

WORLDVIEW AS A PREDICTOR OF HEALTH RISK BEHAVIOR  
FOLLOWING SEXUAL VICTIMIZATION: MODERATED MEDIATION  
IN AN ETHNICALLY DIVERSE COMMUNITY SAMPLE

by

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Sexual victimization has been associated with many adverse health outcomes including substance dependence, reproductive health issues, and increased somatic complaints, as well as risk for re-victimization. Engagement in health risk behaviors such as risky sexual behaviors and hazardous drinking has been proposed as one means by which sexual victimization leads to these adverse outcomes, but work remains to be done in understanding the factors which influence victims' engagement in these risk behaviors. The assumptive worlds theory posits that loss of a positive worldview (i.e. the way an individual perceives other people, the world, and themselves) can be devastating to adjustment and may be the most important construct in how people make sense of and navigate through life. Therefore, the current study examined the worldview dimensions of self-worth and benevolence as predictors of engagement in health risk behaviors (specifically, drinking, number of sexual partners, and one-time sexual encounters) in a sample of 594 ethnically diverse, primarily lower income community women recruited from an OB-GYN waiting room. A moderated mediation model was tested with depression mediating the relationship between worldviews and risk behaviors. Sexual victimization history and ethnicity were examined as moderators of this mediated relationship. Analyses supported that depression

mediated the relationship between both dimensions of worldview and hazardous drinking, as well as the relationship between benevolence and number of past year sexual partners.

Depression did not mediate the relationship between either worldview dimension and past year one-time sexual encounters. Having a history of sexual victimization significantly moderated the relationship between self-worth and depressive symptoms. Ethnicity did not emerge as a significant moderator. Results suggest that aspects of one's worldview, particularly self-worth, and depressive symptoms are two variables important for understanding health risk behavior.

The current study supports the importance of worldview and depression in predicting risk behavior, and highlights that victims of sexual violence may be especially vulnerable to depressive symptoms in response to holding a negative self-view, increasing their vulnerability to health risk behaviors as well.



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## DEDICATION

This manuscript is dedicated to my loving and ever-supportive husband Will. Thank you for your patience, your reassurance, and your unwavering belief in me through the many, many years of schooling. I couldn't have done it without you. No more degrees now, I promise.

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## **Chapter 1: Introduction**

### **The Problem of Sexual Victimization**

Sexual victimization is one form of interpersonal violence that can result in long-term negative consequences including depression, anxiety, post-traumatic stress disorder (PTSD), substance use disorders, poor self-image, and suicide (Bulik, Prescott, & Kendler, 2001; Danielson et al., 2010; Walsh, Galea, & Koenen, 2012; Ullman, 1997; Zinzow et al., 2012). Additionally, individuals who have been victimized may experience negative health outcomes such as increased somatic complaints and more frequent healthcare visits (Fergusson, McLeod, & Horwood, 2013). Other potential consequences of sexual victimization include impaired general functioning and reduced academic achievement (Daignault & Hébert, 2009; Jordan, Combs, & Smith, 2014) and relationship instability (Dube et al., 2005) following sexual victimization. Sexual victimization is often categorized as either childhood sexual abuse (CSA) or adolescent or adult sexual assault (ASA). However, revictimization is a common occurrence, with many individuals experiencing sexual victimization in childhood as well as during adolescence or adulthood (Testa, Hoffman, & Livingston, 2010).

Childhood sexual abuse is defined as any sexual activity perpetrated by an adult or authority figure against a minor by threat, force, intimidation, manipulation, or taking advantage of the child's inability to consent (Collin-Vezina, Daigneault, & Hébert, 2013). These experiences can vary on multiple dimensions including age of the victim, duration of the abuse, frequency of abusive incidents, the types of sexual acts perpetrated, and the victim's relationship with the perpetrator. Most often, an age of the victim of 13 or 14 years or younger at abuse onset is used in research to differentiate between CSA and ASA (Collin-Vezina et al., 2013). Such experiences are commonly self-reported retrospectively among adults. For example, a large-

scale national study ( $n = 34,000$ ) in the US found the rate of CSA among men and women combined to be 10.1%, with women making up 75.2% of victims (Pérez-Fuentes, Olfson, Villegas, Morcillo, Wang, & Blanco, 2012). Similarly, a meta-analysis of 65 studies conducted in 22 countries found a cross-national CSA prevalence rate of 19.2% for women and 7.9% for men (Pereda, Guilera, Forns, & Gómez-Benito, 2009). Some differences in prevalence by ethnicity have also been noted in the U.S., with one study finding that individuals with a history of CSA were more likely to be African American or Native American than European American (Pérez-Fuentes et al., 2012). Additionally, another study of women who had been sexually victimized found that all types of childhood sexual victimization were more common in African American than European American women, suggesting that African American victims may be more likely to experience greater chronicity and severity of CSA than European American victims (Littleton & Ullman, 2013).

ASA is considered to be any nonconsensual sexual contact that occurs after age 14 (Koss et al., 2007). Supporting the validity of defining ASA in this way, Livingston, Testa, and VanZile-Tamsen (2007) demonstrated that the majority of sexual victimizations involving individuals ages 14 to 17 more closely resembled adult sexual assault than childhood sexual abuse. Much research on ASA has focused on the most severe form, completed rape, defined as penetration of a penis or other object, including fingers, into a person's vagina, rectum, or mouth without their consent by taking advantage of them when they were too drunk, high, or otherwise incapacitated to stop what was happening; by threatening to harm them or someone close to them; or by using physical force, such as holding them down (Koss & Gidycz, 1985). Kilpatrick, Resnick, Ruggiero, Conoscenti, and McCauley (2007) estimated that approximately 18% of US women have experienced rape in their lifetime. Like CSA, some ethnic differences in the

prevalence and characteristics of rape have been noted. Kilpatrick and colleagues (2007) found that African American women reported rates of forcible rape that were 50% higher than those reported by White and Latina women. Additionally, among a sample of women who had been sexually victimized, Littleton and Ullman (2013) found higher rates of forcible rape, but not incapacitated rape, among African American women as compared to European American women. Findings in this area are mixed, however, with some studies finding approximately equal rates of sexual assault across ethnicities (Kilpatrick & Acierno, 2003). However, Kilpatrick and colleagues' (2007) more recent study used a robust methodology (random-digit dialing phone interviews) and a large sample size ( $n = 5,000$ ) of both college and community women. Littleton and Ullman's (2013) study similarly utilized a large community sample ( $n = 1,084$ ) of women with sexual victimization histories.

### **The Health Impact of Sexual Victimization**

Both CSA and ASA have been associated with multiple negative physical and mental health consequences. Researchers examining the mental health sequelae of CSA have found prevalence rates of 29% for post-traumatic stress disorder (PTSD) in adult female survivors of CSA, compared to 5% among non-victims of CSA (Bedi et al., 2011). A longitudinal study of New Zealand adults found rates of major depression among CSA victims to be 68 to 77% (varying depending on severity of abuse) compared with 38% among non-victims of CSA; rates of anxiety disorders to be 51 to 74% compared to 32% among non-victims of CSA; rates of alcohol dependence to be 17 to 19% relative to 9% among non-victims of CSA; and rates of suicide attempt to be 27% among victims of severe CSA (that is, CSA involving penetration) relative to 3% among non-victims of CSA (Fergusson et al., 2013). This study also found that CSA victims reported more symptoms of PTSD, lower self-esteem, lower life satisfaction, and

lower relationship quality relative to non-victims. Other researchers have similarly found evidence for higher rates of PTSD, depression, anxiety, suicidal ideation, and relationship difficulties among female CSA victims specifically (Dube et al., 2005; Fergusson, Boden, & Horwood, 2008; Ullman, 2007; Watson & Halford, 2010).

Physical health consequences of CSA include increased medical contacts for health problems in general (Fergusson et al., 2013) as well as greater risk for sexual and reproductive health problems. In one study, women with a history of CSA (as compared to matched unexposed women) were almost three times more likely to be hospitalized during pregnancy (OR 2.9), and were more likely to experience complications such as premature contractions (OR 2.5), cervical incompetence (which is a premature dilation of the cervix often resulting in second- or third-trimester miscarriages; OR 3.4), and preterm birth (OR 2.5; Leeners, Stiller, Block, Görres, & Rath, 2010). CSA victims have also been found to report more sexual dysfunction than non-victims (Sarwer & Durlak, 1996; Zwickl & Merriman, 2011), including negative affect during sexual arousal (Schloretdt & Heiman, 2003), orgasm dysfunction (Staples, Rellini, & Roberts, 2012), lower sexual arousal, and increased sexual dissatisfaction (Rellini & Meston, 2007).

Adult/adolescent sexual assault is also associated with significant mental and physical consequences for victims. Women with a history of rape were found in one study to endorse rates of PTSD of 31% (relative to 5% among non-victims of rape) and depression of 30% (relative to 10% among non-victims of rape) and having a history of forcible rape was associated with an odds ratio of 4.47 for PTSD and 3.55 for major depression as compared to non-victims of rape (Zinzow et al., 2012). Research has also found increased rates of alcohol and substance use disorders among ASA victims (Kilpatrick et al., 2007; Ullman, Relyea, Peter-Hagene, &

Vasquez, 2013; Zinzow et al., 2012). Victims of rape also report lower functioning in domains such as self-esteem and sexual desire (Perilloux, Duntley, & Buss, 2012).

Multiple studies support that victims of ASA report poorer overall perceived health than non-victims (e.g., Golding, Cooper, & George, 1997). Victims also frequently present with increased somatic complaints across multiple symptom domains, as well as increased somatization and health anxiety as compared to women without a history of ASA (Stein et al., 2004). Women with an ASA history are less likely to have scheduled a routine primary care checkup in the past year and more likely to report negative health behaviors, such as tobacco use and heavy drinking, as compared to women reporting no sexual assault history (Kapur & Windish, 2011). However, some studies find that ASA victims report a greater number of medical/hospital contacts overall relative to non-victims (Conoscenti & McNally, 2006; Fergusson et al., 2013). Women with diagnoses of chronic pelvic pain, chronic headaches, gastrointestinal disorders, and fibromyalgia also report rates of sexual assault much higher (26-82%) than among the general population (Golding, 1999). Other gynecological issues have also been found to be more common among women with a history of sexual assault, including menstrual pain or irregularity, excessive menstrual bleeding, pelvic inflammatory disease, gynecologic surgery, multiple yeast infections, and premenstrual distress (Golding, 1999).

### **Sexual Victimization and Health Risk Behaviors**

Women who experience sexual victimization are also more likely to report increased engagement in a variety of health risk behaviors. These behaviors are concerning not only because of the inherent health complications possible, but also because they may place individuals at increased risk of later re-victimization. For example, women with a history of CSA engage in more hazardous drinking (Messman-Moore & Long, 2002) and substance use

(Fergusson et al., 2008; Messman-Moore & Long, 2002; Steel & Herlitz, 2005) as compared to women who have not experienced CSA. In a sample of 300 community women, those with a CSA history reported higher rates of alcohol-related diagnoses relative to non-victims (35.8% and 25.0%, respectively) as well as substance use disorders (26.3% and 7.5%, respectively; Messman-Moore & Long, 2002). CSA victims also report increased engagement in risky sexual behaviors including early age at first voluntary intercourse, frequent short-term sexual relationships, multiple sexual partners, prostitution, unprotected sex, and unplanned pregnancy (Fergusson, Horwood, & Lynskey, 1997; Fergusson et al., 2013; Greenberg, 2001; Schloredt & Heiman, 2003; Steel and Herlitz, 2005; Testa, VanZile-Tamsen, & Livingston, 2005). Some of these behaviors, such as having multiple sexual partners, engaging in frequent short-term sexual relationships, or having sexual intercourse while intoxicated may also increase the likelihood of CSA victims experiencing re-victimization as an adolescent or adult. Indeed, CSA has been found to be a predictor of ASA in previous studies (Fergusson et al., 1997; Messman-Moore & Long, 2002). Yet data has yielded mixed results about the long-term effects of CSA on adult sexual risk behavior. For example, one study failed to find a significant association between abuse history and recent sexual behavior in a sample of adult women (Littleton, Breitkopf, & Berenson, 2007). Another longitudinal study of women showed that although CSA did result in significantly increased rates of sexual partners and STIs, this trend decreased over time with rates eventually approaching those of women with no abuse history (van Roode, Dickson, Herbison, & Paul, 2009).

Victims of adolescent/adult sexual assault also appear to be more likely to engage in health risk behaviors such as hazardous drinking, substance use, and risky sexual behaviors. The link between ASA and hazardous drinking has been well-documented (Asberg & Renk, 2012;

Epstein, Saunders, Kilpatrick, & Resnick, 1998; Kilpatrick et al., 2007; McCauley, Ruggiero, Resnick, Conoscenti, & Kilpatrick., 2009), although theories differ as to the direction of causality for this relationship (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997). Cross-sectional studies support that women who reported a sexual assault history are significantly more likely to report problem drinking in the past month, and women with multiple sexual assaults are significantly more likely than either women with one assault or women with no assaults to report high levels of drinking (Davis, Combs-Lane, & Jackson, 2002). Longitudinal research has similarly found evidence for increases in drinking, substance use, and risky sexual behavior after experiencing sexual assault (Kilpatrick et al., 1997; Testa et al., 2010). Retrospectively, one study found that one-third of women with a history of ASA reported an increase in their sexual risk-taking after the assault (Campbell, Sefl, & Ahrens, 2004). Women with a history of rape are also more likely to report engaging in alcohol-related risk behaviors, such as driving after drinking or having sexual intercourse while intoxicated (Brenner, McMahon, Warren, & Douglas, 1999).

In addition to risky alcohol use, women with a history of ASA also report increased risky sexual behavior. A study using several samples of women including adolescents, homeless women, female patients at community clinics, and college women found that across all samples experiencing sexual coercion was generally associated with risky sexual behaviors, including having more partners, having sex with non-monogamous partners, and having sex under the influence of alcohol or drugs (Biglan, Noell, Ochs, Smolkowski, & Metzler, 1995). Similarly, another study found that low-income community women with a history of forced sex reported more lifetime sexual partners, increased frequency of sexual intercourse, increased rates of prostitution, and less consistent condom use as compared to women with no history of forced sex

(Molitor, Ruiz, Klausner, & McFarland, 2000). Another study, conducted with college women, not only found higher rates of risky sexual behavior among sexual assault victims than non-victims of sexual assault, but also found that the risky sexual behavior (in this case, using sex as an affect-regulation strategy) was mediated by victims' reported depression and anxiety (Littleton, Grills-Taquechel, Buck, Rosman, & Dodd, 2013). Another study utilizing college students found that women with a history of sexual victimization (whether CSA, ASA, or combined) reported more sexual partners and more one-time sexual encounters than women with no victimization history (Littleton, Grills-Taquechel, & Drum, 2014). However, it is important to note that there are likely multiple patterns of behavioral changes following sexual victimization. Indeed, one study found three distinct patterns of risky sexual behavior after an experience of rape: some women engaged in significantly more risky behaviors ("high risk group"); some engaged in slightly more risk behavior but mitigated these behaviors with increased safety behaviors as well (e.g., condom use; "moderate risk group"); and some women engaged in substantially less risk behavior after an experience of rape ("low risk group"; Campbell et al., 2004).

In summary, a well-developed body of literature has substantiated the relationship between sexual victimization (both CSA and ASA) and a variety of health risk behaviors, including hazardous drinking (McCauley et al., 2009; Messman-Moore & Long, 2002) and risky sexual behaviors such as multiple partners and frequent short-term sexual encounters (Biglan et al., 1995; Fergusson et al., 2013). However, less attention to date has focused on possible mediating variables in these relationships. Additionally, few of these studies have examined CSA and ASA victims in the same sample, making it difficult to make comparisons between groups. Most importantly, many of these examined relationships have lacked theoretical grounding in

previous studies. Theoretical paradigms explaining these relationships have typically lagged behind the empirical research. Thus, I next review extant theories focused on explaining the association between sexual victimization and health risk behaviors.

### **Theoretical Explanations of the Association between Sexual Victimization and Health Risk Behavior**

**Traumagenic dynamics framework.** Several theoretical models have been developed to explain the association between sexual victimization and health risk behaviors. One model focused on CSA specifically is Finkelhor and Browne's (1985) traumagenic dynamics (TD) framework. This framework describes four consequences of experiencing CSA, each of which may influence later sexual risk-taking: 1) traumatic sexualization, in which maladaptive scripts for sexual behavior are developed and reinforced because the child is rewarded for sexual activity and exposed to developmentally inappropriate sexual acts; 2) feelings of betrayal, caused by the abuser's (often a caregiver) betrayal of the child's trust and safety; 3) stigmatization, where the abuse causes the child to feel different from others and thus experience shame and guilt; and 4) powerlessness, stemming from the child's inability to stop the abuse (Senn, Carey, & Coury-Doniger, 2012). The traumagenic dynamics framework suggests that CSA is a traumatic experience uniquely associated with future sexual risk-taking because it occurs at an early age and as a result the child's beliefs about themselves, others, and the world are fundamentally altered in maladaptive ways. For example, early experiences of having one's trust violated by an adult who engages in sexual abuse may lead to extreme difficulties with forming trusting adult romantic relationships and thus increase the likelihood of having multiple casual partners or risky partners. As a result, victims may also be more likely to confuse intense, passionate relationships with loving, stable ones and therefore make risky partner choices.

