

Negative Sexual Experiences and Rape: Understanding the Relationship between Adult and Childhood Sexual Victimization and Somatic Complaints, Psychological Factors, and Self-Rated Health in College Women

by

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Sexual Victimization is a major issue in our society. The results of sexual victimization can persist throughout life and can be debilitating. Sexual victimization affects mental, sexual, and physical health. College women are one population at risk for sexual victimization. The purpose of this study was to examine the relationship between reported sexual victimization and somatic complaints, psychological factors (depressive symptoms, anxiety symptoms, and perceived current stress), and self-rated health among college women.

A 44 item web based survey was used for data collection. The study participants consisted of 480, mainly Caucasian, college women enrolled in Psychology 1000 at a southeastern U.S. university. Forty two percent ($n = 204$) of the study population reported a history of some form of sexual victimization. Participants with a history of sexual victimization were more likely to report mental health symptoms and symptoms of physical distress than those who did not have a history of sexual victimization. Participants with a history of sexual victimization, also, rated their mental health as poorer than those who did not have a history of sexual victimization. They were also more likely to complain of gastrointestinal symptoms,

gynecological symptoms, dizziness, fatigue, chest pain, palpitations, dyspnea and trouble sleeping, than those with no sexual victimization history.

In order for health care providers to provide comprehensive care to college women who have been sexually victimized, they must have an understanding of the relationship between sexual victimization and health complaints. The findings of the current study suggest that college women who have been sexually victimized, regardless of the age of victimization, have more physical health complaints, more distress from physical health symptoms, more mental health symptoms, and a lower perception of their mental health than those who have not been sexually victimized.

Negative Sexual Experiences and Health: Understanding the Relationship between Adult and
Childhood Sexual Victimization and Somatic Complaints, Psychological Factors, and Self-Rated
Health in College Women

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Dedication

To my grandmother, Lillie R. Turner, my parents, Lester & Robyn Turner, my siblings Levi, LaMont, Lance, LaTara and LaGeoffrey, Thank you for believing in me. To my husband and best friend Marion Wright, Jr, Thank you for being my cheerleader. Lastly to my children, Mario and Monique, always pursue your dreams.

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Chapter 1

Statement of the problem

As many as 1 in 4 women in the United States who attend an institution of higher learning are likely to become a victim of sexual victimization during the course of their attendance (Fisher, & Cullen, 2000). It is estimated that in an academic year at a US college or university, 350 out of every 10,000 women will be sexually victimized in some way.(Fisher, Cullen, & Turner, 2000). In 2007, a national study found that 28.5% of college women reported various types of attempted or completed rape, which included forced and incapacitated victimization (Krebs et al.). Approximately 50% of women who reported a history of sexual victimization experienced attempted or completed sexual assault prior to entering college (Black et al., 2011). Of the 58,000 college women surveyed by the American College Health Association (ACHA) in 2012, 15% reported being a victim of some type of sexual violence in the previous 12 months (2012a).

College women are at increased risk of sexual victimization for a variety of reasons (Krebs et al., 2007). Identified factors that increase the risk of sexual victimization among college women include increased number of sexual partners, history of sexual assault, history of dating violence, and being in the freshmen and sophomore year. Increased alcohol use, substance abuse, and being given drugs without knowledge are also noted risk factors (Krebs et al., 2007).

Due to the prevalence of sexual victimization on college campuses, the federal government has mandated that colleges and universities that receive federal funds must report the incidence of rape/ sexual assault that occur on their campus annually, through the Clery Act in 1990. Formal reports with these statistics must be made available to the public. Likewise,

schools are required to inform the public of the available assistance to the student victims, the security policies for the campus and any prevention programs available (Securityoncampus.org, n.d.). In reality, the number of sexual assault and rape statistics reported by colleges and universities is a vast underestimate of the actual number of sexual victimizations on their campuses as many women will not report their victimization to legal services or college officials (Krebs et al., 2007). It is estimated that as few as 5% of college women who are sexually victimized will seek assistance from law enforcement (Fisher et al., 2000). The most common reasons undergraduate women give for not reporting sexual victimization are self-blame, not being aware that what occurred is a crime, not wanting anyone to know, not wanting police involvement, feelings of guilt, shame, embarrassment, fear of not being believed, and not wanting to get the perpetrator in to trouble (Sable, Danis, Mauzy, & Gallagher, 2006; Zinzow & Thompson, 2011).

Sexual Victimization

In order to understand the concept of sexual victimization one must understand the additional terms associated with sexual victimization. Concepts that often accompany sexual victimization in the literature are rape, sexual assault, interpersonal violence (IPV), child sexual abuse (CSA), and adult sexual assault (ASA). The Centers for Disease Control (CDC) defines IPV as “physical, sexual, or psychological harm by a current or former partner or spouse” (2010). Child Sexual Abuse is often described as unwanted sexual contact prior to adulthood, generally occurring at or before age 13 (Schatzel-Murphy, Harris, Knight, & Milburn, 2009; Williams, Brett, & Abma, 2009). Adult and adolescent sexual assault (ASA) is characterized by unwanted sexual experiences that occur at age 14 and older. Sexual victimization, also, includes

nonverbal tactics and emotional manipulation, threat of violence, incapacitated victimization, and use of physical force.

Nonverbal tactics and manipulation of emotions are described as inappropriate sexual touching, verbal victimization or emotional pressure in order to coerce the victim into having sexual relations (Glenn & Byers, 2009). The threats of violence include threats of physical force or threatening to use a weapon to obtain sex and may also include the threat of harm to someone close to the victim (Struckman- Johnson, Struckman-Johnson, & Anderson, 2003). Incapacitated victimization includes the use of any chemical substances to obtain sex or sexual contact (Glenn & Byers, 2009; Struckman-Johnson et al., 2003). Most often incapacitated assault occurs when the victim has engaged in voluntary alcohol or drug use prior to the sexually coercive experience in contrast to the victim being involuntarily subjected to an incapacitating substance (Krebs, Lindquist, Warner, Fisher, & Martin, 2007). Adult sexual assault can also include the use of physical force (Faulkner, Kolts, & Hicks, 2008; Teten, Hall, & Capaldi, 2009). The most common forms of force used include: physical restraint using an object or one's body weight, use of a weapon, or physical assault.

Sequelae of Sexual Victimization

The effects sexual victimization often persists throughout life. Adult women who have experienced CSA reported that CSA is something that is always a part of the survivor's life (Anderson & Hiewsteiner, 2008). The women in this study relayed that recovery from CSA is an obtainable goal that comes with time; however, healing is not possible as CSA is not something that is curable (2008). Sexual victimization affects many aspects of victim's day-to-day lives.

Victims have reported dropping classes, changing majors, and relocating to other universities as well as changing or losing employment and changing residence (Krebs et al., 2007).

In addition, several studies indicate that sexual victimization has a negative impact on the physical health of adult women (Bonomi, Anderson, Rivara & Thompson, 2007; Conoscenti & McNally, 2006; Eby, Campbell, Sullivan & Davidson, 1995). Some studies have indicated that college women who report a history of CSA and ASA report more somatic complaints than college women who do not report being victimized (Amar & Gennaro, 2005; Hulme, 2000; Koss, Gidycz, & Wisniewski, & 1987). Victims also report increased mental health symptoms (Messman-Moore, Coates, Gaffey & Johnson, 2008), issues with sexual health (Satcher, 2001), and poor self-rated health (Zinzow, Amstadter, McCauley, Ruggiero, Resnick, & Kilpatrick, 2011). Studying the relationship between sexual victimization and health could provide a more thorough understanding of the effects sexual victimization on the health of college women. The following sections will report the specific sequelae of SV which are psychological sequelae, sexual sequelae, physical sequel and self-rated health.

Psychological Sequelae

Individuals who report a history of sexual victimization may, also, report increased mental health symptoms. Psychological effects of sexual victimization include increased fear, anxiety, (Starratt, Popp, & Shackelford, 2008), depression (e.g., Chan et al, 2009), posttraumatic stress disorder (PTSD), social adjustment issues, self-criticism, feelings of loneliness, isolation (Messman-Moore et al., 2008), suicidal ideation (e.g., Karandikar & Prospero, 2010), self-blame, and guilt (Glenn & Byers, 2009). Sexual assault victims are also more likely to become substance abusers later in life (Dixon- Mueller, 2009; Messman-Moore et al., 2008).

Sexual Sequelae

An individual's sexual health is often affected by sexual victimization. Sexual health includes sexual functioning, sexual disease or pathology including sexually transmitted infections, the ability to be sexually responsible, and the ability to understand the risk and impact of sexual experiences (Satcher, 2001). Victims of childhood sexual abuse have reported struggles with sexual shame, sexual distress (Messman-Moore et al., 2008) as well as sexual dysfunction and decreased sexual satisfaction (Glenn & Byers, 2009). Some victims become sexually active with multiple partners and engage in compulsive sexual behavior (Messman-Moore et al., 2008). While some victims of childhood sexual abuse struggle with hypersexual activity, others will have issues with sexual avoidance (Schatzel-Murphy et al., 2009). Victims of ASA and CSA have reported that subsequent to being sexually victimized they engaged in risky sexual behaviors, such as decreased use of condoms, decreased use of any type of contraception, and having sex with persons who are strangers or not well known to them (Coggins & Bullock, 2003; Williams et al., 2009; Yimin et al., 2002). These types of risky sexual behaviors often result in the increased incidence and increased risk of sexually transmitted infections including HIV, and unintended or unwanted pregnancies.

Physical Sequelae and Self Rated Health

Sexual victimization, including CSA and ASA, also, affects physical health, and may increase somatic complaints among those who report a history of sexual victimization in their lifetime (Hulme, 2000; Palm & Follete, 2008). There is a noted increase in somatic complaints among women who report a history of sexual assault and of depression compared to women with a history of sexual assault who do not report depression (Clum, Calhoun, & Kimerling,

2000; Clum, Nishith, & Resick, 2001). Perception of current stress has also been noted to mediate the relationship between sexual victimization and somatic symptoms (Palm & Follette, 2008).

Other physical consequences of sexual victimization include physical injury, due to forced sex, unintended, and/ or unwanted pregnancies, and an associated increase in the number of induced abortions (Dixon- Mueller, 2009; Hussain & Khan, 2008; Williams et al., 2009; Yimin et al., 2002). Victims of childhood sexual abuse often report increased gynecological symptoms such as pelvic pain, dyspareunia, and increased vaginal discharge (Campbell, Lichty, Sturza, & Raja, 2006; Eby, Campbell, Sullivan, Davidson, 1995, Koss, Koss, & Woodruff, 1991).

Women with a history of sexual victimization not only have an increase in somatic complaints, but overall have a lower rating of their health compared to women who have not been sexually victimized (Clum, Calhoun, & Kimberling, 2000; Kimberling & Calhoun, 1994). Evidence suggests that the number of times a woman reports being raped in adolescence or adulthood can influence self-reported health. In one study, women who reported multiple rapes or a history of rape by physical force in adolescence or adulthood reported lower self-rated health than women who reported a history of a single rape or rape where physical force was not used (Zinzow et al., 2010). There is also a noted decrease in the self-rating of health among victims of sexual victimization who report depressive symptoms in comparison to victims who do not report depressive symptoms (Clum, Calhoun, & Kimberling, 2000).

Due to the potential long term negative health effects of sexual victimization several health care organizations have released position statements on sexual victimization. The

American College of Obstetrics and Gynecology (ACOG) encourages health care providers to screen women for a history of sexual victimization, recognizing that healthcare providers will often be the first formal service to have contact with those victimized (ACOG, 2011a; ACOG 2011b). Recognizing that sexual victimization negatively affects the physical, mental, sexual and interpersonal health of those victimized, ACOG suggests that healthcare providers routinely screen for a history of CSA and ASA in order to provide the appropriate tertiary preventive care to these victims to prevent or minimize the long-term physical and mental health sequelae of sexual victimization (ACOG, 2011a; ACOG 2011b).

Likewise, the American College Health Association (ACHA) identifies sexual victimization as a major issue on college campuses and has included sexual victimization, in addition to other forms of violence, as a major health indicator for Healthy Campus 2020 (ACHA, 2012b). Sexual victimization, in addition to negatively affecting the academic side of college life, also negatively impacts the mental and physical health of college victims (Carr, 2007). The ACHA encourages college health providers to have training on providing care to victims of sexual violence and to incorporate screening for sexual violence into patient histories (ACHA, 2011).

The American Association of Colleges of Nursing (AACN) recognizes how violence against women, including sexual victimization affects patients and nurses working with these patients (1999). In response to this, the organization encourages colleges of nursing to integrate content regarding screening for sexual victimization into their curricula. They encourage colleges to provide clinical settings that will give nursing students the experience of screening and caring for victims of sexual victimization. Lastly, they encourage nurse researchers to continue expanding knowledge regarding the sexual victimization of women (AACN, 1999).

