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Prevalence, Types, Risk Factors, and Course of Intimate Partner Violence in Appalachian Pregnant Women

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by

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ABSTRACT

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Intimate partner violence (IPV) during pregnancy can lead to a myriad of poor physical and psychological outcomes for both mother and child. There is a paucity of research examining IPV risk factors for rural pregnant women and on information regarding the course of the specific types of IPV throughout pregnancy. The current project was an investigation of the prevalence of IPV and IPV risk factors for different types of IPV in an Appalachian pregnant sample that contained women from both rural and nonrural locations (Study 1), and was an examination of the occurrence of any IPV and the different types of IPV throughout the course of pregnancy (Study 2). Study 1 included 1,063 pregnant women participating in the Tennessee Intervention for Pregnant Smokers (TIPS) research project. IPV prevalence rates during pregnancy, measured using a modified HITS IPV screen, were approximately 26% for psychological violence, 2% for physical violence, and 1% for sexual violence. Chi-squared analysis indicated that rural pregnant women were not significantly more likely to experience any of the types of IPV compared to nonrural pregnant women. Additionally, logistic regression analysis supported previous literature findings that pregnant women who are unmarried, younger, have an unplanned pregnancy, have high levels of stress, and have low levels of social support are at a greater risk of experiencing any type of IPV during pregnancy compared to pregnant women not possessing those risk factors. However, rural status was not a significant predictor or modifier of IPV. Study 2 participants included a subsample of 337 pregnant women who indicated they had experienced

IPV at any time during the course of their pregnancy. Generalized estimating equation logistic models indicated that women who experienced IPV at some point during pregnancy were more likely to experience IPV during the third trimester. Both studies support the importance of screening for specific types of IPV throughout pregnancy. Information obtained from the current research is valuable to health care providers because it is important they are aware of IPV risk factors and that different types of IPV, especially psychological IPV, can occur at any time during pregnancy.

DEDICATION

This dissertation is dedicated to the women who participated in the Tennessee Intervention for Pregnant Smokers program and to my family. I was amazed and humbled by the resilience and stories that I had the privilege of hearing while working for the TIPS program. I wish all the women health and happiness for themselves and their families. This is also dedicated to my husband Andy, who encouraged me every step of the way and kept Asa and Patience entertained while I was writing. He is truly the reason why I was able to succeed in graduate school: SHMILY +1.

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CHAPTER 1

INTRODUCTION

Intimate Partner Violence (IPV) is currently recognized as a serious public health concern. Although violence affects both sexes, women are much more likely than men to be victimized (Bureau of Statistics, 2013; WHO, 2011), with the majority of violence against women being perpetrated by their current or former intimate partner or spouse (CDC, 2013). For women pregnancy represents a time when they may be especially vulnerable to IPV (WHO, 2011). Screening for IPV during pregnancy is promoted by major medical organizations including the American College of Obstetrics and Gynecology (ACOG) and the American Medical Association (AMA).

Several IPV risk factors such as age, marital status, and education levels have been examined in the literature. However, it is presently unclear as to what factors differentiate groups of women (such as women who live in rural or nonrural locations) who are more likely to experience IPV during pregnancy and how IPV may or may not fluctuate throughout pregnancy. Some of this ambiguity has been attributed to measurement and other methodological differences. For example, the majority of past research has focused on physical violence during pregnancy (Chamberlain & Perham-Hester, 2008) and has only assessed violence at one time period during pregnancy or retrospectively (WHO, 2011). Recent investigations have promoted the examination of multiple types of violence (e.g., physical, sexual, psychological; CDC, 2013) and the inclusion of different populations in IPV research (Jasinski, 2004).

Research Aims

Presently there is a dearth of research on IPV in pregnant women from Appalachia. The overarching purpose of the current project was to examine IPV in an Appalachian pregnant

population using data from the Tennessee Intervention for Pregnant Smokers (TIPS) program. There were four specific aims for the current project. Aim 1 was to describe IPV prevalence rates in the study sample. Aim 2 was to determine if IPV rates significantly differed for rural pregnant women compared to nonrural pregnant women. Aim 3 was to investigate whether rural status moderated the relationship between IPV risk factors and IPV status. Aim 4 was to describe the likelihood of IPV over the course of pregnancy in the study sample. For each of the aims the inclusion of the presence or absence of any type of IPV and the presence or absence of the three specific types of IPV (physical, sexual, and psychological) were individually analyzed and reported. Aims 1, 2, and 3 were investigated in Study 1. Aim 4 was investigated separately in Study 2.

CHAPTER 2

LITERATURE REVIEW

Defining IPV

It is important to use a consistent definition of IPV in order to monitor the incidence of IPV, examine trends over time, and conduct research across various populations in order to inform prevention and intervention efforts (CDC, 2013). Unfortunately, a consistent definition has not been used in IPV literature (Hegarty, Sheehan, & Schonfeld, 1999). Several different expressions have been used to indicate IPV such as domestic violence, spousal abuse, dating abuse, family violence, and battering (Plichta, 2004). IPV is inclusive of the aforementioned terms, and the CDC definition of IPV that was used in this project states that IPV includes physical violence, sexual violence, psychological violence, or the threat of physical or sexual violence by a current or former partner or spouse (CDC, 2013).

Types of IPV

As illustrated by the CDC definition, IPV is not limited to physical violence. For many women physical violence may not be the most significant type of IPV in an abusive relationship (Dutton & Goodman, 2005). IPV is not a unitary construct and can take different forms primarily including physical, sexual, and psychological violence (Whitaker, Baker, & Arias, 2007). It is important to distinguish among different types of IPV because knowing the type of violence may influence intervention efforts.

Physical IPV. Physical violence entails the intentional use of physical force with the potential for causing bodily harm (Weil, Fletcher, & Sokol, 2013). This includes a wide range of acts such as shaking, shoving, slapping, striking, use of restraints, burning, and choking. The most severe potential outcome of physical IPV is death. IPV was the cause of an estimated 2,340

US deaths (14% of all homicides) in 2007, with 70% of these deaths occurring in women (Bureau of Justice Statistics, 2013).

Sexual IPV. Sexual violence, which often overlaps with physical violence, is the use of physical force to compel a person to engage in a sexual act against his or her will (Weil et al., 2013). Both physical and sexual violence can be threatened using words, gestures, or weapons to communicate the intent to cause harm. An example of sexual IPV is firing a gun into the air and threatening a woman that she will be beaten if she does not engage in sexual intercourse.

Psychological IPV. Psychological violence includes many different nonphysical malicious acts (Hamby & Sugarman, 1999). However, there is controversy with regard to operationally defining psychological violence. Often psychological violence, psychological abuse, emotional abuse, and verbal abuse are conceptualized together. The CDC (2013) recognizes psychological or emotional violence as occurring when there has been prior physical or sexual violence or prior threat of physical or sexual violence. Psychological violence encompasses a large range of behaviors that have been thought to result in decreased mental health or emotional well-being of the target of abuse (Weil et al., 2013). Psychological violence can include many different types of coercive tactics such as, but not limited to humiliation, yelling, controlling behaviors (physically and/or financially), stalking, isolation, threatening to leave the relationship, or threatening to take away custody of children. Some psychologically violent behaviors may not be perceived by all victims as being violent or abusive. It has been argued that there needs to be evidence of a pattern of behaviors occurring over time before a person is considered a victim of psychological violence, as opposed to a singular or infrequent act (Besharov, 1990).

Complicating the approach to defining different forms of IPV, there are often multiple types of violence co-occurring over time, as opposed to a singular event or type of IPV (Kouyoumdjian et al., 2013). Frequently, psychological violence leads to instances of physical and/or sexual violence or vice versa (Carlson, McNutt, Choi, & Rose, 2002; Follingstad, Rutledge, Berg, Hause, & Polek, 1990; Rees et al., 2011) . For example, one study found that 95% of men who physically abused their intimate partner were also psychologically abusing them (Henning & Klesges, 2003). Another study found that over 65% of the women who had experienced IPV at some point in their lives experienced both physical assaults and psychological battering (Coker et al., 2006). Findings such as these illuminate the complexity of the problem of IPV. Identifying women who are at risk for, or who are currently experiencing, IPV is an important goal, but just as definitions of IPV vary, so do IPV identification instruments and practices, thus adding to this complexity.

Identifying IPV in Health Care Settings

Adequate evidence was found by the United States Preventative Services Task Force (USPSTF) that IPV interventions are associated with health improvements through the reduction of exposure to abuse, and the potential adverse effects from screening are minimal for most women (Moyer, 2013). However, before prevention and interventions can be implemented women must first be identified as experiencing, or being at risk of experiencing IPV. Increased identification can be accomplished by the implementation of routine IPV screenings (Freund, Bak, & Blackhall, 1996; Nelson, Bougatsos, & Blazina, 2012; Plichta, 2007; Spangaro, Zwi, & Poulos, 2009). Prior research suggests that although some women may access emergency medical services for severe physical violence (Campbell, 2002), primary care and prenatal care providers are more likely to have contact with an abuse victim (Chamberlain & Perham-Hester,

2008). This speaks to the importance of IPV screening as a fundamental part of any health care visit, not just when an injury has occurred.

The majority of major medical organizations endorse the screening of women for IPV, including the American College of Obstetricians and Gynecologists (ACOG) and the American Medical Association (ACOG, 2012). Furthermore, many female patients report a desire for providers to routinely inquire about IPV (McNutt, Carlson, Gagen, & Winterbauer, 1999; Rodriguez, Sheldon, Bauer, & Perez-Stable, 2001).

IPV Identification During Pregnancy

Pregnancy provides a potentially important window of opportunity for identifying women experiencing IPV (ACOG, 2012; Devries et al., 2010). In prenatal care settings, there are multiple opportunities to address the concerns of women and their unborn babies (D'Avolio et al., 2001). Prenatal care is obtained by more than 80% of women in the United States, even those who do not routinely have access to care at other times (Martin, Hamilton, Sutton, Ventura, & Mathews, 2010; Ventura, Martin, Curtin, & Mathews, 1999). Prenatal care may be the only opportunity for abused women to have contact with health care workers who can facilitate breaking the cycle of violence (Kearney, Haggerty, Munro, & Hawkins, 2003). After becoming pregnant, many women become motivated to protect their unborn child and reduce exposure to, or remove themselves from, violent relationships (Engnes, Liden, & Lundgren, 2012; Mercer, 2004), possibly contributing to intervention efforts at this time as well (Langhinrichsen-Rohling & Capaldi, 2012). Obstetricians, gynecologists, and their staffs are in a unique position to assess and intervene with women who experience IPV because of the nature of the patient relationship and of the many contact points that occur during the course of pregnancy and the postpartum period (ACOG, 2012).

Identifying pregnant women who are exposed to IPV provides health care providers with insight in order to appropriately address medical problems that may be consequences of violence and to intervene to prevent harm. Educating patients about IPV by making it a part of the routine medical conversation may make it more likely for reticent patients to disclose IPV at a subsequent visit (Weil et al., 2013). Routine screening for IPV also sends a message about prevention to victims and perpetrators by heightening awareness that health care providers feel this behavior is wrong, and that they are willing and able to assist. For women who are pregnant the USPSTF and ACOG recommends that IPV screening should occur over the course of the pregnancy, including at the first prenatal visit, at least once per trimester, and at the postpartum checkup (ACOG, 2012; Nelson et al., 2012).

Barriers to IPV Identification

Although recommended, IPV screens are not universally or routinely implemented in health care settings (D'Avolio et al., 2001; Sprague et al., 2012; Waalen, Goodwin, Spitz, Petersen, & Saltzman, 2000). The most often cited health care provider barriers for not routinely screening for IPV are time constraints and lack of resources to adequately address IPV during patient appointments (Colarossi, Breitbart, & Betancourt, 2010; Sormanti & Smith, 2009; Sprague et al., 2012).

In addition to the health care provider barriers, there is currently no consensus on which IPV screen to use. There have been many instruments designed in the last 20 years intended to screen for various aspects of IPV and intended for use with different populations that can experience IPV (Haggerty, Hawkins, Fontenot, & Lewis-O'Connor, 2011; Waltermaurer, 2005). Although in-depth IPV assessments such as the often used Conflict Tactics Scale (CTS; Straus, 1979) and its modifications (such as the Revised Conflict Tactics Scale; CTS2; Straus, Hambly,

Finkelhor, Moore, & Runyan, 1998) give detailed information on type and severity of IPV, they are not practical for routine screening use in health care settings primarily due to time constraints. Other, more practical screens are available, such as the five screening instruments identified by the USPSTF as possessing sound psychometrics (high sensitivity and specificity) in identifying women with current or recent IPV. These five instruments are: Hurt Insult Threaten Scream (HITS; Sherin, Sinacore, Li, Zitter, & Shakil, 1998), Ongoing Abuse Screen (OAS; Weiss, Ernst, Cham, & Nick, 2003), Ongoing Violence Assessment Tool (OVAT; Ernst, Weiss, Cham, Hall, & Nick, 2004), Humiliation, Afraid, Rape, Kick (HARK; Sohal, Eldridge, & Feder, 2007), and Women Abuse Screening Tool (WAST; Brown, Lent, Brett, Sas, & Pederson, 1996). Once accurate identification has occurred, prevalence information can be obtained.

IPV Prevalence in Women

General IPV Prevalence

Studies vary in the reported prevalence of IPV, yet all report distressingly high numbers. A recent large population-based study indicated that between 10% - 69% of women worldwide have experienced physical IPV at some point in their lives (WHO, 2011). Similar findings from the US Department of Justice indicate that over half of women in the United States will experience IPV at some point in their lifetimes (Bachman & Saltzman, 1995). A more conservative estimate from the recent National Intimate Partner and Sexual Violence survey stated that over 35% of women in the United States have experienced some form of physical violence by an intimate partner (Black et al., 2010). Previous similar studies have shown comparable IPV lifetime prevalence rates in the United States ranging from 33% - 37% (Gazmararian et al., 1996; Tjaden & Thoennes, 2000). These estimates translate into over 1.5

million women annually in the United States experiencing physical or sexual violence (Tjaden & Thoennes, 1998).

The vast majority of IPV prevalence literature focuses on physical and sexual IPV (Chamberlain & Perham-Hester, 2008; Plichta, 2004). For example, several United States surveys have indicated approximately 18% - 24% of women reporting rape at some time in their lives, with the majority being perpetrated by a current or former intimate partner (Black et al., 2010; CDC, 2013). Additionally, a national survey of American women reported that for women who responded that they had been physically assaulted within the last year had an average of 3.1 physical assaults within that timeframe (Tjadem & Thoennes, 2000). Furthermore, among victims of IPV one study found that about 1 in 4 women had experienced *severe* physical violence by an intimate partner (e.g., hit with a fist or something hard, beaten, slammed against something) (Black et al., 2010).

When multiple forms of IPV such as psychological violence are included in surveys and assessments, IPV prevalence rates are greater (WHO, 2011). For example, a recent large scale study showed that almost half of all women surveyed reported experiencing psychological aggression by an intimate partner at some point in their lifetime (Black et al., 2010). Although IPV ranges vary widely, a recent report indicated that commonly used prevalence rates for IPV in the United States are approximately 33% for physical violence, 9% for sexual violence (rape), and 48% for psychological violence (Black et al., 2010).

Prevalence of IPV in Pregnancy. The American College of Obstetricians and Gynecologists indicates that IPV is most prevalent among reproductive-age women (ACOG, 2012). Unfortunately, IPV does not cease to happen because a woman is pregnant. Research has identified alarmingly high rates of IPV victimization in pregnant women (for review see Bailey,

2010; Gazmararian et al., 1996; Taillieu & Brownridge, 2010). Violence during pregnancy may be more common than other routinely screened prenatal ailments such as preeclampsia and gestational diabetes (Devries et al., 2010).

Although there are more than 100 studies worldwide that have examined the prevalence of violence during pregnancy, there is a wide range of results reported, and the majority of studies do not specifically inquire about psychological violence (James, Brody, & Hamilton, 2013). Reported prevalence of IPV during pregnancy varies across countries ranging from 1% in Canada (Janssen et al., 2003) to 63% in Brazil (Audi, Corrêa, Latorre, & Santiago, 2008). For the United States it is most often estimated that between 1% and 20% of women experience physical violence during pregnancy (Gazmararian et al., 1996, 2000), which translates into as many as 324,000 women affected in the United States annually (CDC, 2009).

IPV prevalence also varies by the setting and populations from which samples are drawn. The results of the Pregnancy Risk Assessment Monitoring System (PRAMS) in which physical violence during pregnancy was assessed postpartum across 11 states, indicated pregnancy IPV prevalence rates from 2.8% to 5.9% (CDC, 2012). Prenatal care-based studies in the US have provided estimates of 1% to17% experiencing physical or sexual violence during pregnancy (Coker, Sanderson, & Dong, 2004; Martin et al., 2006; Shumway et al., 2009). Higher prevalence rates ranging from 28%-40% for physical or sexual IPV have been reported in lower income populations (Bailey & Daugherty, 2007; Martin & Garcia, 2011). Similar studies with low age, low income samples consisting primarily of unmarried women also yield higher prevalence rates compared to samples more representative of the population at large (Covington, Dalton, Diehl, Wright, & Piner, 1997; Farid, Saleem, Karim, & Hatcher, 2008; Perales et al., 2009; Shumway et al., 2009). A few studies have examined IPV in pregnant Appalachian

women and reported physical IPV between 15% and 29% (Bailey & Daugherty, 2007; Jesse, 2003).

IPV rates also vary according to the type of assessment used. Single item measures yield lower prevalence rates (Charles & Perreira, 2007; Yost, Bloom, McIntire, & Leveno, 2005) and are not considered adequate to identify all women experiencing IPV (Sagrestano, Carroll, Rodriguez, & Nuwayhid, 2004). Some assessments, such as the Abuse Assessment Screen (AAS; McFarlane, Parker, Soeken, & Bullock, 1992), are used as more comprehensive yet brief IPV screens, but they do not specifically examine psychological IPV during pregnancy. For example, one study that employed the AAS reported physical violence during pregnancy at 2.4% and sexual violence during pregnancy at 0.2% (Roelens, Verstraelen, VanEgmond, & Temmerman, 2008).

Greater prevalence rates are found when studies include psychological IPV. (Covington et al., 1997). Psychological IPV is up to three times more likely to occur during pregnancy than physical IPV (Martin, Beaumont, & Kupper, 2003). US-based studies have found IPV pregnancy prevalence rates that include any type of IPV (physical, sexual, psychological or threat of harm) ranging from 9.3% - 86% (Malcoe, Duran, & Montgomery, 2004; Martin & Garcia, 2011), an immense variation. IPV prevalence rates during pregnancy are thought to be higher than documented because many victims are afraid or ashamed to disclose their IPV experiences (ACOG, 2012).

IPV Throughout Pregnancy. Research clearly shows that pregnancy does not prevent the occurrence of IPV, but conflicting evidence exists about whether IPV changes in frequency or type during pregnancy. The research documenting the course of IPV through the course of pregnancy is very limited (Hellmuth, Gordon, Stuart, & Moore, 2013), and the majority of

studies either assess IPV during pregnancy retrospectively or at only one time point during pregnancy (Ogbonnaya, Macy, Kupper, Martin, & Bledsoe-Mansori, 2013).

