Transmitted Disease (STD)

1 2 3 4

I am not the kind of person who could have a STD

1 2 3 4

I do not have sex with the kind of person who could have an STD.

1 2 3 4

Using condoms is immoral

1 2 3 4

It is embarrassing to buy condoms

1 2 3 4

Its hard to find a place to buy condoms

1 2 3 4

My partner is not the kind of person who could have a STD

1 2 3 4

My partner does not have sex with the kind of person who could have a STD

1 2 3 4

Using condoms during sexual intercourse would be pleasant

1 2 3 4

Friends and family would approve of the use of condoms during sexual intercourse

1 2 3 4

I could persuade my partner to use a condom even if they did not want to use one

**1            2            3            4**

How concerned are you that you may have had sex with someone in the past who may have given you an STD

**1            2            3            4**

My sexual self makes me feel like a person of worth

**1            2            3            4**

I feel that I have a number of good sexual qualities

**1            2            3            4**

All in all, I am inclined to feel that I am a failure sexually

**1            2            3            4**

I am able to be as sexual as most other people

**1            2            3            4**

I am not proud of my sexual self

**1            2            3            4**

I take a positive attitude towards my self as a sexual being

**1            2            3            4**

On the whole, I am satisfied with the sexual aspects of myself

**1            2            3            4**

I wish I could have more respect for myself as a sexual person

**1            2            3            4**

I certainly feel useless at times sexually

1 2 3 4

At times I think my sexual self is no good at all

1 2 3 4

**Please answer the following questions as how you think your current or most recent partner would answer:**

Condoms are a lot of trouble

1 2 3 4

Condoms interrupt the flow of sex

1 2 3 4

Condoms make sex less exciting

1 2 3 4

Condom makes sex take longer.

1 2 3 4

Taking time to put on a condom interrupts sex.

1 2 3 4

Using condoms ruins the mood.

1 2 3 4

You can't feel as much with a condom.

1 2 3 4

Using condoms makes sex less fun.

1 2 3 4

Using a condom gets in the way of romance



1      2      3      4

Do you smoke tobacco cigarettes?

A. Yes

B. No

**If YES:**

How many cigarettes do you smoke per day: \_\_\_\_\_

How long have you smoked at this rate in years: \_\_\_\_\_

What age did you first start smoking: \_\_\_\_\_

Do you drink alcohol?

A. Yes

B. No

**If YES:**

Approximately how many drinks per week: \_\_\_\_\_

I have heard of Human Papillomavirus (HPV)

A. Yes

B. No

**If YES, please answer the following as True (T) or False (F)**

Human Papillomavirus (HPV) can cause genital warts

**T      F**

HPV can cause cervical cancer

**T      F**

Most people with genital HPV have no visible signs or symptoms	<b>T</b>	<b>F</b>
If a woman's Pap smear is normal, she does not have HPV	<b>T</b>	<b>F</b>
Changes in a Pap smear may indicate that a woman has HPV	<b>T</b>	<b>F</b>
Genital warts are caused by the herpes virus	<b>T</b>	<b>F</b>
Pap smears will almost always detect HPV	<b>T</b>	<b>F</b>
HPV can be passed from the mother to her baby during birth	<b>T</b>	<b>F</b>
A negative test for HPV means that you do not have HPV	<b>T</b>	<b>F</b>
A vaccine exist to prevention HPV infection	<b>T</b>	<b>F</b>
Having one type of HPV means that you cannot acquire new types	<b>T</b>	<b>F</b>
I can transmit HPV to my partner/s even if I have no HPV symptoms	<b>T</b>	<b>F</b>
HPV can cause Herpes	<b>T</b>	<b>F</b>

## **Current Vitae**

### **Alexis Rose**

Graduate College of Social Work University of Houston  
237 Social Work Building, Houston, TX 77204-4013  
alrose@mail.uh.edu

## **EDUCATION**

- |              |   |
|--------------|---|
| 2008-present | Ph.D. student, Graduate College of Social Work,<br>University of Houston. Anticipated Graduation 2012<br>Houston, TX, 77204<br>Research Interest: Older Adult Sexuality and Condom<br>Use Self-Efficacy in Postmenopausal Women |
| 2008-2006    | M.S.W, Indiana University<br>Indianapolis, IN, 46202  |
| 2006-2002    | B.A. in Psychology, Hanover College<br>Hanover, IN, 47243   |

## **FELLOWSHIPS**

- |              |  |
|--------------|--|
| 2008-present | <p>Doctoral Research Assistant, University of Houston GCSW</p> <p>Patrick Leung, Ph.D.,<br/>Professor of Social Work, Supervisor, 2008-2009<br/>Quantitative research with foster youth, older minorities,<br/>and domestic/international social work schools</p> <p>Monit Cheung, Ph.D.,<br/>Professor of Social Work, Supervisor, 2009-2010<br/>Quantitative research with foster youth, older minorities,<br/>and domestic/international social work schools</p> <p>Patrick Bordnick, Ph.D.,<br/>Professor of Social Work, Supervisor, 2010-Present<br/>Virtual Research Clinical Research, Substance Abuse</p> |
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## **RESEARCH EXPERIENCE**