In addition to the AACN position on violence against women, the American Nurses Association (ANA) also recognizes the magnitude of sexual assault and the impact it has on women. To this end, the ANA proposes that nurses should have the skills to provide appropriate care to victims both short and long-term, should incorporate screening for sexual violence into their assessments, and must be prepared to provide appropriate interventions and referrals (2001). Finally, ANA promotes nursing research in the area of violence against women as a research priority.

More recently, in recognition of the prevalence and sequelae of sexual victimization, the United States President Barack Obama commissioned experts and stakeholders to focus on sexual assault on college campuses (White House Council on Women and Girls, 2014). He established the White House Task Force to Protect Students from Sexual Assault. One of the responsibilities of the task force is to provide education regarding prevention of sexual assault and care of victims of sexual to employees of colleges and universities (2014).

There are physical, sexual and mental health sequelae of sexual victimization. Various health care organizations, in addition, to the government of the United States, recognize the magnitude of sexual victimization and are urging health care providers to have an understanding of sexual victimization and to be prepared to assist those who have been sexual victimized. The current study is of significance to health care providers, especially nurses, who provide care to women in the college health care setting or to college- age women in other health care settings, because victims of sexual victimization are more likely to seek healthcare services than any other formal services, including law enforcement or other legal services (Koss, Koss, & Woodruff, 1991; Palm & Follette, 2008; Svavarsdottir & Orlygsdottir, 2008). Many individuals who have been assaulted will seek medical assistance, both immediately post assault or long term for

health care services unrelated to the victimization (Koss et al., 1991; Svavarsdottir & Orlygsdottir, 2009). The frequency of the utilization of medical services for somatic complaints has been shown to increase during the first year post sexual victimization, as noted in a community based longitudinal study (Kimerling & Calhoun, 1994). Victims of sexual assault complain of more health issues than non-victims (Conoscenti & McNally, 2005). Research has shown that women who have been sexually victimized are not only affected by forcible rape, but also other forms of sexual victimization, including verbal coercion (Hussain & Khan, 2008). Some health care providers do not recognize or appreciate that SV occurs in many other ways other than rape and physical assault, including verbal coercion, and may not provide the level of care these victims feel they need (Campbell, 1998). Reporting a history of sexual victimization to legal services, law enforcement, and medical providers can have negative emotional consequences for these victims as well, causing feelings of hurt, self-blame, and anger (Ahrens, Campbell, Ternier-Thames, Wasco, Sefl, 2007). It is important that healthcare providers who care for women are aware of the life-long outcomes of sexual victimization and screen for it appropriately. Understanding the definitions and the varied consequences of sexual victimization will enhance their ability to provide appropriate and holistic care to women, especially those who are sexually victimized.

Purpose

The purpose of this study was to examine the relationship between reported sexual victimization and somatic complaints, psychological factors (depressive symptoms anxiety symptoms and perceived current stress), and self-rated health among college women.

Research Questions

1. What are the characteristics of the study sample with regard to self-reported sexual victimization, depression, anxiety, stress, somatic complaints, and self-rated- physical and mental health?
2. How does the Theory of Unpleasant Symptoms (TUS) assist in understanding the relationships among sexual victimization, anxiety, stress, depression, somatic symptoms, physical health status and mental health status?
 - 2A. How is sexual victimization status related to psychological factors (depression, anxiety, and stress), somatic symptoms, physical health status and mental health status?
 - 2B. How are psychological factors related to somatic symptoms, physical health status and mental health status?
 - 2C. How well does the combination of sexual victimization status and psychological factors (depression, anxiety, and stress) predict somatic symptoms?
 - 2D. How well does the combination of sexual victimization status, psychological factors (depression, anxiety, and stress) and somatic symptoms predict physical and mental health status?
 - 2E. Are there somatic symptoms noted in specific body systems that differentiate sexual victims from non-sexual victims?

2F. Are gynecological symptoms more prevalent in victims of sexual assault than non victims?

Hypothesis

The hypothesis for the current study is as follows:

College women who report a history of sexual victimization will report more symptom distress, symptoms of depression, anxiety, current stress and gynecological symptoms than college women who do not report a history of sexual victimization.

Theoretical Approach

Theory of Unpleasant Symptoms

The Theory of Unpleasant Symptoms (TUS) was used to structure this study (Lenz, Pugh, Milligan, Gift, & Suppe, 1997). The TUS is a middle range nursing theory developed to describe symptom experiences or symptom complaints, and proposes that individuals who have experienced a similar precipitating factor (e.g. experience or diagnosis) may share similar somatic symptoms, symptom clusters and symptom qualities. According to the TUS there are antecedent or influencing factors that can affect each other in addition to influencing the symptoms experienced and that the symptoms experienced, also, influence an individual's functional or cognitive performance. The performance then interacts with the symptom components and the influencing factors (Lenz et al., 1997). For the purposes of the current study, the precipitating situational factor studied was sexual victimization, the psychological factors studied were anxiety, depression and stress, and the cognitive performance outcome was self-rated health.

Operational Definitions

Sexual victimization

In this study, sexual victimization was defined as the use of any tactic including physical force, verbal pressure, intimidation, or psychological persuasion, to gain sex or any sex act from an unwilling partner, including partners who are incapacitated or impaired by drugs or alcohol (Krebs et al., 2007; Teten, Hall, & Capaldi, 2009). The current study assessed two different types of sexual victimization in relation to somatic symptoms and self-rated health (SRH): child sexual abuse (CSA) and adolescent/ adult sexual assault (ASA). Childhood sexual assault was defined as sexual victimization before age 14 was assessed through the Early Sexual Experiences Checklist (Miller, Johnson, & Johnson, 1991). Adolescent and adult sexual assault was defined as sexual victimization that occurred at age 14 or older and was measured using the Sexual Experiences Survey (SES; Koss, Abbey, Campbell, Cook, Norris, Testa, Ullman, West & White, 2007). If any participant reported CSA or ASA they were included in the sexual victimization group as a whole.

Self-rated Health

Self-rated health (SRH) in this study is a subjective concept that describes how an individual perceives their own overall health as poor or good (Manderbacka, Lundberg, & Martikainen, 1999). SRH can be dynamic and has been shown to be influenced by changes in one's physical and mental health (Bailis, Segall, & Chipperfield, 2003). For the purposes of this study SRH was measured using the Short Form Health Survey Version 2 (SF-12v2; Ware, Kosinski, & Keller, 1996).

Somatic symptoms

Somatic symptoms is defined as specific symptoms complaints reported by individuals and was measured by the 15 item Patient Health Questionnaire (PHQ-15) differ from SRH in that somatic symptoms are addressing specific symptom complaints, while SRH addresses one's overall view of their health. In the proposed study, somatic symptoms are synonymous with physical health complaints. These symptoms can be noted in the presence or absence of a pathological or medical disorders, however, are often thought of in the context of the absence of an identified cause (Kroenke & Rosmalen, 2006). The distress component of somatic symptoms was defined as how bothersome the participant reports the symptoms are and the specific somatic symptoms were measured using the 15 item Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2002).

Limitations

There were three anticipated limitations to the current study: convenience sampling, self-reporting and recall of past events. The use of a convenience sample limits generalizability to undergraduate women who report a history of sexual victimization. This type of sampling relies on self-selection into the study, and often produces a homogenous sample (Polit & Beck, 2010), and does not guarantee a representative sample of the desired study population, i.e., college women of various races, years in college backgrounds who have experienced some form of sexual victimization. The study, also, relies solely on self-report data and the information gathered relies on the recall of the participants involved in the study. The events queried in the data collection can precipitate negative reactions by asking the participant to call to mind sometimes painful and frightening details. As the events being investigated most often occurred

in the past, the accuracy of the victim's recall of the events is called into question. These limitations were considered when analyzing data and drawing conclusions.

Though considered a limitation, self-report is a good method for eliciting information from participants. It provides a method of gathering sensitive information regarding feelings and emotions that is not biased by the researcher's opinions or ideas (Polit and Beck, 2010). It, also, provides researchers the ability to reach a large number of participants in a short period of time. (Polit & Beck, 2010). The design of the current study allowed participants to complete the survey in a private setting, electronically, and allowed the surveys to remain anonymous to the researcher.

Significance of the Study

This study is significant because sexual victimization is a much-publicized issue in society today in the United States, and college women are at great risk. It has been identified by the federal government, the military, college administrators, law enforcement and the general public as an area for policy, enforcement and health care. As many of 1 in 4 college women will be sexually victimized during their college career (Fisher & Cullen, 2000), and about 16% of college women will report a history sexual victimization prior to entering college (Krebs et al., 2007). The current study could provide a better understanding of the relationship of sexual victimization and somatic complaints in college women, and thus further support the health care initiatives and call for education to providers to screen for sexual victimization, as recommended by ACOG (2011a; 2011b) and ANA.

Sexual victimization has been identified as a risk factor for poor physical and mental health. Studies indicate there is a correlation between a history of sexual victimization and

increased somatic symptoms (Campbell et al., 2006; Eby et al., 1995; Koss et al., 1991). There is also a noted increase in depression (Chan et al., 2009; Glenn & Byers, 2009; Messman-Moore et al., 2008) and anxiety (Messman-Moore et al., 2008; Starratt et al., 2008) among women who report a history of sexual victimization. Research has indicated that sexually victimized women are more likely to rate their health as poor than women who do not report a history of sexual victimization (Clum, Calhoun, & Kimerling, 2000; Kimberling & Calhoun, 1994; Koss et al., 1990). Sexually victimization is a recognized cause of somatic symptoms in women, yet many women who present with symptoms that do not appear to have an identifiable cause may not been screened for SV during their health care encounter (Littleton et al., 2007). Knowledge of the relationship between somatic symptoms and sexual victimization should prompt healthcare providers to screen thoroughly for sexual victimization in individuals with amplified somatic symptoms.

Chapter 2

Review of Literature

Introduction

This review of literature is organized around four areas: (a.) The Theory of Unpleasant Symptoms; (b.) literature that examines the relationship between sexual victimization and somatic complaints; (c.) literature that examines the relationship between sexual victimization and psychological factors; and (d.) literature that examines the relationship between sexual victimization and self-rated health.

Theory of Unpleasant Symptoms as a Framework

The Theory of Unpleasant Symptoms (TUS) is the conceptual framework that was used to guide this study (Lenz, Pugh, Milligan, Gift, & Suppe, 1997). The assumption behind the TUS is that individuals who experience the same precipitating event will often manifest common symptoms or symptom clusters. Within the model, the symptom experience can moderate or mediate the relationship between physiologic or psychological status and performance. There are three components of the TUS: the symptom experience, influencing factors, and performance outcomes.

The *symptom* component of the TUS is the central focus of the theory. There are four identified dimensions of each symptom: intensity, timing, distress, and quality (Lenz et al., 1997). Intensity refers to how the individual describes the severity or strength of the symptom; timing is characterized by the duration and/ or frequency of the symptom; distress refers to how bothersome the symptom is, and quality is how an individual describes what the symptom feels like. These four dimensions, while separate in their characteristics, are related to each other. The

symptom experience is multidimensional; for example, the alleviation or exacerbation of the reported symptoms has a reciprocal effect on the other components of the model (Lenz et al., 1997).

The *influencing factors* component of the TUS is comprised of three types of factors: physiologic, psychological, and situational factors. Physiologic factors include pathology, physical injury, or normal body function. Psychological factors are described as the mental health of the individual including diagnosed disorders or mental health symptoms in the absence of a diagnosed mental health disorder (e.g. feeling anxious versus being diagnosed with some type of anxiety disorder). The situational factors component describes the characteristics of an individual's social or physical environment that influences complaints and symptoms. According to Lenz and colleagues (1997) the three types of factors relate to one another over and above their individual relationships to symptoms.

The *performance* component of the TUS explains the effect or outcome of the symptoms on an individual's functional status, cognitive functioning, and physical performance. Functional status refers to role performance, interactions with others, physical activity, and ability to perform activities of daily living. Cognitive functioning refers to an individual's capacity to think, concentrate, and solve problems. Physical performance refers to the level of physical activity an individual is able to perform.

Research suggests that individuals with numerous or severe symptoms tend to report lower functional status, cognitive functioning, and physical performance. The TUS provided a useful framework for examining the complexity and interaction of the symptom experience in the current study, particularly in the effect of symptoms on self-rated health and performance.

The relationship between somatic symptoms (the presence of symptoms/ symptoms noted in specific body systems and distress of symptoms), psychological factors (current symptoms of anxiety, stress, and depression), and situational factors or precipitating experience sexual victimization were examined within the context of the TUS in terms of the effect on performance outcomes (functional status, cognitive functioning, and physical performance).