Violence can begin, continue, end, or even escalate as pregnancy progresses. Existing literature has suggested that IPV may begin or increase in intensity during pregnancy for some women, while pregnancy may be a protective factor for others (Hellmuth et al., 2013). For example, in a study that examined IPV during pregnancy retrospectively, of the 29 out of 81 women who reported abuse during their most recent pregnancy, 21% reported increased violence, while 36% reported decreased abuse during pregnancy (Hillard, 1985). Other researchers have shown that the frequency *and* severity of violence increases during pregnancy (Adams-Hillard, 1985; Campbell, Oliver, & Bullock, 1998; Martin, Mackie, Kupper, Buescher, & Moracco, 2001), and others indicate that the pattern of IPV and the site of physical injuries may change during pregnancy (Jahanfar & Malekzadegan, 2007). One report stated that women who were physically abused during pregnancy were four times as likely as other abused women to say they experienced very serious violence, which was defined in the study as including beating, choking, gun or knife threats, and sexual assault (Drouin, 2010).

A few studies have indicated that 40% to 80% of women who have a history of IPV continue to have IPV experiences during their pregnancies (Flach et al., 2011; Martin, Mackie, Kupper, Buescher, & Moracco, 2001; Martin et al., 2006; Stewart & Cecutti, 1993). For example, in one study physical violence continued during pregnancy for approximately ¾ of the women in their sample (Saltzman, et al., 2003). Similar results were reported by Flach et al., (2011) in which over 70% of the sample continued to experience IPV during pregnancy.

Within the few studies that have examined IPV longitudinally, the prevalence of physical IPV during pregnancy is lower than the prevalence of IPV before or after pregnancy (Charles &

Perreira, 2007; Martin et al., 2001; Silverman, Decker, Reed, & Raj, 2006). Sagrestano, et al. (2004) found that of the women who reported IPV in their sample, equal numbers of women reported initiation, cessation, and continuing IPV. However, Silverman et al. (2006) found that a very small subset of their study participants (2.6%) experienced IPV both prior to *and* throughout pregnancy. Other researchers have also reported lower IPV rates during pregnancy compared to IPV before pregnancy or after delivery (Roelens et al., 2008; Saltzman et al., 2003). The studies cited above all focused on physical IPV and examined IPV prepregnancy and/or postpregnancy. There is a dearth of information on the frequency of other types of IPV experienced during pregnancy and how or whether IPV changes throughout pregnancy.

Prevalence-Measurement Interaction

It is believed that only a small percentage of IPV episodes are reported (ACOG, 2012); therefore, prevalence rates are thought to be much higher than currently estimated, with less than a quarter of physical assaults being reported (Tjaden & Thoennes, 2000). This underreporting could be a product of measurement methodology. Just as in nonpregnant populations, differences in IPV prevalence rates across studies are likely because studies vary greatly in respect to the measurements employed (Martin, Mackie, Kupper, Buescher, & Moracco, 2001). IPV prevalence has been assessed using many different measurement tools. By using different measures and only measuring at one time point during or retrospectively after pregnancy, it is difficult to monitor the incidence of IPV, examine trends across different populations, or assess how IPV may be changing over time.

There are several ways in which IPV disclosure is more likely to happen, thus increasing prevalence rates. When measuring IPV, women are asked if they have experienced any abuse in their relationship either with a single question or with multiple questions addressing one or more

than one type of IPV. Women are more likely to disclose IPV if they are asked more than one behaviorally specific question, are able to give a range of frequencies with which a behavior occurs (such a never, sometimes, or frequently), or are asked open-ended questions rather than only being asking if abuse or rape has occurred in their relationship (Ellsberg, Peña, Herrera, Liljestrand, & Winkvist, 1999; Taillieu & Brownridge, 2010). Behaviorally specific questions are beneficial because these questions provide women with examples of what is considered IPV. For example, for various reasons (such as cultural context) a woman may not understand or believe that being pushed, shoved, or forced to have sex is considered violent behavior. The setting in which IPV questioning occurs also influences disclosure rates. Women are more likely to divulge IPV experiences when asked privately and when asked in a compassionate and nonjudgmental manner by a health care provider (Feder, Hutson, Ramsay, & Taket, 2006). Although reported prevalence rates are quite variable, it is known that those women who do experience IPV are at increased risk for a myriad of negative health outcomes (Dillon, Hussain, Loxton, & Rahman, 2013).

Health Outcomes Related to IPV

General Health Outcomes Related to IPV

Many common physical and psychological health conditions are associated with intimate partner violence, and IPV health concerns can be both immediate and longstanding. Women in violent relationships use a disproportionate share of health care services, including more visits to the emergency room, primary care doctors, and mental health facilities, compared to nonabused women (Coker, Smith, McKeown, & King, 2000). The cost of IPV in the United States is immense. The CDC estimated $5.8 billion dollars annually are paid due to medical and mental health care treatment, lost productivity, and lost earnings related to IPV (CDC, 2003).

Physical consequences of IPV depend on the severity and frequency of violence. Although most injuries from IPV are minor, such as bruising, more serious injuries such as knife wounds, strangulation, and broken bones can be inflicted in more serious incidents of IPV (Weil et al., 2013). Women in the United States are nine times more likely to be murdered by a current or recent intimate partner than a stranger (Bureau of Statistics, 2004), and research indicates that recurring violence by an intimate partner precedes the majority of intimate partner homicides (Campbell et al., 2003; Morton, Runyan, Moracco, & Butts, 1998).

In addition to the immediate physical effects of IPV such as injury and death, there is a growing recognition of the potential health consequences that IPV contributes to beyond immediate physical assault (Chamberlain & Perham-Hester, 2008). For example, gynecologic conditions are seen more frequently in abused women including premenstrual syndrome, sexually transmitted diseases including HIV infection, and chronic pelvic pain (ACOG, 2013). Women who reported IPV in the last year were more likely than women that had never experienced IPV to report having more headaches, back and other musculoskeletal pain, chest pain, gastrointestinal disorders, urinary tract infections, and acute respiratory infections (Bonomi et al., 2009).

Women who experience IPV are more likely to get pregnant than women not experiencing IPV (Silverman et al., 2006). One explanation for this is reproductive coercion (Krug, Mercy, Dahlberg, & Zwi, 2002). Reproductive coercion occurs when a person's birth control options are sabotaged or forbidden to be used by his or her sexual partner. For example, a man might refuse to use condoms, poke holes in the condoms he uses, prohibit his partner from using female birth control (e.g. pills, diaphragms), or even alter his partner's birth control to make it ineffective (Krus et al., 2002). Some men may attempt to use pregnancy as a way of

controlling a woman to stay in a relationship with them (Clark, Allen, Goyal, Raker, & Gottlieb, 2013). Due to reproductive coercion, using contraceptive methods is often more difficult for women who are experiencing IPV, thus leading to unintended pregnancies and abortions (Gee, Mitra, Wan, Chavkin, & Long, 2009). Approximately 75% of women who have reported reproductive coercion have also reported experiencing IPV at some point in their lives (Miller et al., 2010)

In addition to physical health correlates, IPV is associated with an increased risk for psychological problems that can persist long after the violence has stopped (Fletcher, 2010). These psychological problems include depression, anxiety, eating disorders, difficulty sleeping, increased substance abuse, and suicide attempts (Devries et al., 2013). There is a need for further research on the psychological implications of different types of IPV and of experiencing multiple types of IPV (Dillon et al., 2013; Meekers, Pallin, & Hutchinson, 2013). For example, Meekers et al. (2013) reported that women who experienced only psychological abuse (no physical abuse) reported mental health problems similar to those women who were physically abused. Additionally, depression symptoms were much more common in both physically abused and psychologically abused women compared to nonabused women (Hegarty, Gunn, Chondros, & Small, 2004).

Health Outcomes Related to IPV for Pregnant Women

IPV during pregnancy is a special concern because there are potentially negative consequences for both the mother and her unborn child (McFarlane, Parker, & Soeken, 1995; Taillieu & Brownridge, 2010). IPV during pregnancy has been associated with fatal and nonfatal health outcomes for pregnant women and their offspring due to both the direct trauma of

physical violence to a pregnant woman's' body and physiological effects of stress from current or past abuse on fetal growth and development (WHO, 2011).

The most drastic consequence of IPV is death of the mother and/or child. Pregnancy-associated death has become more commonly termed as pregnancy-associated homicide (Campbell, Glass, Sharps, Laughon, & Bloom, 2007). Homicide by an intimate partner is the number one cause of death for pregnant women (Cheng & Horon, 2010). An examination of police and medical records in several US cities revealed that pregnancy predicted a significantly increased risk of homicide by an intimate partner (Campbell et al., 2003). Similarly, an increased risk of maternal death shortly after childbirth for women who experienced IPV during pregnancy has also been found (Janssen et al., 2003; Jejeebhoy, 1998), which includes an increased risk for suicide following pregnancy that was associated with sexual violence during pregnancy (Campbell, García-Moreno, & Sharps, 2004).

In addition to an increased risk for homicide, physical health problems associated with IPV during pregnancy found in the literature are: delayed prenatal care entry, preterm labor, preterm birth, low birth weight infants, miscarriage and spontaneous abortion, separation of placenta from the uterine wall, antepartum hemorrhage, higher probability of cesarean delivery, maternal sleep problems, severe nausea and vomiting, dehydration, kidney and or urinary tract infection, and inadequate gestational weight gain (Dillon et al., 2013). The previous health concerns offer a possible explanation as to why there is an increased use of hospitalization for pregnant women that have experienced IPV compared to pregnant women who have not experienced IPV (Coker et al., 2004). IPV during pregnancy is also associated with several negative health behaviors such as smoking, alcohol, drug use, and increased use of medication (Campbell, 2002), which likely contribute to negative health outcomes for both mother and child.

Physical, sexual, and psychological IPV during pregnancy are associated with high levels of anxiety and stress as well as suicide attempts and lack of attachment to the child (Martin et al., 2006). A relationship between violence during pregnancy and postnatal depression has been consistently found in the literature (Flach et al., 2011; Kendall-Tackett, 2007; Leung, Kung, Lam, Leung, & Ho, 2002; Patel, Rodrigues, & DeSouza, 2002). In one study high levels of depression symptoms mediated the relationship between IPV during pregnancy and behavioral problems in children up to 3.5 years of age (Flach et al., 2011). Breastfeeding is less likely in depressed mothers that have experienced IPV (Bair-Merritt, Blackstone, & Feudtner, 2006). The postpartum depression risk is 2-3 fold for women who had IPV during pregnancy (Ludermir, Lewis, Valongueiro, de Araújo, & Araya, 2010).

The majority of IPV pregnancy research examining adverse maternal and fetal health measures has focused on physical abuse (WHO, 2011). However, research studies that measure multiple forms of IPV, such as psychological or emotional violence, have shown that the presence of nonphysical violence also predicts poorer health for women and their unborn children (Taillieu & Brownridge, 2010). Abused pregnant women have indicated that the impact of violence on their mental health was far greater than the pain of physical beatings (Baird, 2002).

Women reporting any type of violence during pregnancy were more likely to experience postnatal depression; however, psychological violence was the strongest predictor of depression symptoms (Ludermir et al., 2010). In fact, psychological violence during pregnancy was strongly associated with postnatal depression independent of physical or sexual violence (Ludermir et al., 2010). This emphasizes the need to include nonphysical violence such as psychological, emotional, or threat of violence in pregnancy IPV assessments.

Women who experience IPV during pregnancy report high levels of stress. For example, Hellmuth et al. (2013) reported that women's perceived stress was related to physical IPV during pregnancy and psychological IPV 6 weeks postpartum. Stress, regardless of the source, is predictive of poor health outcomes for both mother and child (Kramer et al., 2013). Psychological stress during pregnancy has been implicated in pregnancy and birth complications as well as behavioral and cognitive problems such as attention deficit and hyperactivity disorder (ADHD) in children born to mothers who suffered extreme stress during pregnancy (Clements, 1991). Interestingly, higher levels of maternal blood corticotrophin-releasing hormone (CRH), a physiological marker of stress level, is associated with preterm birth, particularly higher levels found in the second trimester (Kramer et al., 2013). This suggests that stress from various types of IPV at different time periods during pregnancy may have varying health related consequences. Prenatal stress from IPV is common and can have serious implications for both mother and child with its influence on maternal health likely being underestimated (Woods, Melville, Guo, Fan, & Gavin, 2010).

IPV Risk Factors for Women

Although there has been inconsistency in IPV measurement, there are trends that have emerged in the literature regarding women's risk factors for experiencing IPV. Individual IPV risk factors for women that have some empirical support from meta-analytic reviews include: history of past IPV, younger age, being unmarried, substance use, participating in risky sexual behavior, exposure to violence as a child, depression, minority status, low education level, unemployment, and low income (Schumacher, Feldbau-Kohn, Smith Slep, & Heyman, 2001; Stith, Smith, Penn, Ward, & Tritt, 2004; Sugarman & Frankel, 1996; Sugarman & Hotaling, 1997).

A prior history of IPV is the most consistently robust predictor of future IPV (CDC, 2013; Heise & Garcia-Moreno, 2002), followed by the findings that younger women are more likely to experience IPV compared to older women (Jasinski, 2004). Other individual risk factors for IPV include risky behaviors such as alcohol and drug abuse, nicotine use, and unsafe sexual practices (Hulme, 2000; Raj, Silverman, & Amaro, 2000). Often co-occurring with risky behaviors are signs of depression and lower levels of self-esteem, which are also risk factors of being in a violent relationship (Devries et al., 2010). Other researchers have found that exposure to violence as a child predicted an increased likelihood of a women being in an adult violent relationship (Johnson, 2005), while a few studies suggest that women of minority status are also at a higher risk of experiencing IPV (Malcoe et al., 2004; Sagrestano et al., 2004).

Socioeconomic status (SES) is often conceptualized as social standing or class of an individual or group that is often measured as a combination of education, income, and occupation (American Psychological Association, 2013). Women with lower levels of SES are at a higher risk of experiencing IPV than women with higher levels of SES (Van Wyk, Benson, Fox, & DeMaris, 2003).

Rural Status

Related to socioeconomic status, and of central interest in this study, is the concept of geographic location, particularly with regard to rural status. There has been limited research comparing urban and rural communities with regards to IPV (Beyer, Layde, Hamberger, & Laud, 2013; Krishnan et al., 2001; Madkour, Martin, Halpern, & Schoenbach, 2010), and therefore it has not been determined to what degree rural status is an actual IPV risk factor. Pruit (2008) argued that there is an urban norm in violence research. Specifically, Pruit argues that urban IPV research is assumed to be generalizable to cases outside urban areas, and geographic location is

seldom discussed in terms of being a potential risk factor. Although considerable attention in the literature has been focused on women in violent relationships, there has been limited investigation of IPV in rural areas (Krishnan, Hilbert, & Pase, 2001).

Women in more rural locations tend to differ from women in nonrural locations. Women in rural locations often have lower levels of education and employment (Mammen & Paxson, 2000) and less access than urban women to domestic violence shelters, physical and mental health professionals, and law enforcement (Mueller & MacKinney, 2006). Furthermore, rural women may face additional barriers to accessing services because of geographic distance and location (Riddell, Ford-Gilboe, & Leipert, 2009). Research has indicated that it takes longer for police to arrive when called to rural locations, and it is more likely that law enforcement will not show up at all in cases of domestic violence in rural areas (Websdale & Johnson, 1997). Confidentiality may also be a greater concern for women in rural areas. IPV victims in rural areas are more likely to encounter someone they know when reporting or receiving services related to IPV, and therefore they may be less likely to disclose the violence (Websdale & Johnson, 1997).

Early research indicated that physical abuse was as common in rural communities as it is was in urban communities (Straus, Gelles, & Steinmetz, 1980). More recent research confirms that there is a high prevalence of IPV in rural locations (Peek-Asa et al., 2011; Websdale, Town, & Johnson, 1999). Rural women may be more at risk for IPV because of geographical and social isolation that limits social support. Lanier and Maume (2008) reported a negative association between social support and IPV, and this relationship was stronger for rural women compared to nonrural women. Although higher levels of social support in rural areas predicted a decreased likelihood of IPV (Lanier & Maume, 2009), rural women were found to be less likely than

nonrural women to confide about their IPV experiences to someone in their social network (Brownridge, 2009). Several researchers have suggested that rural women may be especially reluctant to disclose IPV, in part due to lack of confidentiality (Bosch & Bergen, 2006; Wendt, 2009). Privacy is often valued in rural communities and the cultural norm is that knowledge of violence is something that is kept private within the family (Wendt, 2009).

Rural Definitions. One reason for the paucity of information on IPV related to geographical location is the lack of a universal definition of "rural" in IPV research (Hart, Larson, & Lishner, 2005). Often rural status is discussed in terms of a sparsely populated region with low population density (Sandberg, 2013). Frequently the term rural is not quantified in IPV research. For example, one study assessed IPV in "rural Southwest, southern New Mexico" (Krishman,2001, p. 3) without defining it further and another described the study setting as a rural region of South Carolina (Coker et al., 2007). While most people possess a general idea of what living in a rural location compared to urban location entails, there are many different ways to define and measure rural status. The three most commonly used terminologies for rural locations and measurements in the United States come from the U.S. Census Bureau, the Office of Management and Budget, and the U.S. Department of Agriculture [USDA] (Health Resources and Services Administration, 2013).

The U.S. Census Bureau uses population density information and categorizes geographic areas, called census blocks, that include Urbanized Areas and Urban Clusters. Rural areas are then classified as any territory, population, or housing unit not located in an Urbanized Area or Urban Cluster (see U.S. Census Bureau, 2011). In contrast to using census blocks, the Office of Management and Budget does not classify geographic areas into rural and nonrural categories, but instead attempts to show how different population areas integrate into what are called

Metropolitan or Micropolitan Statistical Area Standards (see Office of Management and Budget, 2010). The USDA Economic Research Service developed the Rural-Urban Continuum Codes to distinguish metro counties by size (codes 0 - 3) and nonmetro counties (codes 4 - 9) by their degree of urbanization or proximity to metro areas (see USDA, 2013)

A similar, but more in depth coding system, available in both ZIP code and census tract formats, is the Rural-Urban Commuting Areas (RUCA) coding system created by the USDA Economic Research Service and the University of Washington Rural Health Research Center (Rural Health Research Center, 2013). RUCA codes are a census tract-based classification scheme that combines population density and commuting information into scores that range from 1 (an urban core) to 10 (isolated smaller rural tract). These codes can further be divided into decimal levels codes, creating a total of 33 codes. RUCA codes can be aggregated in many different ways depending on how the information is to be used. RUCA codes are useful for federal programs, national data sets, and health-related research (Rural Health Research Center, 2013). Because RUCA codes are often used for health-related research and have been used within several of the few IPV studies that differentiate rural from nonrural locations (Beyer et al., 2013; Peek-Asa et al., 2011), they were used to determine rural status in the current investigation. This is the first investigation of which the author is aware that specifically examined IPV during pregnancy and defines rural status using the RUCA codes.