Indeed, associating with risky partners has been shown to mediate the relationship between CSA and risky sexual behavior (Parillo, Freeman, Collier, & Young, 2001; Testa et al., 2005). An individual with early experiences of having his or her trust betrayed may also, somewhat counterintuitively, trust too readily in future relationships, as they may possess an impaired sense of who is worthy of trust, or when it is safe/healthy to trust another. This impaired sense of trust could potentially place individuals at risk for entering into and staying in abusive or violent relationships. Further, because the sexually abused child's feelings of stigmatization began at a young age, victims may develop a low estimation of their own worth, and so may use sex as a strategy for reducing negative affect, affirming their worth, or attempting to elicit feelings of emotional intimacy (Cantón-Cortés, Cortés, & Cantón, 2012; Senn, Carey, & Coury-Doniger, 2011). Indeed, low self-worth has been shown to be an independent predictor of risky sexual behavior (Lynch, 2001; Ritchwood, Howell, Traylor, Church, & Bolland, 2013; Sterk, Klein, & Elifson, 2004; Wild, Flisher, Bhana, & Lombard, 2004), and therefore the stigmatization aspect of the traumagenics framework might certainly contribute to an individual's risky sexual behavior later in life. Finally, supporting the role of traumatic sexualization in leading to sexual risk taking, victims of CSA have been found to endorse more open and liberal attitudes toward various sexual activities including masturbation, group sex, and viewing pornographic materials (Meston, Heiman, & Trapnell, 1999; Niehaus, Jackson, & Davies, 2010), while at the same time reporting greater shame and distress regarding their own sexuality (Niehaus et al., 2010; Van Bruggen, Runtz, & Kadlec, 2006). These conflicting beliefs and attitudes about sex are significant as they are associated with sexual risk behavior (Niehaus et al., 2010; Van Bruggen et al., 2006). However, because the traumagenics framework only addresses sexual abuse that

occurs in childhood, it does not explain trauma reactions to ASA. It also fails to explain why some individuals do *not* experience significant maladjustment following CSA.

**Self-medication hypothesis.** Several researchers have explored the possibility that women who experience sexual victimization engage in risk behavior, such as alcohol use, as a means of reducing negative affect associated with the trauma, a concept termed the self-medication hypothesis (Miranda, Meyerson, Long, Marx, & Simpson, 2002). Empirical research has demonstrated that experiencing sexual assault is associated with increased psychological distress, which is then associated with increased alcohol use via negative reinforcement (Miranda et al., 2002). Risky sexual behavior, too, has been posited to serve a self-medication function in survivors of sexual victimization. Researchers have investigated the possibility that victims may use sexual behavior as another means of decreasing distress associated with sexual abuse or assault. Indeed, prior studies have shown that psychological distress, such as depression, PTSD, and emotional dysregulation mediate the relationship between CSA history and ASA history and risky sexual behaviors (Green et al., 2005; Merrill, Guimon, Thomsen, and Milner, 2003; Messman-Moore, Walsh, & DiLillo, 2010). In this way the traumagenics framework and the self-medication hypothesis are not mutually exclusive, as the traumagenics framework suggests that victims of CSA may experience difficulties with trust and intimacy, feelings of stigmatization and isolation, and poor self-worth, all of which could lead to psychological distress such as depression. The self-medication hypothesis then suggests that distressed individuals may engage in risk behaviors as a means of reducing that distress. However, like the traumagenics framework, the self-medication hypothesis similarly fails to explain why some women do not experience significant maladjustment following sexual victimization.

Additionally, it does not address possible differences in adjustment following CSA as compared to ASA.

**Vicious cycle hypothesis.** The self-medication hypothesis proposes that hazardous drinking or risky sexual behaviors emerge *after* a sexual victimization as a means of reducing psychological distress associated with the trauma. However, researchers have also suggested that women who experience sexual victimization are engaging in higher levels of drinking or risky sex prior to the event, which place them at increased risk for victimization. This victimization experience could then serve to exacerbate these risk behaviors. In a longitudinal study, Kilpatrick and colleagues (1997) found that after a new assault, the odds of engaging in both alcohol abuse and drug use were significantly increased, even among women with no previous use or assault history. They proposed a vicious cycle hypothesis, suggesting that assault and substance use each increase risk of experiencing the other. Other studies have similarly found evidence for this cyclical relationship between sexual victimization and problem drinking (Najdowski & Ullman, 2009). Again, as in the previous theoretical approaches, psychological distress can play an important role. Victims may be likely to maintain or increase their risk behaviors after a victimization, partly as a means of reducing negative affect, consistent with the self-medication hypothesis, and this continued use or increase places them at risk for re-victimization. Therefore, throughout these theoretical approaches, psychological distress, such as depression, is proposed to mediate the relationship between victimization and risk behaviors, as has been found in previous empirical work (Green et al., 2005; Merrill et al., 2003; Messman-Moore et al., 2010). While this theory expands on previous work by addressing the risk of both initial victimization and re-victimization, it may be less relevant for victims of CSA (who are unlikely to be engaging in alcohol or substance use prior to their victimization). Additionally, the model is less clear on

the mechanisms that may drive these trauma reactions. Similarly, it also fails to explain why some women do *not* begin using substances (or decrease their use) following victimization.

While these theoretical frameworks offer a helpful structure for investigating the negative sequelae of sexual victimization in childhood and adulthood, much work remains to be done in exploring the mechanisms which may drive these relationships. For example, studies were not found which have directly linked the traumagenics framework to health risk behaviors following sexual victimization, nor explored which constructs of the model have the greatest negative effect on outcomes. Additionally, these models do not explain the diversity in outcomes among victims of sexual violence, where some individuals engage in high levels of health risk behaviors, whereas others do not engage in these risk behaviors or decrease their risk behaviors following victimization. Finally, these models all either propose or allow for the role of psychological distress such as depression in mediating some of these important relationships. For example, self-medication studies have demonstrated that depression mediated the relationship between victimization and health risk behaviors, but depression's role in more specific models can be further explored. What many theoretical models have in common, however, is the importance of negative affect in influencing engagement in risk behaviors following sexual victimization. Therefore, future models which include or account for the role of this negative affect may prove especially beneficial. Specifically, the role of depression in possibly mediating health outcomes could be explored, as well as factors which may lead to depression and thereby influence health risk behaviors. One such possible factor that may lead to depression for some individuals is their worldview, which encompasses general beliefs about the world, other people, and themselves.

## **Worldview and Health Risk Behaviors Following Sexual Victimization**

In 1989, Janoff-Bulman proposed a theoretically robust and clinically valuable framework that addresses many of the limitations found in previous models of the negative sequelae of sexual victimization. Her “assumptive worlds” theory helps explain the diversity of trauma reactions among victims of sexual abuse or assault, including differential reactions to CSA relative to ASA, as well as differences in risky behavior after sexual trauma.

According to this model, individuals operate under a set of beliefs, or assumptions, about the world – for example, that the world is a fair and just place, that people are inherently good and kind, and that they themselves have worth and value as individuals. Janoff-Bulman (1989) proposed three major categories of assumptions people implicitly hold about the world. These major categories are perceived benevolence of the world, meaningfulness of the world, and worthiness of the self. She further divided these major categories into eight subcategories: benevolence of the world (the assumption that the world is essentially a good place); the benevolence of people (that people are inherently good and decent); the principles of justice (that good things happen to good people and that bad people get what they deserve), controllability (that people have some degree of control over what happens to them by their behavior), and randomness (denial of the possibility that good and bad events occur simply by chance); self-worth (the extent to which someone perceives themselves as a good, moral, worthy individual); self-controllability (the individual can prevent negative outcomes by engaging in safe, responsible, protective behavior); and luck (the individual’s belief in how lucky they personally are).

When an individual experiences a traumatic event, it can pose a marked challenge to many of these assumptions. For perhaps the first time, an individual is confronted with

information suggesting that maybe the world is *not* safe, that humans are not generally good, that bad events can happen to good people, or that they themselves are not as lucky or worthy as they had believed. Janoff-Bulman (1989) writes, “Victims must rework the new data so as to make it fit and thereby maintain their old assumptions, or they must revise their old assumptions in a way that precludes the breakdown of the entire system and allows them to perceive the world as not wholly threatening” (p.121). This task of cognitive assimilation and accommodation, that is, trying to “fit” the traumatic experience into existing worldview beliefs or alter these beliefs in an adaptive way, can help explain many of the post-traumatic reactions victims often exhibit, such as self-blame, minimizing the trauma, or recurrent, intrusive thoughts, as potential breakdowns in this process (Littleton, 2007; Littleton & Grills-Taquechel, 2011). For example, self-blame can result as an individual tries to assimilate the trauma into their existing framework by thinking, “Bad things don’t happen to good people, so I must have done something bad to deserve this.” Similarly, assimilation could result in denial or minimizing the trauma if the individual resolves their worldview discrepancy by thinking, “People are generally good, so [the perpetrator] couldn’t have done this terrible thing to me. It must not have been as bad as it seemed. It was probably just a miscommunication.” Over time, these maladaptive ways of resolving these worldview discrepancies can also result in some of the other negative sequelae of trauma such as depression and PTSD.

Since its original development, Janoff-Bulman’s (1989) theory has received both conceptual and empirical support. Greenberg (1995) states that strengths of Janoff-Bulman’s assumptive worlds theory include its ability to account for individual variability in responses to trauma, the development of negative symptoms of PTSD such as anhedonia, alienation, and numbing, and for the delayed PTSD reactions seen in some trauma victims. Empirically, Janoff-

Bulman (1989), using the measure she developed to assess belief in these assumptions, the World Assumptions Scale (WAS), found differences between victims and non-victims of trauma in all three major categories of assumptions: benevolence, meaningfulness, and self-worth. Other studies have confirmed the negative consequences of disrupted worldviews – one longitudinal study found that decreased belief in the benevolence of the world following any negative stressful event was associated with lowered well-being, and that benevolence beliefs were affected by experiencing a negative life event (Poulin & Silver, 2008). Further, negative worldview changes after the September 11<sup>th</sup> terrorist attacks were shown in one study to be the strongest predictor of well-being and distress at a 6-month follow-up (Butler et al., 2009), demonstrating the importance of these beliefs in psychological adjustment after trauma. Similarly, decreased beliefs in the benevolence and meaningfulness of the world, as well as decreased self-worth, were found to fully mediate the relationship between trauma exposure and depression in a sample of women recruited from domestic violence shelters (Lilly, Valdez, & Graham-Bermann, 2011).

Studies have also confirmed the presence of worldview changes and the negative consequences of these changes in sexually victimized populations. Mannarino and Cohen (1996) demonstrated that compared to their non-abused peers, victims of CSA reported lower self-esteem and interpersonal trust. Harris and Valentiner (2002) reported differences in world assumptions among victims of sexual assault compared to non-victims, such that victims reported less belief in self-worth, self-control, and luck. Ullman (1997) found that women victimized in both childhood and adulthood demonstrated lower self-worth. Further, negative world view beliefs have been found to be associated with poor adjustment following rape,

including more use of avoidance coping as well as experiencing more depressive and PTSD symptoms (Littleton & Grills-Taquechel, 2011).

A more recent expansion of Janoff-Bulman's assumptive world theory was proposed by Resick and Schnicke (1992) in their social cognitive model. This theory posits that after experiencing a violation to their worldview through interpersonal trauma, victims attempt to resolve the threat to worldview presented by the trauma through one of three processes: assimilation, accommodation, or over-accommodation. In assimilation, victims preserve their belief system through such processes as minimizing the severity of the trauma and its impact. For example, a rape victim may label the event as a miscommunication as opposed to a rape or deny that the assault had a negative impact on her well-being. In contrast, individuals who engage in accommodation following a trauma change their preexisting beliefs to reflect the new experience, such as by altering their perception of the trustworthiness of others to include the fact that some individuals are not trustworthy. Finally, victims who engage in over-accommodation instead drastically change their preexisting beliefs in response to the trauma such as adapting a view of the world as an unjust and dangerous place where no one can be trusted. This social cognitive view of responses to trauma has been explored specifically in relation to sexual victimization (Littleton, 2007; Littleton & Grills-Taquechel, 2011). In two studies, Littleton and colleagues found that rape victims could be classified as assimilated, accommodating/accommodated, or over-accommodated based on their coping responses to the sexual assault (Littleton, 2007; Littleton & Grills-Taquechel, 2011). Additionally, they found that individuals classified as engaging in these responses to sexual victimization differed in their worldview, psychological distress, and health risk behaviors. Specifically, victims classified as over-accommodated reported more reliance on maladaptive avoidance coping and less adaptive

approach coping in managing their sexual assault experience relative to the two other groups, increased depressive and PTSD symptoms, greater levels of sexual fears, and more negative views of the world and themselves, including lowered self-worth. Victims classified as assimilated, however, reported the lowest scores on all measures of active coping, with greatest reliance on problem avoidance coping. They also reported lower levels of psychological distress and vulnerability fears. The assimilated group also contained the highest percentage of unacknowledged rape victims. By contrast, victims classified as accommodated reported relatively high scores on all coping measures with the highest score on the emotional engagement scale. It is worth noting that while the 2011 study did not find differences among these three groups on a measure of hazardous drinking, there were differences in risky sexual behavior, with over-accommodated victims reporting greater use of sex to regulate affect (one example of a risky emotion regulation strategy).

The social cognitive approach offers a unique perspective for understanding how sexual victimization can lead to multiple health risk behaviors as well as account for the diversity in outcomes among victims with regards to their levels of health risk behaviors. Specifically, by minimizing the severity of the victimization (i.e., believing that it was less traumatic or dangerous), assimilated victims may be likely to continue pre-victimization high-risk behaviors such as multiple short-term sexual encounters or consuming alcohol in potentially risky situations. By contrast, over-accommodated victims view the world as excessively frightening and dangerous, and may use alcohol or sexual activity as a means of avoidance coping in order to reduce this fear. Victims who are using avoidance-based coping may be more likely to engage in alcohol or substance use as a way of disengaging from emotional distress, as suggested by the self-medication hypothesis. Accommodated victims, however, alter their views of the world to

reflect that the world can be dangerous and others cannot always be trusted. These altered beliefs may instill a realistic sense of danger and risk in this group of victims without causing the excessive distress and mistrust evident in over-accommodated victims. Therefore, accommodated victims may modify their behavior to avoid potentially risky situations (unlike assimilated victims), but without experiencing the high distress and fear that could lead to maladaptive avoidant coping (as in the case of over-accommodated victims). Realistic and balanced worldviews following sexual victimization may in this way protect accommodated victims from some of the negative health consequences of sexual victimization experienced by assimilated and over-accommodated victims.

The study by Littleton and Grills-Taquechel (2011) offers some evidence in this direction. The researchers found that the over-accommodated victim group reported more use of sex to regulate negative affect, which has been associated with having a greater number of partners, engaging in more short-term sexual encounters, and experiencing elevated rates of sexually transmitted infections (Cooper, Shapiro, & Powers, 1998; Gebhardt, Kuyper, & Greunsvan, 2003; Patrick & Maggs, 2010). Over-accommodated victims also reported greater reliance on avoidance coping. By contrast, assimilated victims may also use substances as a way to mask the distress associated with the trauma and thus maintain their view of the assault as less serious (and thus compatible with their pre-existing worldviews). In addition, even though assimilated victims reported lower levels of distress than the other two groups of victims, they engaged in similar levels of hazardous drinking and were just as likely to experience a new rape or attempted rape at a 3 month follow-up assessment (Littleton & Grills-Taquechel, 2011).

However, research directly examining the association of worldview with health risk behaviors is extremely limited, with just one study that was found identifying that worldview

significantly predicted harmful drinking among treatment-seeking African-Americans attending a community mental health clinic, and that beliefs about the self were most predictive of hazardous alcohol use (Williams, Jayawickreme, Sposato, & Foa, 2012).

Given this study's results as well as previous work on Resick and Schnicke's (1992) social cognitive theory and how victims exhibit differential coping strategies based on their beliefs, there is clearly a need for more research examining the extent to which negative worldviews are related to health risk behaviors, including following sexual victimization. However, it is likely that all worldviews do not exert an equal influence on one's engagement in health risk behaviors. Given a large literature base documenting the association between self-worth and risky behaviors, it is likely that beliefs about the self have a stronger influence on engagement in risk behaviors than other aspects of worldviews. Additionally, beliefs about the benevolence of other people and the world are directly related to an individual's perceptions of safety and trust, and thus are likely to be strongly related to how that individual engages with other people and the world, such as their sexual behaviors. Therefore, the worldview dimensions of self-worth and benevolence may be particularly important within the construct of general worldviews to explore in relation to health risk behaviors.

Thus, the primary aim of this dissertation was to explore this relationship much more fully, examining worldview dimensions of self-worth and benevolence as predictors of risky behaviors in a sample of primarily low income women, a group known to be at high risk for a variety of traumatic experiences, as well as examine possible mediators and moderators of this relationship. Resick and Schnicke's social cognitive theory suggests that world assumptions might be one of the most important predictors of psychological adjustment, particularly among those who have experienced one or more traumatic events. I hoped to confirm this prediction and

more fully understand other variables that may play a role, such as depression, victimization type, and ethnicity.

### **Depression as a Mediating Variable**

In conducting this study, I am striving to better understand the mechanisms by which an individual's worldview might affect his or her risk behaviors. Based on existing literature, there are several reasons to think that depression might be an important factor in this relationship, and is worth exploring as a mediator. An entire theoretical and treatment model, cognitive theory, is built on the idea that the way an individual thinks about herself and the world can lead to depression when the individual becomes stuck in maladaptive thinking patterns and negative life appraisals as a result of activation of depressogenic negative schemas (Dozois & Beck, 2008). Beck's cognitive theory of depression, originally proposed in 1963 (Beck, 1963; Beck, 1967), has spawned one of the largest growth areas in the psychological literature since that time and has received consistent theoretical and empirical support (Dozois & Beck, 2008). Beck (1967) coined the term "the cognitive triad" to refer to schemas reflecting a negative view of oneself, the world, and the future. These negative schemas are clearly similar to Janoff-Bulman's (1989) concept of world assumptions. Specifically, Janoff-Bulman's concept of self-worth as a worldview dimension maps clearly onto Beck's view of negative self-schemas, and the dimension of benevolence maps onto negative schemas of others and the world. Similarly, Beck proposes that a negatively distorted view of reality is "responsible for the buildup and maintenance of the non-cognitive symptoms of depression" (Beck, 2002, p. 35). As a result of these negative or dysfunctional thoughts and appraisals, Beck posits that the depressed individual interprets all new experiences or situations as being consistent with their negative schemas – that is, they selectively focus on negative interpretations of events or interactions and as a result

experience increased distress. Indeed, Beck states, “Negative thinking appears to be universal in depression and leads to sadness and behavior difficulties” (Beck, 2002, p. 32). Thus, the negative self-schemas, maladaptive beliefs and assumptions, and negative automatic thoughts are causal in the onset, exacerbation, and maintenance of depression (Dozois & Beck, 2008). In this way, Beck’s cognitive theory of depression appears to provide one compelling theoretical explanation for why negative views of the world and self may lead to depression.