The TUS has been used among various patient/ study populations including: bariatric patients (Tyler & Pugh, 2009), cardiac patients (Jurgens, Moser, Armola, Carlson, Sethares, & Riegl, 2009), and patients with inflammatory bowel disease (Farrell & Savage, 2010). This theory has also been used to examine sleep quality in women who have experienced IPV (Woods, Kozachik & Hall, 2010). It has not been used in research of college women who report a history of sexual victimization. As research has shown a relationship among sexual victimization, symptoms of anxiety and depression, somatic symptoms, self-rated health (SRH), this theory is a useful model for viewing the relationship among sexual victimization, somatic symptoms and anxiety and depression.

Sexual victimization and Somatic Symptoms

While the cause of somatic symptoms in women who have been sexually victimized is often unknown, research suggests that changes in immune response may be responsible for somatic complaints among women who have been abused. The physiologic relationship between somatic symptoms and sexual victimization can be further explained using the bio-psycho-immunologic theory (Woods et al., 2005). Woods et al. (2005) theorized that the body's normal flight or fight response, that generally lasts for seconds, is extended in those who have experienced trauma, and suffer from PTSD. It is also noted that the normal immune response is impaired due to a shift in the pathway that regulates the inflammatory immune process. This allows the body to be more

susceptible to autoimmune disorders and increased symptoms of chronic pain (Woods et al., 2005). This theory, though not being used to guide this study, offers a physiologic explanation of why person who have been sexually victimized are more likely to have more health complaints than those who have not.

As described in the Theory of Unpleasant Symptoms (TUS), individuals who experience similar precipitating events such as sexual victimization may manifest somatic symptoms as a result of their experience (Lenz et al., 1997). Prior studies have noted a correlation between sexual victimization in one's lifetime and increased somatic symptoms (Amar & Gennero, 2005; Runtz, 2002; Palm & Follette, 2008) The precipitating experience of sexual victimization includes: CSA, ASA, and sexual victimization as a part of interpersonal violence. Some studies address the idea, as described in the TUS, that somatic symptoms are affected not solely by the precipitating event, but by psychological factors as well (Amar & Gennero, 2005; Lenz et al., 1997)

A correlation has also been shown between child sexual victimization and increased physical symptoms in college women (Runtz, 2002). Seven hundred and seventy five college women enrolled in a Canadian Univeristy completed a written survey. Of the 775 women enrolled in the study, 143 reported a history of child sexual victimization, and 53 reported a history of both child sexual victimization and child physical maltreatment (i.e. physical abuse). The findings identified a relationship between increased physical symptoms, including palpitations, menstrual complaints, genital pain, muscle weakness, dyspareunia, and having experienced child physical maltreatment. The findings also suggested there was an increase in physical symptoms among those individuals who reported both child sexual victimization and child physical maltreatment. The only noted physical symptom complaint that was of

significance among those reporting CSA only and not child physical abuse was an increase in the severity of premenstrual symptoms. Increase in the severity of premenstrual symptoms were noted among those who reported being sexually victimized over longer periods of time in childhood (Runtz, 2002).

ASA has also been shown to be a predictor of physical health among college women (Palm & Follette, 2008). A study evaluating the relationship between adult sexual victimization and physical health was conducted by Palm and Follette (2008) at a university health center. A total of 77 participants ages 18 and older were included in the study sample. The purpose of the study was to evaluate the mediating roles of avoidance coping and stress on sexual victimization, physical symptoms, and health care utilization among college women. While there was a noted relationship between recent ASA and physical health complaints, this relationship was not found among CSA victims (Palm & Follette, 2008). This finding differs from other studies which suggest distal events of sexual victimization have a negative impact on the physical health of a victim among college women (Runtz, 2002) and in the general population (Hulme, 2000). This difference in the college studies could be related to the smaller sample size in the Palm and Follette study.

Research has also demonstrated an increase in somatic symptoms among college women who report some form of dating violence, including sexual assault (Amar & Gennero, 2005). Sexual violence within dating relationships among college women is a worldwide issue. As many as 46% of college women in an international study reported a history of sexual victimization within their relationship, with the U.S. reporting some of the highest incidences (Chan et al., 2008). Amar and Gennaro (2005) evaluated the relationship between dating violence, physical injury, health care usage, and mental health symptoms among 863 primarily

African American college women. Some form of victimization, whether physical, mental or sexual, was reported by 48% of the sample, though the incidence of sexual victimization was not specifically reported. There was a noted increase in somatic symptoms, anxiety, and depression among women reporting a history of IPV including sexual violence. The participants reporting multiple forms of violence reported more somatic and psychological symptoms than those who reported a single episode. However, the association of sexual violence with somatic symptoms was not specifically evaluated (Amar & Gennero, 2005).

Gynecologic symptoms have been shown to be strongly related to sexual victimization (Campbell et al., 2006; Koss et al., 1991), including documentation of increased symptoms of PMS (Lustyk et al., 2008), higher rates of sexually transmitted infections (STIs; Dixon- Mueller, 2009; Miles & Hammond, 2008; Palm & Follette, 2008; Starratt et al., 2008) and increased incidence of HIV (Macleod- Downes et al., 2008). Rates of teenage, unintended, or unwanted pregnancies are also elevated among women with a history of sexual victimization, possibly leading to an increase in the number of induced abortions (Hussain & Khan, 2008; Starratt et al., 2008; Williams et al., 2009). In addition to these women's health issues, other gynecological symptoms noted in this population include bladder symptoms, vaginal symptoms such as pain and dyspareunia, pelvic pain, and rectal bleeding (Eby, Campbell, Sullivan, & Davidson, 1995).

Certain gynecological symptoms have been noted to be increased among women who report a history of sexual assault in their adult life and research has indicated that certain types of sexual assault are associated with specific gynecologic symptoms (Campbell et al., 2006). Campbell (2006) conducted a study of 298 primarily African American women veterans, who visited a Veteran's Affairs Women's Clinic over an eight month period and found that among 39% of the women who reported a history of sexual victimization, six specific common

gynecologic symptoms were commonly identified: pelvic pain, vaginal bleeding/ discharge, dyspareunia, rectal bleeding, bladder infection, and dysuria. They found these symptoms to be more frequent in sexual assault survivors regardless of age, socioeconomic status, or time since assault (Campbell et al., 2006). Interestingly, participants who reported a history of oral assault also appeared to have more symptoms of pelvic pain, dyspareunia, and dysuria. Those who were assaulted anally reported an increase in all symptoms investigated except vaginal bleeding. A history of forced penetration produced an increase in all symptoms, while the use of weapons predicted an increase in vaginal symptoms versus sexual assaults in which no weapon was used. Victims who reported being physically injured had significantly more frequent gynecologic symptoms than those not physically injured. Although this study was limited to mostly African American women who were veterans, the findings are nonetheless significant.

Sexual victimization and Psychological Factors

Anxiety and depression are known health issues faced by women in college. A recent survey by the ACHA reported that psychological disorders including anxiety and depression were the 2nd most common diagnosed conditions among college students in the previous 12 months (ACHA, 2012a). Anxiety and depression was described by students as interfering with their ability to function in school (2012a). It is also known that depression, anxiety and increased perceived stress are sequelae of sexual victimization (Chan et al., 2009; Lustyk, 2008; Starratt et al., 2008).

Consistent with the TUS, the framework chosen for this study (Lenz et al., 1997), research suggests that influencing factors such as anxiety, depression, stress and sexual victimization can be interrelated and influence each other. Findings from the literature review

indicate sexual victimization may have a negative effect on psychological factors, i.e. the mental health of those victimized. Depression is one noted sequelae of sexual violence in college women worldwide. A worldwide study assessing dating partner violence and suicidal ideation among approximately 16,000 college women, from 22 different countries noted that 9 to 46% of college women self-reported a history of sexual violence within an intimate relationship (Chan, 2008). There was also a noted correlation between sexual victimization and depression among study participants.

Rates of depression among college women with a history of sexual violence may be higher than rates of depression among women who report a history of sexual victimization in the general population. A national study compared various types of rape and the sequelae of rape among 3,001 women in the general population and 2,000 college women (Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007). The majority of women in the general population were ages 18-34; the rest were greater than age 35. The participants in the college population represented 253 different colleges and universities and 47 different states. After conducting telephone interviews, the authors concluded that 2 out of 5 college rape victims reported a history of a major depressive episode in their lifetime and 1 out of 3 participants met the DSM IV criteria for depression at the time of the study. In contrast, in the general population, one third of rape victims reported a history of depression in their lifetime, and 1 in 4 met the DSM IV criteria for depression at the time of the study (Kilpatrick et al., 2007).

An additional study found evidence of depression and anxiety as noted consequences of CSA and ASA in the general population. In a sample of 557 women age 18-44, CSA and ASA were associated with increased rates of anxiety and depression (Carlson, McNutt, & Choi, 2003). Although this study was not conducted specifically among college students, it does include

young women between the ages of 18 and 25, consistent with the current study. Seventy one percent of women reported some history of child abuse or abuse in adulthood. Those reporting severe CSA, (defined by the authors as having a high score on the Childhood Maltreatment Interview Schedule, scoring a 3 on questions regarding depression with a likert of scale 0-3), were 3 times more likely to have anxiety and depression than those who reported no or less severe CSA (Carlson et al., 2003). The study also addressed recent and past ASA within established intimate relationships. There were few cases of reported recent ASA, however, past adult abuse, including sexual abuse, was associated with anxiety and depression. Because physical and sexual abuse in adulthood among the study population often co-occurred, the researchers were not able to evaluate the effect of ASA only on depression and anxiety on the study population (Carlson et al., 2003).

Perceived stress is another manifestation of psychological health that may be impacted by sexual victimization. Lustyk, Widman, and Laveage Becker (2008) noted an increase in perceived stress among college women who reported a history of sexual. In this study, a convenience sample of 91, predominately Caucasian, college female students ages 18 to 25 were surveyed utilizing the Cohen Perceived Stress Scale. Participants were asked to complete a written questionnaire and report a history of physical and sexual abuse, perceived stress, and menstrual history including symptoms of premenstrual syndrome (PMS). Twenty five percent (N=23) of women reported a history of sexual victimization; 7.7 % (7) reported a history of physical and sexual abuse. There was a noted increase in perceived current stress among those in the abuse group. There was also a noted increase in premenstrual symptoms among the abuse group. The authors did not, however, distinguish between sexual abuse and physical abuse. The

study also found an increase in PMS symptoms among those who reported a history of sexual victimization and increased perceived stress (Lustyk et al., 2008).

Sexual victimization and Self-Rated Health (SRH)

In college population, SRH has been noted to be negatively affected by psychological well-being and somatic symptoms (Piko, 2000). This is consistent with the ideas proposed in the TUS, as one aspect of the theory is that performance (SRH) among those who have experienced the precipitating factor (sexual victimization) is a result of the influencing factors (anxiety, depression), and somatic symptoms. As many college women with a history of sexual victimization will have negative psychological sequelae and increased somatic symptoms, it is surmised that college women who have been sexually victimized will have decreased SRH.

A reported history of multiple rapes and a history of depression have both been noted to be predictors of poor self-rated health among college women. Zinzow et al. (2011) surveyed 2000 college women to assess the effects of rape and mental health issues. Phone interviews were conducted to assess history of rape, SRH, symptoms of depression, PTSD, and substance. The mean age of the women was 21 years. Although only 4% of women reported poor SRH, approximately 20% of the study sample reported a history of some form of rape. A history of multiple rapes was noted to have the greatest correlation with SRH, though forcible rape was noted to have a marginal association with poor SRH. Sixteen percent of the study population reported a history of an episode of major depression in their lifetime and depressive episodes in addition to a history of PTSD were noted predictors of poor SRH (Zinzow et al, 2011). This study provides insight into risk factors for poor SRH in college women; however, the findings do not fully how the combination of sexual victimization and psychopathology impact SRH. In

addition, the authors did not evaluate symptoms of anxiety among college women who report a history of sexual victimization even though it has been posited that women who experience sexual victimization are at increased risk for both depression and anxiety (Carlson et al., 2003; Messman-Moore et al., 2008; Starratt et al., 2008).

The combination of depression and adolescent sexual assault has been noted to have a negative effect on SRH among college females (Clum, Calhoun, & Kimerling, 2000). Clum and colleagues (2000) studied the relationship of PTSD symptoms, depression, physical symptoms, and specific reproductive health symptoms, physical reactions that occurred during the trauma and SRH among 57 primarily Caucasian college female students with a mean age of 19. A written questionnaire was administered to participants in a large group setting. Participants were included in the study if they reported a history of rape in the past 3 months to 4 years and reported rape as their most stressful experience. The findings of the study identified the most common symptoms complaints among the sample were gastrointestinal, musculoskeletal, sexual and respiratory. It was noted that depression and symptoms of PTSD were the greatest predictors of low SRH (Clum et al., 2000). The study findings noted that adolescent rape, was not a strong predictor for poor reproductive health, but that, physical reactions during the assault (e.g. panic, shortness of breath, sweating) and PTSD were the greatest predictors of reproductive health symptoms (2000). This study did not compare college women who did not have a history sexual victimization in adolescents, therefore was unable to identify differences between victim and nonvictim groups.