IPV Risk Factors for Pregnant Women

Knowledge of specific risk factors for IPV surrounding the time of pregnancy is important to be able to appropriately focus prevention and intervention efforts. A number of studies have examined the relationship between IPV and pregnancy; however, risk factors for predicting IPV in pregnancy remain uncertain (James et al., 2013). Given that pregnancy is a

time that may demand increased relationship commitment and increase the resources needed, some IPV risk factors are likely to be more important during pregnancy (WHO, 2011). For example, pregnant women who lack access to services, social support, and financial independence may be especially vulnerable to IPV (Noel & Yam, 2002). Pregnant women in rural locations are more likely to fit the previous description, and, therefore, may be at an increased risk for IPV compared to pregnant women in nonrural locations, highlighting the need to understand the relationship between rural status and IPV during pregnancy that is addressed in the current investigation.

Studies investigating risk factors for IPV during pregnancy find they are similar to risk factors for IPV in general. Pregnant women who are younger, unmarried, had a unplanned pregnancy, delayed prenatal care, or are of lower SES are most likely to experience IPV (Weil et al., 2013). As in nonpregnant women, a history of past abuse is a robust predictor for violence during pregnancy (Jasinski, 2004).

As mentioned previously, for some women being pregnant may be a protective factor against IPV while for others being pregnant may increase the risk of experiencing or increase the frequency of experiencing IPV (Campbell et al., 2003). Gelles (1998) reported that a pregnant woman has a 35.6% greater risk of being a victim of violence than a nonpregnant woman, and Burch and Gallop (2004) reported the frequency and severity of IPV was twice as high during pregnancy. Another study reported 61% of their sample was abused by a partner only during their pregnancy (Koenig, Stephenson, Ahmed, Jejeebhoy, & Campbell, 2006). Several other studies also have found that women who had not previously experienced relationship violence report that the initiation of IPV occurred during pregnancy or shortly after childbirth (Edin,

Hogberg, Dahlgren, & Lalos, 2009; Gielen, O'Campo, Faden, Kass, & Xue, 1994; Jasinski & Kantor, 2001; Koenig et al., 2006), supporting that pregnancy itself can be a risk factor for IPV.

There is robust support from the literature that unwanted and unplanned pregnancies are a particularly strong predictor of IPV (Charles & Perreira, 2007; Fanslow, Silva, Whitehead, & Robinson, 2008; Martin & Garcia, 2011). A US population-based survey reported that women who had mistimed or unwanted pregnancies reported significantly higher levels of abuse during pregnancy (15%) compared with those with intended pregnancies (5%) (Goodwin et al., 2000). Interestingly, there is also a positive correlation between the number of children a woman has and the incidence of IPV (Krug, 2002; Tjaden & Thoennes, 2000). The relationship between a woman having children and IPV is currently unclear. While some research has shown that the IPV typically predates children instead of beginning after the children were born (Krug, 2002), others have indicated that the onset of violence began after having children or becoming pregnant (Ellsberg, 2000). Often women who were experiencing IPV before having children, confirm that IPV escalated after they began having children (Tilley & Brackley, 2004). Another study found that motherhood significantly increased women's risk of physical and sexual IPV victimization (Vatnar & Bjørkly, 2010). Regardless of whether IPV began before or after having children, IPV is most prevalent in child bearing aged women (ACOG, 2012) with unplanned pregnancies being a strong predictor of IPV.

Stressful life events, developmental transitions, and relationship issues, which are frequently interrelated (Bradbury, Fincham, & Beach, 2000), may predict IPV in pregnancy. Often there is a decline in relationship adjustment during pregnancy and the transition to parenthood (Mitnick, Heyman, & Smith Slep, 2009). These stressors may be even more pronounced in couples that are unmarried or did not plan the pregnancy (Lawrence, Rothman,

Cobb, Rothman, & Bradbury, 2008). Stressors outside the relationship, such as low SES, may contribute significantly to relationship discord during pregnancy (Neff & Karney, 2004). Although relationship discord does not always result in IPV, in some cases it is predictive of IPV (Bradbury et al., 2000). Financial stress and levels of social support have been found to predict the trajectory of relationship distress during the transition to parenthood (Doss, Rhoades, Stanley, & Markman, 2009), and these factors appear to predict the prevalence of IPV including IPV during pregnancy (Curry, 2006).

Women who have multiple risk factors are more likely to experience IPV during pregnancy than women with one or no risk factors. Women in rural locations are more likely to experience multiple stressors during pregnancy, such as lower levels of social support and greater financial hardships, and may therefore be more likely to experience IPV (Bhandari et al., 2008), again supporting its investigation within this study. Compared to the rest of the United States, the Appalachian region has higher levels of economic distress, lower levels of high school completion, lower levels of income, and lower levels of physical and mental health (Appalachian Regional Commission, 2013). A few studies suggest Appalachian pregnant women may experience higher than average rates of IPV (Bailey & Daugherty, 2007; Dye, Tolliver, Lee, & Kenney, 1995; Johnson & Elliott, 1997). These, and other similar studies, suggest that there exists a group of women that indeed may experience increased IPV during pregnancy. However, no previous studies have specifically examined how rural status predicts IPV, nor were different types of IPV examined throughout pregnancy. Although Bailey and Daughtery (2007) examined different types of IPV in a sample similar to the current investigation, they used a more time consuming IPV measurement tool at one time point during pregnancy, the Revised Conflict Tactics Scale (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), with a small sample size of

104 participants. The current investigator employed a much briefer IPV screen (HITS), used a considerably larger sample size of over 1,000 pregnant women from Appalachia, and included repeated measures across pregnancy.

Although research indicates that being unmarried, of younger age, having a lower education level, having an unintended pregnancy, experiencing stressful life events, and lacking social support are risk factors for IPV in pregnant women, there is a considerable difference in the predictive power of these risk factors, and effect sizes have not been compared to indicate which risk factors are most salient (James et al., 2013). Therefore, additional research on types of IPV throughout pregnancy and IPV risk factors in pregnant women, particularly rural status, is justified.

Current Project

IPV can have serious negative consequences for the mother and child, and research has identified alarmingly high prevalence rates of IPV during pregnancy. Unfortunately, the literature examining the predictors of different types of IPV and likelihood of occurrence of the different types of IPV throughout the course of pregnancy is scant. Therefore, determining the factors that predict the risk for IPV during pregnancy and exploring how IPV type and likelihood change throughout pregnancy are essential to inform screening and intervention efforts aimed at mitigating IPV and its negative health consequences. Additionally, past research on IPV in rural locations has not empirically examined IPV risk factors for rural pregnant women compared to nonrural pregnant women. Therefore, the purpose of the current investigation was to examine the prevalence of IPV, and identify risk factors for different types of IPV in a population that contained pregnant women from both rural and nonrural locations within the Appalachian region

(Study 1) and to examine the likelihood of the presence of any type of IPV and the likelihood of the presence of three different types of IPV throughout the course of pregnancy (Study 2).

Research Aims and Hypotheses

Study 1 Aim 1. To determine IPV prevalence rates in the study sample. There is no hypothesis for this aim, because it is descriptive.

Aim 1.1: Determine prevalence rate for the presence of any type of IPV.

Aim 1.2: Determine prevalence rate for the presence of physical IPV.

Aim 1.3: Determine prevalence rate for the presence of sexual IPV.

Aim 1.4: Determine prevalence rate for the presence of psychological IPV.

Study 1 Aim 2. To determine if IPV rates differ significantly for rural pregnant women compared to nonrural pregnant women. It is hypothesized that for the presence of any type of IPV, and for the presence of each type of IPV, rural pregnant women are more likely to experience IPV than nonrural pregnant women

Aim 2.1: Examine the differences between the presence of any type of IPV in rural pregnant women compared to nonrural pregnant women.

Aim 2.2: Examine the differences between the presence of physical IPV in rural pregnant women compared to nonrural pregnant women.

Aim 2.3: Examine the differences between the presence of sexual IPV in rural pregnant women compared to nonrural pregnant women.

Aim 2.4: Examine the differences between the presence of psychological IPV in rural pregnant women compared to nonrural pregnant women.

Study 1 Aim 3. To test whether rural status moderates the relationship between IPV risk factors and IPV in this study sample. IPV risk factors include marital status, age, if the

pregnancy was planned, education level, social support level, stress level, and rural status. It was hypothesized that rural status would significantly moderate the relationship between IPV risk factors and the presence of any type of IPV, and for each type of IPV.

Aim 3.1: Examine rural status as a moderator between IPV risk factors and the presence of any type of IPV.

Aim 3.2: Examine rural status as a moderator between IPV risk factors and the presence of physical IPV.

Aim 3.3: Examine rural status as a moderator between IPV risk factors and the presence of sexual IPV.

Aim 3.4: Examine rural status as a moderator between IPV risk factors and the presence of psychological IPV.

Study 2 Aim 4. Describe the likelihood of the presence of any type of IPV and the presence of each type of IPV over the course of pregnancy in this study sample. There is no hypothesis for this aim, because it is descriptive.

Aim 4.1: Describe the likelihood of the presence of any type of IPV occurring over the course of pregnancy.

Aim 4.2: Describe the likelihood of the presence of physical IPV occurring over the course of pregnancy.

Aim 4.3: Describe the likelihood of the presence of sexual IPV occurring over the course of pregnancy.

Aim 4.4: Describe the likelihood of the presence of psychological IPV occurring over the course of pregnancy.

CHAPTER 3

METHODS

Data Source Description

Data from the Tennessee Intervention for Pregnant Smokers (TIPS) were used to investigate the aims of the current project. The TIPS program was funded in 2007 by a 4-year $1.4 million dollar grant from Governor Bredesen's Office of Children's Care Coordination. An additional award of $600,000 was made for an 18-month continuation period through June of 2012. The TIPS project was approved by the ETSU/VA Institutional Review Board (see Appendices A and B). The program goal was to improve birth outcomes in Northeast Tennessee by reducing rates of pregnancy smoking and smoke exposure using a multifaceted approach. The TIPS program implemented brief smoking cessation interventions and education within pre-and postnatal care in a six county region in Northeast Tennessee that included Carter, Hawkins, Johnson, Sullivan, Unicoi, and Washington Counties. In addition to these services, the TIPS program provided educational materials for distribution and worked with a local university and community members to increase awareness and knowledge of pregnancy smoking risks and interventions.

As part of the TIPS program, data were collected on both smoking and nonsmoking women throughout pregnancy and postpartum. Participation in the research portion of the TIPS program was voluntary. Due to the nature of the funding, the TIPS data were collected in two phases, phase I (June 2007 to July 2012) and phase II (August 2010 to June 2012). A total of 1,063 women participated in the TIPS program research (phase I N = 581, phase II N = 482). For both phases women were recruited from several area prenatal care providers, and interviews were conducted in a private office shortly before or after a scheduled prenatal care appointment.

Additional interviews were conducted at 6 weeks and 6 months postpartum at the prenatal care provider location, via phone, or via a mailed interview form. Participants were also contacted after their child reached the age of 1 and were given the opportunity to bring their child in for developmental testing between the ages of 13 and 17 months. Medical charts for participants from prenatal care providers and hospital delivery were also used for data collection. Additional information on the TIPS program is available at http://www.etsu.edu/tips/.

During the initial interview, the TIPS program and research procedures were explained and an informed consent form was completed (see Appendix C). During phase I, in-depth interviews with multiple assessments were conducted at entry into prenatal care, and again during the third trimester. Women were paid $20 for each interview, or $30 if they completed only a combined interview in the third trimester. During phase II in-depth interviews were also conducted with women upon prenatal care entry. Additionally, during phase II data collection, women who identified as smokers, smoked within the last 2 years, or had significant second hand smoke exposure, were interviewed up to three additional times during pregnancy.

For the purposes of the current project, information obtained from pregnancy interviews from phase I and II were examined. Study 1 used information from all participants' initial pregnancy interviews. Study 2 used interviews from all participants who indicated they had experienced IPV at least once during pregnancy. Measurements that made up pregnancy interviews were comprised of several questionnaires including a detailed demographic and smoking history questionnaire, a substance abuse questionnaire, a pregnancy smoking support and consequences questionnaire, and an infant feeding questionnaire. Although not all were used in the current investigation, the following assessments were included at least once during pregnancy during phase I and/or phase II: Women Abuse Screening Tool (Brown et al., 1996),

Center for Epidemiologic Studies Depression Scale, short form (Andresen, Malmgren, Carter, & Patrick, 1994), Revised Conflict Tactics Scale (Straus et al., 1996), HITS (Sherin et al., 1998), Abuse Assessment Screen (McFarlane et al., 1992), T-ACE (Sokol, Martier, & Ager, 1989), Michigan Alcoholism Screening Test (Selzer, 1971), Prenatal Psychosocial Profile (PPP) (Curry, Campbell, & Christian, 1994), Brief Multidimensional Measurement of Religiousness/Spirituality (Fetzer Institute/NIA, 1999), two items from the Religious Problem Solving Scale (Pargament, 1997), and a IPV service questionnaire. Of interest in the current project were the participants' responses on the demographic questionnaire, the HITS, and the PPP questionnaire.

Study 1 Variables

Demographic Information

The demographic questionnaire was a self-report measure given at the initial prenatal interview for both phases of data collection. Questions included information about the participant's age, marital status, education, past and current pregnancy information, and ZIP code (see Appendix D).

Marital Status. Marital status was determined using the demographic questionnaire item "What is your marital status?" Responses were dichotomized into a married and not married category, with the not married category encompassing unmarried, living with partner, divorced or separated, widowed, and single never married. Responses were coded in the dataset as 0 = not married, 1 = married.

Age. The participants' age was determined using the demographic questionnaire item "How old are you?" Responses were reported in number of years.

Education. Education status of the participant was determined using the demographic questionnaire item "What is your highest level of education?" Responses were reported in number of years. For example, a high school graduate would be considered to have 12 years of education, a college graduate 16 years, and so forth.

Pregnancy Planned Status. Whether the pregnancy was planned or not planned was determined using the demographic questionnaire "Was this pregnancy planned?" Responses were coded in the data set as 0 = no, 1 = yes.

Rural Status. Rural status was determined by using the demographic questionnaire item "What is your current ZIP code?" The ZIP codes were then converted to Rural-Urban Commuting Area (RUCA) codes (Rural Health Research Center, 2013). The RUCA codes are rated from a scale of 1 to 10 indicating the degree of rural status. Due to the nonnormal distribution, metro and urban or suburban areas, RUCA codes 1 - 3, were coded as nonrural, and the remaining RUCA codes 4 - 10 were coded as rural. Responses were then recoded in the data set as 0 = nonrural, 1 = rural. This classification is comparable to previous studies examining rural status (Lanier & Maume, 2009).

Stress and Social Support

Both stress and social support of others were measured using the self-report Prenatal Psychosocial Profile (PPP) (Curry et al., 1994). The PPP was given as part of the initial prenatal interview for both phases of data collection. The PPP measures stress, social support, and self-esteem levels during pregnancy; however, the self-esteem measure was not used in this investigation. Validity and reliability for all components of the PPP have been obtained from culturally diverse pregnant women and were adequate with a test-retest reliability of α=.84, and internal consistency of α=.92 (Curry, Burton, & Fields, 1998).

The PPP measures stress levels using 11 items chosen from the Daily Hassles Scale (Kanner, Coyne, Schaefer, & Lazarus, 1981). Curry et al. (1994) reported this instrument's acceptable convergent validity, test-retest reliability, and internal consistency reliabilities at .70 and above. Stress level items were scored using a 4-point Likert-type scale ranging from 1 (*no stress*) to 4 (*severe stress*) with total scores ranging from 11 to 44. The higher the total score, the higher the amount of current stress the participant has reported (see Appendix F).

Social support of others was measured by using 11 items from the Support Behaviors Inventory that inquired how satisfied the participant was with the level of social support from people other than her partner (Brown, 1986). Curry et al. (1998) demonstrated convergent validity, test-retest reliability, and internal consistency reliabilities of .90 and greater. Each social support question had a score ranging from 1 (*very dissatisfied*) to 6 (*very satisfied*) with total scores ranging from 11 to 66. The higher the total score, the higher the perceived social support from people other than the partner (see Appendix G).

IPV

In order to determine IPV status (no IPV had occurred since becoming pregnant, or yes IPV had occurred since becoming pregnant, and if so, what type, physical, sexual, psychological or a combination) at the initial prenatal interview, a *modified* HITS screen was used. HITS is an acronym for Hurt, Insult, Threaten Scream (HITS; Sherin et al., 1998).

The HITS, without the modifications made for this study, is a 4-item self-report or clinician administered survey with Likert-type items ranging from 1 (*never*) to 5 (*frequently*) resulting in possible scores from 4 to 20 (Sherin et al., 1998). The HITS items address physical violence and psychological violence, but the original HITS screen does not specifically address sexual violence. The HITS was initially developed and tested for use in family practice offices,

but has since been evaluated in more diverse settings. The HITS has been validated against the Conflict Tactics Scale (CTS) for women in family practices with a strong correlation of .85, and an acceptable internal consistency of α=.80 (Sherin et al., 1998). Several research findings support the concurrent validity of the HITS (Chan, Chan, & Cheung, 2010; Chen et al., 2007; Chen, Rovi, Vega, Jacobs, & Johnson, 2005). Using the CTS as the reference standard, the HITS correctly classified 96% of self-identified abused women and 91% of nonabused women with PPV of 87% and NPV of 97% (Sherin et al., 1998). When using the Index of Spousal Abuse as a reference standard, the sensitivity was 86% and specificity of 99% (Chen et al., 2005). Chan, Chan, and Cheung (2010) responded to the criticism that the HITS does not specifically examine sexual violence by creating the Extended HITS (E-HITS) that was derived from the original HITS and added in one question to detect the presence of sexual violence. The E-HITS had an internal consistency of α= .9, a test-retest reliability of *r*= .71, sensitivity of 99.1% , and specificity of 94.8%, with current validity supported using the Revised Conflict Tactics Scale (CTS-2) (Straus et al., 1996).

A modified HITS similar to the E-HITS was used for the TIPS program that included an additional question on sexual abuse frequency and worded all questions to ask about IPV specifically during pregnancy. All five questions begin with the prompt "Since you have been pregnant, has your partner or ex-partner" (see Appendix E). The modified HITS was given at all pregnancy interviews for both phases I and II of the TIPS program. The modified HITS addressed physical violence (question #1), psychological violence (questions #2, #3, #4), and sexual violence (question #5) for possible scores ranging from 5 to 25. For Study 1, IPV variables were dichotomized, as is often done in IPV literature (Rabin, Jennings, Campbell, & Bair-Merritt, 2009). If the total sum of the modified HITS responses equaled five, indicating that

there were no IPV experiences since becoming pregnant, it was coded in the dataset as 0, indicating the woman experienced no IPV. Scores of six or greater indicated the woman had experienced some type of IPV since becoming pregnant and was coded in the dataset as 1. Three separate variables were similarly created for physical, sexual, and psychological IPV. For physical IPV responses from the first modified HITS question were used, while for sexual IPV responses from the last modified HITS question were used. For either physical or sexual IPV, a response of one, indicating no IPV had occurred, was coded as 0 in the dataset, while a response of greater than one, indicating yes to IPV, was coded as 1 in the dataset for each of those variables. As there were three questions that inquired about psychological IPV, a separate psychological IPV variable was calculated using the sum of the responses to the second, third, and fourth questions on the modified HITS. A sum of three or less on the psychological questions indicated no IPV, and was coded as 0 in the dataset, while a response of four or higher indicated yes to psychological IPV, and was coded as 1 in the dataset for the psychological IPV variable.