Theoretical models also support the association between depression and health risk behaviors. As previously discussed, the self-medication hypothesis proposes that individuals engage in sexual behavior or substance use as a way of reducing negative affect (Miranda et al., 2002). Indeed, one study examining risky sexual behavior noted that:

Depressed participants described feelings of loneliness, isolation, and wanting somebody to ‘comfort them’ as aspects of depression that affected the decisions they made about sex and relationships. In essence, sex was viewed as a stress reliever, an anti-depressant and a way to increase self-esteem” (Brawner, Gomes, Jemmott, Deatrck, & Coleman, 2012, p. 618).

Based on these participants’ self-report, we might expect depression specifically to be more closely related to engagement in sexual activity than other types of psychological distress, such as anxiety, based on the reported association of loneliness and isolation with risky behaviors. Indeed, one large-scale study in the UK found that depression was strongly associated with sexual risk behaviors and poorer sexual health overall (Field et al., 2016).

Another theoretical framework, the theory of planned behavior (TPB), states that an individual’s attitude toward a certain behavior is shaped by his/her beliefs about that behavior and expectations about likely outcomes of engaging in said behavior (Brawner et al., 2012).

Thus, for example, an individual who expects that engagement in sexual activity will increase her mood is more likely to engage in this activity when feeling down. Similarly, an individual who expects alcohol to make them feel more relaxed, confident, or happier may be more likely to use alcohol when feeling distressed. An empirical study guided by the TPB framework found that depressed participants were more likely to engage in risky sexual behaviors than non-depressed participants, and that their reported reasons for doing so were consistent with predictions by the theory of planned behavior (Brawner et al., 2012). Based on theoretical frameworks suggesting that worldview predicts depression and depression predicts engagement in health risk behavior, we might expect depression to serve a mediating role between aspects of worldview and health risk behaviors.

There is empirical as well as theoretical reason to suspect depression may mediate the relationship between worldview and health risk behaviors. Aspects of worldview have been shown in multiple empirical studies to predict distress or depression (e.g., Butler et al., 2009; Harris & Valentiner, 2002; Lilly et al., 2011). Additionally, self-worth, one aspect of worldview, has been also associated with depression in a variety of previous studies (e.g., Kopala-Sibley & Zuroff, 2010; King, Naylor, Segal, Evans, & Shain, 1993; Renouf & Harter, 1990).

Further, significant empirical work has examined depression as a predictor of multiple health risk behaviors including inconsistent condom use, contracting an STI, having sex under the influence of alcohol or drugs, and having sex with multiple partners (e.g., Lennon, Huedo-Medina, Gerwien, & Johnson, 2012; Seth, Raiji, DiClemente, Wingood, & Rose, 2009; Williams & Latkin, 2005). For example, one study of adolescents found that depressed participants (relative to non-depressed participants) were more likely to have initiated sexual intercourse, reported a greater average number of sexual partners, and reported a greater frequency of sexual

activity while under the influence of alcohol or drugs (Brawner et al., 2012). Taniguchi and colleagues (2014) similarly found that depression severity in their participants (adults presenting to an HIV outpatient clinic) was related to increased likelihood of hazardous drinking, tobacco and drug use, and risky sexual behaviors, suggesting a possible dose-response relationship between depressive symptoms and engagement in health risk behaviors (Taniguchi et al., 2014). Similarly, another study found that as individuals' level of depression increased over time, they were more likely to engage in a risky sexual encounter (Wilson, Stadler, Boone, & Bolger, 2014). In addition to associations with risky sexual activity, a wealth of empirical literature has documented a robust association between depression and risky drinking or drug use. A review of the literature obtained average odds ratios of 1.7 and 3.8 for the comorbidity of major depression with alcohol abuse and dependence, respectively, and also discussed multiple other studies documenting the association between depression and alcohol abuse/dependence using clinical, epidemiological, family, and twin methodologies (Swendsen & Merikangas, 2000). The association of these two clinical disorders was robust across studies and methodologies. Both this review and another more recent review (Boden & Fergusson, 2011) concluded that there was more evidence for a causal relationship between the two disorders (i.e., depression causes a substance use disorder or vice versa) than a shared etiology explanation of comorbidity. Taken together, these findings suggest an empirical basis for a possible mediated relationship of depression between worldviews and health risk behaviors among the general population.

Victims of trauma who experience negative alterations in aspects of their worldview may also use alcohol or sexual behaviors to cope with the distress that results from these changed beliefs. It seems logical, therefore, to expect that depression would mediate the relationship between worldview and engagement in risk behaviors for victims of trauma, but likely for non-

traumatized individuals as well, although this possibility has not been found to be empirically evaluated.

Additionally, looking at trauma victims specifically, Janoff-Bulman's (1989) shattered assumptions theory would predict that negative beliefs about the world, others, and the self leads to poor adjustment including distress, self-blame, denial, and depression via a breakdown of the normal processes of assimilation and accommodation. As developed further in Resick and Schnicke's (1992) social-cognitive framework, individuals' attempts to manage these negative emotions may evolve into maladaptive coping strategies such as hazardous drinking or risky sexual behavior. Specifically, assimilated victims may not engage in much active coping at all, as they are the group most likely to minimize the severity of the victimization in order to maintain their pre-existing beliefs. Thus, they may not have any positive coping strategies in place to help manage the trauma of the victimization. By contrast, over-accommodated victims may rely more heavily on maladaptive avoidance-based coping such as hazardous drinking or risky sexual behavior as a means of suppressing trauma-related thoughts that are associated with their highly negative views of the self and the world. Although there may be differences in how assimilated and over-accommodated victims cope with distress, both examples present logical paths by which negative worldview could engender distress/depression and then lead to engagement in risky health behaviors.

In summary, there are several theoretical and empirical reasons to suspect that depression may operate as a mediating variable in the relationship between worldview and health risk behaviors. Specifically, previous studies have shown that worldview predicts depression and that depression predicts health risk behaviors. Furthermore, both Janoff-Bulman's (1989) shattered assumptions theory as well as Resick and Schnicke's (1992) social cognitive theory would

suggest that changed worldviews are likely to lead to depression among victims of trauma, although this relationship needs to be examined in a non-victimized sample, given the previous literature's heavy reliance on solely victimized samples. Examining these relationships in both a victimized and non-victimized sample may increase understanding of trauma's role in shaping worldview and subsequent distress and behaviors.

### **Sexual Victimization and Ethnicity as Moderator Variables**

In addition to examining the overall role of depression as a mediator of the relationship between worldview and health risk behaviors, the current project examined two potential moderators of this mediated relationship, sexual victimization history and ethnicity.

**Sexual victimization history.** Among victims of sexual abuse or assault, negative worldviews may be even more likely to lead to depression than for non-victims. Women who experience sexual victimization have been presented with extremely dramatic and salient evidence to challenge positive worldview beliefs. Experiencing such a betrayal, it can be argued, may in fact be one of the *most* disruptive events to one's worldview. Indeed, Lilly and colleagues (2011) found in one study that negative worldview mediated the relationship between trauma exposure and depression severity, but only for interpersonal forms of trauma such as sexual victimization. This finding suggests that worldview may be particularly affected by interpersonal trauma such as sexual victimization, and thus beliefs altered as a result of such interpersonal trauma may be more strongly associated with depression. Additionally, because of the interpersonal nature of sexual assault, victims may be more likely to respond to the trauma with assimilation or over-accommodation instead of the more adaptive response of accommodation. In this study, I therefore predicted that worldview would more strongly predict depression in the

mediated model among women with a history of sexual trauma as compared to women with no such history.

Similarly, it is possible that victims may be more likely than non-victims to drink or engage in sexual behavior as a means of coping with depressive symptoms. Victims by definition are coping not only with the distress of depressive symptoms, but also with an additional trauma and potentially other symptoms (e.g., PTSD) associated with that experience. Resick and Schnicke's social cognitive framework would suggest that these victims are engaged in the cognitive task of understanding their experience and either assimilating or accommodating this experience into their worldview. As suggested earlier, when the healthy process of accommodation breaks down, it can result in over-accommodation or maladaptive assimilation, which in turn may result in risky behaviors as a way of denying, minimizing, or avoiding the experience. For example, assimilation could be achieved by a rape victim via blaming herself for the assault and thus viewing it as a result of a miscommunication on her part, rather than a violation by the assailant. In this way, she is able to minimize the severity of the assault and maintain her belief in the benevolence of people. However, the cost may be an unchanged perception of any potentially risky behaviors she engaged in. Additionally, maintaining this benign view of the assault could be cognitively taxing and thus the victim may use substances to try to reduce distressing thoughts and feelings about the assault and maintain her view of it as a less serious event. Over-accommodation could result in a high level of fear, distress, and safety concerns through views of the world as exceptionally dangerous, which the victim may attempt to reduce through alcohol use or sexual behavior. We might predict that victims who are experiencing depressive symptoms are particularly vulnerable to these forms of unhealthy coping, and that they may therefore be even more likely to drink alcohol or engage in sexual

behavior to cope than non-victims, who are presumably not engaged in these cognitive tasks. Additionally, some victims of ASA may have already been using alcohol or sexual behavior as a coping mechanism prior to their assault. Experiencing the traumatic event of the assault could exacerbate this coping behavior among victims. Thus, one might expect that the path between depressive symptoms and risk behaviors may be stronger for victims relative to non-victims.

A more exploratory question in this area is whether the strength of these mediated relationships among worldview, depression, and risk behaviors are also different for CSA victims, ASA victims, or combined victims (i.e., those with both a CSA and ASA history) relative to non-victims. Some theoretical and empirical research does suggest that there may be differences in outcomes among CSA and ASA victims (e.g., Cheasty, Clare, & Collins, 2002; Kaukinen & DeMaris, 2005; Maker, Kemmelmeir, & Peterson, 2001; Schacht et al., 2010), but this research has not explored whether type of victimization may moderate relationships between constructs, such as the relationship between worldview and depression or the relationship between depression and risk behavior.

For example, research on differences in overall levels of depression and risky behaviors between victims of CSA and ASA has mixed results. Specifically, Cheasty and colleagues (2002) found that CSA was a predictor of later depression while ASA was not. No research to date was found that examined whether type of sexual victimization influences the likelihood of a negative worldview leading to depression, but there are several reasons to predict moderation of this relationship. For one, CSA is more likely to involve repeated incidents than ASA – in fact, in one study approximately half of all reported CSA involved repeated experiences, and among victims with repeated experiences of CSA, 43.2% lasted for over a year (Ullman & Brecklin, 2003). These repeated incidents may serve to reinforce negative worldview and increase the

likelihood that they may lead to depression. However, assault as an adolescent or adult might be associated with greater self-blame and therefore lower self-worth, while those abused in childhood may hold themselves less responsible (Kaukinen & DeMaris, 2005). This potential increased effect on self-worth, one of the core world assumptions, may mean that a negative worldview may be more likely to lead to depression in ASA victims than CSA victims. Finally, repeated traumas in multiple developmental periods (i.e., those victimized in both childhood and adolescence/adulthood) may be more likely to lead to negative outcomes for victims. Indeed, Ullman (1997) found that women victimized in both childhood and adulthood reported a more negative worldview and lower self-worth than did women victimized in adulthood alone.

Kaukinen and DeMaris (2005) suggest that ASA may influence health risk behaviors more strongly than CSA because the event is more recent and thus the individual may engage in greater avoidant coping such as substance use or risky sexual behavior as a means of reducing distress and anxiety about this event. By contrast, victims of CSA may have had longer to cope with their experience and seek alternate means of coping with distress. Further, alcohol use may be an established coping mechanism for a young adult who experiences sexual assault, so they may be more likely to increase their use of this strategy relative to a child who experiences CSA. Finally, victims of ASA may be more likely to blame themselves for the assault, and may engage in substance use or sexual behavior as a way of “self-medicating” for these negative cognitions. Based on these studies, one might predict that the relationship between depression and risk behaviors would be stronger among victims of ASA relative to CSA victims. Additionally, the cumulative impact of multiple traumas may be particularly likely to lead to a strong relationship among these risk pathways. Thus, the type of victimization experienced seems to be important to explore as a moderator of both the path between worldview and depression, and between

depression and health risk behaviors. However, given the exploratory nature of this variable, I make no predictions regarding the specific moderation of CSA, ASA, or a combined history.

**Ethnicity.** Ethnic differences in the constructs of worldview, depression, and health risk behaviors have also been explored in victim and non-victim populations. Given existing research, there is reason to expect ethnic differences in the relationships among these variables. For example, for African Americans, growing up as a member of an oppressed ethnic minority group may predispose them to believe that the world is malevolent, and that people are not inherently good and kind. Experiences of discrimination and societal oppression also serve to reinforce these beliefs. Some authors have suggested that for women of color, there is no historical basis for the assumption that they will be protected by traditional authorities and societal institutions (Bryant-Davis, Chung, & Tillman, 2009). Supporting this position, some prior literature has suggested that world assumptions held may differ by ethnic group (Calhoun & Cann, 1994; Forest, 1995). Specifically, Calhoun and Cann (1994) found that ethnic minority participants reported viewing the world as less benevolent and the self as less lucky than ethnic majority participants. Forest (1995) similarly found that more positive world beliefs were related to being White, male, and having higher income and education levels. In this study, non-White participants reported higher mistrust in the world and higher anomie (this scale consisted of items asking about the plight of ordinary people, such as “The situation of the common man is getting worse, not better”).

Given evidence to suggest that ethnic minority individuals may hold more negative worldviews than members of the ethnic majority, the relationship between worldview and depression may be weaker for African American participants relative to European American participants. In other words, if negative worldviews are more normative among members of an

ethnic minority, they may be less likely to lead to negative psychological outcomes such as depression. Additionally, these negative worldviews may be more adaptive for ethnic minority women because to some extent they are grounded in reality. Further, if pre-trauma beliefs are more negative, experiencing traumatic events could present a less severe challenge to their beliefs and thus less distressing disruption in beliefs. Therefore, less disruption to beliefs could result in less depression in ethnic minority individuals.

There may also be ethnic differences in women's frequency of engagement in health risk behaviors such as hazardous drinking or risky sex. Overall, there is evidence that African American women drink less than European American women and have less positive alcohol expectancies (e.g., expecting alcohol to have a positive impact on one's mood or enhance one's ability to socialize; Babb, Stewart, & Bachman, 2012; Clements, 1999; Kahler, Read, Wood, & Palfai, 2003; Randolph, Torres, Gore-Felton, Lloyd, & McGarvey, 2009; Wechsler et al., 2002). However, although African American women report less drinking overall (Orcutt & Schwabe, 2012), African American women are more likely to drink in response to distress (Littleton & Ullman, 2013). Differing motives for drinking can be one factor that influences differential rates of alcohol use; perhaps European Americans are more likely to drink to relax or facilitate social interactions, while African Americans appear to be more likely to drink as a means of self-medicating negative affect. Supporting this position, one study found that PTSD symptomology predicted hazardous drinking among African American women who had experienced sexual victimization but not among European American victims (Littleton & Ullman, 2013). This result suggests greater self-medication by African Americans than European Americans and thus a stronger association between depression and hazardous drinking.

Additionally, Bryant-Davis and colleagues (2009) note that any discussion of trauma among ethnic minorities must acknowledge the broader socio-historical context of trauma including chronic traumas such as racism and poverty that ethnic minority women are more likely to confront. Substance use may be used as a means of coping with this daily environment of discrimination and oppression (Bryant-Davis et al., 2009). Although cultural norms regarding substance use can provide a protective factor for some ethnic minority women, when faced with an additional trauma such as sexual violence, these women may be more likely to turn to substances as a way of self-medicating.

Regarding risky sexual behavior, one study involving a large sample of low income women found no significant differences between African American and European American participants on several sexual risk behaviors (Littleton, Breitkopf, & Berenson, 2005). Another study similarly found no significant difference between African American and European American's reported number of sexual partners, but did find that African American women reported significantly more engagement in other sexual risk behaviors, such as exchanging sex for money (Mojola & Everett, 2012). Other studies have found that African American participants are more likely to engage in sexual activity at younger ages (Biello, Ickovics, Niccolai, Lin, & Kershaw, 2013; Taylor-Seehafer & Rew, 2000) and are less likely to utilize contraceptive practices than European Americans (Wyatt et al., 2000). Although there are clearly mixed results in investigating whether sexual risk behaviors vary by ethnicity, previous research does suggest that African American women may report higher levels of sexual risk relative to European Americans.

However, studies were not found which have examined the strength of the relationship between depression and these risky behaviors by ethnicity to date. Previous research has

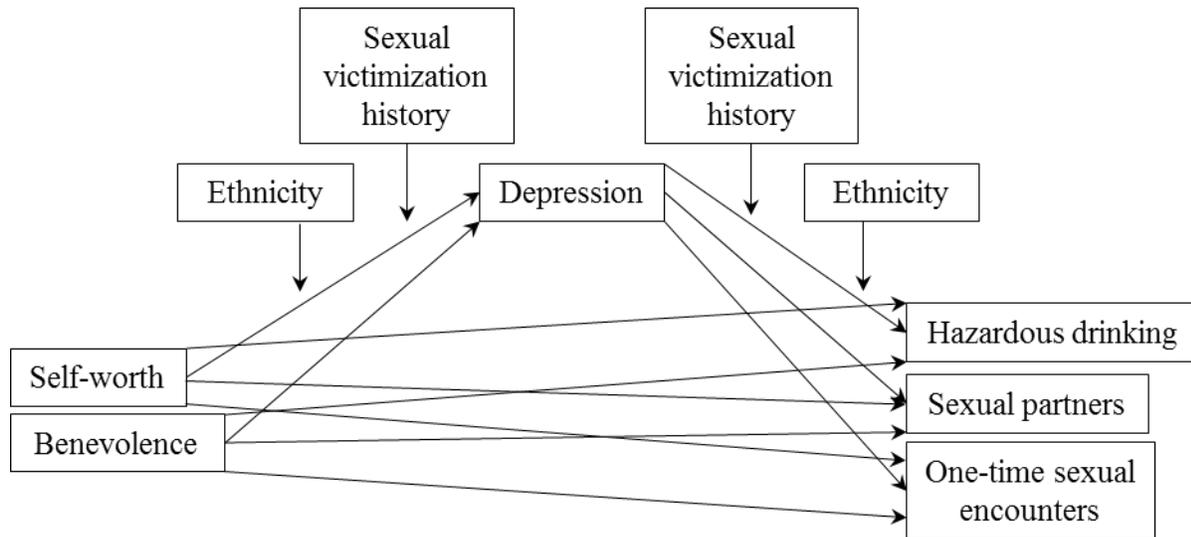
demonstrated that African-Americans tend to report fewer resources, fewer positive coping strategies, and less help-seeking behaviors, relative to European Americans (Greco, Brickman, & Routh, 1996; Sabri et al., 2013; Snowden, 2001). Therefore, the relationship between depression and risky behaviors may be stronger for African Americans relative to European Americans, as they have fewer perceived alternatives available for positive coping or managing distress.