Summary

The review of literature provides a foundation for understanding the relationships among sexual victimization, somatic symptoms, psychological health, and self-rated health among college women who report a history of sexual victimization. From the review of the literature, it can be posited that somatic complaints are increased among college women with a history of CSA (Runtz, 2002) and ASA (Amar and Gennaro, 2005; Palm and Follette, 2008). Specifically, gynecological symptoms are more frequent among victims of ASA in the military (Campbell et al., 2006) and specifically PMS symptoms among college females who have been sexually victimized (Lustyk et al., 2008). Also, it is noted that depression, anxiety, and perceived stress are increased in college women who have been sexually victimized (Chan et al., 2009; Lutstyk et al., 2008; Starratt et al., 2008). Victims of multiple rapes and forcible rapes are more likely to have poor SRH than those who reports a history of sexual assault but have not experienced multiple rapes or forcible rapes (Clum et al., 2000). Victims of adolescent rape who have a history of depression and symptoms of PTSD are more likely to have low SRH, than those who did not (2000).

As noted within the TUS framework, individuals who have similar precipitating experiences may have similar increased symptomatology. Some data suggest CSA alone does not increase somatic symptoms in this population, but that CSA in addition to physical abuse is related to increased somatic symptoms (Runtz, 2002). The literature reveals there is a negative effect on various types of health among women reporting a history of sexual victimization in the general population (Bonomi et al., 2007; Eby et al., 1995; Koss et al, 1991). There is also research that has discussed its effects on the health of women who are in the military, a group that has been identified as high risk of being sexually victimized (Campbell et al., 2006). College

women are also a noted vulnerable group (Fisher & Cullen, 2000; Krebs et al., 2007). In addition, research has been conducted in various areas of sexual victimization in college women. Fisher & Cullen (2000) assessed the frequency of sexual victimization in college aged women and injuries associated with sexual assault. Amar and Gennaro studied the effects of dating violence on the global health of college women victims (2005). The results of adult sexual victimization on the overall health of college women and what variables potentially served as catalysts to fostering that relationship has also been studied (Palm & Follette, 2008). However, there is no identified literature that specifically addresses what symptoms are most common among college women who report a history of ASA and CSA.

The effect of sexual victimization on gynecological health is also noted in other forms of ASA that are not identified as IPV (Campbell et al., 2006; Koss et al., 1991). Gynecological symptoms most commonly noted by victims of ASA include: pelvic pain, dyspareunia, dysuria, rectal bleeding, bladder infections and vaginal bleeding/ discharge (Campbell et al. 2006). Specific types of ASA have also been associated with specific types of gynecological symptoms (Campbell et al., 2006). In addition to ASA, as noted previously, prolonged CSA also affects gynecologic health (Runtz, 2002). However, rape that occurred during adolescents has not been shown to increase gynecological symptoms. Less violent forms of sexual victimization have not been addressed in the college population in association with gynecological symptoms.

Sexual victimization also negatively affects one's mental health. This is consistent with the idea proposed in the TUS that influencing factors not only affect the symptom component, but affect each other (Lenz et al., 1997). There is a noted increase in depression and anxiety among college women who report a history of sexual victimization within an established relationship (Chan, 2008). There is also an increased incidence of depression among college

women who report a history of sexual victimization versus women of a comparable age who report a history of sexual victimization who are not enrolled in an institute of higher learning. Victims of CSA and ASA in the general population also report more symptoms of anxiety and depression than those who do not report a history of CSA or ASA (Bonomi et al., 2007; Carlson et al., 2003; Koss et al., 1991).

While the review of literature provides some foundational information regarding the effect of sexual victimization on physical health, psychological health, and perceived overall health of college women who report a history of sexual victimization, the proposed study sought to further explore these relationships. Most of the literature available regarding the impact of sexual victimization on college women addresses the effect of forcible rape on physical symptoms, psychological health, and SRH. However, research has shown that women are also affected by nonviolent unwanted sex acts (Hussain & Khan, 2008). Also, there is limited information on how the type of sexual violence one experiences affects the health of the victim (Campbell, 2006; Koss et al., 1991) More information is needed to address how any type of nonconsensual sex affects the health of victims (Martin, Macy, & Maribassi, 2009).

There was minimal data identified that addressed the negative mental health impact of sexual victimization on college women, though it has been established that women who have been sexually victimized are at risk for anxiety, depression (Chan et al., 2009) and stress (Lustyk, 2008). Further studies are needed as sexual victimization is a common issue in the college population, as well as anxiety, depression and stress being common health issues among this age group. Finally, more information is needed to assess how sexual victimization affects SRH among college women. There was no identified data that specifically addressed the effects of ASA on SRH. Though the review of literature addressed how rape in adolescence, particularly

adolescent rape and depression affected SRH, how anxiety, in addition to sexual victimization, affects SRH was not addressed. Lastly, the relationship between the influencing factors, symptoms and how they relate to SRH should be explored.

Chapter 3

Methodology

The purpose of this study was to examine the relationship between reported sexual victimization and somatic complaints, psychological factors (depressive symptoms, anxiety symptoms, and perceived current stress), and self-rated health. The research questions are:

1. What are the characteristics of the study sample with regard to self-reported sexual victimization, depression, anxiety, stress, somatic complaints, and self-rated- physical and mental health?
2. How does the Theory of Unpleasant Symptoms (TUS) assist in understanding the relationships among sexual victimization, anxiety, stress, depression, somatic symptoms, physical health status and mental health status?
 - 2A. How is sexual victimization status related to psychological factors (depression, anxiety, and stress), somatic symptoms, physical health status and mental health status?
 - 2B. How are psychological factors related to somatic symptoms, physical health status and mental health status?
 - 2C. How well does the combination of sexual victimization status and psychological factors (depression, anxiety, and stress) predict somatic symptoms?

2D. How well does the combination of sexual victimization status, psychological factors (depression, anxiety, and stress) and somatic symptoms predict physical and mental health status?

2E. Are there somatic symptoms noted in specific body systems that differentiate sexual victims from non-sexual victims?

2F. Are gynecological symptoms more prevalent in victims of sexual assault than non victims?

The hypothesis for the current study is as follows:

College women who report a history of sexual victimization will report more symptom distress, symptoms of depression, anxiety, current stress and gynecological symptoms than college women who do not report a history of sexual victimization.

Research Design

The study is a retrospective quantitative design. It is both descriptive and correlational in purpose. To examine the relationship between sexual victimization, somatic symptoms, depression, anxiety, and self-rated health (SRH), a sample of college women enrolled in general psychology courses at a southeastern U.S. university completed a self-report web based survey. The survey attempted to elicit the participant's current complaints of somatic symptoms, history of lifetime sexual victimization, symptoms of anxiety and depression, SRH, and demographics.

The TUS was used to structure the current study (see figure 1). The influencing factor, sexual victimization, was assessed using the Sexual Experiences Survey (SES) and the Early

Sexual Experiences Checklist (ESEC). The psychological factors of anxiety, depression and stress were assessed using the 21-item Depression, Anxiety, and Stress Scale (DASS-21). The symptomatology presence and level of distress was evaluated using the 15 item Patient Health Questionnaire (PHQ-15). Lastly, the performance measure of SRH was evaluated using the 12 item Short Form Health Survey Version 2 (SF12-v2).

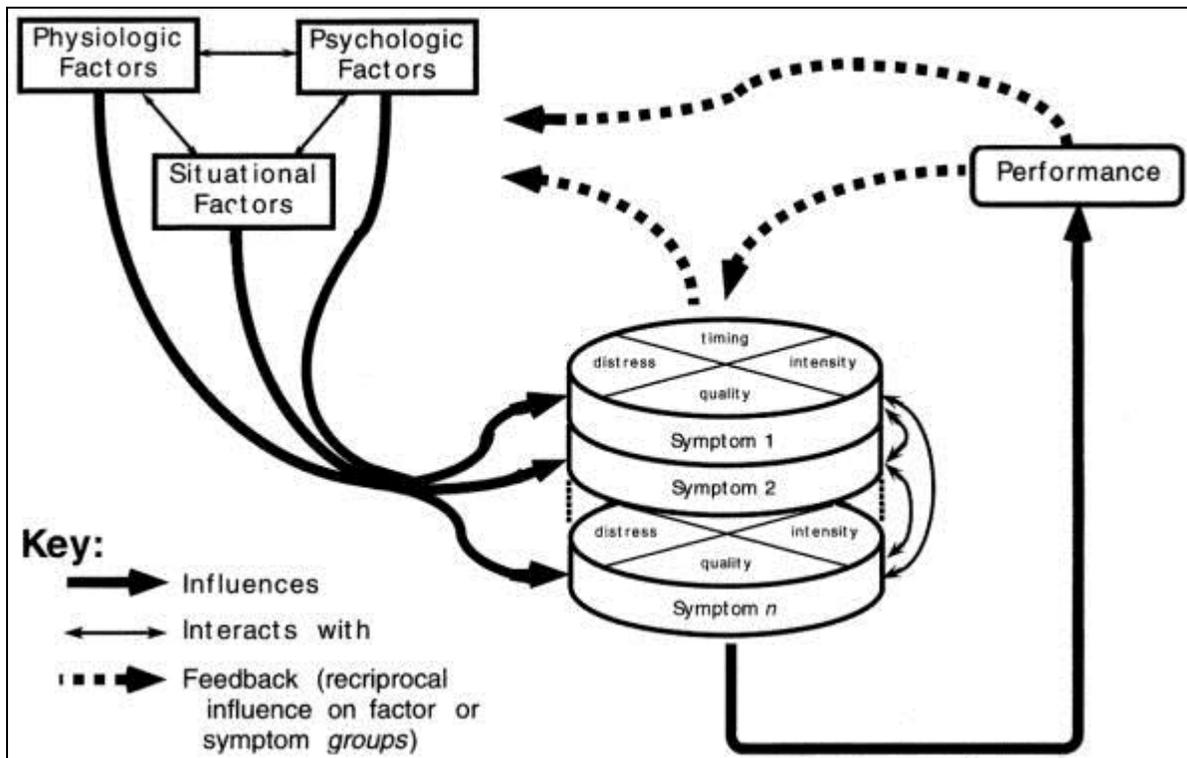


Figure 1. Theory of Unpleasant Symptoms. Reprinted from "The middle-range theory of unpleasant symptoms: An update," by E.R Lenz, L.C. Pugh, R.A. Milligan, A. Gift, and F. Suppe, 1997, *Advances in Nursing Science*, 19(3), 14-27. Copyright 1997 by Lippincott Williams & Wilkins. Reprinted with permission (Appendix B).

Sample and Setting

Six hundred and four college women completed this survey. Inclusion criteria included college women age 18 -25, able to read English and able to complete the survey without assistance. Exclusion criteria include college women less than age 18 years or greater than age 25, unable to read and understand English, and who could not complete the survey online. Participants were also excluded if they failed to answer key items regarding victimization, components of SRH, DASS-21, and PHQ-15. There were a total of 480 participants included in the final study sample (or analysis). The participants ranged in age from 18-24 (mean age 18.39 years). The majority of the sample identified their race as Caucasian (74.4%), with 16.3% identifying as African American.

Participants were recruited from women enrolled in Introduction to Psychology courses who have access to the participant research management system, Sona. Sona is a data management system used to conduct online surveys (Sona- systems, n.d.). Each student enrolled in these courses-was given the opportunity to enroll in one of several research studies to meet the five required research hours for their courses. The proposed study was offered to fulfill one half hour of credit. Online survey completion using this sampling plan has been shown to increase participation when compared to online survey completion by non-students (O'Neil, Penrod, & Bornstein, 2003).

Because surveys involved intimate and personal items, the confidentiality of the participants was maintained. Students securely logged on to Sona. The Sona system automatically gave credit to the participants as they completed the study. Students were given the option to opt out of the study by simply closing the survey at any time and this was clearly

explained to all who participated as described in the consent form. Forced responses were not used for the survey, as it is acknowledged some questions could trigger painful memories, or cause the participant to be uncomfortable when answering. Participants were required to complete the survey in one sitting. They were not given credit if the survey was not completed.