Study 2 Variables

IPV

As in Study 1, Study 2 used the same modified HITS to assess IPV. However, Study 2 used multiple administrations of the modified HITS throughout pregnancy, instead of the single initial modified HITS. The modified HITS was administered up to four occasions during pregnancy. Each time the modified HITS was administered, the data were coded into one of four time bins for analysis. Time bins are described within the description of analyses. Study 2 analyses included only responses from women who indicated they had experienced IPV on at least one of the modified HITS administrations during pregnancy. For example, a woman who

indicated that she had not experienced IPV during pregnancy at the initial assessment, but on a subsequent assessment indicated that she had experienced IPV, was included in Study 2 data analysis. Women who responded that they *never* experienced IPV on any of the modified HITS given throughout pregnancy were excluded from analysis.

Six IPV variables were dummy coded (0 for no IPV, 1 for yes IPV). These variables were as follows: one indicating the presence of any type of IPV occurring, and five others, one for each of the questions on the modified HITS. These variables were called any IPV, physical IPV, insult IPV, threat IPV, scream IPV, and sexual IPV. Unlike in Study 1, where the psychological IPV questions were combined, in Study 2 the three psychological IPV items were kept separate. Although keeping the psychological questions separated results in a loss of statistical power, it was decided that this was acceptable due to the descriptive focus of the study and the small subsample.

Gestational Age

Gestational age was used to identify when during pregnancy IPV was measured. Gestational age was determined using the information from the pregnancy smoking questionnaire, which was included at each prenatal interview along with the modified HITS

Data Analysis Plan

Study 1

The data from 1,063 participants were obtained from phases I and II of the TIPS program. Data were examined for inconsistencies, outliers, and high leveraged cases. IPV information was not reported for six of the participants. For Aim 1, determining the prevalence of IPV in the sample, prevalence rates for any type of IPV and for each type of IPV were determined using descriptive statistics in SPSS. For Aim 2, four Chi-squared tests of

independence were conducted using SAS code 'PROC FREQ / CHISQ' to determine whether IPV rates differed significantly for rural pregnant women compared to nonrural pregnant women, for the presence of any type of IPV, physical IPV, sexual IPV, and psychological IPV. A power analysis for the chi-squared tests of independence was conducted using the statistical software 'R' (R Core Team, 2013) using the 'pwr' package, and found a minimum detectable effect size of 0.086 at 80% power with 1057 participants at an alpha level of 0.05.

For Aim 3, four logistic regression models were tested using the code 'PROC LOGISTIC' in SAS to examine rural status as a moderator between IPV risk factors, one each for the presence of any type of IPV, physical IPV, sexual IPV and psychological IPV. Before testing the logistic regression models, multicolliniearity issues were assessed by examining correlations among all of the continuous variables and by using an OLS regression to examine the tolerance levels using SAS code 'PROC GLM / TOLERANCE. Next, the continuous variables were grand mean centered. The basic statistical model for estimating the probability of IPV occurring by risk factor and interaction with rural status, with subscripts suppressed for clarity, was: $IPV = b_0 + b_1(\text{marital status}) + b_2(\text{age}) + b_3(\text{pregnancy planned}) + b_4(\text{education}) + b_5(\text{social support}) + b_6(\text{stress}) + b_7(\text{rural status}) + b_8(\text{marital status x rural}) + b_9(\text{age x rural}) + b_{10}(\text{pregnancy planned x rural}) + b_{11}(\text{education x rural}) + b_{12}(\text{social support x rural}) + b_{13}(\text{stress x rural}) + \text{error}$.

A power analysis for the logistic regression model was conducted using the statistical software package 'R' (R Core Team, 2013). A Monte Carlo program was written and used to determine the minimum detectable odds ratio at 80% power using conservative proportion estimates of 1,000 observations over 10,000 iterations using two dichotomous variables (nonrural or rural, and not married or married) and their interaction. The minimum detectable

odds ratio for the interaction (which is the main interest of the analysis) was 0.272 (see Figure 1). This means that approximately a 70% difference was needed to be observed among the interactions in order to detect a difference (at 80% power). A more optimistic minimum detectable odds ratio of 0.65 for the interaction between the rural or nonrural variable and a continuous variable (drawn from a random normal distribution) was observed (see Figure 2). This means that a difference of one standard deviation in the continuous variable needed to be observed to detect a significant difference among the variables at a power of 80%.

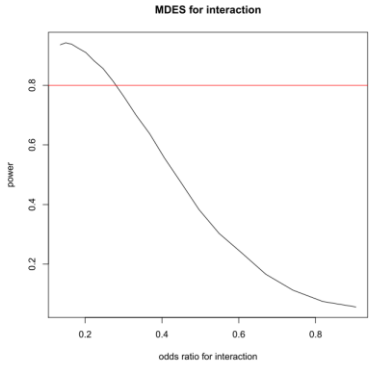

Figure 1. Minimum Detectable Effect Size for Rural x Dichotomous Variable Interaction

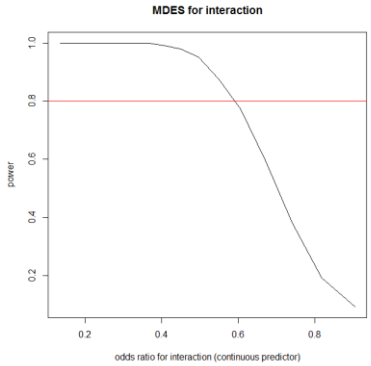

Figure 2. Minimum Detectable Effect Size for Rural x Continuous Variable Interaction

Study 2

For Aim 4 only TIPS participants who indicated at least one occurrence of IPV at some point during pregnancy were included in statistical analyses (N=337). TIPS participants who did

not experience IPV were not included in study 2 analyses, because the purpose of Aim 4 was to examine whether and how IPV likelihood, including the different types of IPV, changed throughout pregnancy. In SAS via the code 'PROC GEN MOD, six generalized estimating equation (GEE) logistic regression models were used to describe the likelihood of IPV over the course of pregnancy, using one model each for presence of any type of IPV, and for each of the modified HITS questions: physical IPV, insult IPV, threat IPV, scream IPV, and sexual IPV. A GEE logistic regression model was chosen because the outcome IPV variable was dichotomous and the predictor variables were repeated measures (examining IPV up to four different time periods throughout pregnancy). In order to obtain unbiased estimates to achieve a more accurate picture of how IPV changes over time, it was imperative to properly specify the random part of the statistical model in which the covariance structure was optimally fitted. Because women entered prenatal care at different gestational ages and completed the modified HITS at various gestational ages, four gestational age intervals were created, called *time bins*. Time bin 1 represented responses from the first trimester, gestational ages 1 week to 13 weeks. Time bin 2 represented the first half of the second trimester, gestational ages 14 weeks to 19 weeks. Time bin 3 represented the second half of the second trimester, gestational ages 20 weeks to 26 weeks. Lastly, time bin 4 represented the third trimester, gestational ages 27 weeks and above. The decision to include four time bins was to optimize the ability to examine IPV throughout pregnancy, balanced by the estimated number of cases in each time bin, with the IPV assessment being completed up to four times throughout pregnancy. If a participant had completed more than one IPV assessment in a time bin, the mean of the two IPV assessment responses were calculated and used for analysis. Results for each model were reported, and their standard errors

were used to construct 95% confidence intervals around the estimated IPV values for each time bin.

Statistical Model. To fit the GEE logistic models, the time bins were dummy coded, and the model intercepts were suppressed. For each model all pairwise comparisons between time bins were examined.

The statistical model for each IPV outcome was:

$$ipv_{bi} = \gamma_1 (bin1_i) + \gamma_2 (bin2_i) + \gamma_3 (bin3_i) + \gamma_4 (bin4_i) + \mathbf{e}$$

Where **e**, (the covariance structure) is specified as either a compound symmetry, autoregressive, or toeplitz, depending on the model fit using the quasilikelihood under the independence model criterion (QICu) for each of the IPV outcomes.

CHAPTER 4

RESULTS

Study 1

The sample consisted of 1,063 pregnant women who had participated in the TIPS program. All women had completed the TIPS program assessments; however, missing data included: 15 women who did not answer the question regarding if the pregnancy was planned, 10 women who did not complete the social support of others subscale of the PPP, 6 women who did not complete the initial modified HITS, one woman who did not complete the stress subscale of the PPP, and one woman who did not answer the question regarding her education level. Descriptives of Study 1 variables are shown in Table 1. Participants mean was 24.7 years (SD = 5.88, range 14 - 45 years), with a mean education level of 12.86 years (SD = 2.25, range 3 - 24 years). Stress score mean was 18.86 (SD = 5.01, range 11 - 38), and mean social support of others of 52.1 (SD = 10.23, range 12 - 66). The majority of the sample was nonrural (84.2%), not married (58.4%), did not plan the current pregnancy (67.1%), and was Caucasian (93.9%).

Table 1

Sample Descriptive Statistics by Study 1 Variables

	Mean (SD) or %	Minimum	Maximum
Age	24.7 (5.88)	14	45
Education	12.86 (2.25)	3	24
Stress level	18.86 (5.01)	11	38
Social support level of others	52.81(10.23)	12	66
Rural	15.8%		
Married	41.6%		

Table 1 (continued)

Pregnancy Planned	31.5%
Caucasian	93.9%
Any type of IPV	26.4%
Physical IPV	2.4%
Sexual IPV	1.0%
Psychological IPV	26.3%

Study 1 Aim 1

The purpose of Aim 1 was to determine the IPV prevalence rates in the study sample for the presence of any type of IPV and for the presence of each type of IPV. A total of 281 (26.4%) women indicated the presence of at least one type of IPV occurring during pregnancy at the time of the initial prenatal interview. Table 1 includes the percentages for the presence of any type of IPV and for each of the IPV types on the initial interview modified HITS. Sexual IPV was quite low with only 11 women indicating the presence of sexual IPV, followed by 26 women indicating the presence of physical IPV. All women who experienced sexual IPV also indicated the presence of both physical and psychological IPV co-occurring. Interestingly, only one woman indicated that she experienced physical IPV without psychological or sexual IPV co-occurring. The majority of women who disclosed the presence of IPV during pregnancy indicated that they had experienced psychological IPV (n = 280), with 256 women indicating that they had experienced only psychological IPV without physical or sexual IPV co-occurring.

Study 1 Aim 2

The purpose of Aim 2 was to determine if IPV rates differed significantly for rural pregnant women compared to nonrural pregnant women for the presence of any type of IPV and for the presence of each type of IPV.

Aim 2.1 A chi-squared test of independence (with Yates Continuity Correction) examining the association between rural status and any IPV status indicated no significant association between rural status and the presence of any IPV (see Table 2), X^2 (1, n = 1057) = .13, p = .72, φ = -.014. Therefore the hypothesis that rural pregnant women were more likely to experience any kind of IPV was not supported.

Aim 2.2 A chi-squared test of independence examining the association between rural status and physical IPV status did not met the minimum expected cell frequency of five or greater (4.1 expected cell count for rural and physical IPV). Therefore Fisher's Exact Probability Test was applied (as suggested by Pallant, 2010), with the proportion of rural pregnant women not being significantly more likely to experience physical IPV compared to nonrural pregnant women (see Table 2), (N = 1057, p = .61, φ = -.002). Therefore the hypothesis that rural pregnant women were more likely to experience physical IPV was not supported.

Aim 2.3 A chi-squared test of independence examining the association between rural status and sexual IPV status did not met the minimum expected cell frequency of five or greater (1.7 expected cell count for rural and sexual IPV). Therefore Fisher's Exact Probability Test was applied (as suggested by Pallant, 2010), with the proportion of rural pregnant women not being significantly more likely to experience sexual IPV compared to nonrural pregnant women (see Table 2), (N = 1057, p = .25, φ = .032). Therefore the hypothesis that rural pregnant women were more likely to experience sexual IPV was not supported.

Aim 2.4 A chi-squared test of independence (with Yates Continuity Correction) examining the association between rural status and psychological IPV status indicated no significant association between rural status and psychological IPV status (see Table 2), X^2 (1, n = 1057) = .11, p = .74, φ = -.013. Therefore the hypothesis that rural pregnant women were more likely to experience psychological IPV was not supported.

Table 2

Frequencies and percentages of IPV types by rural status

IPV		Nonrural (n=809)	Rural (n=167)
Any IPV	No	73.15%	74.85%
	Yes	26.85%	25.15%
Physical IPV	No	97.53%	97.60%
	Yes	2.47%	2.40%
Sexual IPV	No	99.10%	98.20%
	Yes	0.90%	1.80%
Psychological IPV	No	73.26%	74.85%
	Yes	26.74%	25.15%

Chi-squared tests of independence were also used to examine possible relationships between the dichotomous demographics (marital status, pregnancy planned, race) and nonrural versus rural status in pregnant women. Only one relationship was significant. A Chi-squared test of independence (with Yates Continuity Correction) indicated a significant association between rural status and marital status X^2 (1, n = 1063) = 13.64, p < .001, φ= -.12, with married pregnant women being less likely to be rural. Whether the pregnancy was planned and the participants'

race were not significantly related to rural status. Additionally, independent samples *t* tests were conducted to examine any differences in the continuous demographics (age, education, social support, stress) of nonrural compared to rural women. None of the independent samples *t* tests indicated significant differences between rural and nonrural pregnant women on these measures.

Study 1 Aim 3

Because multicoliniearity can be an issue with regression models, before analysis the correlations among all continuous variables in the logistic regression model were examined and all correlations were less than r=.7. This indicated that the variables were not too highly inter-correlated. More importantly, tolerance levels were also examined. Due to software limitations, tolerance levels cannot be examined directly in logistic regression. However, because multicoliniearity is a feature of the explanatory variables and is unaffected by the predictor variable, tolerance levels can be examined using OLS regression, and all were above the acceptable limit of .2 (range .42 to .98) (O'Brien, 2007). Four logistic regression models were tested to examine if rural status significantly moderated the relationship between IPV risk factors and IPV status, one model each for the presence of any type of IPV, physical IPV, sexual IPV, and psychological IPV. All logistic regression models were tested using grand mean centered data in SAS.

Aim 3.1 A logistic regression model was tested to determine whether rural status significantly moderated the relationship between IPV risk factors and the presence of any type of IPV occurring during pregnancy. The model contained seven main effect variables (marital status, pregnancy planned, age, education, social support, stress level, rural status), and six rural status interaction variables. The full model containing all 13 predictors was statistically significant $X^2(12) = 242.33$, $p<.001$, indicating the model was able to distinguish between

participants who did and did not experience any type of IPV. The model as a whole explained between 21% (Cox and Snell R square) and 31% (Nagelkerke R square) of the variance in IPV status and correctly classified 79.3% of the cases. The risk factors for IPV in the model were: not being married, having an unplanned pregnancy, being of lower than average age (M = 24.7 years), having less than a high school education, having lower than average social support from others (M = 52.81), experiencing higher than average levels of stress (M = 18.86), and having rural status. As shown in Table 3, neither the main effect of rural status nor any of the rural status interactions were significant; therefore, the hypothesis that rural status significantly moderated the relationship between IPV risk factors and any type of IPV was not supported. However, the main effect of pregnancy planned (b = -.55, p = .014), age (b = -.05, p = .007), social support (b = -.07, p < .001), and stress levels (b = .13, p < .001) were all statistically significant with pregnancy planned being the most robust IPV predictor in the model (b = -.55). According to the model, a woman with an unplanned pregnancy has a 73% greater likelihood of experiencing any type of IPV compared to a woman with a planned pregnancy, and a younger pregnant woman has a greater likelihood of experiencing IPV during pregnancy than an older pregnant woman. Additionally, as social support levels from others decrease, the likelihood of IPV increases, and as stress levels increase, the likelihood of IPV also increases. If a pregnant woman possesses all of the significant risk factors in the model simultaneously, she is 40 times more likely to experience IPV during pregnancy compared to a pregnant woman that does not possess any of the risk factors.

Table 3

Logistic Regression Predicting Likelihood of the Presence of Any Type of IPV

					95% C. I. for Exp(B)	
Variable	B (SE)	Wald	p	Exp(B)	Lower	Upper
Marital status	-0.05 (.21)	0.06	0.80	0.95	-0.46	0.36
Pregnancy planned	-0.55 (.22)	5.99	0.01	0.58	-0.99	-0.11
Age	-0.05 (.02)	7.35	<.01	0.95	-0.09	-0.01
Education	-0.04 (.05)	0.59	0.44	0.96	-0.14	0.06
Social support	-0.07 (.01)	47.12	<.001	0.93	-0.09	-0.05
Stress level	0.13 (.02)	43.14	<.001	1.14	0.09	0.16
Rural Status	-0.09 (.34)	0.07	0.79	0.91	-0.77	0.58
Marital status* Rural status	-0.08 (.52)	0.02	0.88	0.92	-1.09	0.93
Pregnancy planned *Rural status	0.26 (.54)	0.23	0.63	1.29	-0.79	1.31
Age*Rural status	0.07 (.04)	2.68	0.10	1.07	-0.01	0.15
Education*Rural status	-0.01 (.13)	0.002	0.96	0.99	-0.26	0.25
Social support*Rural status	0.03 (.02)	2.01	0.16	1.04	-0.01	0.08
Stress level*Rural status	0.04 (.05)	0.77	0.38	1.04	-0.06	0.14
Constant	-1.08 (.13)	75.16	<.001	0.34	-1.33	-0.84

$X^2(12, n = 1030) = 242.33$, $p<.001$

Cox and Snell $R^2 = .21$, Nagelkerke $R^2 = .31$

Aim 3.2 A logistic regression model was tested to determine whether rural status significantly moderated the relationship between IPV risk factors and physical IPV occurring during pregnancy. The model contained seven main effect variables (marital status, pregnancy planned, age, education, social support, stress level, rural status), and six rural status interaction variables. The full model containing all 13 predictors could not be estimated due to the detection of quasi-complete separation of the data points. Therefore, the standard errors of the parameters were inspected and it was decided to drop the rural status by marital status interaction term, and the rural status by pregnancy planned interaction term from the model.

The full model containing all 11 predictors was statistically significant $X^2(10) = 40.34$, $p<.001$, indicating the model was able to distinguish between participants who did and did not experience physical IPV. The model as a whole explained between 4% (Cox and Snell R square) and 19% (Nagelkerke R square) of the variance in IPV status and correctly classified 83% of the cases. The risk factors for IPV in the model were the same as the previous logistic regression model. As shown in Table 4, neither the main effect of rural status, nor any of the rural status interactions were significant; therefore, the hypothesis that rural status significantly moderated the relationship between IPV risk factors and physical IPV was not supported. However, the main effect of stress levels (b = .02, p = .001) was statistically significant, with social support (b = -.04, p = .08) approaching significance. According to the model, as stress levels increase the likelihood of physical IPV also increases. For example, a pregnant woman with a stress level one standard deviation above the mean is 81% more likely to experience physical IPV compared to a pregnant woman with an average level of stress. Conversely, a pregnant woman with a stress level one standard deviation below the mean is 45% less likely to experience physical IPV during pregnancy compared to a pregnant women with an average level of stress.