Although findings have often been mixed in exploring the role of ethnicity in health risk behaviors, enough evidence suggests that there are underlying differences to justify further exploration in this area. In particular, engaging in risky drinking as a means of coping with distress may vary between ethnic minority and ethnic majority individuals. Therefore, the role of ethnicity as a potential moderator of the predicted depression–risky drinking relationship was explored in this study.

### **Goals of the Current Study**

This study proposed to explore the levels of and relationships among two key aspects of worldview – self-worth and benevolence – depression, and health risk behaviors in an ethnically diverse community sample consisting of both victims and non-victims of sexual violence. Specifically, I examined a model of moderated mediation, with depression mediating the relationship between these two aspects of worldview and health risk behaviors, with sexual victimization history and ethnicity serving as proposed moderators of the mediated relationship (see Figure 1). To my knowledge, the relationships between these variables have never been examined in this way before. Given the great research and clinical implications for understanding factors that influence these health risk behaviors, I believe this study adds an important aspect to the literature in this area that is currently absent.

**Figure 1.** Proposed Model of Moderated Mediation.



### **Aims and Hypotheses**

**Aim 1:** Examine differences in worldview (benevolence and self-worth), depression, and health risk behaviors between victims of sexual abuse or assault and non-victims.

**Hypothesis 1:** Women with a sexual victimization history will report a significantly more negative worldview as defined as reporting less belief in benevolence and lower self-worth than women with no sexual victimization history.

**Hypothesis 2:** Women with a sexual victimization history will report significantly more depressive symptoms than women with no sexual victimization history.

**Hypothesis 3:** Women with a sexual victimization history will report significantly more engagement in health risk behaviors (specifically, hazardous drinking, more past year partners, and more past year one-time sexual encounters) than women with no sexual victimization history.

**Aim 2:** Examine differences in worldview (benevolence and self-worth) and health risk behaviors between European American and African American women.

**Hypothesis 4:** African American women will report a more negative worldview as defined as reporting less belief in benevolence and lower self-worth relative to European American women.

**Hypothesis 5:** African American women will report lower levels of hazardous drinking and more past year partners and more past year one-time sexual encounters relative to European American women.

**Aim 3:** Examine worldview (benevolence and self-worth) and depression as predictors of health risk behaviors including hazardous drinking, past year partners, and past year one-time sexual encounters.

**Hypothesis 6:** Worldview (beliefs in benevolence and self-worth) will be a significant predictor of health risk behaviors (hazardous drinking, past year partners, and past year one-time sexual encounters).

**Hypothesis 7:** Depression will be a significant predictor of health risk behaviors (hazardous drinking, past year partners, and past year one-time sexual encounters).

**Aim 4:** Examine depression as a mediator of the relationship between worldview (benevolence and self-worth) and health risk behaviors.

**Hypothesis 8:** Depression will be a significant mediator of the relationship between worldview (benevolence and self-worth) and health risk behaviors (hazardous drinking, past year partners, and past year one-time sexual encounters) such that higher depression scores will mediate the relationship between more negative worldviews and increased engagement in health risk behaviors.

**Aim 5:** Examine sexual victimization history as a moderator of the mediated relationship proposed in Hypothesis 8 (see Figure 1 for a depiction of this proposed moderated mediation model).

**Hypothesis 9:** Sexual victimization history will significantly moderate the *a* path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between worldview and depression) such that among victims of sexual violence there will be a stronger relationship between negative worldviews and depression than among non-victims.

**Hypothesis 10:** Sexual victimization history will significantly moderate the *b* path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between depression and health risk behaviors) such that among victims of sexual violence there will be a stronger relationship between depression and health risk behaviors than among non-victims.

Additionally, the type of sexual victimization (e.g., CSA history, ASA history, or combined CSA/ASA history) will be examined as a moderator of the *a* and *b* paths of the mediated model. However, there is insufficient empirical and theoretical support to make specific hypotheses as the nature of this potential moderation.

**Aim 6:** Examine ethnicity as a moderator of the mediated relationship proposed in Hypothesis 8 (see Figure 1 for a depiction of this proposed moderated mediation model).

**Hypothesis 11:** Ethnicity will significantly moderate the *a* path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between worldview and depression) such that the size of the relationship between worldview and depression will be stronger among European American women than African American women.

**Hypothesis 12:** Ethnicity will significantly moderate the *b* path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between depression and health risk behaviors) such that the size of the relationship between depression and health risk behaviors will be significantly stronger in African American than European American women.

## **Chapter 2: Method**

### **Participants**

Participants were drawn from a sample of 714 women recruited from the waiting room of a university-affiliated OB-GYN practice serving primarily low to middle-income rural women, as well as women experiencing a high risk pregnancy. Of these women, 61 were excluded because they indicated an ethnicity other than European American/White or African American/Black; 35 were excluded because they reported their age was greater than 54 years; 22 had extensive missing data across all questionnaires; 8 had extensive missing data on the variables of interest; and 3 did not report their age. The final sample included 585 women. Participants were primarily African American (63.3%) and their mean age was 29.5 years. A total of 63.2% of participants were currently pregnant.

### **Procedures**

Women were approached in the waiting room by a study coordinator (a doctoral student in clinical health psychology) who provided a verbal description of the study and asked if they would be interested in completing the questionnaires. Women who were interested were provided with a survey packet which included two copies of the informed consent (see Appendix B), a brief written description of the study clipped to the outside of the packet (Appendix C), the questionnaires, and a small gift (a decorative notebook) for their participation. A list of local community resources for victims of sexual violence was also provided in the packet, and study coordinators were available to answer any questions about these resources or assist interested participants with finding appropriate referrals. Study coordinators were available in the waiting room between 10 and 30 hours a week (dependent on staff availability and funding) for a period of approximately one and a half years (January 2010 to July 2011). All women between the ages

of 18 and 54 were approached by study coordinators and offered an opportunity to participate. Data on refusal was not obtained.

Once being provided with the questionnaires, women were directed that they could complete the questionnaires either in the waiting room or in the exam room, and that once they had finished they could place the completed questionnaires in either of two locked study boxes, to which only study staff had keys. This study was approved by the university institutional review board and American Psychological Association (APA) and university ethical guidelines were adhered to throughout the data collection process.

## **Measures**

**Worldview.** Participants completed three subscales of the World Assumptions Scale to measure worldview (Janoff-Bulman, 1989). These subscales assessed belief in the benevolence of world, the benevolence of people, and one's self-worth. Each subscale consists of four statements to which participants indicate their level of agreement on a 6-point Likert scale bounded by 1 (*strongly disagree*) and 6 (*strongly agree*). Scores are calculated by summing the items on each subscale, with several items that are reverse-scored. Scores can range from 4 to 24 for the self-worth subscale, and from 8 to 48 for the overall benevolence subscale (benevolence of world and benevolence of people subscales combined), with higher scores representing more positive beliefs.

Prior research has supported these subscales' internal consistency in both non-traumatized populations as well as a sample of female rape victims (Kaler et al., 2008; Littleton & Breitkopf, 2006). In Janoff-Bulman's (1989) original study, internal consistency for all eight subscales ranged from .66 to .76 (individual subscale consistencies were not reported). In a subsequent study testing the psychometric properties of the WAS, researchers demonstrated that

the benevolence of the world subscale exhibited a Cronbach's alpha of .80 and a test-retest reliability of .65 (Kaler et al., 2008). Construct validity was also measured in this study. The benevolence of the world subscale demonstrated small correlations (.12 to .19) in the expected direction with measures of PTSD symptomology, generalized distress, and negative affect, and moderate correlations (-.30 to -.33) in the expected direction with positive affect, optimism, satisfaction with life, and self-esteem. In Kaler and colleagues' (2008) study, the benevolence of other people subscale demonstrated a Cronbach's alpha of .71 and a test-retest reliability of .57. This subscale demonstrated small correlations (.13 to -.25) in the expected directions with all other study measures. Finally, the self-worth subscale demonstrated a Cronbach's alpha of .83 and a test-retest reliability of .60. In the study by Kaler and colleagues (2008), the self-worth subscale demonstrated the strongest construct validity among the eight subscales by correlating moderately to strongly (.28 to -.69) in the expected directions with all other study measures. In Janoff-Bulman's original (1989) study, an exploratory factor analysis showed that the items on the benevolence of the world and benevolence of people subscales loaded on a single benevolence factor. Further, in the study by Kaler and colleagues (2008), scores on these two subscales were highly correlated ( $r = .58$ ). Thus, a single benevolence score was calculated for participants in the current study. Internal consistency (as measured by Cronbach's alpha) for this benevolence subscale was .72 and the internal consistency of the self-worth subscale was .83.

**Depressive symptoms.** The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was administered to assess current depressive symptoms. This measure consists of 20 self-report items assessing the cognitive, behavioral, and affective components of depression. Sample items are, "I felt depressed" and "I felt that I could not shake off the blues even with help from my family or friends." Participants rate each item in accordance with how

often they felt that way in the past week. Ratings range from 0 to 3 and are anchored by the descriptions “Rarely or none of the time/less than one day” for 0 and “Most or all of the time/5-7 days” for 3. Participants’ scores are summed (full range 0-60), and scores greater than 15 suggest the presence of clinically significant depression (Caracciolo & Giaquinto, 2002; Santor, Zuroff, Ramsay, Cervantes, & Palacios, 1995). The CES-D has been evaluated in multiple previous studies and has been found to possess acceptable test-retest reliability ( $r = .67$ ) and internal consistency ( $\alpha_s = .84-.90$ ; Radloff, 1977). Supporting the convergent and predictive validity of the measure, one study using inpatients at a rehabilitation facility found that the CES-D correlated strongly and significantly with other self-report and clinician-administered measures of depression as well as possessed a sensitivity of 89% and specificity of 75% for the range of depressive disorders (Caracciolo & Giaquinto, 2002). Another study using a community sample of 3,845 randomly-selected adults as well as 406 psychiatric patients with a range of diagnoses similarly supported the sensitivity of the CES-D as well as its convergence with other self-report and clinician-administered measures of depression and further demonstrated its sensitivity to change in depressive symptoms over time or following treatment (Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). Cronbach's alpha in the current study was .88.

Missing data on the CES-D was addressed with the person mean substitution strategy, which was selected based on previous literature supporting that it does not result in reduced variability of scores or adversely affect reliability, provided that the percentage of missing data does not exceed 20% of the sample (Downey & King, 1998). Additionally, this strategy has been shown not to unduly influence overall mean CES-D scores (Bono, Ried, Kimberlin, & Vogel, 2007). In this sample, 79 participants (19.4%) had missing data on one to four of the CES-D items, and so this imputation technique was deemed the most appropriate strategy for handling

missing data. Consequently, missing items were substituted with that individual participant's mean item score on the rest of the completed items. If an individual left more than four items blank on this measure, their data was eliminated from analyses ( $n = 7, 1.7\%$ ).

**Hazardous drinking.** The Alcohol Use Disorders Identification Test (AUDIT-5; Babor, Higgins-Biddle, Saunders & Monteiro, 2001; Miles, Winstock, & Strang, 2001) was utilized to assess risky alcohol use in the past year. The AUDIT-5 is a five-item self-report measure of frequent and problematic alcohol use and includes items such as “Has a relative or friend or a doctor or other health worker been concerned about your drinking or suggested that you cut down?” Total summed scores can range from 0 to 20, with scores of 5 or above indicative of hazardous drinking (Miles et al., 2001). A study conducted in a primary care setting found that the AUDIT possessed a sensitivity of 79%, a specificity of 95%, and a positive predictive value of 73% for alcohol use disorders, using a structured diagnostic interview as the criterion (Piccinelli et al., 1997). Cronbach's alpha in the current study was .80.

**Sexual risk behaviors.** Risky sexual behavior was assessed through use of two free-response items asking participants to report the number of sexual partners they had in the past year and the number of one-time sexual encounters they had in the past year. For each question, participants were asked to include partners with which they had engaged in oral, anal, and/or vaginal intercourse. Each item was scored as a continuous variable indicating the number of partners reported. To reduce skew, for the past-year partners item, women who reported 6 or more past-year sexual partners were collapsed into a “6 or greater” category. Similarly, for the past-year one-time sexual encounters item, women who reported 3 or more past-year one-time sexual encounters were collapsed into a “3 or greater” category. This method of inquiring about

risky sexual behaviors is similar to that used in previous studies (Ramrakha et al., 2013; Rodgers & McGuire, 2012).

**Sexual victimization experiences.** Women's sexual victimization history was assessed through five behaviorally specific items inquiring about sexual victimization experiences involving sexual contact prior to the age of 14 (and thus meeting criteria for CSA) as well as experiences of completed sexual assault at age 14 and older. Age 14 was chosen as the age to distinguish CSA from ASA based on previous research suggesting that CSA is most typically initiated prior to age 14 (Finkelhor, Hotaling, Lewis, & Smith, 1990) as well as evidence that assaults which occur after the age of 14 more closely resemble the characteristics of adult assault than childhood abuse (Koss et al., 2007; Livingston, Hequembourg, Testa, & VanZile-Tamsen, 2007).

The two items assessing experiences of CSA were "Did you ever have a sexual experience with someone older or someone who had authority over you such as a doctor, teacher, minister, therapist, babysitter, or any other older person?" and "Did you ever have sexual contact with a relative such as an uncle, brother, father, grandfather, mother, stepparent, or sister?" Possible responses to these items were either yes or no (scored as a 0 or 1 for data analysis). These two items were chosen based on previous research examining which questions were most successful at eliciting accurate endorsements of childhood sexual abuse in a sample of adult women known to have experienced sexual abuse as a child (Williams, Siegel, & Pomeroy, 2000). Additionally, these two items were selected because they inquire about a completed sexual contact experience rather than an attempted experience.

Completed adolescent/adult sexual assault was assessed through three behaviorally specific items drawn from the Sexual Experiences Survey-Revised (SES; Koss et al., 2007). The

SES was first developed in 1985 (Koss & Gidycz, 1985) and has been widely used in sexual victimization literature since that time. It was revised in 2007 to improve psychometric properties, reduce gender bias (e.g., an assumption of a male perpetrator), and include more behavioral specificity in the items, as well as account for assaults that occurred while the victim was incapacitated or unconscious, including from self-administered alcohol or other substances (Koss et al., 2007). The three items used in this study evaluated experiences of completed oral, anal, or vaginal penetration inflicted by threats, use of force, or by taking advantage of the victim's incapacitation due to substances. Possible responses to these items were either yes or no (scored as a 0 or 1 for data analysis).

Finally, two additional free response items were included to ensure that the endorsed incidents of abuse/assault occurred during the identified time period (i.e., before or after the age of 14). These items asked participants to state how many of their unwanted sexual experiences occurred before the age of 14, and how many occurred after the age of 14. Women had to endorse abuse/assault incidents on these items consistent with their responses to the previous sexual victimization items in order to be categorized as a victim of CSA or ASA. This conservative approach was selected to minimize the possibility of false positives and ensure that all women included in the victim analyses were accurately reporting incidents of victimization during the specified developmental period.

### **Analysis Plan**

Each study hypothesis was individually examined using the following analyses.

***Hypothesis 1:** Women with a sexual victimization history will report a significantly more negative worldview as defined as reporting less belief in benevolence and lower self-worth than women with no sexual victimization history.*

Hypothesis 1 was evaluated by conducting independent samples *t*-tests with Bonferroni correction comparing the mean scores on the benevolence and self-worth subscales of women who have a sexual victimization history to those of women who do not have a sexual victimization history.

***Hypothesis 2:** Women with a sexual victimization history will report significantly more depressive symptoms than women with no sexual victimization history.*

Hypothesis 2 was evaluated by conducting an independent samples *t*-test comparing scores on the depressive symptoms measure of women who do have a sexual victimization history to those of women who do not have a sexual victimization history.

***Hypothesis 3:** Women with a sexual victimization history will report significantly more engagement in health risk behaviors (specifically, hazardous drinking, past year partners, and past year one-time sexual encounters) than women with no sexual victimization history.*

Hypothesis 3 was evaluated by conducting an independent samples *t*-test comparing scores on the measures of engagement in health risk behaviors (specifically, hazardous drinking, multiple partners, and multiple one-time sexual encounters) of women who do have a sexual victimization history to those of women who do not have a sexual victimization history.

***Hypothesis 4:** African American women will report a more negative worldview as defined as reporting less belief in benevolence and lower self-worth relative to European American women.*

Hypothesis 4 was evaluated by conducting an independent samples *t*-test comparing scores on the worldview subscales of benevolence and self-worth of African American women to those of European American women.

***Hypothesis 5:** African American women will report lower levels of hazardous drinking, more past year partners and more past year one-time sexual encounters relative to European American women.*

Hypothesis 5 was evaluated by conducting an independent samples *t*-test comparing scores on measures of engagement in health risk behaviors (specifically, hazardous drinking, multiple partners, and multiple one-time sexual encounters) of African American women to those of European American women.