It is recognized that answering questions such as those on the survey may evoke painful and upsetting memories and emotions. Therefore, participants were given information about free resources on campus and in the community available to them that provide support to victims of sexual abuse at the conclusion of the survey. Past research has noted that participants in studies regarding sexual victimization do not perceive their participation as stressful, but rather often report it as beneficial (Edwards, Kearns, Calhoun, & Gidycz, 2009; Newman and Kaloupek, 2009). In fact, 1,056 college women participated in a study to assess the effects of participating in sexual assault research (Edwards et al., 2009). Participants with a history of sexual victimization reported more benefits of participating in the research than personal costs. All women participating in the study, despite their history of sexual victimization, reported a decrease in anger, fatigue, confusion, and vigor at the completion of the study. Only 4% (43) of the sample reported negative reactions associated with the study, 10 of whom did not report a history of sexual victimization. The majority of the women who reported negative reactions said they still would have participated in the study even if they had known in advance what the experience would have been like (Edwards et al., 2009).

Instrumentation

The survey used for this study contained 44 questions. The participants were presented with the electronic questionnaire in the following order: (a) demographic data (b) SF12-v2 (c)

PHQ-15 (d) DASS-21 (e) ESEC (f) SES. The instruments were provided in this order to present the least sensitive material first.

The tool was structured based on the conceptual model TUS and the variables or concepts were described according to the theory and measured using instruments with good psychometric properties. The instruments used in this study were chosen based upon their congruency with the TUS constructs and their reliability and validity in measuring the variables of interest. The psychometric properties of the instruments are noted in Table 1.

Short- Form 12 Version 2.0 (SF-12v2)

The Short Form Health Survey Version 2 (SF-12v2) was used to measure the outcome measure SRH. The SF-12v2 is a 12-item self-administered questionnaire with two summary components: the Physical Component Summary (PCS) and Mental Component Summary (MCS). This instrument measures an individual's perception of health based on physical and mental health status (Ware et al., 1996). The SF-12v2 is a shorter alternative to the Short- Form 36 (SF-36), a commonly used measure to assess health outcomes. The SF-12v2 is available in a 4 week and 2 week format (Ware et al., 1996).

The SF-12v2 consists of 12 questions that assess 8 areas of quality of life: physical functioning, physical role limitations, bodily pain, general health, emotional role limitations, vitality, social functioning, and mental health (Ware et al., 1996). These domains of health are clustered to comprise PCS and MCS scores. The PCS scores include the physical functioning, physical role limitations, bodily pain, and general health components. The MCS scores include the emotional role limitations, vitality, social functioning, and mental health components. The items for the scales are summed with a range of 0-100, with higher scores indicating a more positive perception of health. The identified scores were used to describe the overall perceived

health of the study sample. The mean scores were used to assess the differences between the SRH of each subgroup. The norm-based interpretation allows for comparison of the scores to the general United States population. The 2 week test- retest reliability of the PCS has been reported as $\alpha = 0.89$ and the MCS as $\alpha = 0.76$ (Ware et al., 1996). This instrument was used with permission from Quality Metric Incorporated; a copy of the licensing agreement is included in the Appendix C.

Patient Health Questionnaire (PHQ-15)

The Patient Health Questionnaire (PHQ-15) was used to assess somatic symptoms (Kroenke et al., 2002). The PHQ- 15 is a self-administered questionnaire that measures how bothersome 15 somatic symptoms have been within the past 4 weeks. An example of an item on the scale is: “During the past 4 weeks, how much have you been bothered by stomach pain?” (Kroenke et al., 2002, p.266). Each item is scored from 0 (not bothered at all) to 2 (bothered a lot), with scores ranging from 0-30. The scores are divided into 4 categories of severity based upon total scores: minimal (0-4), low (5-9), medium (10-14), and high (15-30). The scores from this instrument were used in the current study to identify how distressing the reported somatic symptoms were to the study population. The specific items were used to describe the most common somatic symptoms reported among the study population. This scale is free for use and assessed from prior publication (Kroenke et al., 2002).

The PHQ-15 is a somatic subscale that is a portion of the PHQ (Kroenke et al., 2002). The PHQ is a larger self-administered instrument that screens for 8 diagnoses derived from the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM – IV): major depression, panic disorders, bulimia, other forms of depression and anxiety, alcohol abuse, binge eating disorder and somatoform disorder. The PHQ- 15 assesses 15 common somatic symptoms

or clusters of symptoms that are common symptom complaints heard by health care providers in outpatient clinics. Fourteen of the 15 symptoms are the most common complaints heard from patients who have somatization disorders (Kroenke et al., 2002).

The instrument was originally tested among 6000 patients in internal medicine, family practice and obstetrics and gynecology clinics (Kroenke et al., 2002). The patients were asked to complete the PHQ as well as the Medical Outcomes Study Short- Form General Health Survey (SF-20) prior to seeing their healthcare provider. Participants were also asked about numbers of doctors' visits and disability days taken in the past 3 months. Convergent validity was verified through assessing functional status, evaluation of disability days, symptom related difficulty. Discriminant validity was evident through the measure's ability to differentiate between depressive and somatic symptoms. Item- item correlations were 0.20 - 0.29 (45%) or 0.10- 0.19 (33%), and >0.40 (9%). The internal consistency of the PHQ-15 has been shown to be $\alpha = 0.80$ (Table 1; Kroenke et al., 2002). For the current study the Cronbach alpha was also .80. As research has shown an increase in somatic gynecological symptoms in college women, 3 additional gynecological symptoms were added to the PHQ-15: dysuria, pelvic pain, and vaginal discharge (Campbell et al., 2006). These 3 symptoms were added to the scale, but scored separately. The symptoms were assessed individually for frequency of complaints by participants.

Depression, Anxiety, Stress Scale- 21 (DASS-21)

The Depression, Anxiety, Stress Scale – 21 (DASS-21) was administered to assess the presence of depression, anxiety, and stress to all participants. The DASS-21 is a 21 item self-administered questionnaire that can be administered in clinical or community populations (Lovibond & Lovibond, 1995). It has been shown to be a valid and reliable measure assessing

anxiety, depression, and stress symptoms among the college population (Mahmoud, Hall, & Staten, 2010). This instrument consists of three 7-item subscales: depression (reliability $\alpha = .94$) which assesses dysphoric moods, anxiety (reliability $\alpha = .87$) which assesses symptoms of fear and panic, and stress (reliability $\alpha = .91$) which assesses symptoms of tension and irritability,(Antony, Bieling, Cox, Enns, & Swinson, 1998). The Cronbach's alpha for the current study was depression .89, anxiety .81, and stress .84. Convergent validity has been verified between the depression subscale and the Beck Depression Inventory and between the anxiety subscale and the Beck Anxiety Inventory (Lovibond & Lovibond, 1995). Participants are asked to rate the severity or frequency of each symptom on a scale of 1-4. The scores are summed and for the short version are multiplied by 2. Higher scores indicate the presence of anxiety, depression, or stress symptomatology (Antony et al., 1998). Depression , stress and anxiety symptom severity is divided into 5 categories: Normal (Depression: 0-9, Anxiety: 0-7, Stress: 0-14); Mild (Depression: 10-13, Anxiety: 8-9, Stress: 15-18); Moderate (Depression:14-20, Anxiety:10-14, Stress: 19-25); Severe (Depression: 21-27, Anxiety: 15-19, Stress: 26-33); Extremely Severe (Depression: 28+, Anxiety: 20+, Stress: 34+; Multicultural Mental Health Australia, n.d.). The total scores of each scale were used to identify the presence and severity of depression, stress and anxiety symptoms. This instrument is free for users and can be accessed via the internet.

Sexual Experiences Survey (SES)

The Sexual Experiences Survey short form (SES- SF) was administered to assess ASA, defined as any experience of sexual violence since age 14 (Koss et al., 2007). The SES- SF was revised from its original sexual experiences survey (SES) in 2007. The SES was developed by Koss and Oros to assess the prevalence of rape, sexual aggression, and sexual victimization. The

items address unwanted, nonconsensual sexual experiences, including kissing, inappropriate touching, and attempted or completed oral, anal, or vaginal penetration. It also assesses the type of victimization including the use of nonverbal and emotional tactics, threat of violence, incapacitated victimization, and the use of physical force. The SES is a commonly used instrument to measure the incidence and characteristics of sexual victimization among college women (Koss & Gidycz, 1985; Koss et al., 1987; Palm & Follette, 2008).

There was no psychometric information for the SES SF available to the researcher. Therefore, the data from the original SES was used for psychometrics. Reliability of the data in the SES has been reported as $\alpha = .74-.89$, and 1 week test-retest reliability of $r = .93$ (Koss et al., 1987). Reliability was further assessed among participants with self-report and one-on-one interviews. It was noted that 93% of the participants gave the same answers on the self-report questionnaires as they did to the interviewers (Koss et al., 1987).

The SES –SF differs from the original SES as it uses terms that encompass various unwanted sexual experiences (i.e. fondling, oral sex acts) not specifically related to penetrative acts. The terms were changed from “sexual intercourse” to “sex acts”, (Koss et al., 2007, p.359). The terms regarding consent, also, was also changed from “when you didn’t want to” to “without my consent” (p.359), to include circumstances in which the individual was unable to give consent due to intoxication, fear, in addition to verbally declining to engage in intercourse. The SES- SF was to be more gender neutral noting that both perpetrators can be both male and female. A sample item from the SES-SF that was used for the current study is:” Since the age of 14, has someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch, or butt) or removed some of my clothing without my consent (but did not attempt to sexual penetration) by:

- A. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.
- B. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
- C. Taking advantage of me when I was too drunk or out of it to stop what was happening,
- D. Threatening to physically harm me or someone close to me.
- E. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon" (Koss et al., 2007).
- F. This has not occurred (This is an item added to the questionnaire and is not a part of the original instrument. This item was added as there is no option in the original instrument that allows the participant to deny a history of this type of victimization).

If an individual responded to any of the answers other than "this has not occurred," they were classified as having experienced sexual victimization and were asked, "How many times have you had this experience since age 14 or older? "

Early Sexual Experiences Checklist (ESEC)

CSA history was assessed using the Early Childhood Sexual Experiences Checklist (ESEC; Miller et al. 1991). The ESEC was created to assess unwanted sexual experiences that occurred in one's childhood. The ESEC is written in a manner that allows participants to disclose their unwanted sexual experiences in childhood without requiring them to call their

experience abuse or molestation (Miller et al., 1991). The scale has been shown to have a one month test-retest reliability of $r = .92$ (Table 1). It is appropriate for use in the proposed study as it was originally tested among college students (Miller et al., 1991). The original scale asks about experiences prior to age 16, although for the purposes of this research, participants were asked if they had any of these experiences prior to age 14. The instrument is free to users and was accessed through the Handbook of Sexuality Measures (Davis, Yarber, Bauserman, Schreer, & Davis, 1998).

The ESEC consists of three sections. First, participants are asked to check each item that describes an unwanted sexual experience they had in childhood, including the option that none of these occurred. The items are used to identify victims of CSA and to describe the type of CSA experienced. For the purposes of this study if a participant indicated that any unwanted sexual experience prior to age 14 occurred, they were considered to have experienced sexual victimization. The types of victimization identified were used to describe the study sample.

Next, participants are asked to describe the one unwanted sexual experience that was the most bothersome to them. They are queried regarding their age at the time, the age of the perpetrator, their relationship to the perpetrator, the number of times, and length of time this occurred. Lastly, participants are asked to indicate on a 1-7 scale how bothered they were by the incident when it occurred and how bothered they are by it now. Finally, participants are asked to identify what mechanism was used to elicit the unwanted sexual experience they described as their most bothersome experience. The participants were given a list of various tactics of sexual victimization including: verbal persuasion, threats, drugs, and physical restraints and asked to check all that apply. The results of this subscale were used to describe the most common mechanisms used to elicit CSA in the study population.

Demographic Data

Demographic data was elicited from each participant. The descriptive data that was gathered included age and ethnicity.

Table 1
Psychometric Properties of Instruments

Instruments	Reliability	Current Study reliability	Validity
SES	.74- .89; 1 week test retest .93		None reported
ESEC	1 month test retest .92		None reported
PHQ-15	Internal reliability α 0.80	α .80	Convergent Validity; Discriminant Validity
DASS-21-21	Depression scale: reliability α 0.94 Anxiety scale: reliability α 0.87 Stress: α 0.91	Depression α .89 Anxiety: α .81 Stress : α .84	Convergent Validity; Discriminant Validity
SF-12v2	2 week test- retest reliability PCS: α 0.89 MCS: α 0.76		None reported

Procedure/ Data Collection

Institutional Review Board approval was obtained from the University and Medical Center Institutional Review Board (UMCIRB) prior to initiating the research (Appendix A).