Table 4

Logistic Regression Predicting Likelihood of the Presence of Physical IPV

					95% C. I. for Exp(B)	
Variable	B (SE)	Wald	p	Exp(B)	Lower	Upper
Marital status	-0.89 (.62)	2.08	0.15	0.41	-2.11	0.32
Pregnancy planned	-0.93 (.77)	1.50	0.22	0.40	-2.43	0.55
Age	-.04 (.05)	0.58	0.45	0.96	-0.14	0.06
Education	-.09 (.15)	0.38	0.54	0.91	-0.39	0.20
Social support	-.04 (.02)	3.03	0.08	0.96	-0.08	0.005
Stress level	.12 (.05)	6.82	0.009	1.13	0.03	0.21
Rural Status	-.96 (1.28)	0.57	0.45	0.38	-3.46	1.54
Age*Rural status	.12 (.10)	1.60	0.21	1.13	-0.07	0.31
Education*Rural status	-.11 (.39)	0.08	0.78	0.90	-0.87	0.65
Social support *Rural status	.05 (.06)	0.67	0.41	0.95	-0.17	0.07
Stress level*Rural status	.04 (.13)	0.90	0.76	1.04	-0.22	0.30
Constant	-3.88 (.36)	113.78	<.001	0.21	-4.60	-3.17

$X^2(10, n = 1030) = 40.34, p<.001$

Cox and Snell $R^2 = .04$, Nagelkerke $R^2 = .19$

Aim 3.3. A logistic regression model was tested to determine whether rural status significantly moderated the relationship between IPV risk factors and sexual IPV occurring during pregnancy. The model contained seven main effect variables (marital status, pregnancy planned, age, education, social support, stress level, rural status), and six rural status interaction variables. The full model containing all 13 predictors could not be estimated due to the detection of quasi-

complete separation of the data points. Therefore, the standard errors of the parameters were inspected and it was decided to drop the rural status by pregnancy planned interaction term from the model.

The full model containing all 12 predictors was statistically significant $X^2(11) = 26.26$, $p < .01$, indicating the model was able to distinguish between participants who did and did not experience sexual IPV. The model as a whole explained between 2.5% (Cox and Snell R square) and 23% (Nagelkerke R square) of the variance in IPV status and correctly classified 85% of the cases. The risk factors for IPV in the model were the same as the previous logistic regression models. As shown in Table 5, neither the main effect of rural status nor any of the rural status interactions were significant; therefore, the hypothesis that rural status significantly moderated the relationship between IPV risk factors and sexual IPV was not supported. The remainder of the main effects were also not statistically significant, although stress level (b = .12, $p = .087$) and education by rural status interaction (b = -.98, $p = .051$) were approaching significance.

Table 5

Logistic Regression Predicting Likelihood of the Presence of Sexual IPV

					95% C. I. for Exp(B)	
Variable	B (SE)	Wald	p	Exp(B)	Lower	Upper
Marital status	0.33 (.79)	0.18	0.67	1.40	-1.21	1.88
Pregnancy planned	-1.20 (1.12)	1.16	0.29	0.30	-3.40	0.98
Age	0.05 (.07)	0.49	0.49	1.05	-0.08	0.17
Education	0.02 (.20)	0.01	0.91	1.02	-0.37	0.42
Social support	-0.04 (.03)	1.38	0.24	0.96	-0.11	0.03
Stress level	0.12 (.07)	2.92	0.09	1.13	-0.02	0.26

Table 5 (continued)

Rural Status	-1.11 (1.88)	0.30	0.59	0.36	-4.70	2.66
Marital status* Rural status	-0.14 (1.70)	0.01	0.93	0.87	-3.46	3.18
Age*Rural status	0.10 (.12)	0.68	0.41	1.10	-0.14	0.34
Education*Rural status	-0.98 (.50)	3.80	0.05	0.38	-1.96	0.01
Social support*Rural status	-0.04 (.08)	0.24	0.63	0.96	-0.19	0.12
Stress level*Rural status	-0.07 (.15)	0.21	0.65	0.93	-0.37	0.23
Constant	-5.10 (.59)	73.60	<.001	0.01	-6.26	-3.93

$X^2(11, n = 1030) = 26.26, p<.01$

Cox and Snell $R^2 = .025$, Naglkerke $R^2 = .225$

Aim 3.4. A logistic regression model was tested to determine whether rural status significantly moderated the relationship between IPV risk factors and psychological IPV occurring during pregnancy. The model contained seven main effect variables (marital status, pregnancy planned, age, education, social support, stress level, rural status), and six rural status interaction variables. The full model containing all 13 predictors was statistically significant and nearly identical to the results from the logistic regression examining any type of IPV (see Table 3). Neither the main effect of rural status nor any of the rural status interactions were significant; therefore, the hypothesis that rural status significantly moderated the relationship between IPV risk factors and psychological IPV was not supported. As in the results from the analysis of the presence of any type of IPV, the main effect of pregnancy planned, age, social support, and stress levels were all statistically significant.

Study 2

The overarching purpose of Study 2 was to examine whether and how IPV changes throughout the course of pregnancy. The subsample of the TIPS participants that had experienced some type of IPV at least once during pregnancy consisted of 337 pregnant women. The presence or absence of any type of IPV and the presence or absence of IPV indicated in each of the IPV questions on the modified HITS was examined at each of the four time bins. Time bin 1 represented responses from the first trimester (gestational ages 1 through 13 weeks), time bin 2 represented the first half of the second trimester (gestational ages 14 through 19 weeks, time bin 3 represented the second half of the second trimester (gestational ages 20 through 26 weeks), and time bin 4 represented the third trimester (gestational 26 weeks and beyond) (see Table 6). All time bins variables were dummy coded for analysis.

Table 6

Frequencies of IPV Occurrence for Pregnant Women that Reported IPV at Least Once During Pregnancy for Each Time Bin and for Each IPV Type

		Time Bin			
		1	2	3	4
		% (n)	% (n)	% (n)	% (n)
Any IPV	No	6.62% (35)	3.78% (20)	4.35% (23)	8.51% (45)
	Yes	19.66% (104)	13.04% (69)	13.61% (72)	30.43% (161)
Physical IPV	No	24.31% (133)	15.72% (86)	15.9% (87)	35.28% (193)
	Yes	1.28% (7)	0.73% (4)	1.65% (9)	5.12% (28)
Insult IPV	No	12.61% (69)	7.86% (43)	8.59% (47)	16.82% (92)
	Yes	12.98% (71)	8.59% (47)	8.78% (48)	23.77% (130)
Threat IPV	No	22.34% (122)	13.55% (74)	14.29% (78)	31.14% (170)
	Yes	3.3% (18)	2.93% (16)	3.11% (17)	9.34% (51)
Scream IPV	No	8.76% (48)	5.66% (31)	5.84% (32)	12.96% (71)
	Yes	16.79% (92)	10.77% (59)	11.68% (64)	27.55% (151)
Sex IPV	No	25.09% (137)	16.67% (91)	16.85% (92)	39.19% (214)
	Yes	0.55% (3)	0% (0)	0.37% (2)	1.28% (7)

Table 6 clearly shows that IPV can occur at any time period throughout the course of pregnancy. Examining the frequencies of IPV occurrence for pregnant women who reported experiencing the presence of any type of IPV at least once during pregnancy shows that the presence of all types of IPV seems to increase as pregnancy progresses. The highest IPV percentages for the individual types of IPV and for any type of IPV are in time bin 4, which encompasses the last trimester of pregnancy. It is important to keep in mind when examining the data that although 337 women indicated they had experienced at least one type of IPV during at least one time period throughout pregnancy, information for all of the women was not available for all time bins. This is mainly because women entered prenatal care and completed the assessments at different gestational ages. Additionally, although some women had information for multiple modified HITS administrations, they may have occurred within the same time bin. In that scenario the mean of the modified HITS scores for that time bin was used for analysis. For example, if a woman entered prenatal care during her third trimester (time bin 4), it is possible that she completed up to four modified HITS, all occurring in the last trimester, and therefore the mean of each of the items on the modified HITS was used for analysis for that participant in time bin 4.

Of the 337 women who indicated they had experienced IPV at least once during the course of pregnancy, 169 women had IPV information in only a single time bin, 130 women in two time bins, 31 women in three time bins, and 7 women in all four time bins. It is important to note that if a woman completed only a single modified HITS, that information was shown in only one time bin; however, the specific time bin (1, 2, 3, or 4) depended on the gestational age that the woman completed the modified HITS. For example, a woman who entered prenatal care at 21 weeks pregnant, completed only one modified HITS, and indicated that she had

experienced IPV, would have her information presented only in time bin 3. Additionally, a woman who entered prenatal care at 15 weeks pregnant and indicated the presence of IPV on the modified HITS, and then completed the modified HITS again at 27 weeks pregnant, would have her information presented in time bin 2 and time bin 4 respectively.

To further clarify, because the total number of responses (yes or no to IPV occurring on that specific modified HITS) varied for each time bin (1, 2, 3, or 4), Study 2 analysis included 142 responses from women who indicated they had experience IPV in time bin 1, 91 responses for time bin 2, 95 responses for time bin 3, and 222 responses for time bin 4, for a total of 550 responses across all time bins. This also indicated that the majority of participant responses occurred during time bin 4, which was the last trimester of pregnancy.

Study 2 Aim 4

The overarching aim of study 2 was to describe the likelihood of the presence of any type of IPV and of each type of IPV (physical, sexual, and psychological) over the course of pregnancy. This aim was accomplished by testing six generalized estimating equation logistic models (see Table 7). For each GEE logistic model, the predictors were a set of dummy coded time bins that represented the presence or absence of IPV at each time period the modified HITS was completed. The model intercept was suppressed and the p values are not presented because they did not test a meaningful null hypothesis.

Table 7

Fixed Effect Parameter Estimates of the GEE Logistic Regression Models Predicting the Likelihood of IPV throughout Pregnancy

	Time Bin	β(SE)	95% C. I.	
Model 1	1	-.63 (.12)	-0.86	-0.39
Any IPV	2	-1.28 (.14)	-1.55	-1.02
	3	-1.23 (.14)	-1.49	-0.96
	4	.026 (.12)	0.03	0.50
Model 2	1	-2.97 (.39)	-3.73	-2.20
Physical IPV	2	-2.89 (.42)	-3.72	-2.07
	3	-2.16 (.29)	-2.74	-1.58
	4	-1.92 (.20)	-2.31	-1.53
Model 3	1	.02 (.17)	-0.30	0.35
Insult IPV	2	.14 (.21)	-0.27	0.55
	3	.39 (.21)	-0.03	0.80
	4	.35 (.14)	0.09	0.62
Model 4	1	-1.87 (.24)	-2.34	-1.40
Threat IPV	2	-1.50 (.26)	-2.01	-0.99
	3	-1.31 (.22)	-1.74	-0.87
	4	-1.18 (.16)	-1.49	-0.88
Model 5	1	.67 (.18)	0.32	1.02
Scream IPV	2	.66 (.22)	0.23	1.10
	3	.72 (.22)	0.29	1.15
	4	.76 (.14)	0.48	1.05
Table 7 (continued)				
Model 6	1	-3.82 (.58)	-4.97	-2.68
Sex IPV	3	-3.83 (.72)	-5.24	-2.43
	4	-3.42 (.38)	-4.17	-2.67

Aim 4.1. A GEE logistic regression model was tested to describe how the presence of any type of IPV changed throughout pregnancy and was significant at all four time bins (see Table 7). For ease of interpretation, the logit estimates at each time bin and their corresponding confidence intervals were converted into probabilities and presented in Figure 3.

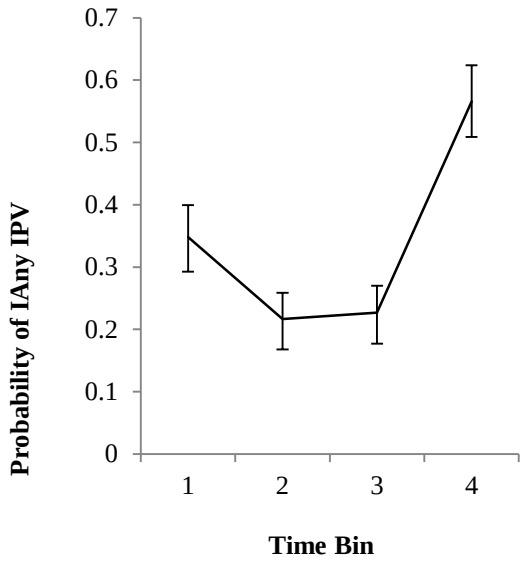

Figure 3. Probability of the Presence of Any IPV Throughout Pregnancy for Women Who Reported IPV at Least Once During Pregnancy

As shown in Figure 3, the probability of any type of IPV occurring decreased during the second trimester of pregnancy (time bins 2 and 3), and then increased during the third trimester of pregnancy. In order to describe the differences between each time bin, all pairwise comparisons were examined (see Table 8). All pairwise comparisons were significantly different, with the exception of the comparison between time bins 2 and 3.

Table 8

Time Bin Comparisons for the Presence of Any Type of IPV

Time Bin	X^2	p
1 vs 2	10.79	0.00
1 vs 3	8.88	0.00
1 vs 4	22.01	<.0001
2 vs 3	0.08	0.77
2 vs 4	60.98	<.0001
3 vs 4	55.46	<.0001

Because of a concern regarding sample selection where abused women may not seek out prenatal care until late pregnancy and/or only completed only one IPV assessment, a comparison was made between three different groupings of pregnant IPV women who had experienced any IPV at least once during pregnancy: the mean total IPV scores at each time bin for all participants in Study 2 (Figure 4), the mean total IPV scores at each time bin for the participants in Study 2 who completed only one IPV assessment during pregnancy (see Figure 5), and the mean total IPV scores at each time bin for women in Study 2 who completed two or more IPV assessments during pregnancy (Figure 6).

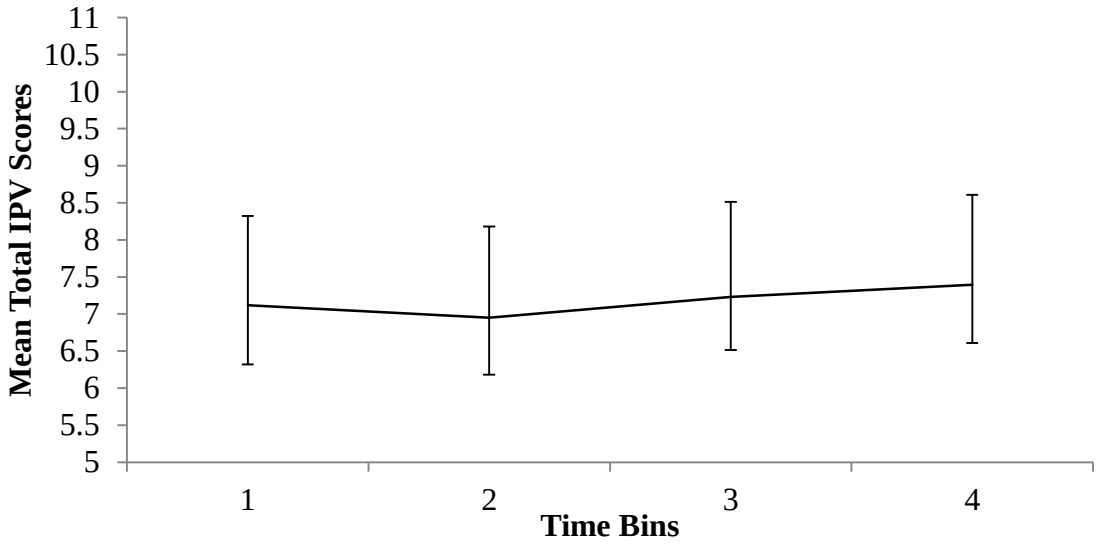

Figure 4. Mean Total IPV Scores at Each Time Bin for All Participants Who Indicated Any Type of IPV at Least Once During Pregnancy

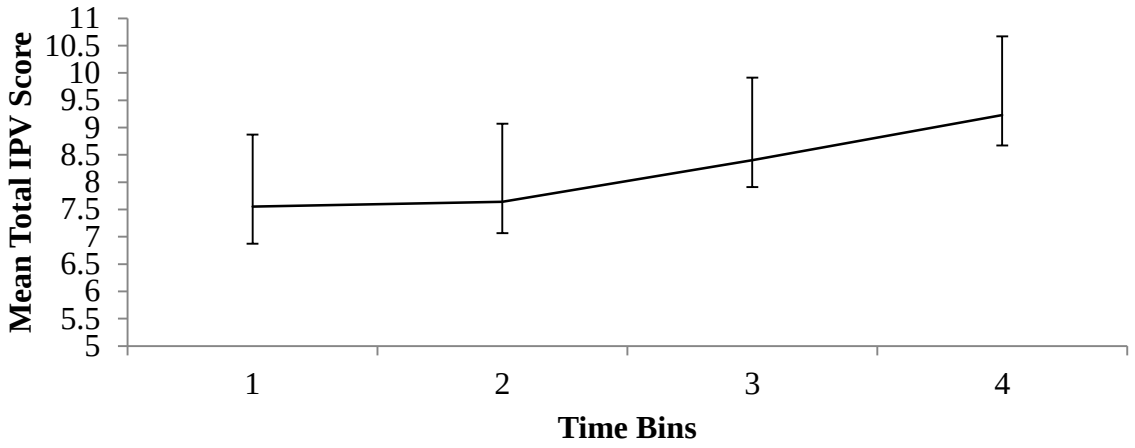

Figure 5. Mean Total IPV Scores at Each Time Bin for Participants Who Indicated Any Type of IPV at Least Once During Pregnancy and Completed Only One IPV Assessment

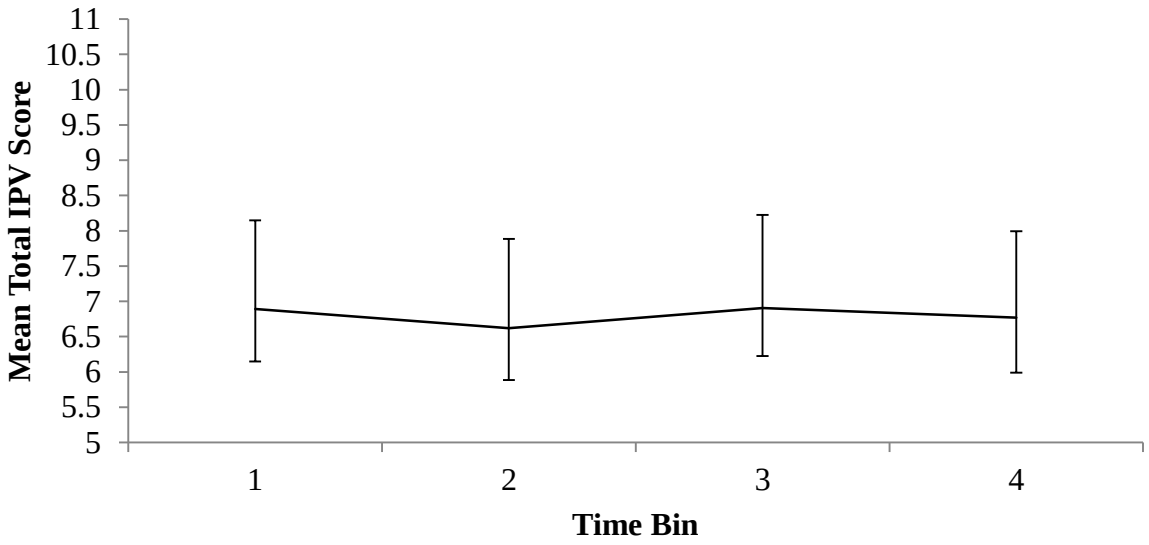

Figure 6. Mean Total IPV Scores at Each Time Bin for Participants Who Indicated Any Type of IPV at Least Once During Pregnancy and Completed Two or More IPV Assessments

As shown in Figure 4, the total IPV score for all women that identified the presence of any IPV at least once during pregnancy maintained relatively the same total IPV score throughout pregnancy with a range of scores across time bins from 6.95 to 7.39. This indicated

that for many women the likelihood of any type of IPV remained approximately the same over the course of pregnancy. This is in contrast to Figure 5, the total IPV score for women that identified the presence of any IPV and completed only one IPV assessment during pregnancy, which shows higher likelihood of IPV in the third trimester (time bin 4). Additionally, Figure 5 shows a larger range of IPV scores across time bins from 7.56 to 9.23, with the mean total IPV score higher than shown in Figure 6, with a difference of almost 2.5 points for time bin 4.