***Hypothesis 6:** Worldview (benevolence and self-worth) will be a significant predictor of health risk behaviors (hazardous drinking, past year partners, and past year one-time sexual encounters).*

In order to examine Hypothesis 6, the relationship between the worldview subscales of benevolence and self-worth and health risk behaviors of hazardous drinking, multiple partners, and multiple one-time sexual partners was modeled using separate linear regression analyses for each outcome to determine if worldview was a significant predictor of these health risk behaviors.

***Hypothesis 7:** Depression will be a significant predictor of health risk behaviors (hazardous drinking, multiple partners, and multiple one-time sexual encounters).*

In order to examine Hypothesis 7, the relationship between the measure of depressive symptoms and the health risk behaviors of hazardous drinking, multiple partners, and multiple one-time sexual partners was modeled using separate linear regression analyses for each outcome to determine if depression was a significant predictor of these health risk behaviors.

***Hypothesis 8:** Depression will be a significant mediator of the relationship between worldview (benevolence and self-worth) and health risk behaviors (hazardous drinking, multiple*

*partners, and multiple one-time sexual encounters) such that higher depressive scores will mediate the relationship between more negative worldviews and increased engagement in health risk behaviors.*

To conduct the mediation analyses in Hypothesis 8, the bootstrap procedure recommended by Preacher and Hayes (2004) and Shrout and Bolger (2002) was utilized. This statistical procedure was selected over a traditional mediation analysis (Baron & Kenny, 1986) given that several authors (e.g., MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2004) have presented limitations of the traditional approach, including increased chance of both Type I and Type II error. Using the bootstrapping approach, a large number of pseudo samples (called bootstrap samples) of randomly sampled observations are drawn from the dataset with replacement, and the model paths for each of these bootstrap samples are then estimated (Shrout & Bolger, 2002). Results from these estimated model paths are then used to calculate a 95% confidence interval of the estimate. Confidence intervals that do not contain zero are considered indicative of a significant model path. For this study, the mediation analyses were conducted using the MPlus program, version 6.1, and draws of 2,000 bootstrap samples were utilized, as suggested by Edwards and Lambert (2007) in order to ensure there were enough draws for each analysis to accurately estimate the 95% confidence interval.

Bootstrap mediation analyses produce an estimate and a confidence interval for four different paths in the mediation model: the path from the predictor to the mediator (the *a* path); the path from the mediator to the outcome (the *b* path); the direct path from the predictor to the outcome after accounting for the mediated path (the *c'* path); and the indirect mediated path (*a* path x *b* path). I then calculated the effect size of the mediated path using  $\kappa^2$  values. Preacher and Kelly (2011) define  $\kappa^2$  as “the proportion of the maximum possible indirect effect that could

have occurred, had the constituent effects been as large as the design and data permitted” (Preacher & Kelly, 2011, p.106). Values of  $\kappa^2$  range from 0 to 1, with higher values indicating a greater proportion of the indirect effect explained by the model. Interpretation of  $\kappa^2$  effect sizes uses general cutoffs of .01 for a small effect, .09 for a medium effect, and .25 for a large effect (Preacher & Kelly, 2011).

***Hypothesis 9:** Sexual victimization history will significantly moderate the a path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between worldview and depression) such that among victims of sexual violence there will be a stronger relationship between negative worldview and depression than among non-victims.*

***Hypothesis 10:** Sexual victimization history will significantly moderate the b path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between depression and health risk behaviors) such that among victims of sexual violence there will be a stronger relationship between depression and health risk behaviors than among non-victims.*

Hypotheses 9 and 10 were evaluated using the procedure recommended by Preacher, Rucker, and Hayes (2007) for evaluating moderated mediation. Specifically, the bootstrapping technique described under Hypothesis 8 was used to calculate an estimate and confidence interval for the indirect mediated path for women with a history of sexual victimization as well as for women without a history of sexual victimization. Next, the presence of moderation was examined with a significance test comparing the effect size for the direct path (the *a* or *b* path depending on the analysis) for women with a sexual victimization history to the effect size for women without a sexual victimization history, where a confidence interval that does not contain zero is indicative of significant moderation of the model path.

***Hypothesis 11:*** *Ethnicity will significantly moderate the a path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between worldview and depression) such that the size of the relationship between worldview and depression will be stronger among European American women than African American women.*

***Hypothesis 12:*** *Ethnicity will significantly moderate the b path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between depression and health risk behaviors) such that the size of the relationship between depression and health risk behaviors will be significantly stronger in African American than European American women.*

Hypotheses 11 and 12 were similarly evaluated through the procedure recommended by Preacher and colleagues (2007) for evaluating moderated mediation. Specifically, the bootstrapping technique described under Hypothesis 8 was used to calculate an estimate and confidence intervals for the indirect mediated path for European American women as well as African American women. Next, the presence of moderation was examined with a significance test comparing the effect size for the direct path (the *a* or *b* path depending on the analysis) for European American women to the effect size for African American women, where a confidence interval that does not contain zero is indicative of significant moderation of the model path.

***Exploratory analyses:*** I also analyzed type of victimization history (CSA only, ASA only, or combined CSA/ASA history) as a moderator of the mediated model. These analyses followed the same process as the analyses examining any victimization history and ethnicity as moderators, but used women without a victimization history as the reference group. These analyses utilized dummy coding, wherein each of the victimization groups was entered into the moderated mediation model as an individual dummy coded variable. This method of analysis means that the analyses compared the effects for each of the dummy coded variables (in this

case, each of the victimization groups) to a reference group (in this case, not sexually victimized women). Therefore, for each analysis, the different victimized groups were compared to the reference group rather than compared with one another.

## Chapter 3: Results

### Descriptive Analyses

Demographic data of participants are summarized in Table 1. Participants ( $n = 585$ ) were primarily African American (63.6%) and their mean age was 29.1 years ( $SD = 8.1$  years). A total of 62.9% of participants were currently pregnant. Participants were primarily of low socioeconomic status with 44.9% reporting an annual household income of less than \$15,000 and only 3.3% reporting an annual household income exceeding \$60,000. Additionally, only 16.1% of participants reported completing post-secondary education, although most had at least a high school education. Participants were primarily unmarried (68.7%) although most reported having a current romantic partner (73.4%).

Table 1

#### *Participant Demographics*

	Percentage ( $n$ )	
<b>Ethnicity</b>		
African American	63.6%	(372)
European American	36.4%	(213)
<b>Total Household Income</b>		
< \$15,000	44.9%	(256)
\$15,000-30,000	31.2%	(178)
\$30,000-45,000	15.6%	(89)
\$45,000-60,000	4.9%	(28)
> \$60,000	3.3%	(19)
<b>Children in Home</b>		
0	28.5%	(164)
1-2	53.4%	(307)
3-4	14.8%	(85)
>4	3.3%	(19)
<b>Education</b>		
Less than high school	17.3%	(98)
High school/GED	27.2%	(155)
Some college	39.5%	(225)
Post-secondary education	16.1%	(92)
<b>Currently Pregnant</b>		
Yes	63.0%	(368)

No	36.8%	(215)
<b>Marital Status</b>		
Yes	31.2%	(181)
No	68.7%	(399)
<b>Romantic Partner</b>		
Yes	73.4%	(390)
No	26.6%	(141)

Sexual victimization experiences were common among participants (see Table 2), with nearly one-third of the sample (30.2%) reporting some type of sexual victimization history, either childhood sexual abuse or adolescent/adult sexual assault. Among the full sample, 20.1% endorsed at least one instance of CSA, and 19.8% endorsed at least one ASA experience. Of note, the percentage of European American participants endorsing any sexual victimization experience (45.7%) was over twice the rate reported by African American participants (21.2%),  $X^2(1, N = 566) = 37.28, p < .001$ . Additionally, participants reported a generally positive worldview, mild depressive symptoms, and low levels of hazardous drinking, with many denying drinking alcohol (see Table 3). There was no significant difference between pregnant and non-pregnant women on reported alcohol use ( $t [581] = 1.00, p = .316$ ) or number of past-year sexual partners ( $t [567] = .696, p = .487$ ), although currently pregnant women did report fewer past-year one-time sexual encounters than non-pregnant women ( $t [562] = 2.24, p < .05$ ).

Table 2

*Sexual Victimization Experiences among Participants Stratified by Ethnicity*

	Any victimization history	CSA only	ASA only	Combined CSA/ASA history
African American	21.2% (76)	7.0% (25)	7.0% (25)	7.3% (26)
European American	45.7% (95)	16.3% (34)	15.4% (32)	13.9% (29)
Overall	30.2% (171)	10.4% (59)	10.1% (57)	9.7% (55)

Table 3

*Descriptives of Major Study Variables*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	<i>α</i>	Range	Skew
Self-worth	549	20.3	3.7	.83	7-24	-0.97
Benevolence	517	33.1	5.7	.72	10-48	-0.34
Depression	578	16.8	10.9	.88	0-50	0.84
Alcohol use	585	2.0	2.8	.80	0-17	2.46
Sexual partners	571	1.7	1.8	—	0-25	5.81
One-time sexual encounters	566	0.3	1.0	—	0-10	6.49

*Note.* The means, standard deviations, and skew for the past-year sexual partners and past-year one-time sexual encounters are presented here before they were trimmed to reduce the influence of outliers.

The health risk behaviors measured in this study were relatively infrequently reported. Participants' average AUDIT-5 score was well below the hazardous drinking cutoff of 5. Forty-four percent of participants reported no use of alcohol at all in the last year, while 11.3% reported what would be considered hazardous drinking as measured by the AUDIT-5. Additionally, only 28.5% of participants reported multiple past-year sexual partners, and only 13.4% of participants reported that they engaged in at least one-time sexual encounter in the past year. Correlations between major study variables are presented in Table 4.

Table 4

*Correlations between Major Study Variables*

	1	2	3	4	5
1. Self-worth	—	—	—	—	—
2. Benevolence	.22**	—	—	—	—
3. Depression	-.51**	-.30**	—	—	—
4. Drinking	-.19**	-.07	.19**	—	—
5. Sexual partners	-.15**	-.11*	.13**	.24**	—
6. One-time sexual encounters	-.09*	-.10*	.09*	.24**	.61**

*Note.* \*Correlation is significant at the .05 level; \*\*Correlation is significant at the .01 level

## Results of Study Hypotheses

**Differences between victims and non-victims.** Hypothesis 1 predicted that women with a sexual victimization history would report a significantly more negative worldview than women with no history of sexual victimization. This hypothesis was partially supported. Women with a sexual victimization history endorsed significantly lower self-worth than women with no history of sexual victimization,  $t(531) = 5.48, p < .001$  (see Table 5). However, there were no significant differences in benevolence beliefs between women with a sexual victimization history and women with no sexual victimization history,  $t(500) = 0.27, p = .79$ .

Hypothesis 2 predicted that women with a sexual victimization history would report significantly more depressive symptoms than women with no sexual victimization history. This hypothesis was supported, as women with a sexual victimization history endorsed significantly more depressive symptoms than women with no sexual victimization history,  $t(559) = 5.24, p < .001$  (see Table 5).

Hypothesis 3 proposed that women with a sexual victimization history would report significantly more engagement in health risk behaviors (specifically, hazardous drinking, past year partners, and past year one-time sexual encounters) than women with no sexual victimization history. This hypothesis was partially supported. Women with a history of sexual victimization reported more hazardous drinking than women without a history of sexual victimization,  $t(564) = 4.04, p < .001$  (see Table 5). Additionally, women with a history of sexual victimization also endorsed more past-year sexual partners relative to women with no sexual victimization history,  $t(556) = 2.34, p < .05$ . However, there was no significant difference in past-year one-time sexual encounters for women with a sexual victimization history compared to non-victims,  $t(549) = 0.58, p = .56$ .

Table 5

*Differences in Study Variables between Victims of Sexual Violence and Non-victims*

	<i>M</i>	<i>(SD)</i>	<i>p</i>	Cohen's <i>d</i>
<b>Self-worth</b>				
Victims	19.0	(4.0)	<.001	0.51
Non-victims	20.9	(3.4)		
<b>Benevolence</b>				
Victims	33.2	(5.6)	.790	0.03
Non-victims	33.0	(5.7)		
<b>Depression</b>				
Victims	20.5	(12.2)	< .001	0.48
Non-victims	15.4	(9.9)		
<b>Hazardous drinking</b>				
Victims	2.7	(3.4)	<.001	0.37
Non-victims	1.7	(2.5)		
<b>Sexual partners</b>				
Victims	1.7	(1.4)	.003	0.22
Non-victims	1.5	(1.1)		
<b>One-time sexual encounters</b>				
Victims	0.2	(0.6)	.564	0.05
Non-victims	0.2	(0.6)		

**Differences between African American and European American participants.**

Hypothesis 4 predicted that African American women would report more negative worldviews relative to European American women. Hypothesis 4 was not supported. Although African American women endorsed lower benevolence beliefs than European American women (see Table 6), the difference was not significant,  $t(515) = 1.09, p = .28$ . Further, African American women in this sample reported significantly higher self-worth relative to European American women,  $t(547) = 3.66, p < .001$ .

Hypothesis 5 proposed that African American women would report lower levels of hazardous drinking and more sexual partners and one-time sexual encounters relative to European American women. Hypothesis 5 was not supported. Although African American women did endorse lower levels of hazardous drinking than European American women (see

Table 6), the difference was not significant,  $t(583) = 1.51, p = .13$ . Further, there was no significant difference in number of past-year sexual partners for African American women and European American women,  $t(569) = 0.56, p = .58$ , and no significant difference in number of past-year one-time sexual encounters between African American and European American women,  $t(564) = 0.04, p = .97$ .

Table 6

*Differences in Study Variables between African American and European American Participants*

	<i>M (SD)</i>	<i>p</i>	<i>Cohen's d</i>
<b>Self-worth</b>			
African Americans	20.7 (3.6)	<.001	0.32
European Americans	19.5 (3.7)		
<b>Benevolence</b>			
African Americans	32.9 (5.9)	.275	0.10
European Americans	33.4 (5.5)		
<b>Hazardous drinking</b>			
African Americans	1.8 (2.7)	.133	0.13
European Americans	2.2 (2.9)		
<b>Sexual partners</b>			
African Americans	1.5 (1.1)	.576	0.05
European Americans	1.6 (1.3)		
<b>One-time sexual encounters</b>			
African Americans	0.2 (0.6)	.970	0.00
European Americans	0.2 (0.6)		

**Worldview and depression as predictors of health risk behaviors.** Hypothesis 6 proposed that the self-worth and benevolence subscales of the worldview measure would be significant predictors of the three health risk behaviors of hazardous drinking, number of past year partners, and number of past year one-time sexual encounters. Hypothesis 6 was partially supported. Self-worth emerged as a significant predictor of hazardous drinking, number of past-year sexual partners, and past-year one-time sexual encounters (see Table 7). However, although benevolence beliefs significantly predicted past-year sexual partners and past-year one-time sexual encounters, it did not predict hazardous drinking.

Hypothesis 7 proposed that depressive symptoms would be a significant predictor of the three health risk behaviors of hazardous drinking, past-year sexual partners, and past-year one-time sexual encounters. This hypothesis was fully supported. Depression emerged as a significant predictor of hazardous drinking, number of past-year sexual partners, and number of past-year one-time sexual encounters (see Table 7).

Table 7

*Predictors of Health Risk Behaviors*

	Hazardous Drinking			Sexual partners			One-time sexual encounters		
	<i>b</i>	<i>SE</i>	$\beta$	<i>b</i>	<i>SE</i>	$\beta$	<i>b</i>	<i>SE</i>	$\beta$
<b>Self-worth</b>	-0.15	.03	-.19	-0.05	.01	-.15	-0.02	.01	-.09
<i>R</i> <sup>2</sup>	.04			0.02			.01		
<i>F</i>	21.01**			13.01**			4.77*		
<i>n</i>	547			536			531		
<b>Benevolence</b>	-0.03	.02	-.07	-0.02	.01	-.11	-0.01	.01	-.10
<i>R</i> <sup>2</sup>	.01			.01			.01		
<i>F</i>	2.30			6.53*			5.06*		
<i>n</i>	515			505			502		
<b>Depression</b>	0.05	.01	.19	0.02	.01	.13	0.01	.00	.09
<i>R</i> <sup>2</sup>	.04			.02			.01		
<i>F</i>	20.81**			10.12**			4.23*		
<i>n</i>	576			563			559		

Note. \**p* < .05, \*\**p* < .01

**Depression as a mediator of the relationship between worldview and health risk behaviors.** Hypothesis 8 predicted that depression would be a significant mediator of the relationship between worldview (self-worth and benevolence) and health risk behaviors (hazardous drinking, past year sexual partners, and past year one-time sexual encounters). This hypothesis was partially supported (see Table 8). Depression emerged as a significant mediator of the relationship between both aspects of worldview and hazardous drinking as well as of the relationship between benevolence and past-year sexual partners. Depression did not mediate the

relationship between worldview and past-year one-time sexual encounters, nor the relationship between self-worth and past-year sexual partners. Kappa effect sizes for these significant mediated relationships ranged from small effect sizes for the relationship between benevolence and drinking as well as benevolence and past-year sexual partners, and a medium effect size for the relationship between self-worth and drinking.