Potential participants were informed via email that the study was available in SONA. In the experiment management system, the study was programmed to only be shown to women. They then had the option of going to the experiment management system, choosing this

particular study, and completing the survey online. An electronic consent form describing the study was presented to potential participants. Participants were informed by choosing to proceed, they were choosing to participate in the study and they were told how to “opt out” once they began the survey should they choose to do so.

Data Analysis Plan

Prior to data analysis, the data was screened for errors, ensuring that scores were within the range of possible values. The data was screened for missing cases. Cases that were identified to be missing some pertinent items (including key variables of sexual victimization, stress, depression, SRH, or anxiety) were excluded from the sample. When testing correlations, scatter plots were used to evaluate distribution, check for outliers, and assess the relationship of the variables. Prior to testing correlations, preliminary analyses were performed to ensure there are no violations of assumptions of normality, linearity, and homoscedasticity.

All of the study variables were entered into and analyzed with the IBM SPSS 20 statistical analysis program. Study participants were categorized into subgroups based on sexual victimization status: those who report a history of sexual victimization and those who do not report a history of sexual victimization. The victimization group was further categorized into those who reported a history of CSA, a history of ASA, and those who reported both. The categorical study variables were-examined with frequencies and percentages, while means and standard deviations were used to examine the continuous variables for the total group and all subgroups (question 1). One -Way Analysis of Variance was used to assess the relationship between sexual victimization and psychological factors, somatic symptoms, and physical and mental health status (question 2A). Pearson correlations were used to exam the relationship

between psychological factors, somatic complaints, and physical and mental health status (question 2B). How well the combination of sexual victimization and psychological factors predict somatic symptoms was analyzed using multiple regression (question 2C). Multiple regression was also used to examine how well the combination of sexual victimization, psychological factors, and somatic symptoms predict physical and mental health status (question 2D). Logistic Regression was used to identify common somatic symptoms noted among those participants reporting a history of sexual victimization and those who deny a history of sexual victimization (question 2E & 2F). Statistical significance will be defined as a p -value $\leq .05$.

Chapter 4

DATA ANALYSIS

Introduction

The data analysis plan is organized to address the two research questions and one hypothesis.

Research Questions

1. What are the characteristics of the study sample with regard to self-reported sexual victimization, depression, anxiety, stress, somatic complaints, and self-rated- physical and mental health?
2. How does the Theory of Unpleasant Symptoms (TUS) assist in understanding the relationships among sexual victimization, anxiety, stress, depression, somatic symptoms, physical health status and mental health status?
 - 2A. How is sexual victimization status related to psychological factors (depression, anxiety, and stress), somatic symptoms, physical health status and mental health status?
 - 2B. How are psychological factors related to somatic symptoms, physical health status and mental health status?
 - 2C. How well does the combination of sexual victimization status and psychological factors (depression, anxiety, and stress) predict somatic symptoms?

2D. How well does the combination of sexual victimization status, psychological factors (depression, anxiety, and stress) and somatic symptoms predict physical and mental health status?

2E. Are there somatic symptoms noted in specific body systems that differentiate sexual victims from non-sexual victims?

2F. Are gynecological symptoms more prevalent in victims of sexual assault than non victims?

The hypothesis for the current study is as follows:

College women who report a history of sexual victimization will report more symptom distress, symptoms of depression, anxiety, current stress and gynecological symptoms than college women who do not report a history of sexual victimization.

Research Question 1

What are the characteristics of the study sample with regard to self-reported sexual victimization, depression, anxiety, stress, somatic complaints, and self-rated- physical and mental health?

There were a total of 480 participants included in the study. Two hundred and four participants (42%) in the study sample reported a history of some form of sexual victimization. There were 42 (8.8%) who reported a history of CSA only, 104 (21.7%) who reported ASA only and 58 (12.1%) who reported a history of both (Table 2). Of the one hundred women who reported a history of CSA, (whether CSA only or both CSA and ASA), 92 reported experiencing some type of verbal coercion or emotional manipulation, 54 reported they were talked into it, 25

noted that they were scared due to the size of the perpetrator, and 13 reported some type of physical force was used . Approximately 95% of those women who experienced CSA reported they were assaulted by someone they knew and that the assaults occurred more than once. Of the participants reporting CSA, 63 reported being at least moderately bothered by the event at the time it occurred, while 44 report being at least moderately bothered by it now.

Table 2

Sexual Victimization Reported

	Frequency	Percent
Child only	42	8.8
Adult only	104	21.7
Both	58	12.1
None	276	57.5
Total	480	100

Of the 162 women reporting ASA (ASA only or ASA and CSA), most reported nonpenetrative assault with 115 reporting experiencing unwanted touching, 62 reporting unwanted oral sex, and 90 reporting unwanted oral sex was attempted. Seventy seven participants reported unwanted vaginal penetration and 21 reported unwanted anal penetration. Approximately 105 of the women reporting ASA reported more than one type of assault. The perpetrators in the assaults were identified by participants as a romantic partner ($n = 47$), friends ($n = 45$) or acquaintances ($n = 21$). The relationships with the known perpetrators were discontinued by the majority of the sample reporting ASA ($n = 85$). The most common tactic used in the reported assaults was emotional manipulation or verbal threats, with physical force accounting for 40% of the assaults. Fifty one percent of the women reported incapacitated assault, a common tactic used in sexual victimization as reported by other studies conducted in

college settings (Krebs et al., 2007). Most assaults were reported to have only one perpetrator (93.2%). Most women who reported experiencing ASA were not sure how to describe their experience (33.3%); 29% described it as miscommunication and only 9.3% identified it as rape.

Frequency statistics were used to assess the severity of anxiety symptoms, depression symptoms, and perceived current stress among the participants (Table 3). Among the study sample ($n = 480$), approximately 16% reported moderate to extremely severe symptoms of depression. Approximately 13% of the total sample reported moderate to extremely severe symptoms of anxiety. Lastly, 11% of the study sample reported moderate to extremely severe current stress.

Table 3

Prevalence of Moderate to Severe Psychological Distress in Sexual Victimization Subjects ($n = 204$) and Non – Sexual Victimization Subjects ($n = 276$)

Psychological factor	SV yes		SV no		χ^2 (1)	Phi
	n	%	n	%		
Depression						
Normal/mild	147	72.1	257	93.1	39.03*	.29
Moderate/severe	57	27.9	19	6.9		
Anxiety						
Normal/mild	165	80.9	255	92.4	14.21*	.17
Moderate/severe	39	19.1	21	7.6		
Stress						
Normal/mild	165	80.9	263	95.3	25.21*	.23
Moderate/severe	39	19.1	13	4.7		

* $p < .001$

After scoring the PHQ-15, a dummy variable entitled PHQ levels was created. This dummy variable allowed the symptom distress scores to be divided into groups of minimal, low, medium, and high. Approximately 25% of the study sample was noted to have medium to high bothersome scores related to somatic complaints. Overall, SRH of the study sample was comparable to the norms of women age 18-24 in the general population and to overall U.S. General Population Norms.

Research Question 2

How does the Theory of Unpleasant Symptoms (TUS) assist in the understanding of the relationships among sexual victimization, anxiety, stress, depression, somatic symptoms, physical health status and mental health status?

The TUS in the current study proposes:

- a.) The influencing factors of sexual victimization, anxiety, depression and current stress are correlated
- b.) The influencing factors of sexual victimization, anxiety, depression and current stress affect symptom complaints and symptom distress both individually and collectively,
- c.) The influencing factors of sexual victimization, anxiety, depression and current stress and symptom distress exert an effect on both self rated physical and mental health,
- d.) And there are common symptom complaints noted among those who experienced the influencing factor of sexual victimization.

The analysis of these propositions is noted below (see figure 2).

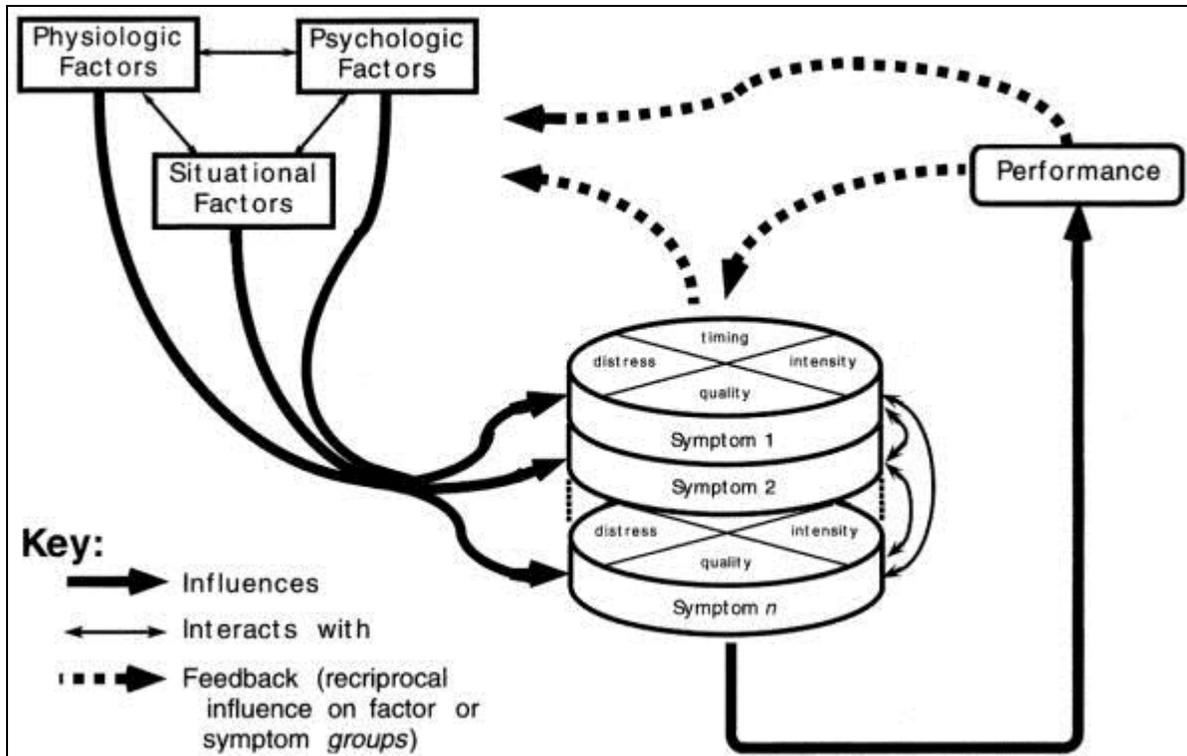


Figure 2. Theory of Unpleasant Symptoms. Reprinted from "The middle-range theory of unpleasant symptoms: An update," by E.R Lenz, L.C. Pugh, R.A. Milligan, A. Gift, and F. Suppe, 1997, *Advances in Nursing Science*, 19(3), 14-27. Copyright 1997 by Lippincott Williams & Wilkins. Reprinted with permission (Appendix B).

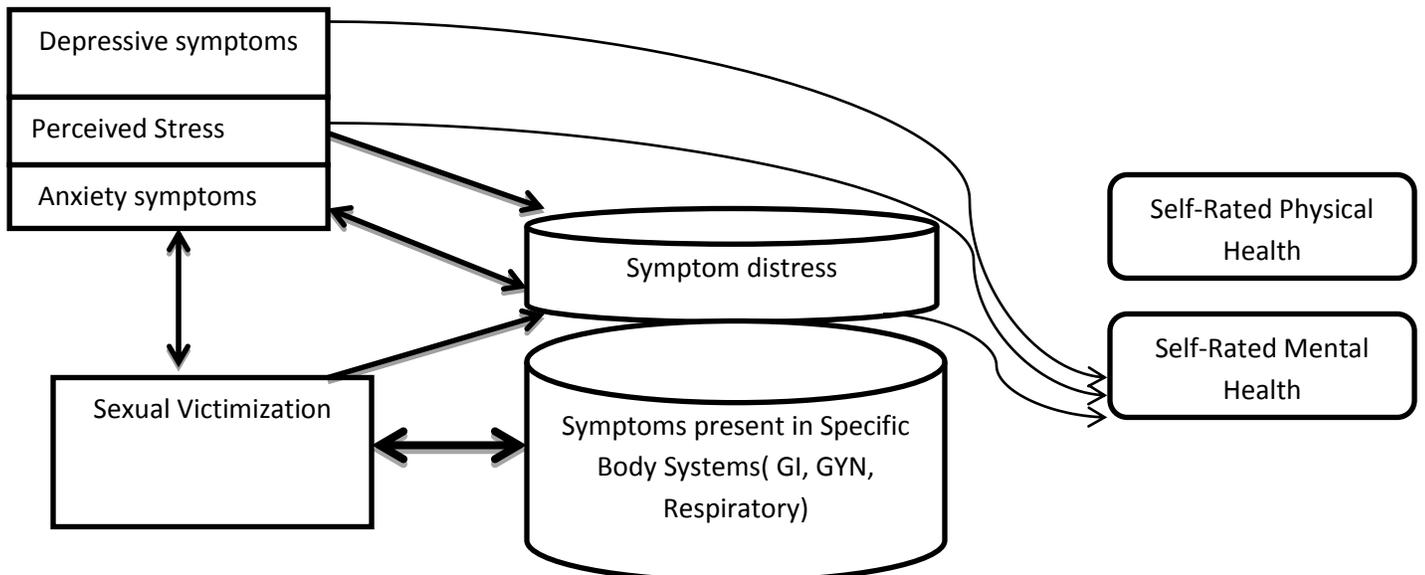


Figure 2. Theory of Unpleasant Symptoms in relation to the current study

2A. How is sexual victimization status related to psychological factors (depression, anxiety, and stress), somatic symptoms, physical health status and mental health status?