Aim 4.2 A GEE logistic regression model was tested to describe how physical IPV changed throughout pregnancy and was significant at all four time bins (see Table 7). For ease of interpretation, the logit estimates at each time bin and their corresponding confidence intervals were converted probabilities and presented in Figure 4.

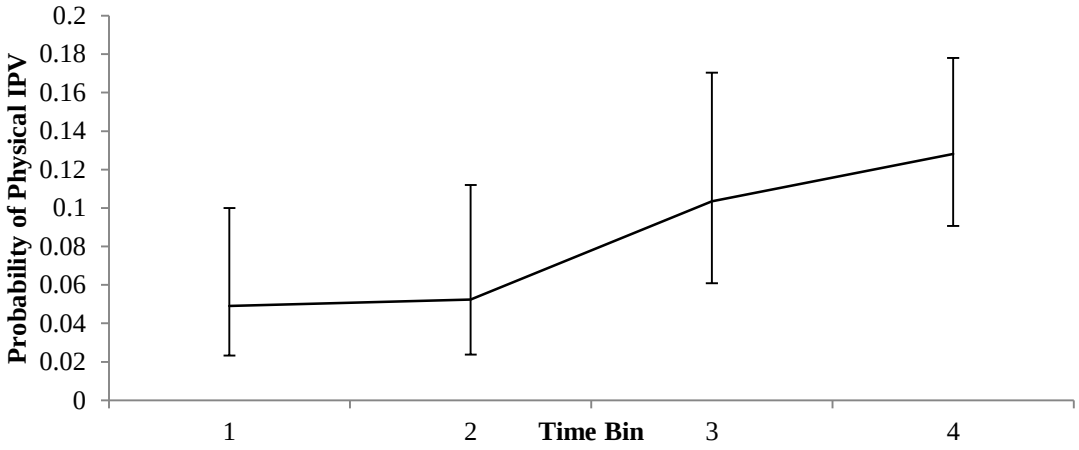

Figure 7. Probability of the Presence of Physical IPV Throughout Pregnancy for Women Who Reported IPV at Least Once During Pregnancy

As shown in Figure 7, the probability of physical IPV occurring increased as pregnancy progressed. In order to describe the differences between each time bin, all pairwise comparisons were examined (see Table 9). Significant differences in time bins were found between time bins 1 and 4 and between time bins 2 and 4. The comparisons between time bins 1 and 3 and time bins 2 and 3 were approaching significance.

Table 9

Time Bin Comparisons for the Presence of Physical IPV

Time Bin	X^2	p
1 vs 2	0.02	0.90
1 vs 3	3.12	0.08
1 vs 4	8.93	<.01
2 vs 3	2.85	0.09
2 vs 4	7.31	0.01
3 vs 4	0.6	0.44

Aim 4.3 A GEE logistic regression model was tested to describe how sexual IPV changed throughout pregnancy. There was no incidence of sexual IPV in time bin 2; therefore, its corresponding indicator variable was dropped from the model. The remaining time bins were all significant (see Table 7). For ease of interpretation, the logit estimates at each time bin and their corresponding confidence intervals were converted probabilities and presented in Figure 5.

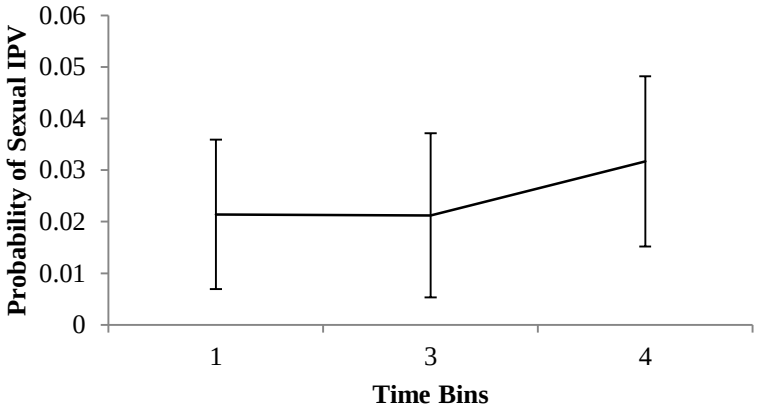

Figure 8. Probability of the Presence of Sexual IPV Throughout Pregnancy for Women Who Reported IPV at Least Once During Pregnancy

As shown in Figure 8, the probability of sexual IPV occurring shows a minimal increase as pregnancy progresses; however, the pairwise comparisons between each time bin had no significant differences (see Table 10).

Table 10

Time Bin Comparisons for the Presence of Sexual IPV

Time Bin	X^2	p
1 vs 3	0.00	0.99
1 vs 4	0.36	0.55
3 vs 4	0.30	0.58

Aim 4.4 Three GEE logistic regression models were tested to describe how psychological IPV changed throughout pregnancy, one model for each of the psychological questions on the modified HITS (insult IPV, threat IPV, and scream IPV) for a total of three models (see Table 7). The psychological IPV questions were examined separately in order to examine IPV throughout pregnancy in greater detail. For ease of interpretation the logit estimates at each time bin and their corresponding confidence intervals were converted probabilities for each of the three psychological IPV questions (insult, threaten, and scream) and presented in Figures 9, 10, and 11.

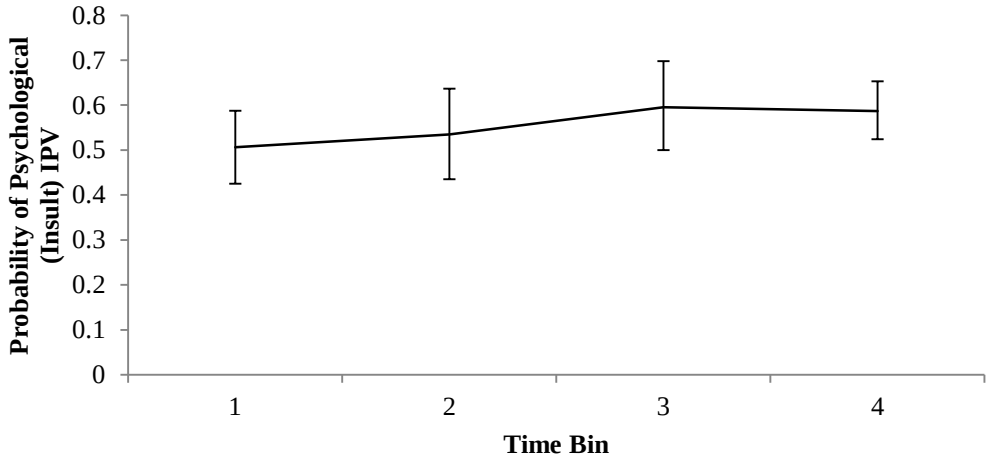

Figure 9. Probability of the Presence of Insult (Psychological) IPV Throughout Pregnancy for Women Who Reported IPV at Least Once During Pregnancy

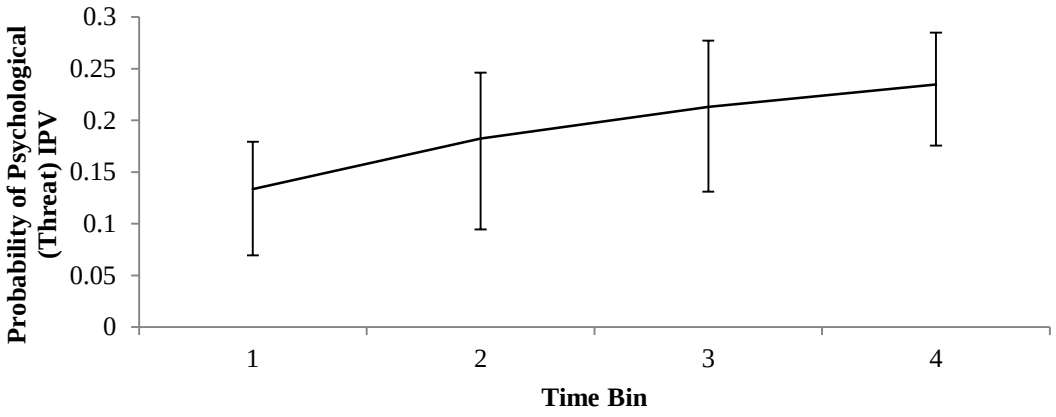

Figure 10. Probability of the Presence of Threat (Psychological) IPV Throughout Pregnancy for Women Who Reported IPV at Least Once During Pregnancy

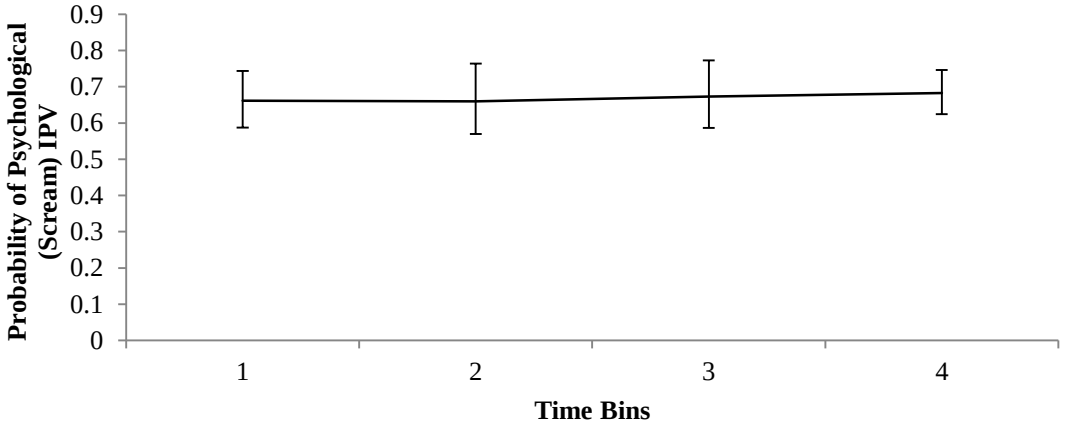

Figure 11. Probability of the Presence of Scream (Psychological) IPV Throughout Pregnancy for Women Who Reported IPV at Least Once During Pregnancy

The probability of psychological IPV occurring showed different trends throughout pregnancy depending on the specific psychological IPV question. In order to describe the differences between all of the time bins, all pairwise comparisons for each of the three psychological IPV questions were examined (see Table 11).

Table 11

Time Bin Comparisons for the Presence of Psychological IPV

Psychological IPV	Time Bin	X^2	p
Insult	1 vs 2	0.20	0.66
	1 vs 3	1.54	0.21
	1 vs 4	2.64	0.10
	2 vs 3	0.63	0.43
	2 vs 4	0.79	0.38
	3 vs 4	0.02	0.90
Threat	1 vs 2	1.13	0.29
	1 vs 3	2.78	0.10
	1 vs 4	7.71	0.01
	2 vs 3	0.31	0.58
	2 vs 4	1.36	0.24
	3 vs 4	0.24	0.62
Scream	1 vs 2	0.00	0.99
	1 vs 3	0.04	0.85
	1 vs 4	0.17	0.68
	2 vs 3	0.04	0.85
	2 vs 4	0.14	0.70
	3 vs 4	0.03	0.87

A slight increase in insult IPV was seen as pregnancy progressed, however, there were no significant differences among the time bins, although time bin 3 was approaching significance. Additionally, there were no significant pairwise comparisons between the time bins for insult IPV. For threat IPV the probability of threat IPV significantly increased as pregnancy progressed. Pairwise comparisons revealed a significant difference for threat IPV between time bins 1 and 4, with the difference between time bins 1 and 3 approaching significance. The probability of scream IPV remained approximately stable throughout pregnancy with no significant differences in time bin comparisons.

CHAPTER 5

DISCUSSION

Unfortunately, many women experience IPV, and the CDC has estimated that more than 324,000 women in the United States experience IPV during pregnancy each year (CDC, 2009). In pregnant women IPV puts both the mother and child at risk for death and numerous other negative health outcomes. The current project was an investigation of the prevalence, different types, and risk factors of IPV during pregnancy in an Appalachian sample that contained women from both rural and nonrural locations (Study 1). Additionally, the purpose of Study 1 was to examine rural status as a moderator for the relationship between IPV risk factors and the presence of different types of IPV. In Study 2, the different types of IPV were examined throughout the course of pregnancy for the subsample of women who had experienced IPV at least once during the course of pregnancy.

Study 1

Aim 1

The purpose of aim 1 was to determine IPV prevalence rates in the study sample for the presence of any type of IPV and for the presence of each type of IPV (physical, sexual, and psychological). At the time of the initial prenatal interview, approximately 26% of women indicated the presence of at least one type of IPV occurring during pregnancy. The majority of women who experienced IPV during pregnancy reported experiencing psychological violence, with few women reporting physical violence (2%) and even fewer reporting sexual violence (1%).

It is difficult to compare the prevalence rates during pregnancy found in the current study to other IPV pregnancy prevalence rates because of the vast differences in methodologies,

populations, and assessments that have been used in past research. Furthermore, the time frame of "pregnancy" in previous research has included studies of up to 1 year before pregnancy or after delivery (McMahon & Armstrong, 2012). The reported IPV prevalence rates during pregnancy range widely from less than 1% (Janssen et al., 2003) to over 81% (Bailey & Daugherty, 2007). Results from the current study revealed a large range of IPV prevalence rates (1% - 26%) that varied according to the specific type of IPV examined. However, the range was not as large as anticipated which may be due to the compressed time frame that included only when the participant was pregnant, and the use of a brief IPV screen. Studies using in-depth inquires of IPV, such as the CTS2 (Straus et al., 1996) and its modifications yield much higher prevalence rates during pregnancy than briefer assessments (McFarlane et al., 1992).

This is the first study of which the author is aware that a modification of the HITS has been used specifically for identification of IPV in a pregnant population. The current investigation adds to the literature on the usefulness of the HITS as a brief IPV screen in diverse populations. IPV prevalence rates in the current study were lower than those reported in past research examining the presence of any type of IPV in an Appalachian pregnant population (Bailey & Daugherty, 2007; Jesse, 2003). However, findings of low prevalence rates of physical and sexual violence during pregnancy were similar to other research findings that employed brief IPV screens (Coker et al., 2004; Martin et al., 2006; Roelens et al., 2008). Similar to other reported findings that included measures of psychological IPV (e.g. Bailey & Daugherty, 2007; Hellmuth et al., 2013; Martin & Garcia, 2011), the current study found that psychological IPV was the most prevalent type of IPV reported. Comparable to findings by Martin et al. (2003), psychological IPV was much more likely to occur during pregnancy compared to physical or sexual IPV. It should be pointed out that, with the exception of one woman, all reports of

physical and sexual IPV were co-occurring with psychological IPV. The results of the current study emphasize the need to include screening for psychological IPV during pregnancy in addition to physical and sexual IPV. Knowing the prevalence of IPV during pregnancy is the first step in helping to inform the development and implementation of interventions to prevent and reduce IPV.

Aim 2

The purpose of aim 2 was to determine if IPV rates differed significantly for rural pregnant women compared to nonrural pregnant women for the presence of any type of IPV and for each type of IPV. The hypotheses that rural pregnant women would be more likely to experience IPV were not supported. In this study defining rural status using RUCA codes did not result in group differences in IPV status. These findings contradict previous research reporting higher IPV prevalence rates in rural locations (Peek-Asa et al., 2011; Websdale et al., 1999). However, a key issue to consider when interpreting the results of aim 2 is how rural status was operationally defined in the study. Defining "rural" is a complex and multifaceted process that is not clearly described in the literature. Although the perception of Appalachia and the study region is often considered to be rural, by using the RUCA codes as described in the methodology, only a small percentage of the study participants were coded as rural (15.8%). This small percentage of rural pregnant women, in addition to the low percentages of those who had experienced IPV within rural and nonrural status likely influenced and therefore reduced the power of the statistical analyses.

However, it is also possible that the findings of the current investigation are accurate such that there are no significant differences between IPV rates for rural compared to nonrural pregnant women in Appalachia. If RUCA codes are used to examine IPV status in future studies,

they should include a much larger number of participants within the operationally defined rural status category to compare rural and nonrural participants in order to support or refute the current findings. Additionally, alternate measures of rural status such as self-perceptions of rural status, or using a composite measure of SES may yield a better indicator of examining IPV differences in pregnant women.

Aim 3

The purpose of aim 3 was to further explore how or if rural status is related to IPV risk factors and the presence of IPV during pregnancy. The hypotheses that rural status would moderate the relationships between IPV risk factors and the presence of any type of IPV and for each type of IPV were not supported. Just as rural status was found to not be a significant predictor of the presence of IPV, rural status was also found not to be a significant modifying variable. Similar to aim 2, these results should be considered in the context of using RUCA codes to operationally define rural status.

Although rural status was not a significant predictor of IPV in this study, each of the four statistical models tested confirmed risk factors that were able to distinguish between participants who did and did not experience the presence of any type of IPV, and for each of the types of IPV. Similar to previous research (e. g., James et al., 2013; Saltzman et al., 2003), the current investigation supported that having an unplanned pregnancy, being a younger age, having low levels of social support, and having high levels of stress are all significant predictors of the presence of any type of IPV.

Regardless of rural status, the proportions of women reporting the presence of any type of IPV and psychological IPV were almost identical. The similarity between the presence of any type of IPV and psychological IPV results were not unexpected because the majority of women

identified the presence of psychological IPV as opposed to physical or sexual IPV. Stress from psychological IPV has been associated with many negative health outcomes and behaviors for pregnant mothers and their unborn children (Taillieu & Brownridge, 2010).

While only a small percentage of women reported the presence of physical or sexual IPV, it is very important to point out that stress levels, and to a lesser degree, social support levels, were significant predictors of physical and sexual IPV in addition to psychological IPV. In the present study controlling for other IPV risk factors, a pregnant woman with high levels of stress was significantly more likely to experience IPV compared to a pregnant women with lower levels of stress. Similar findings implicating a strong relationship between stress, social support and IPV were reported in a comparable population of pregnant women in the rural Midwest (Bhandari et al., 2008). These findings speak to the importance of health care providers inquiring about stress levels in addition to background characteristics (such as age, or whether the pregnancy was planned), when screening for IPV.