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|--------------|--|
| 2009-present | <p>Sub-Investigator, University of Houston,<br/>Methodist Hospital Physician Organization<br/>Factors that Predict Condom Use Self Efficacy in<br/>Postmenopausal Women<br/>Methodist P.I. Christopher Hobday, M.D.<br/>Houston, TX, 77002</p> |
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2007-2008      Research Assistant, Indiana University  
 The Child Welfare New Practice Model Evaluation of Indiana  
 P.I. Gail Foralón, Ph.D.  
 Professor of Social Work  
 Indianapolis, IN, 46202

#### **SERVICE TO INDIANA UNIVERSITY**

2008              Secretary  
 Graduate Student Organization  
 Indiana University  
 Indianapolis, IN, 46202

2007-2008      Vice President  
 Masters of Social Work Student Association  
 Indiana University  
 Indianapolis, IN, 46202

#### **SERVICE TO UNIVERSITY OF HOUSTON**

2009-present    Planning Committee  
 Doctoral Social Work Student Research Symposium  
 Graduate College of Social Work, University of Houston

2009 - present   Member  
 Editorial Board  
*Perspectives in Social Work*, doctoral student edited online  
 journal  
 Graduate College of Social Work, University of Houston

#### **SERVICE TO THE METHODIST HOSPITAL**

2011              Planning Committee  
 Gulf Coast Women Research Forum  
 The Methodist Hospital Research Institution  
 Houston, TX

#### **PEER REVIEWED CONFERENCE PRESENTATIONS**

Rose, A. (2011). The Use of Theory in Future Research and Interventions of HIV/AIDS and STDs among Postmenopausal Women. Gulf Coast Women's Health Research Form. The Methodist Hospital Department of OB/GYN, September 30.

Rose, A. (2011). Advancing Translational Research: Building Bridges and Engaging Social Work Practice through Institutional Collaborations. Seventh Annual Doctoral Social Work Research Symposium of the University of Houston G.C.S.W. Doctoral Program & G.C.S.W. Alumni Association, March 3.

Rose, A. (2010). Exploratory Model of Condom Use in Postmenopausal Women. Paper presented at the Council of Social Work Education Annual Program Meeting, Portland, Oregon.

Rose, A. (2010). Pilot Findings of Condom Use Self-Efficacy in Postmenopausal Women. Poster presented at the 17<sup>th</sup> Texas HIV/STD Conference, Austin, Texas, May 26.

Rose, A. (2010). Conceptual Framework: The Use of the Theory of Reasoned Action, Health Belief Model, and System Theory in Predicting Use of Condoms by Postmenopausal Women. Sixth Annual Doctoral Social Work Research Symposium of the University of Houston G.C.S.W. Doctoral Program & G.C.S.W. Alumni Association, March 4.

Balkan, B., Cummings, T., Leal, R., Pappadis, M., **Rose, A.\***, & Walijarvi, C. (2009).

Interdisciplinary and multidisciplinary research: Concepts and practice. Fifth Annual Doctoral Social Work Research Symposium of the University of Houston G.C.S.W. Doctoral Program & G.C.S.W. Alumni Association, March 5.

#### **PEER REVIEWED PUBLICATIONS**

Rose, A., & Pritzker, S. (2012, revising). Expanding Our Focus Beyond HIV: STDs and Older Adults. Submitted to *Gerontologist*. 11/7/2011.

Rose, A.L., & Cheung, M. (In Press, 2012). DSM-V research: Assessing the mental health needs of older adults from diverse ethnic backgrounds. *Journal of Ethnic & Cultural Diversity in Social Work*, 21(2).

#### **GRANT WRITING EXPERIENCE**

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|------|---|
| 2010 | Student Coordinator/Assistant/Writer<br>National Institution of Health, National Cancer Institution<br>Principal Investigators: Drs. Maxine Epstein (University of Houston) and Alfredo Gei (The Methodist Hospital)<br>A Medical-Social Approach to Women's Health Research: Gynecologic Malignancies<br>(Under Review)          |
| 2012 | Coordinator/Assistant/Writer<br>Cancer Prevention and Research Institution of Texas<br>Principal Investigator: Dr. Christopher Hobday (The Methodist Hospital)<br>Latinas con PODER: Prevention, Outreach, Detection, Education & Risk Reduction, A Cervical Cancer Initiative for Mothers, Sisters & Daughters<br>(Under Review) |

**TEACHING EXPERIENCE**

2009                      Doctoral Teaching Assistant, University of Houston GCSW  
Maxine Epstein Ph.D.,  
Professor of Social Work, Supervisor  
Practice Evaluation for Master of Social Work Students

2010-Present           University of Houston GCSW  
Teaching Fellow  
Research Methods for Masters of Social Work Students, Fall  
2010, Fall 2011  
Practice Evaluations, Spring 2011  
Fiscal Mgmt and Budget, Spring 2012

**RELEVANT WORK EXPERIENCE**

2007-2008              MSW Intern/Case Manager  
Dunn Community Mental Health Center  
Rushville, IN, 46173  
Experiencing working with older adults, children, and  
families in group and individual settings