Participants who reported a history of sexual victimization were more likely to report symptoms of anxiety, depression, stress and symptoms distress than those who denied a history of sexual victimization (table 4). Using the cut- off scores proposed for the psychological measures by the DASS-21, the proportion of participants with moderate to severe depression scores in the victimization group (27.9%) was significantly higher than the non-victim group [6.9%, $\chi^2 (1, n = 480) = 39.0, p <.001, \text{phi} = .29$]. Moderate to severe anxiety in the victimization group (19.1%) was significantly higher than in the non-victim group [7.6%, $\chi^2 (1, n = 480) = 14.2, p <.001, \text{phi} = .17$]. Moderate to severe stress in the victimization group (19.1%) was also significantly higher than in the non-victim group [4.7%, $\chi^2 (1, n = 480) = 25.2, p <.001, \text{phi} = .23$]. Using the cut-off scores proposed for the somatic symptom severity scale, the proportion of medium to high symptom severity scores in the victimization group (36.8%) was significantly higher than in the non-victim group [15.9%, $\chi^2 (1, n = 480) = 27.3, p <.001, \text{phi} = .24$].

Table 4

Means, Standard Deviations, and One-Way Analysis of Variance for the Effects of Sexual Victimization on the Variables of the Theory of Unpleasant Symptoms

Variable	SV		None		<i>t</i> (478)	η^2
	M	SD	M	SD		
Somatic symptoms	8.59	4.94	6.11	3.65	6.32*	.08
Depression	4.19	4.53	1.99	2.97	6.42*	.08
Anxiety	3.42	3.84	1.56	2.27	6.61*	.08
Stress	6.03	4.31	3.23	3.22	8.14*	.12
Physical health	54.85	6.73	55.03	5.28	0.33	<.01
Mental health	43.76	10.44	49.43	8.59	6.52*	.08

Note. **p* < .001

When comparing the performance outcome of self-rated physical and mental health, mental health summary scores were lower among those who reported sexual victimization when compared to participants who denied a history of sexual victimization (table 4). This indicates that participants who reported a history of sexual victimization rate their mental health lower than those who did not report a history of sexual victimization. Physical health summary means were not significantly different and were comparable to the U.S. norms for this age group (U.S. norms females ages 19-24 = 52.97). All the overall statistically significant comparisons represented medium effects. Since there were no statistically significant differences between the victimization groups, all the sexual victimization participants were combined into one victimization group. It is noted there is no significant difference when comparing those reporting CSA only, ASA only or those reporting both.

2B. How are psychological factors related to somatic symptoms, physical health status and mental health status?

In the current study, there are large correlations among the psychological measures (table 5). Depression scores are statistically related to anxiety scores ($r = .69$) and stress scores ($r = .73$), and anxiety is significantly related to stress ($r = .79$). Symptom distress is moderately related to depression ($r = .49$) and strongly related to anxiety ($r = .63$) and stress ($r = .60$). Physical health status does not correlate with depression or stress, and with small negative correlations with anxiety ($r = -.12$), symptoms ($r = -.22$), and mental health status ($r = -.25$). Mental health status has a medium negative correlation with symptoms ($r = -.45$) and large negative correlations with depression ($r = -.67$), anxiety ($r = -.53$) and stress ($r = -.62$).

Table 5
Intercorrelations for the Theory of Unpleasant Symptoms Measures

Measure	1	2	3	4	5	6	7
1. SV	-						
2. Depression	.28**	-					
3. Anxiety	.29**	.69**	-				
4. Stress	.35**	.73**	.79**	-			
5. Symptoms	.28**	.49**	.63**	.60**	-		
6. MCS	-.29**	-.67**	-.53**	-.62**	-.45**	-	
7. PCS	-.02	-.00	-.12*	.01	-.22**	-.25**	-

Note. * $p < .05$; ** $p < .001$

2C. How well does the combination of sexual victimization status and psychological factors (depression, anxiety, and stress) predict somatic symptoms?

The results of the multiple regression using the psychological factors and victimization status to predict somatic symptom distress are presented in Table 6. The four predictor variables

accounted for 43 percent of the variance in the somatic distress scores, with anxiety, stress and victimization identified as unique and statistically significant predictors of symptom distress. Anxiety was the strongest predictor ($\beta = .44$) followed by stress ($\beta = .20$) and victimization status ($\beta = .08$).

Table 6
Regression Analysis Summary for Theory of Unpleasant Symptoms Influencing Variables Predicting Somatic Symptoms

Variable	B	SE B	β	t	p
Depression	0.02	0.25	.02	0.35	.729
Anxiety	0.61	0.08	.44	7.50	<.001
Stress	0.23	0.07	.20	3.22	.001
Sexual victim	0.67	0.33	.08	2.01	.045

Note. $R^2 = .43$ (N = 480, $p < .001$).

2D. How well does the combination of sexual victimization status, psychological factors (depression, anxiety, and stress) and somatic symptoms predict physical and mental health status?

The results of the multiple regression using the psychological factors, somatic symptom distress and victimization status to predict physical health status are presented in Table 7. The five predictor variables accounted for 10 percent of the variance in the physical health status scores, with anxiety, stress and somatic symptom distress identified as unique and statistically significant predictors of physical health. Stress was the strongest predictor ($\beta = .31$) followed by symptom distress ($\beta = -.30$) and anxiety ($\beta = -.21$). The same predictor variables were used to predict mental health status (Table 8). The five predictor variables accounted for 50 percent of the variance in the mental health summary scores, with depression, stress and somatic symptom

distress identified as unique and statistically significant predictors of mental health. Depression was the strongest predictor ($\beta = -.48$) followed by stress ($\beta = -.26$) and symptom distress ($\beta = -.10$).

Table 7

Regression Analysis Summary for Theory of Unpleasant Symptoms Influencing Variables and Somatic Symptoms Predicting Physical Health Status

Variable	B	SE B	β	t	p
Depression	0.11	0.10	.07	1.07	.287
Anxiety	-0.40	0.15	-.21	-2.75	.006
Stress	0.46	0.12	.31	3.80	<.001
Sexual victim	0.05	0.56	<.01	0.09	.925
Somatic symptoms	-0.41	0.08	-.30	-5.23	<.001

Note. $R^2 = .10$ (N = 480, $p < .001$).

Table 8

Regression Analysis Summary for Theory of Unpleasant Symptoms Influencing Variables and Somatic Symptoms Predicting Mental Health Status

Variable	B	SE B	β	t	p
Depression	-1.22	0.13	-.48	-9.65	<.001
Anxiety	0.29	0.18	.09	1.58	.114
Stress	-0.64	0.15	-.26	-4.34	<.001
Sexual victim	-1.17	0.69	-.06	-1.68	.094
Somatic symptoms	-0.22	0.10	-.10	-2.31	.021

Note. $R^2 = .50$ (N = 480, $p < .001$).

2E. Are there somatic symptoms noted in specific body systems that differentiate sexual victims from non-sexual victims?

The 15 somatic symptoms from the PHQ- 15 along with the three researcher added items are shown in Table 9 and have been organized into body systems. The odds of each symptom

being reported as either a little or a lot bothersome by those in the victimization group compared to subjects in the non-victimization group is reported with the odds ratio (OR), along with the 95% confidence interval and associated *p* value. All the GI symptoms are more prevalent in the victimization group, with bowel problems (OR = 2.56) and nausea (OR = 2.18) more than twice as likely to be reported by those who were sexual victims compared to those who were not victims. Reports of dizziness and feeling tired were significantly more prevalent in the victimization group, with those in the victimization group almost twice as likely to report those symptoms compared to the non-victims. Chest pain, heart pounding, shortness of breath, and trouble sleeping were also more prevalent in the victimization group. Somatic symptoms reported with similar percentage rates included back pain, headaches, fainting spells and period problems.

2F. Are gynecological symptoms more prevalent in victims of sexual assault than non victims?

As hypothesized, gynecological symptoms were more prevalent among participants reporting a history of sexual victimization than those who did not (Table 9). Four of the five gynecological symptoms were significantly more prevalent in the victimization group, with sexual victims more than three times as likely to report sexual intercourse pain, pain while urinating, and pelvic pain as the non-victims. Somatic symptoms reported with similar percentage rates included back pain, headaches, fainting spells and period problems.

Table 9

Differences in Reported Somatic Symptom Distress Between Sexual Victimization and Non-Sexual Victimization Groups

Symptom	SV Yes (n = 204)		SV No (n = 276)		OR	95% CI	p
	n	%	n	%			
GI							
Stomach pain	110	53.9	121	44.0	1.50	[1.04, 2.14]	.032
Bowel problem	93	45.6	68	24.6	2.56	[1.74, 3.78]	<.001
Nausea, gas, etc	106	52.7	93	33.8	2.18	[1.50, 3.17]	<.001
MSK							
Back pain	112	55.2	139	50.4	1.21	[0.84, 1.75]	.299
Extremity pain	97	47.5	110	39.9	1.37	[0.95, 1.97]	.093
NEURO							
Headaches	150	73.5	188	68.6	1.27	[0.85, 1.90]	.244
Dizziness	52	25.6	42	15.3	1.91	[1.21, 3.01]	.005
Fainting spells	11	5.4	7	2.5	2.19	[0.83, 5.75]	.104
Feeling tired	166	81.4	191	69.2	1.94	[1.26, 3.01]	.003
CV							
Chest pain	39	19.2	30	11.0	1.93	[1.15, 3.23]	.012
Heart pounding	73	35.8	65	23.6	1.81	[1.21, 2.70]	.003
GYN							
Period problems	149	73.0	198	71.7	1.07	[0.71, 1.60]	.754
Sexual intercourse pain	42	20.7	21	7.6	3.17	[1.81, 5.54]	<.001
Vaginal discharge ¹	77	37.7	48	17.4	2.88	[1.89, 4.39]	<.001
Urination pain ¹	26	12.7	8	2.9	4.89	[2.17, 11.05]	<.001
Pelvic pain ¹	19	9.4	5	1.8	5.58	[2.05, 15.20]	<.001
RESP							
Shortness of breath	77	37.7	49	17.8	2.80	[1.84, 4.25]	<.001
Other							
Trouble sleeping	138	67.6	145	52.5	1.89	[1.30, 2.75]	.001

¹Researcher added symptom.

Chapter 5

Discussion

Introduction

The purpose of this study was to examine the relationship between sexual victimization and somatic complaints, psychological factors (depressive symptoms, anxiety symptoms, and perceived current stress), and self-rated health among college women. The final chapter of this dissertation discusses the main findings of the study as they relate to prior research and the TUS. It also presents implications for practice and recommendations for future studies.

Sexual Victimization

Of the sample of 480 college females, 42% reported a history of SV. The most common tactic used in the assaults was threats and emotional manipulation. Among those who reported ASA, most were victims of incapacitated assaults consistent with what is noted in prior research (Krebs et al, 2007). Also, as noted in prior studies, the majority of perpetrators were known to the victim (Fisher, Cullen & Turner, 2000; Goetz & Shackelford, 2009).

Sexual Victimization and Somatic Symptoms

A significant relationship was found between a history of sexual victimization and somatic complaints among the current study sample. The findings suggest that a history of sexual victimization negatively affects how distressing one perceives physical symptoms. Additionally, both CSA and ASA victims reported similar levels of somatic complaints, which suggest that regardless of the age of victimization, a history of sexual victimization could result in increased somatic symptom distress. This finding differs from the findings of prior research

among college women, which indicates distal events do not negatively affect physical health in this population (Palm and Follette, 2008). This difference could be due to a larger sample of participants reporting CSA in the current study as compared to the study conducted by Palm and Follette (2008).