Table 8

*Bootstrap Estimates and 95% Confidence Intervals (CIs) of the Unstandardized Estimates for Mediation Analyses with Kappa Squared Values*

	Bootstra p Estimate	<i>p</i>	95% CI of Estimate	$\kappa^2$
Self-worth/Depression/Drinking				.10
Self-worth—Depression	-1.51	<.001	<b>-1.76, -1.25</b>	
Depression—Drinking	0.03	.011	<b>0.01, 0.06</b>	
Self-worth—Drinking (direct)	-0.10	.011	<b>-0.17, -0.02</b>	
Self-worth—Drinking (indirect)	-0.05	.013	<b>-0.08, -0.01</b>	
Self-worth/Depression/Multiple partners				--
Self-worth—Depression	-1.51	<.001	<b>-1.76, -1.25</b>	
Depression—Multiple partners	0.01	.146	-0.00, 0.02	
Self-worth—Multiple partners (direct)	-0.04	.064	-0.08, 0.00	
Self-worth—Multiple partners (indirect)	-0.01	.150	-0.03, 0.00	
Self-worth/Depression/One-time sexual encounters				--
Self-worth—Depression	-1.51	<.001	<b>-1.76, -1.26</b>	
Depression—One-time sexual encounters	0.00	.284	-0.00, 0.01	
Self-worth— One-time sexual encounters (direct)	-0.01	.325	-0.03, 0.01	
Self-worth— One-time sexual encounters (indirect)	-0.01	.283	-0.01, 0.00	
Benevolence/Depression/Drinking				.06
Benevolence—Depression	-0.58	<.001	<b>-0.77, -0.40</b>	
Depression—Drinking	0.05	<.001	<b>0.02, 0.08</b>	
Benevolence—Drinking (direct)	-0.01	.705	-0.05, 0.04	
Benevolence—Drinking (indirect)	-0.03	<.005	<b>-0.05, -0.01</b>	
Benevolence/Depression/Multiple partners				.04
Benevolence—Depression	-0.58	<.001	<b>-0.76, -0.40</b>	
Depression—Multiple partners	0.01	.024	<b>0.001, 0.02</b>	
Benevolence—Multiple partners (direct)	-0.02	.108	-0.04, 0.00	
Benevolence—Multiple partners (indirect)	-0.01	.013	<b>-0.01, -0.01</b>	

Benevolence/Depression/One-time sexual encounters				—
Benevolence—Depression	-0.58	<.001	<b>-0.76, -0.39</b>	
Depression—One-time sexual encounters	0.00	.156	-0.00, 0.01	
Benevolence—One-time sexual encounters (direct)	-0.01	.069	-0.02, 0.00	
Benevolence—One-time sexual encounters (indirect)	-0.00	.161	-0.01, 0.00	

*Note.* Confidence interval (CI) ranges in bold are statistically significant.

### **Sexual victimization history and ethnicity as moderators of the mediated**

**relationship.** Hypothesis 9 predicted that sexual victimization history would significantly moderate the *a* path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between worldview and depression) such that among victims of sexual violence there would be a stronger relationship between negative worldview and depression than among non-victims (see Figure 2). Hypothesis 9 was partially supported (see Table 9). Sexual victimization history significantly moderated the relationship between self-worth and depression such that there was a stronger relationship between low self-worth and higher depression for victims of sexual violence relative to non-victims. However, sexual victimization history did not significantly moderate the relationship between benevolence and depression.

Hypothesis 10 proposed that sexual victimization history would also significantly moderate the *b* path of the mediated relationship proposed in Hypothesis 8 (i.e., the relationship between depression and health risk behaviors) such that among victims of sexual violence there would be a stronger relationship between depression and health risk behaviors than among non-victims (see Figure 2). Hypothesis 10 was not supported (see Table 9). Having a history of sexual victimization did not significantly moderate the relationship between depression and any of the three risk behaviors examined.

**Figure 2.** Moderated Mediation Model with Sexual Victimization History as Moderator.

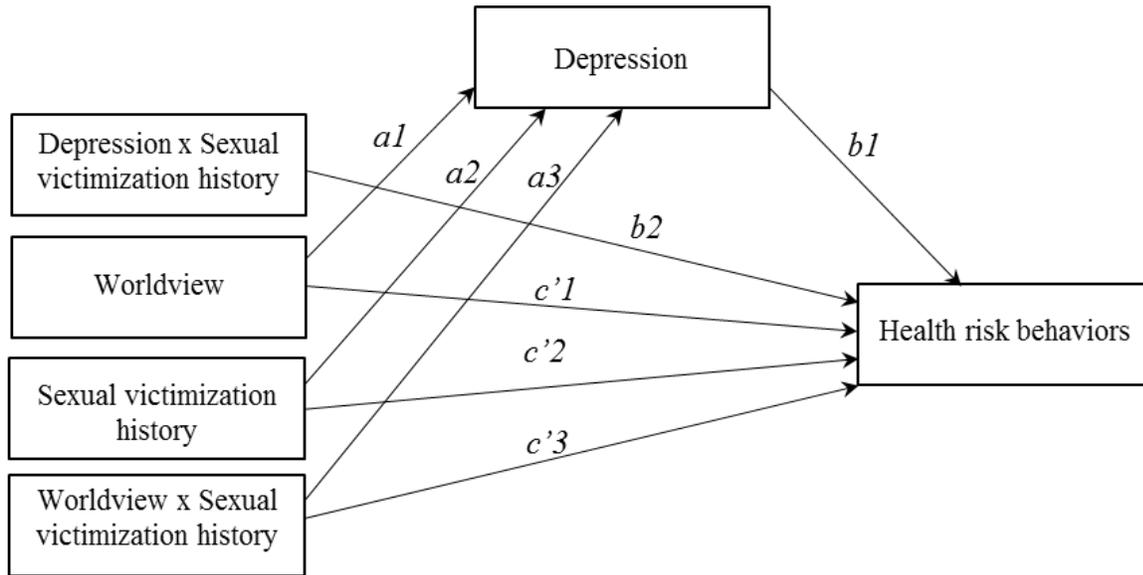


Table 9

*Bootstrap Estimates and CI Ranges for the Moderated Paths by Sexual Victimization History*

	Bootstrap Estimate of Model Path	<i>p</i>	95% Confidence Interval
Self-worth—Depression	-0.63	.013	<b>-1.12, -0.13</b>
Benevolence—Depression	-0.30	.132	-0.67, 0.08
Depression—Drinking	-0.01	.674	-0.06, 0.04
Depression—Past year partners	-0.00	.864	-0.02, 0.19
Depression—One-time sexual encounters	-0.00	.615	-0.01, 0.01

*Note.* Confidence interval (CI) ranges in bold are statistically significant. Non-victim participants served as the reference group in moderated mediation analyses.

Hypothesis 11 predicted that ethnicity would significantly moderate the *a* path of the mediated relationship between worldview and depression such that the size of the relationship between the two aspects of worldview and depression would be stronger among European American women than African American women (see Figure 3). Hypothesis 11 was not supported (see Table 10). Ethnicity did not emerge as a significant moderator of the *a* path for either of the worldview measures examined.

Hypothesis 12 proposed that ethnicity would moderate the *b* path of the mediated relationship between depression and health risk behaviors such that the size of the relationship between depression and health risk behaviors would be significantly stronger in African American than European American women (see Figure 3). Hypothesis 10 was not supported (see Table 10). Ethnicity did not emerge as a significant moderator of the *b* path for any of the risk behaviors examined.

**Figure 3.** Moderated Mediation Model with Ethnicity as Moderator.

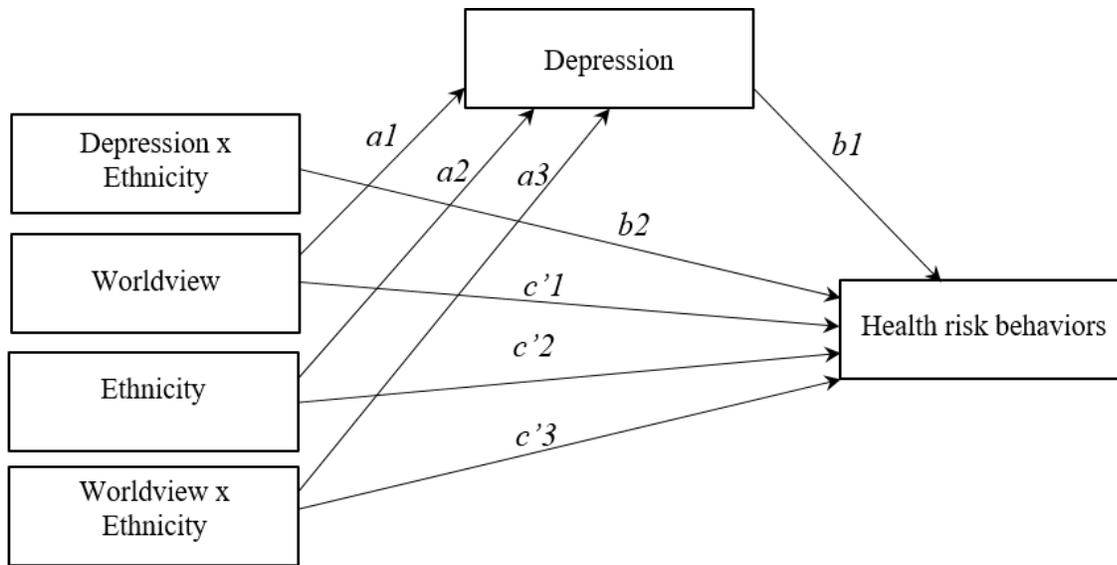


Table 10

*Bootstrap Estimates and CI Ranges for the Moderated Paths by Ethnicity*

	Bootstrap Estimate of Model Path	<i>p</i>	95% Confidence Interval
Self-worth—Depression	0.29	.276	-0.29, 0.77
Benevolence—Depression	0.13	.542	-0.28, 0.56
Depression—Drinking	0.03	.248	-0.02, 0.07
Depression—Multiple partners	-0.00	.851	-0.02, 0.02
Depression—One-time sexual encounters	0.00	.552	-0.01, 0.01

*Note.* Confidence interval (CI) ranges in bold are statistically significant. European American women served as the reference group in moderated mediation analyses.

Additional exploratory analyses were conducted to examine the effect of different types of sexual victimization histories (e.g., CSA only, ASA only, or a combined CSA/ASA history) as moderators of the mediated model on both the *a* and *b* paths of the model (see Table 11). For the *a* path, none of the three victimization types were a significant moderator of the relationship between benevolence and depression. For the relationship between self-worth and depression, there was evidence of significant moderation according to victimization type, such that CSA only and a combined CSA/ASA history both emerged as significant moderators of the self-worth–depression relationship relative to women with no victimization history. There was no significant moderation by victimization type for the relationship between depression and any of the three health risk behaviors.

Table 11

*Bootstrap Estimates and CI Ranges for the Moderated Paths by Type of Victimization*

	Bootstrap Estimate	<i>p</i>	95% Confidence Interval
Self-worth—Depression			
CSA only	-1.11	.001	<b>-1.71, -0.46</b>
ASA only	0.06	.848	-0.57, 0.73
Combined CSA/ASA history	-0.94	.021	<b>-1.69, -0.06</b>
Benevolence—Depression			
CSA only	-0.46	.115	-1.01, 0.11
ASA only	-0.42	.105	-0.95, 0.07
Combined CSA/ASA history	-0.05	.891	-0.80, 0.76
Depression—Drinking			
CSA only	-0.04	.130	-0.10, 0.01
ASA only	-0.06	.289	-0.17, 0.06
Combined CSA/ASA history	0.03	.533	-0.05, 0.12
Depression—Multiple partners			
CSA only	0.10	.520	-0.02, 0.04
ASA only	-0.02	.228	-0.06, 0.02
Combined CSA/ASA history	-0.01	.754	-0.03, 0.03
Depression—One-time sexual encounters			
CSA only	0.01	.464	-0.01, 0.03
ASA only	-0.01	.197	-0.03, 0.00
Combined CSA/ASA history	0.01	.385	-0.02, 0.01

*Note.* Confidence interval (CI) ranges in bold are statistically significant. Non-victim participants served as the reference group in moderated mediation analyses.

## **Chapter 4: Discussion**

The purpose of this dissertation was to explore the relationships among two aspects of worldview (self-worth and benevolence), depression, and three health risk behaviors in a diverse, low-income sample of women recruited from an OB-GYN waiting room. The study further intended to examine the possible effects of sexual victimization history and ethnicity on these relationships. A total of 714 participants were enrolled over approximately one and half years of recruitment, 585 of whom met study inclusion criteria and completed the relevant study measures. These participants were largely African American and of low socioeconomic status. The majority of participants were also currently pregnant and unmarried, although most were involved in a romantic relationship. The study was designed to examine these relationships among low-income, ethnically diverse community women given the previous literature's general over-reliance on convenience samples of primarily young, European American, college women (Bryant-Davis et al., 2009).

### **Differences in study measures between victims of sexual violence and non-victims.**

The first aim of this study was simply to examine differences between victims of sexual violence and non-victims on self-worth and benevolence, depression, and health risk behaviors. I hypothesized that women with a sexual victimization history would report a significantly more negative worldview as defined as reporting less belief in benevolence and lower self-worth than women with no sexual victimization history. This hypothesis was partially supported, as victims of sexual violence did endorse significantly lower self-worth than non-victims. However, there were no significant differences on benevolence beliefs between victims and non-victims. This finding suggests that self-worth is more affected by the experience of sexual trauma than beliefs about other people and the world. In other words, women who are victimized may tend to

internalize the experience and blame themselves for the violence rather than blaming human nature or the world in general. The stigma that sexual assault victims face from society may also be related to the lower self-worth among victims. Previous research has shown that victims experience stigma on a societal level in the form of stereotypes about sexual assault victims and acceptance of negative sexual assault myths, and that victims may also experience interpersonal stigma in the form of negative reactions from those to whom they disclose their victimization (e.g., Deitz, Williams, Rife, & Cantrell, 2015). Societal messages that the abuse was somehow the victim's fault, that something was wrong with the victim that led her to be abused, or that the victim is permanently damaged by the experience of abuse, may also be contributing to the lower self-worth observed among victims in this sample. Indeed, the experience of stigma has been shown to negatively affect multiple psychosocial outcomes, including leading to increased self-blame and lowered self-esteem among victims of sexual violence (Quinn & Chaudoir, 2009; Ullman & Filipas, 2001; Ullman, Townsend, Filipas, & Starzynski, 2007). Lebowitz and Roth (1994) conducted a study analyzing the thematic responses of interviews with rape survivors and highlighted themes of feeling "dirtied" or "soiled" by the rape (p.372). Although self-worth was not explicitly examined in this study, several interviewee responses illustrate a process of devaluing the self on multiple levels following the rape. This study provides a salient and poignant view of how dramatically women's views of themselves, society, and other people can change following sexual victimization.

Despite the more negative views of other people reported in Lebowitz and Roth's (1994) study, current results are consistent with several previous studies that demonstrated that beliefs about the self were affected by sexual trauma, but failed to find differences in beliefs of benevolence between various sexual victimization groups. Harris and Valentiner (2002), for

example, found that women with a sexual assault history reported lower self-worth than women with no sexual assault history, but that these groups of women did not differ significantly in their beliefs about the benevolence of other people and the world. Interestingly, other studies have found that benevolence beliefs *are* affected by experiencing a stressful life event, although one study found this was not specific to sexual trauma (Poulin & Silver, 2008). Therefore, it is possible there may be something about sexual trauma in particular that increases individuals' vulnerability to lower self-worth but not less belief in benevolence. For example, women may blame themselves for trusting the wrong person, for putting themselves in a potentially risky situation, or for any number of behaviors that they perceived as leading to the assault. Women may also believe that there is something negative about themselves that led a predator to single them out. The stigma victims experience likely plays a large role here as well in reinforcing the belief that the victim did something to cause the assault, increasing self-blame and thus causing the victim to think more poorly of themselves. These types of beliefs can be extremely damaging to an individual, and could negatively affect the victim's feelings of self-worth without necessarily affecting their beliefs about the benevolence of the world or other people.

These negative beliefs about the self and the stigma experienced by victims may also have led to the significant difference found in depressive symptoms between victims of sexual violence and non-victims. Indeed, both self-blame and negative disclosure reactions have been shown to predict distress following rape (Ullman & Filipas, 2001; Ullman et al., 2007). And as predicted in this study, women with any history of sexual victimization endorsed significantly more depressive symptoms. This result is not surprising given a large body of research demonstrating that sexual victimization results in broad negative effects on psychological

adjustment, including symptoms of depression (e.g., Fergusson et al., 2008; Fergusson et al., 2013; Zinzow et al., 2012).

Differences between victims and non-victims were also examined with regards to the three measures of health risk behavior: hazardous alcohol use, past-year sexual partners, and past-year one-time sexual encounters. While women with a history of sexual victimization engaged in more hazardous drinking and had more past-year sexual partners than non-victims, there were no differences between the groups on number of past-year one-time sexual encounters. These results can be explained a number of ways. First, the previous literature linking sexual victimization to hazardous drinking and multiple sexual partners is far more robust than the literature examining the effect of sexual victimization on one-time sexual encounters. A relationship between sexual victimization, whether CSA or ASA, and hazardous drinking has been documented in a plethora of studies over the past several decades (e.g., Asberg & Renk, 2012; Epstein et al., 1998; Kilpatrick et al., 2007; McCauley et al., 2009; Messman-Moore & Long, 2002). Similarly, several studies have found that women who experience sexual victimization report more sexual partners relative to their non-victimized peers (e.g., Biglan et al., 1995; Fergusson et al., 2013; Molitor et al., 2000; Schloretdt & Heiman, 2003; Testa et al., 2005).

By contrast, while some studies (Parillo et al., 2001) have found that women with a sexual victimization history have reported greater engagement in short-term sexual relationships, these short-term relationships have not always been defined as one-time sexual encounters specifically. These differences in definition may have contributed to the discrepant findings. Additionally, as participants were primarily pregnant women, this may have reduced participants' engagement in certain risk behaviors such as one-time sexual encounters. Indeed,

few participants overall reported engaging in one-time sexual encounters, and currently pregnant women reported significantly fewer past-year one-time sexual encounters than non-pregnant women. However, previous studies examining risk behaviors among pregnant women have demonstrated that there is ample reason to believe currently pregnant women do still engage in risk behaviors. Previous studies of pregnant women found rates of current alcohol use to be 8-13%, and 5-10% of the women endorsed having multiple sexual partners in the last month (Peltzer, Jones, Weiss, Villar-Loubet, & Shikwane, 2013; Yeganeh et al., 2013). Additionally, a systematic review of the literature indicated that currently pregnant teenagers were five times less likely to use condoms than non-pregnant teens, and 8-19% of them reported becoming infected or re-infected with a sexually transmitted disease during pregnancy (Meade & Ickovics, 2005). Finally, a sample of young pregnant women reported using condoms during intercourse only about one-third of the time, and reported low rates of talking to their partner about safe sex (Kershaw, Magriples, Westdahl, Rising, & Ickovics, 2009).