Study 2

Aim 4

The purpose of aim 4 was to describe the presence of any type of IPV and the course of each type of IPV across pregnancy in the study sample. Results indicate that for women who experience IPV at some point during pregnancy, the likelihood of experiencing any type of IPV is lowest during the second trimester of pregnancy and highest during the third trimester of pregnancy. Each of the specific types of IPV also showed the trend of the greatest likelihood of IPV being experienced in the third trimester, which stands to reason as the specific types of IPV were used as the basis for determining the presence of any type of IPV. These results must be interpreted with caution bearing in mind two conditions of the data. First, there was not a

comparison of IPV experiences before, during, and after pregnancy. Therefore it is unknown if the IPV began or ended during pregnancy. Second, although IPV was examined longitudinally across pregnancy for the 337 women that indicated the presence of IPV at least once during pregnancy, the majority of women had information in only one or two time bins (n = 169, and n = 130 respectively), with information across all four time bins given for only seven women. Given the small amount of individual participant data across time bins, it is difficult to deduce if IPV likelihood increased, decreased, or remained the same during the course of pregnancy.

There are two likely explanations for the research findings that the likelihood of any type of IPV is increased during the third trimester of pregnancy. The first is that women who experience IPV at some point during pregnancy are significantly more likely to experience IPV as their pregnancy progresses. A second plausible explanation is that women who were experiencing IPV entered into prenatal care later in pregnancy compared to women who did not experience IPV during pregnancy, which has some support in the literature (Dillon et al., 2013). Further examination of the data by comparing the total IPV scores of women who only completed one IPV assessment to both all participants and participants who completed two or more IPV assessments provided additional support for the second explanation of the results. This means that one cannot draw the conclusion that the rate of IPV changes for an individual throughout pregnancy, but it does indicate that a larger proportion of women in prenatal care in the third trimester experience IPV than women in prenatal care earlier in pregnancy. This could as easily be a change in the makeup of the groups as a change in IPV across time. In light of these results, health care providers should be particularly vigilant in IPV screening for women that enter prenatal care late, as those women may be more likely to be experiencing IPV. Further research is needed to examine late entry into prenatal care as a predictor of IPV. In regard to

either explanation of aim 4 results, it is important to screen for IPV multiple times during the course of pregnancy.

Results from this study support findings of other IPV research such that it can take multiple direct questions regarding IPV for women to disclose IPV experiences (Martin et al., 2004; Taillieu & Brownridge, 2011). For the first IPV assessment given, 281 women were identified as having experienced IPV during pregnancy. When examining the multiple assessments given over the course of pregnancy, 337 women were identified as having experienced IPV during pregnancy. While it is possible that for the 56 women identified as having experienced IPV on a subsequent screen had recently began experiencing IPV, it is also reasonable to consider that many of the women chose not to disclose IPV at the initial assessment. Again, it is emphasized that the current study agrees with major medical associations (i.e. AGOC & AMA) that all pregnant women should be routinely screened for IPV throughout the course of pregnancy.

Strengths

The current study adds to the limited literature on IPV during pregnancy in Appalachian women in several ways. First, the current project used a larger number of participants compared to previous studies of IPV in similar populations (e.g. Bailey & Daugherty, 2007), increasing power of statistical procedures and confidence in findings. Second, it was the first study of which the author is aware that operationally defined rural status and examined how rural status related to risk factors for the different types of IPV in pregnancy. Third, to the author's knowledge this is the only study that has investigated how the different types of IPV changed throughout the course of pregnancy by assessing IPV longitudinally up to four times while participants were still pregnant. Lastly, this project adds to the IPV literature by using results from a brief IPV screen

that can be easily implemented into routine screenings in health care settings. Gaining a better understanding of risk factors that predict the different types of IPV and examining IPV over the course of pregnancy can help inform health care workers how to better address the needs of their patients and possibly improve pregnancy outcomes.

Limitations

As with all research, there were limitations with the current project. The generalizability of the present research findings to other pregnant populations may be limited. Although participants were pregnant women from Appalachia, they were recruited to participate in the TIPS program, which was focused on smoking cessation research, and may not be representative of Appalachian pregnant women in general. As previously discussed, there is a great deal of variation in how the term rural is defined. In the current examination of IPV in the population of interest, using RUCA codes as presented in the current investigation may not have been the optimal way of defining rural status in order to identify group differences. Future research should include alternative measures of rural status such as driving distance to the hospital.

Additionally there were some critical limitations regarding IPV measurement. IPV was self-reported as part of the larger TIPS research project. It is possible that participants were not honest in their responses, with the likelihood of IPV being underreported due to the sensitive nature of the topic. Also due to the use of self-reported IPV status, there is no way to verify that IPV had occurred. Having a before pregnancy and an after delivery measure using the same IPV assessment would have been extremely useful in more thoroughly describing how the occurrence of IPV may differ in pregnant versus nonpregnant women. Similarly, having a greater number of pregnant women with assessments across more time bins would have provided a clearer picture of IPV occurrence throughout pregnancy. While the modified HITS addressed physical, sexual,

and psychological IPV, future research should examine other IPV screens for use as a brief, yet comprehensive assessment tool. While more detailed and lengthy measurements, such as the CTS2, give more specific and abundant IPV information, practicality of screening and the inclusion of all types of IPV should be a prominent consideration for routine IPV screening in health care settings.

Translational Implications

The current investigation supported previous research that psychological IPV is the most common type of IPV, and health care workers need to make sure to screen for IPV specifically during pregnancy. Although any pregnant woman may be at risk for experiencing IPV, health care workers should be particularly vigilant for IPV for women who have an unplanned pregnancy, exhibit signs of high levels of stress, have few or no people in their social support network, are younger, and initiated prenatal care during the third trimester. Researchers and health care workers in Appalachia should be made aware that it is unclear if using RUCA codes as presented in the current project are beneficial in determining IPV status for pregnant women. The current research also suggests that some women may choose to not disclose IPV experiences at initial prenatal appointments, and/or that for some women IPV begins at a later time during their pregnancy. The sooner IPV is identified during pregnancy, the sooner it can be addressed and negative health outcomes mitigated.

Health care workers are in a unique position to assess and provide support for women who experience IPV during pregnancy because of the nature of the patient relationship and of the many opportunities for intervention that occur during the course of pregnancy. Therefore, it is strongly recommended that inquiries regarding all types of IPV should be routinely asked during all prenatal care visits. Ideally, all women should be able to focus on their own health and the

health of their baby without fear of IPV. Identifying IPV in pregnant women allows the opportunity to assuage the possible negative health outcomes of IPV for both mother and child and consequently can reduce the financial burden that is a consequence of IPV.

Conclusions

The current project confirmed there is large variation in the prevalence of IPV rates in pregnant women dependent upon the timing of IPV inquiry during pregnancy and the specific type of IPV about which is being inquired. These results may help explain some of the variation in IPV prevalence found in previous studies. While the current project supported results of previous studies with regards to IPV risk factors for pregnant women (unmarried, younger age, unplanned pregnancy, high levels of stress, and low levels of social support), results failed to confirm differences in IPV experiences between rural and nonrural samples. This lack of difference between rural and nonrural samples could be due to how rural status was defined, or differences in IPV may not exist between rural and nonrural pregnant people in Appalachia. Finally, the proportion of women experiencing IPV is highest in the third trimester of pregnancy. Increasing awareness of IPV risk factors and the different types of IPV to health care workers will help identify women only if women are routinely screened for IPV during pregnancy. IPV screening and intervention efforts may benefit from information reported in this current project.

REFERENCES

ACOG Committee Opinion No. 518: Intimate partner violence. (2012). *Obstetrics and Gynecology, 119*(2 Pt 1), 412–417. doi:10.1097/AOG.0b013e318249ff74

Adams-Hillard, P. J. (1985). Physial abuse in pregnancy. *Obstetrics and Gynecology*, *66*(2), 185–190.

American Psychological Association. (2013). Socioeconomic status. Retrieved October 21, 2013, from http://www.apa.org/topics/socioeconomic-status/

Andresen, E. M., Malmgren, J. A., Carter, W. B., & Patrick, D. L. (1994). Screening for depression in well older adults: Evaluation of a short form of the CES-D. *American Journal of Preventive Medicine, 10*(2), 77–84.

Audi, C. A. F., Corrêa, A. M. S., Latorre, M. do R. D. de O., & Santiago, S. M. (2008). The association between domestic violence during pregnancy and low birth weight or prematurity. *Jornal de Pediatria, 84*(1), 60–67. doi:10.1590/S0021-75572008000100011

Bachman, R. & Saltzman, L. (1995). Violence against women: Estimates from the redesigned survey. Bureau of Justice Statistics special report. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics Clearinghouse.

Bailey, B. A. (2010). Partner violence during pregnancy: prevalence, effects, screening, and management. *International Journal of Women's Health, 2*, 183–197.

Bailey, B. A., & Daugherty, R. A. (2007). Intimate partner violence during pregnancy: incidence and associated health behaviors in a rural population. *Maternal and Child Health Journal*, *11*(5), 495–503. doi:10.1007/s10995-007-0191-6

Baird, K. (2002). Domestic violence in pregnancy: A public health concern. *Midwifery Digest*, *12*(1), 12–15.

Besharov, D. J. (1990). *Recognizing child abuse: A guide for the concerned*. New York, NY. Free Press.

Beyer, K. M. M., Layde, P. M., Hamberger, L. K., & Laud, P. W. (2013). Characteristics of the residential neighborhood environment differentiate intimate partner femicide in urban versus rural settings. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association*, *29*(3), 281–293. doi:10.1111/j.1748-0361.2012.00448.x

Bhandari, S., Levitch, A. H., Ellis, K. K., Ball, K., Everett, K., Geden, E., & Bullock, L. (2008). Comparative analyses of stressors experienced by rural low-income pregnant women experiencing intimate partner violence and those who are not. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *37*(4), 492-501.

Black, M. C., Basile, K. C., Breiding, M. J., Smith, S. G., Walters, M. L., Merrick, M. T., & Chen, I. (2010). The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 summary report.

Bonomi, A. E., Anderson, M. L., Reid, R. J., Rivara, F. P., Carrell, D., & Thompson, R. S. (2009). Medical and psychosocial diagnoses in women with a history of intimate partner violence. *Archives of Internal Medicine*, *169*(18), 1692–1697. doi:10.1001/archinternmed.2009.292

Bosch, K., & Bergen, M. B. (2006). The influence of supportive and nonsupportive persons in helping rural women in abusive partner relationships become free from abuse. *Journal of Family Violence*, *21*(5), 311–320. doi:10.1007/s10896-006-9027-1

Bradbury, T. N., Fincham, F. D., & Beach, S. R. H. (2000). Research on the nature and determinants of marital satisfaction: A decade in review. *Journal of Marriage and Family*, *62*(4), 964–980. doi:10.1111/j.1741-3737.2000.00964.x

Brown, J. B., Lent, B., Brett, P. J., Sas, G., & Pederson, L. L. (1996). Development of the Woman Abuse Screening Tool for use in family practice. *Family Medicine*, *28*(6), 422–428.

Brownridge, D. A. (2009). *Violence against women: Vulnerable populations*. New York, NY. Taylor & Francis.

Campbell, J. C. (2002). Health consequences of intimate partner violence. *The Lancet*, *359*(9314), 1331–1336. doi:10.1016/S0140-6736(02)08336-8

Campbell, J. C., Glass, N., Sharps, P. W., Laughon, K., & Bloom, T. (2007). Intimate partner homicide review and implications of research and policy. *Trauma, Violence, & Abuse*, *8*(3), 246–269. doi:10.1177/1524838007303505

Campbell, J. C., Oliver, C. E., & Bullock, L. F. (1998). The dynamics of battering during pregnancy: Women's explanations of why. *Sage Series on Violence Against Women, 10*, 81–89.

Campbell, J. C., Webster, D., Koziol-McLain, J., Block, C., Campbell, D., Curry, M. A., … Laughon, K. (2003). Risk factors for femicide in abusive relationships: Results from a multisite case control study. *American Journal of Public Health*, *93*(7), 1089–1097. doi:10.2105/AJPH.93.7.1089

Campbell, J., García-Moreno, C., & Sharps, P. (2004). Abuse during pregnancy in industrialized and developing countries. *Violence Against Women*, *10*(7), 770–789. doi:10.1177/1077801204265551

Carlson, B. E., McNutt, L.-A., Choi, D. Y., & Rose, I. M. (2002). Intimate partner abuse and mental health the role of social support and other protective factors. *Violence Against Women, 8*(6), 720–745. doi:10.1177/10778010222183251

Centers for Disease Control and Prevention (2003). Costs of intimate partner violence against women in the United States. Accessed 2012 at: http://www.cdc.gov/violenceprevention/pdf/IPVBook-a.pdf

Centers for Disease Control (2009). Intimate partner violence during pregnancy, a guide for clinicians. Available from: http://www.cdc.gov/reproductivehealth/violence/intimatepartnerviolence/sld001.htm [Accessed May 2012].

Centers for Disease Control (2013). Intimate partner violence: Definition. Retrieved November 2013 from http://www.cdc.gov/violenceprevention/intimatepartnerviolence/definitions.html

Centers for Disease Control and Prevention (2012). About PRAMS. Retrieved November 2012 from http://www.cdc.gov/prams/AboutPRAMS.htm

Chamberlain, L., & Perham-Hester, K. A. (2008). The impact of percieved barriers on primary care physician' screening practices for female partner abuse. *Women and Health, 35*(2-3), 55–69.

Chan, C., Chan, Y., & Cheung, G. (2010). Reliability and validity of the "Extended - Hurt, Insult, Threaten, Scream" (E-HITS) screening tool in detecting intimate partner violence in hospital emergency departments in Hong Kong. *Hong Kong Journal of Emergency Medicine, 17*(2), 109–117.

Charles, P., & Perreira, K. M. (2007). Intimate partner violence during pregnancy and 1-year post-partum. *Journal of Family Violence*, *22*(7), 609–619. doi:10.1007/s10896-007-91120.

Chen, P. H., Rovi, S., Vega, M., Jacobs, A., & Johnson, M. S. (2005). Screening for domestic violence in a predominantly Hispanic clinical setting. *Family Practice*, *22*(6), 617–623. doi:10.1093/fampra/cmi075

Chen, P. H., Rovi, S., Washington, J., Jacobs, A., Vega, M., Pan, K.-Y., & Johnson, M. S. (2007). Randomized comparison of 3 methods to screen for domestic violence in family practice. *Annals of Family Medicine*, *5*(5), 430–435. doi:10.1370/afm.716

Cheng, D., & Horon, I. L. (2010). Intimate-partner homicide among pregnant and postpartum women. *Obstetrics and Gynecology*, *115*(6), 1181–1186. doi:10.1097/AOG.0b013e3181de0194

Clark, L. E., Allen, R. H., Goyal, V., Raker, C., & Gottlieb, A. S. (2013). Reproductive coercion and co-occurring intimate partner violence in obstetrics and gynecology patients. *American Journal of Obstetrics and Gynecology*. doi:10.1016/j.ajog.2013.09.019

Coker, A. L., Flerx, V. C., Smith, P. H., Whitaker, D. J., Fadden, M. K., & Williams, M. (2007). Partner violence screening in rural health care clinics. *American Journal of Public Health*, *97*(7), 1319–1325. doi:10.2105/AJPH.2005.085357

Coker, A. L., Sanderson, M., & Dong, B. (2004). Partner violence during pregnancy and risk of adverse pregnancy outcomes. *Paediatric and Perinatal Epidemiology*, *18*(4), 260–269. doi:10.1111/j.1365-3016.2004.00569.x

Coker, A. L., Smith, P. H., McKeown, R. E., & King, M. J. (2000). Frequency and correlates of intimate partner violence by type: Physical, sexual, and psychological battering. *American Journal of Public Health*, *90*(4), 553–559.

Covington, D. L., Dalton, V. K., Diehl, S. J., Wright, B. D., & Piner, M. H. (1997). Improving detection of violence among pregnant adolescents. *Journal of Adolescent Health*, *21*(1), 18–24. doi:10.1016/S1054-139X(97)00007-4

Curry, M. A. (2006). The interrelationship between abuse, substance use, and psychosocial stress during pregnancy. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, *27*(6), 692–699.

Curry, M. A., Burton, D., & Fields, J. (1998). The prenatal psychosocial profile: A research and clinical tool. *Research in Nursing & Health*, *21*(3), 211–219. doi:10.1002/(SICI)1098-240X(199806)21:3<211::AID-NUR4>3.0.CO;2-K

Curry, M. A., Campbell, R. A., & Christian, M. (1994). Validity and reliability testing of the Prenatal Psychosocial Profile. *Research in Nursing & Health*, *17*(2), 127–135.

D'Avolio, D., Hawkins, J. W., Haggerty, L. A., Kelly, U., Barrett, R., Durno Toscano, S. E., … Mahony, D. (2001). Screening for abuse: Barriers and opportunities. *Health Care for Women International*, *22*(4), 349–362. doi:10.1080/07399330121402

Devries, K. M., Kishor, S., Johnson, H., Stöckl, H., Bacchus, L. J., Garcia-Moreno, C., & Watts, C. (2010). Intimate partner violence during pregnancy: Analysis of prevalence data from 19 countries. *Reproductive Health Matters*, *18*(36), 158–170. doi:10.1016/S0968-8080(10)36533-5

Devries, K. M., Mak, J. Y., Bacchus, L. J., Child, J. C., Falder, G., Petzold, M., … Watts, C. H. (2013). Intimate partner violence and incident depressive symptoms and suicide attempts:

A systematic review of longitudinal studies. *PLoS Med*, *10*(5), e1001439. doi:10.1371/journal.pmed.1001439

Dillon, G., Hussain, R., Loxton, D., & Rahman, S. (2013). Mental and physical health and intimate partner violence against women: A review of the literature. *International Journal of Family Medicine*, *2013*, 1–15. doi:10.1155/2013/313909

Doss, B. D., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2009). The effect of the transition to parenthood on relationship quality: An 8-year prospective study. *Journal of Personality and Social Psychology*, *96*(3), 601–619. doi:10.1037/a0013969

Drouin, R. (2010). Domestic violence in pregnancy. Retrieved from http://www.womensweb.ca/violence/dv/pregnancy.php

Dutton, M. A., & Goodman, L. A. (2005). Coercion in intimate partner violence: Toward a new conceptualization. *Sex Roles*, *52*(11-12), 743–756. doi:10.1007/s11199-005-4196-6

Dye, T. D., Tolliver, N. J., Lee, R. V., & Kenney, C. J. (1995). Violence, pregnancy and birth outcome in Appalachia. *Paediatric and Perinatal Epidemiology*, *9*(1), 35–47. doi:10.1111/j.1365-3016.1995.tb00117.x

Edin, K., Hogberg, U., Dahlgren, L., & Lalos, A. (2009). The pregnancy put the screws on discourses of professionals working with men inclined to violence. *Men and Masculinities*, *11*(3), 307–324. doi:10.1177/1097184X06294010

Ellsberg, M. C., Peña, R., Herrera, A., Liljestrand, J., & Winkvist, A. (1999). Wife abuse among women of childbearing age in Nicaragua. *American Journal of Public Health*, *89*(2), 241–244.

Engnes, K., Liden, E., & Lundgren, I. (2012). Experiences of being exposed to intimate partner violence during pregnancy. *International Journal of Qualitative Studies on Health and Well-Being*, *7*. doi:10.3402/qhw.v7i0.11199

Ernst, A. A., Weiss, S. J., Cham, E., Hall, L., & Nick, T. G. (2004). Detecting ongoing intimate partner violence in the emergency department using a simple 4-question screen: the OVAT. *Violence and Victims*, *19*(3), 375–384.