Findings also suggest that college women who have a history of sexual victimization have an increase in symptom complaints, especially in the gynecological and gastrointestinal body systems. This finding supports prior research which identifies increased gastrointestinal symptoms among college women who reported a history of CSA (Clum, 2000) and gynecological symptoms among college women with a history of sexual victimization (Lustyk et al., 2008; Runtz, 2002). The current study adds to prior research that college women who report a history of sexual victimization may also have more complaints of chest pain, palpitations, dyspnea, and trouble sleeping. These new findings are significant in that the review of the literature did not yield studies that reported these particular symptoms.

The additional gynecological symptoms added to the PHQ in the current study were added due to the current researcher's anecdotal clinical experience and prior research indicating there was an increase in complaints of vaginal discharge, pain with urination, and pelvic pain among victims of sexual assault conducted in the military population (Campbell et al., 2006). In the current study there was a significant difference in these additional symptom complaints noted between those reporting a history of sexual victimization and those who did not. This is a finding that, to this author's knowledge, has not been acknowledged in the literature reporting sexual victimization among college women.

Sexual Victimization and Self-rated Health

Overall, study participants did not report low self-rated physical health in spite of a history of sexual victimization and the presence of somatic symptomatology. This may be related to the young age of the women in the study and the specific variables studied. This finding differs from previous studies among college women who report a history of sexual victimization (Zinzow et al., 2011). Zinzow and colleagues (2011) noted a decrease in SRH among college women who reported a history of rape, especially among those who reported a history of multiple rapes and a minimal association among those reporting forcible rape. The current study did not examine the SRH in relation to the type of force used during the victimization, but instead evaluated SRH in relation to age of victimization and victimization as a whole. It is important to note, however, that the majority of victims in this study reported nonviolent forms of sexual assault, e.g. emotional manipulation. The current study, also, include sexual victimization by any tactic, whereas the study conducted Zinzow and colleagues reviews more forcible rape. Lastly, the current study did not address the number of rapes as a variable in assessing SRH among victims as was done by the Zinzow and colleagues (2011).

This current study also differs from prior studies which suggest CSA contributes to low self-rated health among college females (Clum et al., 2000). The current study did not note a significant difference in SRH between those who were sexually victimized despite the age of victimization and those who denied a history of sexual victimization. Clum and colleagues found that depression and PTSD were predictors of low self-rated physical health among college women reporting a history of CSA, whereas the current study did not find depressive symptoms to be a significant predictor of poor physical SRH. The study by Clum and colleagues, only college women who described their sexual victimization as rape were included in their particular

study. As noted in the current study, many college females who have been sexually victimized will not identify their experience as rape. This may account for the difference in the findings in the current study and the Clum and colleagues study (2000).

Although study participants did not report lower self-rated physical health, lower self-rated mental health was noted. Participants who reported a history of sexual victimization were more likely to report poorer self-rated mental health than those who denied a history of sexual victimization. This finding is unique to the current study as no prior studies were found that assessed the self-rated mental health among college women who report a history of sexual victimization.

Sexual Victimization and Psychological Factors

In the current study, college women who reported a history of sexual victimization were four times more likely to report increased symptoms of depression and stress and approximately three times more like to report symptoms of anxiety than college women who denied a history of sexual victimization. This finding supports prior research that suggests sexual victimization negatively affects one's mental health (Chan et al., 2008; Lustyk et al., 2008). In the current study, regardless of the reported, age of victimization there was no significant difference noted when assessing psychological factors. This indicates that sexual victimization at any age can have a significant impact in the mental health of college women.

Theory of Unpleasant Symptoms

The Theory of Unpleasant Symptoms provided a framework for the current study. Overall, 4 of the major concepts of the theory were supported by the current study. After further evaluation there was noted a 5th proposition of the theory which was not tested in the current

study. While the current study assessed the effect of symptom distress and the influencing factors on self-rated health, after further analysis, the study did not assess how the symptoms distress mediated the relationship between self-rated and the influencing factors. It was noted, after reviewing the TUS further, that the symptom distress plays a mediating role between the influencing factors and the performance outcome. For the components of the theory that were studied, the theory was noted to be a good fit for the current study, yet the study itself did not test the entire theory. A schematic of how the components of the current study are related to the TUS is shown in figure 2.

Consistent with the TUS, the presence of a history of the influencing factor sexual victimization increased the likelihood of individuals experiencing the influencing factors of anxiety, depression and current stress. The influencing factors of anxiety, depression and stress were strongly correlated. This confirms the idea that influencing factors relate to each other (Lenz et al., 1997).

The Theory of Unpleasant Symptoms also proposes that influencing factors affect symptom distress both individually and collectively. This proposition was noted to be true in the current study sample. There was a noted increase in symptom distress among those reporting sexual victimization. Those reporting psychological symptoms were more likely to also report increased symptom distress. Anxiety, stress, and sexual victimization were noted to have the greatest influence on symptom distress.

A third proposition of the Theory of Unpleasant Symptoms is that the influencing factors and somatic symptom distress together affect the performance outcome of self-rated health. The current study did not show that the performance outcome of self-rated physical

health was affected by the influencing factors or symptom distress. However, self-rated mental health was influenced by a history of sexual victimization, symptom distress, and the psychological factors. Depression, stress and symptom distress were the strongest predictors of low self-rated mental health.

Lastly, the TUS proposes that there are common symptom complaints among those who have experienced sexual victimization. This proposition was noted to be true in the current study. As discussed prior in this chapter, college women in the current study who reported a history of sexual victimization, also, reported increased symptom distress and reported similar somatic symptoms.

Implications for Practice

Clinical Practice. The findings of the current study have several implications for healthcare providers who provide care to college women. As 42% of the current study sample reported a history of sexual victimization, the findings reiterate the fact that sexual victimization is prevalent among the college population. The young age of the study participants suggest that many college women come into college with a history of CSA and ASA. A recent report from the White House Council on Women and Girls reported that approximately one half of women who report a history of sexual victimization report the victimization occurred prior to the age of 18 (2014). The prevalence of sexual victimization reported in the current study provides support for the proposals by the American Congress of Obstetrical and Gynecology that women be screened for a history of sexual victimization (ACOG, 2011a; ACOG, 2011b) and the proposal by the American College Health Association that colleges and universities have staff trained and

educated regarding sexual victimization in order to provide quality care to college women who have been victimized (ACHA, 2012).

The findings of the study provide red flags to providers who see college women in clinical settings. The study findings indicate that college women who have a history of sexual victimization, despite the age of victimization, are more likely to complain of symptoms in the gynecologic and gastrointestinal body systems, are more likely to have greater symptom distress, are more likely to have symptoms of anxiety, depression and increased current stress and a lower perception of their mental health. Providers who care for college women with moderate or greater symptom distress and who have increase gynecological and gastrointestinal complaints in addition to dizziness, fatigue, chest pain, palpitations, dyspnea and trouble sleeping, especially in the absence of an identified pathology should be screened for sexual victimization. This knowledge may also be used to provide anticipatory guidance to women who report a history of sexual victimization.

Implications for Policy. Sexual victimization continues to be an important policy issue in our nation, including among college women. The current study provides evidence of the prevalence of sexual victimization and the sequelae of sexual victimization among college women. The President of the United States has established a task force whose charge is to provide institutions of higher learning with information regarding the best ways to help in the prevention and response to those who report a history of sexual victimization (2014). The data gathered in this study can provide information that could be useful in responding to the immediate and long-term healthcare needs of college women who have experienced sexual victimization.

Nursing Research. The current study provides a foundation for understanding the physical and psychological health sequelae of unwanted sexual experiences among college women. The findings of this study are consistent with prior research that found increased somatic and mental health symptoms among women who have been sexually victimized. Further research that would build upon the current study with a larger study sample could assess the particular components of sexual victimization that increase the potential for increased somatic complaints, symptoms of anxiety, stress and depression. The specific components could include: tactic used in the victimization, penetrative versus nonpenetrative assaults, number of perpetrators, relationship of perpetrator, and age of first victimization.

The current study also provides a quantitative analysis of how sexual victimization affects college women physically and mentally. However, the study design did not allow for participants to describe how they feel sexual victimization has affected their lives physically and mentally. The subjective data would providers an insight into ways to meet the needs of patients reporting a history of sexual victimization. The objective data asks specific questions, whereas open ended questioning may reveal information that has not been thought of in the past.

Lastly, the current study did not indicate a difference between age of sexual victimization and somatic symptom distress, psychological factors and self-rated health. This finding is important to healthcare providers when providing care to victims. A study with a larger study population and greater number of participants within the victimization groups could confirm this finding.

Limitations

Prior to beginning this study the primary researcher was able to predict some limitations. After completing the study, additional limitations of the current study were noted. A larger sample size may have demonstrated greater variation among the sexual victimization in group. This would have allowed for a greater analysis of symptom distress and symptom presence in regards to age of sexual victimization and types of victimization.

Also, as mentioned prior, a further look as the TUS revealed that theory suggests that the symptoms appear to mediate the relationship of the influencing factors and the performance outcome. The current study did not evaluate this in component of the theory. Therefore, the current study did not test the theory completely.

Conclusion

Sexual victimization continues to be an issue among college women. The current adds to the literature an understanding of a history of sexual victimization affects the mental and physical health of college women. It, also, provides information about how a history of sexual victimization affects the perception of health in college women. Further studies should be conducted in order to increase knowledge that can be used to increase healthcare given to college women.

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APPENDIX A: IRB Correspondence Letter



EAST CAROLINA UNIVERSITY

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600 Moyer Boulevard · Greenville, NC 27834

Office **252-744-2914** · Fax **252-744-2284** · www.ecu.edu/irb

Notification of Initial Approval: Expedited

From: Biomedical IRB

To: [LaNika Wright](#)

CC: [Linda Mayne](#)

Date: 6/26/2013

Re: [UMCIRB 13-001225](#)
Negative Sexual Experiences and Physical Health among College Women

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 6/26/2013 to 6/25/2014. The research study is eligible for review under expedited category #7. The Chairperson (or designee) deemed this study no more than minimal risk.

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.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Name	Description
Description of study for Sona	Recruitment Documents/Scripts
email	Recruitment Documents/Scripts
Negative Sexual Experiences and Physical Health among College Women	Study Protocol or Grant Application
Negative Sexual Experiences and Physical Health among College Women	Consent Forms
survery- wright.docx	Surveys and Questionnaires

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418

IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418

—
Study.PI Name:

Study.Co-Investigators:

APPENDIX B: Permission Letter to Use Figure for Theory of Unpleasant Symptoms

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Volume Number	19
Issue Number	3
Type of Use	Dissertation/Thesis
Requestor type	Individual
Title of your thesis / dissertation	Sexual Victimization and Somatic Complaints in Undergraduate Women
Expected completion date	Dec 2013
Estimated size(pages)	80
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APPENDIX C: Permission Letter to Use Short Form 12v2

APPENDIX B

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Licensee: East Carolina University
 LaNika Wright
 4004 B Lucerne Ct
 Winterville, North Carolina 28590

License Number: QM016283
 Amendment to: N/A
 License Term: 01/01/13 to 12/31/13
 Master License Term: N/A

Approved Purpose
 Sexual Coercion and Somatic Complaints

Study Name:
 Protocol:
 Govt. ID:
 Study Type: thesis/dissertation
 Clients Reference:

Licensed Surveys (Modes) and Services:

Item	Description	Mode of Admin	Quantity
PROJ01	License Fee	Paper	1
ES0170	SF-12v2, Standard Recall	Paper	1
Approved Languages:			
United States (English)			
ADM012	Patients Enrolled		350
ADMINS	Administrations (350 participants x 1 admin)		350
SS075	Scoring Software v4.5		1
SS079	SF-12v2: scoring credits v4.5		350
SS997	MSE (Missing Score Estimator)		350
EM086	SF12v2 Quick Start Guide		1

Approved Languages:
 United States (English)

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Quote expires 11/26/12

APPENDIX B



LICENSE AGREEMENT - DETAILS

Licensee: East Carolina University
 LaNika Wright
 4004 B Lucerne Ct
 Winterville, North Carolina 28590

License Number: QM023668

Amendment to: QM016283

Study Term: 01/01/13 to 12/31/13

Master License
 Term: N/A

Approved Purpose
 Negative Sexual Experiences and Physical Health
 (modified title)

Study Name: Negative Sexual Experiences and
 Protocol:
 Govt. ID:
 Study Type: Thesis/Dissertation Study
 Clients Reference:

Licensed Surveys (Modes) and Services:

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	See QM016283 for orig license			
ADMINS	Administrations (add'l 254)		254	
SS076	Scoring Software v4.5 Renewal		1	
SS079	SF-12v2: scoring credits v4.5		254	
SS997	MSE (Missing Score Estimator)		254	

OGSR Unfunded Student Program

Quote expires 4/18/14

*Add'l admins/credits needed

TOTAL FEES: 0.00 USD

Payment Terms: Due on Receipt