It is also possible that sexual victimization may be associated with certain types of risk behaviors and not others. So, this dissertation's finding that victims of sexual abuse or assault were no more likely to report a greater number of past-year one-time sexual encounters relative to non-victims may reflect a true difference between the risk behaviors of hazardous drinking/number of sexual partners and the risk behavior of one-time sexual encounters. A history of sexual victimization may make it more likely for women to engage in more risky drinking or engage in sexual activity with multiple partners (perhaps in the context of a pattern of serial monogamy or simultaneous partners), but may not influence their likelihood of engaging in one-time sexual encounters. Additionally, women with a history of sexual victimization may be choosing partners who are less stable in the relationship, or who are themselves misusing alcohol

or other substances. Indeed, women's use of alcohol and other substances has been shown to be highly correlated with their partner's substance use (Finkelstein, 1994; Wilsnack, Wilsnack, & Hiller-Sturmhöfel, 1994), and so selection of unstable partners could potentially increase number of partners (if the partners are less likely to maintain a committed relationship over time) as well as drinking (if the partners are engaged in risky behaviors such as hazardous alcohol use). Indeed, Testa and colleagues (2005) explored this possibility in a longitudinal study of community women and found that a CSA history predicted having a partner who was more aggressive and engaged in more risk-taking, as well as having more sexual partners over time. Alternatively, perhaps alcohol use and sexual activity with multiple partners simply provides stronger distraction from the negative affect associated with sexual victimization than engagement in one-time sexual encounters. If this study's findings are in fact representative of something different about one-time sexual encounters relative to alcohol use or multiple sexual partners, future research should attempt to further explore why sexual victimization might be more likely to increase engagement in certain risk behaviors but not others.

**Differences in study measures between African American and European American participants.** In addition to exploring the differences between victims and non-victims of sexual violence, this dissertation also examined differences between African American and European American women on reported beliefs about the self and others/world, depression, and the three health risk behaviors. When considering the results of these analyses, however, it is important to take into account the differences in victimization as well between these two groups. As seen in the previous analyses, there were significant differences on study measures between victims of sexual violence and non-victims. Notably, European American women in this study reported much higher rates of victimization than did African American women. This discrepancy in

victimization rates may certainly have contributed to any other differences on study variables between European American participants and African American participants. The finding of significantly higher rates of victimization among European American participants in this study raises additional questions. Although the literature examining ethnic differences in sexual victimization is subject to significant variability, some previous studies have found more equivalent victimization rates between European American and African American participants, or even found higher rates of victimization among African American women (Abbey, Ross, McDuffie, & McAuslan, 1996; Kalof, 2000; Kilpatrick et al., 2007; Littleton & Ullman, 2013; Wyatt, 1992).

One factor of the current study which may have influenced these results is that this sample presented with a relatively homogenously low SES across ethnic groups. Therefore, differences in SES that may have been present in previous studies were less pronounced. It is possible that low-income European American women present a relatively high risk category, and are more vulnerable to sexual victimization than African American women of a similar SES bracket. Another possibility is that experiencing sexual victimization for European American women leads to adverse outcomes that negatively affect women's academic achievement and occupational functioning. Thus, experiencing sexual victimization may result in downward socioeconomic drift over time, and thus high rates of sexual victimization among low SES European American women. Indeed, the lifetime sexual victimization rates for European American women (45.7%) was much higher than has been found in most prior community studies (10 to 28.7%: Acierno, Resnick, & Kilpatrick, 1997; Beebe, Gullledge, Lee, & Replogle, 1994; Masho, Odor, & Adera, 2005; Zinzow et al., 2012), although one study found a prevalence rate of 47.6% among adult female patients at a family practice (Walch & Broadhead, 1992).

Although I predicted that African American women would report a more negative worldview than European American women, this hypothesis was not supported. In contrast, although African American women reported marginally lower benevolence beliefs than European American women, the difference between the groups was not statistically significant. Further, African American women actually reported significantly higher self-worth than their European American counterparts. The lack of differences between African American and European American participants in world view is discrepant from some previous literature, although admittedly the body of literature examining the influence of race/ethnicity on worldview is slim. One previous study (Calhoun & Cann, 1994) found that participants who were members of any ethnic minority group reported lower benevolence beliefs relative to the ethnic majority participants. However, this study utilized a sample of male and female college students, and grouped multiple ethnic groups together. Therefore, it is possible that the current study obtained a different pattern of results by utilizing a sample of low-income community women and limiting analyses to European American and African American women only. While another study (Forest, 1995) similarly found that ethnic majority participants in their sample reported more positive world beliefs, this study did not utilize the World Assumptions Scale or another empirically validated scale, instead asking general questions about the participants' beliefs about the fairness and goodness of the world. Additionally, their sample also contained both male and female respondents. Therefore, it is possible that the current study obtained different results by using an all-female community sample that all identified as African American.

I expected that African American women's experiences of discrimination and societal oppression as an ethnic minority would negatively influence their views of other people and the

world, and that these experiences might result in internalized negative beliefs affecting their self-worth. However, given that this prediction was not supported, other explanations are needed. Because the literature examining ethnicity and world assumptions is so slim, it is difficult to know exactly what factors may have influenced this pattern of results. Nevertheless, some interpretation is possible. For one, it seems clear from these results that for participants in our sample, their view of their own self-worth was robust enough to withstand experiences of discrimination or oppression. Indeed, it is also possible that having overcome such experiences may positively affect women's self-worth, such that they view themselves as strong and capable individuals. It is also possible that other cultural norms may have affected women's worth evaluations. For example, Thomas, Witherspoon, and Speight (2004) discuss that the identity of the modern African American woman is often shaped by many influences, including "a sense of self-worth from African spiritualism" (p. 427). Additionally, other authors have spoken of the ideal of the "Strong Black Woman" among African American communities, referring to a woman who is "self-sufficient, independent, and able to survive life's difficulties without assistance" (Tillman, Bryant-Davis, Smith, & Marks, 2010, p. 64). Adoption of this cultural norm may well be influencing African American women's self-worth in a positive direction. Additionally, the lack of significant ethnic differences in benevolence beliefs might have been related to relatively homogeneously low socioeconomic status (SES) sample. It is possible that previous studies documenting a difference between racial/ethnic groups on benevolence beliefs may have actually been tapping into a difference in benevolence beliefs among members of differing SES groups. In this sample, however, most of the sample was of low SES, and this lack of variability in SES may potentially have contributed to the lack of significant differences in benevolence beliefs.

Of course, it is also possible that the differences in worldview, and specifically self-worth, were related to the victimization differences discussed earlier. Because victims of sexual violence reported significantly lower self-worth than non-victims, and because the rate of victimization among European American participants was so much higher than among the African American participants, it is possible that the high rate of victimization among European American women negatively affected their self-worth, resulting in the significant difference in self-worth between the groups. However, in this sample, African American victims still reported significantly higher self-worth than European American victims, so it appears that victimization differences alone do not account for the differences found in self-worth.

An additional hypothesized difference between African American and European American participants was that African American women would report lower levels of hazardous drinking but more sexual partners and one-time sexual encounters relative to European American women. However, this hypothesis was not supported. Although African American women endorsed less hazardous drinking than European American women, the difference was not statistically significant. Further, there was no significant difference in either measure of sexual risk behavior between the two ethnic groups. One possible explanation for the lack of significant findings regarding the health risk behaviors is that the overall low endorsement rates of these behaviors among this sample limited the ability to identify differences. Given that the differences in hazardous drinking seemed to be trending towards significance, this explanation may apply more to the alcohol use measure than the sexual risk behaviors, which were overall quite similar. However, it is also possible that the current findings are a true representation of the lack of differential engagement in health risk behaviors between the two ethnic groups. Perhaps ethnicity does not play a significant role in a woman's engagement in hazardous drinking or

risky sexual behaviors, particularly in lower income community (rather than college) samples. Alternatively, perhaps the difference in victimization rates between the two groups is an important factor for these constructs as well. Women with a history of sexual victimization in this study endorsed more hazardous drinking and past year partners, and so the higher rates of victimization among European American participants could have affected the results of these ethnicity analyses for risk behaviors. However, when comparing African American victims to European American victims on risk behaviors, there was no difference in drinking, number of partners, or number of one-time sexual encounters. Therefore, victimization rates do not seem to be unduly influencing the findings between ethnic groups.

**Predictors of health risk behaviors.** I predicted that participants' self-worth and benevolence beliefs would predict hazardous drinking, past-year sexual partners, and past-year one-time sexual encounters. As expected, self-worth significantly predicted all three health risk behaviors. This finding is consistent with previous literature showing that self-worth is associated with engagement in risky sexual behaviors, such as multiple partners and short-term sexual relationships, as well as engagement in alcohol or other substance use (Lynch, 2001; Ritchwood et al., 2013; Sterk et al., 2004; Wild et al., 2004) and is also consistent with the self-medication hypothesis (Miranda et al., 2002). The self-medication hypothesis would explain these results by suggesting that low self-worth creates distress for individuals, who are then motivated to reduce that distress by engagement in activities such as sexual behaviors and alcohol use that may be at least temporarily pleasurable or distracting. Thus, engagement in these behaviors may reduce negative affect associated with low self-worth. Sexual behaviors may also be used as an attempt to enhance one's self-image in the context of low self-worth.

However, there are other possible explanations for low self-worth leading to engagement in risky behaviors. Women with lower self-worth may lack assertiveness in refusing sexual advances or offered alcohol. They may be more likely to engage in risk behaviors in order to be accepted by peers. Additionally, women with lower self-worth may be more likely to choose romantic partners who are less committed to long-term relationships or who for a variety of reasons may be a poor relationship choice. Further, alcohol or substance use by one's partner has been shown to be a robust predictor of women's drinking behaviors, and so it is possible that if women are in relationships with substance-using partners, their own substance use may also increase (Finkelstein, 1994; Wilsnack et al., 1994). Pressure to be accepted by peers, lack of assertiveness, and risky partner choices may all be additional factors contributing to engagement in risky behaviors by women with lower self-worth.

It is interesting that benevolence beliefs did not follow this same pattern, as benevolence was a significant predictor of risky sexual behavior, but not of hazardous drinking. However, these results make sense when considering the differences between sexual activity and hazardous drinking. Sexual activity with multiple partners and engagement in one-time sexual encounters, by definition, involve more than one person. Therefore, an individual's beliefs about other people and the world (benevolence) might be more likely to affect perceptions of safety and trust, e.g., other people are not trustworthy and the world is not safe. However, lower benevolence beliefs were associated with increased engagement in risk behavior, suggesting that more negative beliefs are not causing women to avoid unsafe interactions with others; rather, they are engaging in more risky behavior. Perhaps these more negative views of other people and the world interfere in some way with forming and maintaining committed partnerships over time, or increase the likelihood of women choosing risky partners (e.g. if someone believes that all

people are inherently untrustworthy, they may miss signals that a certain individual should not be trusted or is unsafe).

Additionally, depression significantly predicted engagement in the three health risk behaviors studied. This finding is consistent with a robust literature documenting the association between depression and alcohol use and risky sexual behavior (e.g., Brawner et al., 2012, Lennon et al., 2012; Seth et al., 2009; Swendsen & Merikangas, 2000; Taniguchi et al., 2014; Williams & Latkin, 2005). The self-medication hypothesis again would predict that emotional distress, in this case depressive symptoms, might lead an individual to engage in behaviors that reduce that distress, such as alcohol use and sexual activity. Both forms of risk behavior might serve as a distraction from negative affect, or might serve to increase positive affect or affirm self-worth. Alcohol use might additionally help numb negative feelings, particularly among individuals with positive expectancies surrounding drinking, consistent with the theory of planned behavior (Brawner et al., 2012). Similarly, individuals who expect positive emotional outcomes as a result of sexual activity might be more likely to engage in this behavior as a means of improving affect. However, the theory of planned behavior also predicts that perceived behavioral control, or self-efficacy for a particular behavior, exerts a strong influence on an individual's likelihood of engaging in that behavior (Newham, Allan, Leahy-Warren, Carrick-Sen, & Alderdice, 2015). Therefore, women who lack the self-efficacy to refuse sexual advances or offers of alcohol may be less likely to actually refuse these situations when they arise. Depressive cognitions could certainly decrease women's self-efficacy beliefs about their ability to refuse such advances. Thus, depression's prediction of risk behavior in this study is consistent with both the self-medication hypothesis and the theory of planned behavior as well as a wealth of empirical support documenting the association between depression and risk behavior.

Similar to low self-worth, high depressive symptomology may also decrease women's self-efficacy to refuse sexual advances or to participate in social drinking. Additionally, if a woman's partner is engaging in heavy drinking or other risky behaviors, it could well increase the likelihood of a woman with depressive symptoms engaging in similarly problematic behaviors herself. Depression could certainly make it difficult for an individual to engage in effective assertiveness with peers or partners, and could therefore lead to increased engagement in risk behavior through this channel as well. Depression could also potentially influence partner choices, leading women to choose less suitable or risk-taking romantic partners in the first place. Depressed women might expect to be in relationships with risky or less committed partners, and may lack self-efficacy to believe that they could attract a more compatible partner. Therefore, again according to the theory of planned behavior, women's expectations and self-efficacy may predict engagement in the behaviors observed in this study.

**Depression as a mediator of the relationship between self-worth and benevolence beliefs and health risk behaviors.** This study also explored the role of depression as a mediator of the relationship between self-worth and benevolence beliefs, and health risk behaviors. I predicted that it would significantly mediate these relationships; however, this hypothesis was only partially supported. Depression emerged as a significant mediator of the relationships between both worldview measures and alcohol use, as well as of the relationship between benevolence and past-year sexual partners. However, depression did not significantly mediate the relationship between either of the worldview measures and past-year one-time sexual encounters, or the relationship between self-worth and past-year sexual partners.

Depression's mediation of the worldview–alcohol use relationship is consistent with both expectations and previous literature. I predicted that more negative worldviews would be

associated with emotional distress for individuals, in this case measured with depressive symptoms, and that this distress would be one mechanism by which worldviews exerted an influence on alcohol use. These findings support the conclusion that the negative affect produced by holding negative worldview beliefs is one mechanism which drives individuals to engage in hazardous alcohol use.

Interestingly, however, this same finding did not hold true for the measures of risky sexual behavior. Depression did not significantly mediate the relationship between either worldview measure and past-year one-time sexual encounters. This is not terribly surprising in light of the fact that the incidence rate of past-year one-time sexual encounters in this sample was very low. It is possible that mediation may exist here but that this study lacked the power to find it. Of course, however, it is also possible that negative affect is simply not a key mechanism in explaining the relationship between these two worldview measures and engagement in one-time sexual encounters. Other potential mediators could be: alcohol or substance use (i.e., negative worldviews leading an individual to use substances, and substance use increasing the likelihood of one-time sexual encounters); lack of effective assertiveness to refuse engagement in risky behaviors; feelings of isolation or loneliness (i.e., negative worldviews leading an individual to feel isolated or lonely, and attempting to combat that isolation with connection through sexual activity); or PTSD (i.e., individuals whose worldviews are so negatively disrupted that they develop PTSD attempting to cope with that disorder through engagement in one-time sexual encounters). Because very little previous empirical work has examined individuals' engagement in one-time sexual encounters, further research is needed to determine how exactly worldviews exert a predictive influence on one-time sexual encounters, if not through the mechanism of negative affect.

Additionally, although depression significantly mediated the relationship between benevolence and past-year partners, it was not a significant mediator of the relationship between self-worth and past-year sexual partners. Perhaps self-worth exerts its influence on engagement with multiple sexual partners in a more direct manner, whereas the reason benevolence exerts an influence on sexual partners is because it produces negative affect, which individuals are then motivated to reduce through sexual activity. Multiple previous studies have similarly found that self-worth contributes strongly to an individual's engagement in risky sexual behavior, while much less empirical work has examined the effect of benevolence beliefs on this behavior. Therefore, these results similarly seem to suggest that negative affect is not the reason self-worth predicts risky sexual behavior; rather, self-worth has an independent effect on an individual's engagement in these behaviors. In other words, women with feelings of low self-worth may be directly motivated to seek validation from others, leading them to engage in sexual activity with multiple individuals. Low self-worth may also lead women to engage in risky behaviors out of peer pressure and fear of refusing, or lack of assertive refusal skills. Additionally, low self-worth could exert an influence on partner selection, perhaps leading women to be less discriminatory in choosing sexual partners, and therefore selecting less appropriate partners or risky partners. For benevolence, however, the negative affect produced by the negative worldview appears to be one mechanism that leads to risky sexual behavior.

**Sexual victimization as a moderator of the mediated models.** In addition to the mediation analyses, I also examined sexual victimization history as a moderator variable. I predicted that the association between worldview and depression would be stronger among women who had experienced sexual victimization than women who had not experienced sexual victimization. This hypothesis was partially supported, in that there was a stronger relationship

between low self-worth and higher depression for victims of sexual violence relative to non-victims of sexual violence. However, sexual victimization history did not significantly moderate the relationship between benevolence and depression. In other words, low self-worth was more likely to lead to depression for victims of sexual violence than non-victims, although they were no more likely to develop depression in response to low beliefs in benevolence. These findings imply that for women with a history of sexual victimization, low self-worth can be particularly damaging and especially be likely to lead to depression. Although many previous studies have demonstrated lower self-worth among victims of sexual violence relative to non-victims, this is the first study to my knowledge to demonstrate that victims with low self-worth are particularly likely to develop depression relative to non-victims. However, a similar pattern does not seem to hold true for benevolence beliefs. Victims of sexual violence were no more likely to experience depression as a result of low benevolence beliefs than were non-victims. This result is perhaps not surprising in light of the finding that there were no significant differences between victims and non-victims in their benevolence beliefs. Taken together, these findings suggest that perhaps self-worth is more affected by sexual violence than are benevolence beliefs, and is also more likely to lead to negative consequences like depression.

I also predicted that women with any history of sexual victimization, relative to women with no sexual victimization history, would demonstrate a stronger relationship between high depressive symptoms and increased engagement in the health risk behaviors. This hypothesis was not supported, as having a history of sexual victimization did not significantly moderate the relationship between depression and any of the three risk behaviors examined. These findings suggest that for the low-income community women in this sample, having a history of sexual victimization did not influence how likely they were to engage in alcohol use or risky sexual

behavior in response to depressive symptoms. It may be that the relationship between depression and risk behavior is robust enough to hold true across multiple populations and individuals with varying histories. There may be other factors, other than sexual victimization history, which may moderate the relationship between depression and health risk behavior; alternatively, it is possible that this relationship is relatively stable across many demographic or historical characteristics.

Finally, the types of sexual victimization women had experienced – CSA only, ASA only, or a combined CSA/ASA history – were also examined as moderators of the relationships between worldview and depression as well as between depression and health risk behaviors. In these analyses, each of these three victimization types was examined as a moderator relative to women with no sexual victimization history. In other words, the analyses examined whether for women with a CSA only history, for example, there was a stronger relationship between depression and negative worldviews, as compared to women without a sexual victimization history. As a whole, none of these three victimization types was a significant moderator in and of itself of the relationship between benevolence beliefs and depression; however, victimization history type did emerge as a significant moderator of the relationship between self-worth and depression.

These three types of victimization were additionally examined as moderators of the relationship between depression the three health risk behaviors. In these analyses, these three victimization types as a whole were not significant moderators of the relationship between depression and drinking, sexual partners, or one-time sexual encounters. Therefore, there were no significant differences between non-victims and women with the three types of sexual victimization histories as a whole on how likely it was that their depressive symptoms would

lead to increased engagement in these three risk behaviors. This finding makes sense in light of the fact that having any history of sexual victimization failed to moderate these relationships and is consistent with the conclusion that perhaps individuals are likely to engage in risk behaviors in response to depression at a relatively consistent level across demographic or historical characteristics.

**Ethnicity as a moderator of the mediated relationships.** I also predicted that ethnicity would significantly moderate the relationships between worldview and depression as well as the relationships between depression and health risk behaviors. However, these hypotheses were not supported, as ethnicity did not emerge as a significant moderator of any of the relationships examined. I expected that because African American women are more likely to experience both societal and individual discrimination, their baseline worldview may be more negative relative to European American women. Therefore, a more negative worldview may not be as likely to lead to depression as among European American women. However, this is not what was found. African American women in fact reported only marginally, non-significantly lower benevolence beliefs, and higher self-worth, relative to European American participants. Considering that the expected differences among ethnic groups were not found in this sample, it is perhaps not surprising that ethnicity failed to emerge as a significant moderator. These findings suggest that one's ethnicity does not influence how likely individuals are to develop depressive symptoms in response to a negative worldview.

Additionally, ethnicity similarly does not appear to influence how likely individuals are to engage in these three risk behaviors in response to depressive symptoms. This finding is perhaps not surprising in light of the contradictory evidence in the previous literature surrounding ethnic differences in risk behavior. For example, some of the previous literature has

demonstrated that although African American women drink less overall (Orcutt & Schwabe, 2012), they may be more likely to drink in response to distress (Littleton & Ullman, 2013). Similarly, ethnic differences in sexual risk behaviors also seems to be a complex matter, with some studies finding no differences (Littleton et al., 2005) and other studies finding small differences, although not necessarily in the same behaviors examined in this study (Mojola & Everett, 2012; Wyatt et al., 2000). Given the apparent complexity of the relationship between ethnicity and health risk behaviors, future research should explore other mechanisms which may help to elucidate these relationships. From the current study, however, we can conclude that African American low income women are not more likely to drink or engage in sexual activity in response to depressive symptoms than White low income women.

**Limitations.** The current study had several limitations. First, although recruitment from an OB-GYN waiting room was helpful in recruiting a sample of low-income, rural, ethnically diverse community women, it also of course meant that many of the women in this sample were pregnant at the time of the study. Considering that the outcomes measured included alcohol use and sexual activity, both of which could be altered during pregnancy and pre-conception, it seems reasonable that the high proportion of pregnant participants may have contributed to the low base rate of risk behaviors in this sample, particularly since only past-year risk behaviors were assessed. However, there was actually no difference between pregnant and non-pregnant participants on two of the three risk behaviors assessed, and so it is possible that this characteristic of the sample may not have influenced the responding as much as one might predict. Another study utilizing a sample of pregnant women found that 8-13% of their sample reported alcohol use and 5-7% reported a current sexual partner other than the father of their pregnancy, suggesting that these risk behaviors may not be uncommon among pregnant women

(Yeganeh et al., 2013). Another study found that 10% of the pregnant women in their sample endorsed having more than one sexual partner in the last month (Peltzer et al., 2013).

Pregnancy may also have affected women's endorsement of depressive symptoms, as pregnancy can be either an extremely happy or a very stressful period in one's life. In this particular sample, pregnancy may have been even more likely to have been a stressful time for these women, as approximately three-quarters of the pregnant participants indicated that their current pregnancy was unplanned, most had other dependent children already living in the home, and most were also likely struggling with issues of poverty given the overall low income and high number of dependent children reported.

The high proportion of pregnant participants in this study may also limit the generalizability of the current findings to non-pregnant populations. Thus, future studies should attempt to replicate the current findings in a non-pregnant sample. Additionally, the current sample only included female participants. Men's experiences may be very different, and future research should attempt to replicate these findings among male victims.

The possibility of underreporting should be considered as well. All three health risk measures assessed could carry some level of social stigma and therefore participants could have been motivated to underreport their engagement in these risk behaviors. Additionally, although data regarding with whom these women attended their OB-GYN appointments was not collected, anecdotally, African American women appeared to be more likely to attend their medical appointment in the company of a family member. It seems possible that sitting next to a family member while completing measures of sexual victimization history and health risk behaviors could have resulted in underreporting. Although participants were informed that they had the option of completing the questionnaires either in the waiting room or in the presumably more

private exam room, participants were often accompanied to the exam room by whomever had accompanied them to their appointment. Further, all participants, the majority of whom were low-income African American women, were approached by a professional White female researcher regarding their participation in the study. Factors such as power dynamics and the historical context of White researchers recruiting African American participants should be considered, as these factors may potentially have additionally contributed to a reluctance to disclose sensitive information, particularly for African American participants.

Finally, all measures collected in this study were cross-sectional in nature, and so like any other cross-sectional research, inferences of causality must be made with caution. Future research could significantly advance the literature with a longitudinal research design. A longitudinal design would allow researchers to measure pre- and post-victimization measures, track whether worldview changed over time, and track whether risk behaviors changed after a sexual victimization, among other benefits. Future research could also examine longer time frames for the variables measured – for example, lifetime history of depression or lifetime number of sexual partners as opposed to past-year depressive symptoms and number of past-year sexual partners. Additionally, such work will be helpful in understanding the directionality of some of the relationships found. For example, does depression lead to decreased self-worth or does low self-worth negatively affect depression? Likewise, are women with depression more likely to experience a sexual assault or does experiencing a sexual assault increase risk for depression?

**Directions for future research.** In addition to attempting to replicate the current findings in other populations, there are several other avenues for future research suggested by this study. For one, worldview predicted engagement in one-time sexual encounters, but depression did not

mediate this relationship. Therefore, there is a need to determine the mechanisms via which worldview may be associated with risk for engaging in one-time sexual encounters. Given that benevolence predicted engagement in both measures of sexual risk taking, but not alcohol use, it is possible that benevolence beliefs may also predict other forms of sexual risk taking, such as inconsistent condom usage. Further research could explore these other possible forms of sexual risk that may be predicted by benevolence, as well as explore why benevolence may be more likely to have an effect on sexual risk behaviors relative to other forms of risk behavior.

Additionally, the current findings contribute to the often inconsistent previous findings regarding ethnicity and risk behavior. This study demonstrated no significant differences in risk behaviors between African American and European American women. Future research could attempt to clarify these relationships, or to determine other potential moderators of the worldview–depression–risk behaviors relationship, since ethnicity does not appear to be a significant moderator. One aspect of these relationships that could benefit from additional clarification in future studies is the directionality of the high victimization rates in low-income European American women.

Future research should also examine the current model in connection to other health risk behaviors known to be associated with sexual victimization. Sexual victimization has been shown to be associated with multiple chronic health conditions including obesity, gastrointestinal disorders, chronic pain disorders, multiple sexual and reproductive disorders, and poorer perceived health overall (Fergusson et al., 2013; Frayne, Skinner, Sullivan, & Freund, 2003; Golding, 1999; Golding et al., 1997; Kapur & Windish, 2011). Risk behaviors such as smoking, sedentary lifestyle, poor diet, and lack of adherence to recommended medical screenings or treatments may contribute to the development of some of these disorders. Thus, if the current

model is replicated with additional health risk behaviors as outcomes, it would shed additional light on some of the negative possible sequelae of sexual victimization. Longitudinal studies would be particularly helpful in tracking and predicting these health risk behaviors and exploring their relationship to development of chronic disease over time.

**Clinical implications.** There are several important clinical implications to this study as well. First, clinicians treating women with a sexual victimization history should be aware that these women may be more likely to have lower self-worth than women without this history, and that for these women, this low self-worth is more likely to lead to symptoms of depression. Further, given the importance that self-worth appears to play in multiple relationships in the current study, interventions which serve to enhance self-worth should be considered. Numerous such interventions exist in the literature, and themes of empowerment and self-esteem enhancement could also be added on to existing interventions (Fennell, 2005; Randal, Pratt, & Bucci, 2015; Waite, McManus, & Shafran, 2012). Future clinical research should attempt to identify interventions which can enhance self-worth efficiently, either as a stand-alone intervention or incorporated into a larger treatment plan. Increasing self-worth could potentially decrease depressive symptoms as well as decrease engagement in health risk behaviors that could lead to negative health consequences or future victimization. Additionally, given that depression emerged as a significant mediator of several of the relationships examined, it is possible that treating an individual's depressive symptoms could also result in positive changes to any health risk behaviors in which a client may be engaging. Thus, treatment of depressive symptoms in the context of a trauma history should always be considered, even if the sexual trauma itself is not a direct target of treatment. Finally, a client's views of other people, the world, and themselves are not always assessed as a standard part of the beginning of therapy.

Given the results of the current study, perhaps clinicians would do well to consider initiating conversations with their clients about such topics or administering a measure of worldview as part of an intake assessment battery. Early identification of any negative beliefs held by a client could serve to produce a richer and more beneficial clinical intervention by addressing in therapy how those beliefs developed, how they may be beneficial or detrimental for the client, and how the client could work to change them if desired.

In summary, the current dissertation provides several novel and important additions to the literature. It identified the importance of worldview, particularly self-worth, in predicting depressive symptoms as well as several risk behaviors. The study utilized a community sample of ethnically diverse, lower income rural women, and included both victims of sexual violence and non-victims in the analyses. Additionally, this is one of the first studies to further break down sexual victimization into childhood, adolescent/adult, or combined victimization histories. Current findings further support that sexual victimization history is a more important factor than ethnicity when considering who is more likely to develop depression in response to a negative worldview. Although much work is still needed in this field, this dissertation provides several valuable advancements with implications for both future research and clinical practice. Greater understanding of the factors that contribute to negative outcomes among victims of sexual violence will empower clinicians to be more effective in their work with clients, and ultimately empower victims to improve their quality of life in the process of recovery from sexual trauma.

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## APPENDIX A



**University and Medical Center Institutional Review Board**  
East Carolina University • Brody School of Medicine  
600 Moye Boulevard • Old Health Sciences Library, Room 1L-09 • Greenville, NC 27834  
Office 252-744-2914 • Fax 252-744-2284 • [www.ecu.edu/irb](http://www.ecu.edu/irb)  
Chair and Director of Biomedical IRB: L. Wiley Nifong, MD  
Chair and Director of Behavioral and Social Science IRB: Susan L. McCammon, PhD

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TO: Heather Littleton, PhD, Dept of Psychology, ECU—104 Rawl Building  
FROM: UMCIRB *rcx*  
DATE: October 7, 2009  
RE: Full Committee Approval of a Study  
TITLE: "Health and Negative Sexual Experiences Among Women"

**UMCIRB #09-0612**

The above referenced research study was initially reviewed by the convened University and Medical Center Institutional Review Board (UMCIRB) on **9.2.09 & 10.7.09**. The UMCIRB deemed this **Department of Psychology** sponsored study **more than minimal risk** requiring a continuing review in **12 months**. Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

The above referenced research study has been given approval for the period of **10.7.09 to 10.6.10**. The approval includes the following items:

- Internal Processing Form (dated 9.21.09)
- Informed Consent (received 10.1.09)
- COI Disclosure Form (date 7.31.09)
- Protocol (received 10.1.09)
- 2 Surveys
- Debriefing Form
- Joint appointment letter as the Assistant Professor in the department of Obstetrics & Gynecology (dated 5.13.09)
- Memo from PI (dated 9.30.09)
- Letter of Support from the Chair OBGYN Dept (dated 9.29.09)
- Study Information
- Study Information for the 2<sup>nd</sup> Survey
- Page 1 of both surveys revised (received 10.1.09)

The following UMCIRB members were recused for reasons of potential for Conflict of Interest on this research study:  
None

NOTE: The following UMCIRB members with a potential Conflict of Interest did not attend this IRB meeting:  
None

**The UMCIRB applies 45 CFR 46, Subparts A-D, to all research reviewed by the UMCIRB regardless of the funding source. 21 CFR 50 and 21 CFR 56 are applied to all research studies under the Food and Drug Administration regulation. The UMCIRB follows applicable International Conference on Harmonisation Good Clinical Practice guidelines.**

## **APPENDIX B**

### **INFORMED CONSENT DOCUMENT**

Title of Research Study: Health and negative sexual experiences among women

Principal Investigator: Heather Littleton, Ph.D.

Institution: East Carolina University

Address: Rawl 315

Telephone #: (252) 328-6488

#### **INTRODUCTION**

You have been asked to participate in a research study being conducted by Dr. Heather Littleton in the department of psychology at ECU. This research study is designed to be a longitudinal investigation of the relationship between women's health and negative and unwanted sexual experiences and risk behaviors for having these experiences.

#### **PLAN AND PROCEDURES**

You will be asked to complete a number of confidential questionnaires. These questionnaires will include questions about negative or unwanted sexual experiences you have had, your psychological distress, health, and your drinking and sexual behaviors. You will also be asked questions about your attitudes and beliefs, including your beliefs about how you would respond to unwanted sexual advances. Completing these questionnaires should take approximately 30 minutes and you will receive a small gift for completing the survey.

You may also be eligible to complete a mail survey in three months. If you would like to complete this survey, you will need to provide your name and mailing address on a separate form. If you are eligible to complete this second survey, it will be mailed to you in three months. Completing this second survey will take approximately 30 minutes and you will receive a \$25 Walmart gift card once you return the second survey.

Eligible participants will be women, aged 18 or older receiving medical care at the Brody outpatient center. Eligible participants do not have to have experienced unwanted or negative sex. Men and individuals who are age 17 or younger are not eligible to participate.

A total of 1,000 women will participate in the study.

#### **POTENTIAL RISKS AND DISCOMFORTS**

The primary risk to you is emotional upset and discomfort as a result of completing study questionnaires. The questionnaires will involve recalling details of your unwanted and negative sexual experiences as well as answering questions about your current distress, and your drinking and sexual behaviors.

You can choose not to answer any questions. You can also return the survey at any time if you do not wish to complete the study. Please contact the study coordinator if you choose to withdraw.

### **POTENTIAL BENEFITS**

It is likely that you will not directly benefit from your participation. Information obtained from the research will potentially lead to a better understanding of women's unwanted sexual experiences and risk factors for having these experiences.

### **LIST OF RESOURCES**

You should be aware of area resources that can assist you with the issues discussed in this study. This information will also be provided at the end of the survey.

*REAL Crisis Intervention, Inc:* 600 E 11<sup>th</sup> Street

The REAL Crisis center provides several types of services:  
A 24-hour free and confidential hotline: **252 758 HELP**  
A 6 week support group for survivors of unwanted sex.

*Family Violence Program, Inc of Pitt County*  
823 S. Evans Street  
252-758-4400  
office 8:30-5pm M-F  
24-hour emergency line at FVP: **252-752-3811**

The Adult Counseling Program provides free individual and group counseling for victims of abuse.

### **PARTICIPANT PRIVACY AND CONFIDENTIALITY OF RECORDS**

All identifying information will be kept in a locked study laboratory in a locked filing cabinet. All identifying information will be removed from your data before entering it.

### **LIMITS OF PARTICIPATION**

You have the right to terminate your participation at any time. Please contact the study coordinator if you wish to terminate your participation. She can assist you with obtaining treatment if necessary.

### **COSTS OF PARTICIPATION**

There are no known costs associated with participation in this study.

### **VOLUNTARY PARTICIPATION**

Participating in this study is voluntary. If you decide not to be in this study after it has already started, you may stop at any time without losing benefits that you should normally receive. You may stop at any time you choose without penalty, loss of benefits, or without causing a problem with your medical care at this institution.



## **APPENDIX C**

### **Study Information**

This envelope contains a questionnaire packet for a study being conducted by Dr. Heather Littleton in the department of Psychology at East Carolina University. The purpose of the study is to examine the relationship between women's health and negative and unwanted sexual experiences. If you decide to participate today, you will be asked to read and sign a consent form and complete several confidential questionnaires. To thank you for your participation, you will also receive a small gift. You may also be eligible to complete another survey by mail in three months. You will receive a \$25 Walmart gift card for completing this second survey.

In the envelope you will find two copies of a consent document that explains the purpose of the study more completely, a questionnaire packet with several confidential questionnaires for you to complete, a small gift to thank you for your participation, and a contact information form. If you decide to participate today, you will need to sign one copy of the consent document (you can keep one for yourself), and then complete the enclosed questionnaires. If you would like to complete the follow-up mail survey, you will also need to complete the contact information form. All the materials can be placed in a locked box in the waiting room.

Please note that you can choose not to participate in this research at any time with no penalty to you. You can also choose not to answer any parts of the survey or to provide contact information. The study coordinator will be available to answer any questions you might have and to provide you with information you may need about the issues covered in the survey.