Fanslow, J., Silva, M., Whitehead, A., & Robinson, E. (2008). Pregnancy outcomes and intimate partner violence in New Zealand. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, *48*(4), 391–397. doi:10.1111/j.1479-828X.2008.00866.x

Farid, M., Saleem, S., Karim, M. S., & Hatcher, J. (2008). Spousal abuse during pregnancy in Karachi, Pakistan. *International Journal of Gynecology & Obstetrics*, *101*(2), 141–145. doi:10.1016/j.ijgo.2007.11.015

Feder GS, Hutson M, Ramsay J, & Taket AR. (2006). Women exposed to intimate partner violence: Expectations and experiences when they encounter health care professionals: a meta-analysis of qualitative studies. *Archives of Internal Medicine*, *166*(1), 22–37. doi:10.1001/archinte.166.1.22

Flach, C., Leese, M., Heron, J., Evans, J., Feder, G., Sharp, D., & Howard, L. (2011). Antenatal domestic violence, maternal mental health and subsequent child behaviour: A cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology*, *118*(11), 1383–1391. doi:10.1111/j.1471-0528.2011.03040.x

Fletcher, J. (2010). The effects of intimate partner violence on health in young adulthood in the United States. *Social Science & Medicine*, *70*(1), 130–135. doi:10.1016/j.socscimed.2009.09.030

Follingstad, D. R., Rutledge, L. L., Berg, B. J., Hause, E. S., & Polek, D. S. (1990). The role of emotional abuse in physically abusive relationships. *Journal of Family Violence*, *5*(2), 107–120. doi:10.1007/BF00978514

Freund, D. K. M., Bak, M. S. M., & Blackhall, D. L. (1996). Identifying domestic violence in primary care practice. *Journal of General Internal Medicine*, *11*(1), 44–46. doi:10.1007/BF02603485

Gazmararian, J. A., Lazorick, S., Spitz, A. M., Ballard, T. J., Saltzman, L. E., & Marks, J. S. (1996). Prevalence of violence against pregnant women. *JAMA: The Journal of the American Medical Association*, *275*(24), 1915–1920.

Gazmararian, J. A., Petersen, R., Spitz, A. M., Goodwin, M. M., Saltzman, L. E., & Marks, J. S. (2000). Violence and reproductive health: Current knowledge and future research directions. *Maternal and Child Health Journal*, *4*(2), 79–84.

Gee, R. E., Mitra, N., Wan, F., Chavkin, D. E., & Long, J. A. (2009). Power over parity: Intimate partner violence and issues of fertility control. *American Journal of Obstetrics and Gynecology*, *201*(2), 148.e1–7. doi:10.1016/j.ajog.2009.04.048

Gielen, A. C., O'Campo, P. J., Faden, R. R., Kass, N. E., & Xue, X. (1994). Interpersonal conflict and physical violence during the childbearing year. *Social Science & Medicine*, *39*(6), 781–787. doi:10.1016/0277-9536(94)90039-6

Goodwin, M. M., Gazmararian, J. A., Johnson, C. H., Gilbert, B. C., Saltzman, L. E., & Group, P. W. (2000). Pregnancy intendedness and physical abuse around the time of pregnancy: Findings from the pregnancy risk assessment monitoring system, 1996–1997. *Maternal and Child Health Journal*, *4*(2), 85–92. doi:10.1023/A:1009566103493

Haggerty, L. A., Hawkins, J. W., Fontenot, H., & Lewis-O'Connor, A. (2011). Tools for screening for interpersonal violence: State of the science. *Violence and Victims*, *26*(6), 725–737.

Hamby, S. L., & Sugarman, D. B. (1999). Acts of psychological aggression against a partner and their relation to physical assault and gender. *Journal of Marriage and the Family*, *61*(4), 959. doi:10.2307/354016

Hart, L. G., Larson, E. H., & Lishner, D. M. (2005). Rural definitions for health policy and research. *American Journal of Public Health*, *95*(7), 1149–1155. doi:10.2105/AJPH.2004.042432

Hegarty, K., Gunn, J., Chondros, P., & Small, R. (2004). Association between depression and abuse by partners of women attending general practice: Descriptive, cross sectional survey. *BMJ : British Medical Journal*, *328*(7440), 621–624.

Hegarty, K., Sheehan, M., & Schonfeld, C. (1999). A multidimensional definition of partner abuse: Development and preliminary validation of the Composite Abuse Scale. *Journal of Family Violence*, *14*(4), 399–415. doi:10.1023/A:1022834215681

Heise, L., & Garcia-Moreno, C. (2002). Violence by intimate partners. *World Report on Violence and Health*, 87–121.

Hellmuth, J. C., Gordon, K. C., Stuart, G. L., & Moore, T. M. (2013). Risk factors for intimate partner violence during pregnancy and postpartum. *Archives of Women's Mental Health*, *16*(1), 19–27. doi:10.1007/s00737-012-0309-8

Henning, K., & Klesges, L. M. (2003). Prevalence and Characteristics of psychological abuse reported by court-involved battered women. *Journal of Interpersonal Violence*, *18*(8), 857–871. doi:10.1177/0886260503253878

Hillard, P. J. (1985). Physical abuse in pregnancy. *Obstetrics and Gynecology*, *66*(2), 185–190.

Hulme, P. A. (2000). Symptomatology and health care utilization of women primary care patients who experienced childhood sexual abuse. *Child Abuse & Neglect*, *24*(11), 1471–1484. doi:10.1016/S0145-2134(00)00200-3

Jahanfar, S., & Malekzadegan, Z. (2007). The prevalence of domestic violence among pregnant women who were attended in Iran university of medical science hospitals. *Journal of Family Violence*, *22*(8), 643–648. doi:10.1007/s10896-007-9084-0

James, L., Brody, D., & Hamilton, Z. (2013). Risk factors for domestic violence during pregnancy: A meta-analytic review. *Violence and Victims*, *28*(3), 359–380. doi:10.1891/0886-6708.VV-D-12-00034

Janssen, P. A., Holt, V. L., Sugg, N. K., Emanuel, I., Critchlow, C. M., & Henderson, A. D. (2003). Intimate partner violence and adverse pregnancy outcomes: A population-based study. *American Journal of Obstetrics & Gynecology*, *188*(5), 1341–1347. doi:10.1067/mob.2003.274

Jasinski, J. L. (2004). Pregnancy and domestic violence a review of the literature. *Trauma, Violence, & Abuse*, *5*(1), 47–64. doi:10.1177/1524838003259322

Jasinski, J. L., & Kantor, G. K. (2001). Pregnancy, stress and wife assault: Ethnic differences in prevalence, severity, and onset in a national sample. *Violence and Victims*, *16*(3), 219–232.

Jejeebhoy, S. J. (1998). Associations between wife-beating and fetal and infant death: impressions from a survey in rural India. *Studies in Family Planning*, *29*(3), 300. doi:10.2307/172276

Jesse, D. E. (2003). Prenatal psychosocial needs: differences between a TennCare group and a privately insured group in Appalachia. *Journal of Health Care for the Poor and Underserved, 14*(4), 535-549.

Johnson, H. (2005). Assessing the prevalence of violence against women in Canada. *Statistical Journal of the United Nations Economic Commission for Europe*, *22*(3), 225–238.

Johnson, M., & Elliott, B. A. (1997). Domestic violence among family practice patients in midsized and rural communities. *The Journal of Family Practice*, *44*(4), 391–400.

Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine, 4*(1), 1–39.

Kearney, M. H., Haggerty, L. A., Munro, B. H., & Hawkins, J. W. (2003). Birth outcomes and maternal morbidity in abused pregnant women with public versus private health insurance. *Journal of Nursing Scholarship: An Official Publication of Sigma Theta Tau International Honor Society of Nursing / Sigma Theta Tau*, *35*(4), 345–349.

Kendall-Tackett, K. A. (2007). Violence against women and the perinatal period the impact of lifetime violence and abuse on pregnancy, postpartum, and breastfeeding. *Trauma, Violence, & Abuse*, *8*(3), 344–353. doi:10.1177/1524838007304406

Koenig, M. A., Stephenson, R., Ahmed, S., Jejeebhoy, S. J., & Campbell, J. (2006). Individual and contextual determinants of domestic violence in north India. *American Journal of Public Health*, *96*(1), 132–138. doi:10.2105/AJPH.2004.050872

Kouyoumdjian, F. G., Calzavara, L. M., Bondy, S. J., O'Campo, P., Serwadda, D., Nalugoda, F., … Gray, R. (2013). Intimate partner violence is associated with incident HIV infection in

women in Uganda. *AIDS (London, England)*, *27*(8), 1331–1338. doi:10.1097/QAD.0b013e32835fd851

Kramer, M. S., Lydon, J., Goulet, L., Kahn, S., Dahhou, M., Platt, R. W., … Séguin, L. (2013). Maternal stress/distress, hormonal pathways and spontaneous preterm birth. *Paediatric and Perinatal Epidemiology*, *27*(3), 237–246. doi:10.1111/ppe.12042

Krishnan, S. P., Hilbert, J. C., & Pase, M. (2001). An examination of intimate partner violence in rural communities: Results from a hospital emergency department study from southwest United States. *Family and Community Health*, *24*(1), 1–14.

Krug, E. G., Mercy, J. A., Dahlberg, L. L., & Zwi, A. B. (2002). The world report on violence and health. *The Lancet*, *360*(9339), 1083–1088. doi:10.1016/S0140-6736(02)11133-0

Langhinrichsen-Rohling, J., & Capaldi, D. M. (2012). Clearly we've only just begun: developing effective prevention programs for intimate partner violence. *Prevention Science, 13*(4), 410–414. doi:10.1007/s11121-012-0310-5

Lanier, C., & Maume, M. O. (2009). Intimate partner violence and social isolation across the rural/urban divide. *Violence Against Women*, *15*(11), 1311–1330. doi:10.1177/1077801209346711

Lawrence, E., Rothman, A. D., Cobb, R. J., Rothman, M. T., & Bradbury, T. N. (2008). Marital satisfaction across the transition to parenthood. *Journal of Family Psychology*, *22*(1), 41–50. doi:10.1037/0893-3200.22.1.41

Leung, W. C., Kung, F., Lam, J., Leung, T. W., & Ho, P. C. (2002). Domestic violence and postnatal depression in a Chinese community. *International Journal of Gynecology & Obstetrics*, *79*(2), 159–166. doi:10.1016/S0020-7292(02)00236-9

Ludermir, A. B., Lewis, G., Valongueiro, S. A., de Araújo, T. V. B., & Araya, R. (2010). Violence against women by their intimate partner during pregnancy and postnatal depression: A prospective cohort study. *The Lancet*, *376*(9744), 903–910. doi:10.1016/S0140-6736(10)60887-2

Madkour, A. S., Martin, S. L., Halpern, C. T., & Schoenbach, V. J. (2010). Area disadvantage and intimate partner homicide: An ecological analysis of North Carolina counties, 2004-2006. *Violence and Victims*, *25*(3), 363–377.

Malcoe, L. H., Duran, B. M., & Montgomery, J. M. (2004). Socioeconomic disparities in intimate partner violence against Native American women: A cross-sectional study. *BMC Medicine*, *2*(1), 20. doi:10.1186/1741-7015-2-20

Mammen, K., & Paxson, C. (2000). Women's work and economic development. *Journal of Economic Perspectives*, *14*(4), 141–164.

Martin, J. A., Hamilton, B. E., Sutton, P. D., Ventura, S. J., & Mathews, T. J. (2010). *National Vital Statistics Reports*, *58*(24), 1–125.

Martin, K. R., & Garcia, L. (2011). Unintended pregnancy and intimate partner violence before and during pregnancy among Latina women in Los Angeles, California. *Journal of Interpersonal Violence*, *26*(6), 1157–1175. doi:10.1177/0886260510368154

Martin, S. L., Beaumont, J. L., & Kupper, L. L. (2003, July 28). Substance use before and during pregnancy: Links to intimate partner violence. research-article. Retrieved October 21, 2013, from http://informahealthcare.com/doi/abs/10.1081/ADA-120023461

Martin, S. L., Li, Y., Casanueva, C., Harris-Britt, A., Kupper, L. L., & Cloutier, S. (2006). Intimate partner violence and women's depression before and during pregnancy. *Violence against Women*, *12*(3), 221–239. doi:10.1177/1077801205285106

Martin, S. L., Mackie, L., Kupper, L. L., Buescher, P. A., & Moracco, K. E. (2001). Physical abuse of women before, during, and after pregnancy. *JAMA: The Journal of the American Medical Association, 285*(12), 1581–1584.

McFarlane, J., Parker, B., & Soeken, K. (1995). Abuse during pregnancy: Frequency, severity, perpetrator, and risk factors of homicide. *Public Health Nursing (Boston, Mass.), 12*(5), 284–289.

McFarlane, J., Parker, B., Soeken, K., & Bullock, L. (1992). Assessing for abuse during pregnancy. Severity and frequency of injuries and associated entry into prenatal care. *JAMA: The Journal of the American Medical Association, 267*(23), 3176–3178.

McMahon, S., & D'edra, Y. A. (2012). Intimate partner violence during pregnancy: Best practices for social workers. *Health & social work, 37*(1), 9-17.

McNutt, L., Carlson, B., Gagen, D., & Winterbauer, N. (1999). Domestic Violence screening in primary care: Perspectives and experiences of patients and battered women. *JAMWA*, *54*(2), 85–90.

Meekers, D., Pallin, S. C., & Hutchinson, P. (2013). Prevalence and correlates of physical, psychological, and sexual intimate partner violence in Bolivia. *Global Public Health*, *8*(5), 588–606. doi:10.1080/17441692.2013.776093

Mercer, R. T. (2004). Becoming a mother versus maternal role attainment. *Journal of Nursing Scholarship: An Official Publication of Sigma Theta Tau International Honor Society of Nursing / Sigma Theta Tau, 36*(3), 226–232.

Miller, E., Decker, M. R., McCauley, H. L., Tancredi, D. J., Levenson, R. R., Waldman, J., … Silverman, J. G. (2010). Pregnancy coercion, intimate partner violence and unintended pregnancy. *Contraception, 81*(4), 316–322. doi:10.1016/j.contraception.2009.12.004

Mitnick, D. M., Heyman, R. E., & Smith Slep, A. M. (2009). Changes in relationship satisfaction across the transition to parenthood: A meta-analysis. *Journal of Family Psychology*, *23*(6), 848–852. doi:10.1037/a0017004

Morton, E., Runyan, C. W., Moracco, K. E., & Butts, J. (1998). Partner homicide-suicide involving female homicide victims: A population- based study in North Carolina, 1988–1992. *Violence and Victims*, *13*(2), 91–106.

Moyer, V. A. (2013). Screening for intimate partner violence and abuse of elderly and vulnerable adults: U.S. preventive services task force recommendation statement. *Annals of Internal Medicine*, *158*(6), 478–486. doi:10.7326/0003-4819-158-6-201303190-00588

Mueller, K. J., & MacKinney, A. C. (2006). Care across the continuum: Access to health care services in rural America. *The Journal of Rural Health*, *22*(1), 43–49. doi:10.1111/j.1748-0361.2006.00010.x

Neff, L. A., & Karney, B. R. (2004). How does context affect intimate relationships? Linking external stress and cognitive processes within marriage. *Personality and Social Psychology Bulletin*, *30*(2), 134–148. doi:10.1177/0146167203255984

Nelson, H. D., Bougatsos, C., & Blazina, I. (2012). Screening women for intimate partner violence: A systematic review to update the U.S. Preventive Services Task Force recommendation. *Annals of Internal Medicine*, *156*(11), 796–808, W–279, W–280, W–281, W–282. doi:10.1059/0003-4819-156-11-201206050-00447

O'brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, *41*(5), 673–690. doi:10.1007/s11135-006-9018-6

Ogbonnaya, I. N., Macy, R. J., Kupper, L. L., Martin, S. L., & Bledsoe-Mansori, S. E. (2013). Intimate partner violence and depressive symptoms before pregnancy, during pregnancy,

and after infant delivery an exploratory study. *Journal of Interpersonal Violence*, *28*(10), 2112–2133. doi:10.1177/0886260512471080

Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows*. NY: Open University Press.

Patel, V., Rodrigues, M., & DeSouza, N. (2002). Gender, poverty, and postnatal depression: A study of mothers in Goa, India. *American Journal of Psychiatry*, *159*(1), 43–47. doi:10.1176/appi.ajp.159.1.43

Peek-Asa, C., Wallis, A., Harland, K., Beyer, K., Dickey, P., & Saftlas, A. (2011). Rural disparity in domestic violence prevalence and access to resources. *Journal of Women's Health*, *20*(11), 1743–1749. doi:10.1089/jwh.2011.2891

Perales, M. T., Cripe, S. M., Lam, N., Sanchez, S. E., Sanchez, E., & Williams, M. A. (2009). Prevalence, types, and pattern of intimate partner violence among pregnant women in Lima, Peru. *Violence Against Women*, *15*(2), 224–250. doi:10.1177/1077801208329387

Plichta, S. B. (2004). Intimate partner violence and physical health consequences policy and practice implications. *Journal of Interpersonal Violence*, *19*(11), 1296–1323. doi:10.1177/0886260504269685

Plichta, S. B. (2007). Interactions between victims of intimate partner violence against women and the health care system policy and practice implications. *Trauma, Violence, & Abuse*, *8*(2), 226–239. doi:10.1177/1524838007301220

Pruitt, L. R. (2008). Place matters: Domestic violence and rural difference. *Wisconsin Journal of Law, Gender & Society*, *23*, 347.

Rabin, R. F., Jennings, J. M., Campbell, J. C., & Bair-Merritt, M. H. (2009). Intimate partner violence screening tools: a systematic review. *American Journal of Preventive Medicine, 36*(5), 439–445.e4. doi:10.1016/j.amepre.2009.01.024

Raj, A., Silverman, J. G., & Amaro, H. (2000). The relationship between sexual abuse and sexual risk among high school students: Findings from the 1997 Massachusetts youth risk behavior survey. *Maternal and Child Health Journal, 4*(2), 125–134. doi:10.1023/A:1009526422148

Rees, S., Silove, D., Chey, T., Ivancic, L., Steel, Z., Creamer, M., ... & Forbes, D. (2011). Lifetime prevalence of gender-based violence in women and the relationship with mental disorders and psychosocial function. *Jama, 306*(5), 513-52. doi:10.1001/jama.2011.1098

Riddell, T., Ford-Gilboe, M., & Leipert, B. (2009). Strategies used by rural women to stop, avoid, or escape from intimate partner violence. *Health Care for Women International, 30*(1-2), 134–159. doi:10.1080/07399330802523774

Rodriguez, M. A., Sheldon, W. R., Bauer, H. M., & Perez-Stable, E. J. (2001). The factors associated with disclosure of intimate partner abuse to clinicians. *Journal of Family Practice*, *50*(4), 338–344.

Roelens, K., Verstraelen, H., Van Egmond, K., & Temmerman, M. (2008). Disclosure and health-seeking behaviour following intimate partner violence before and during pregnancy in Flanders, Belgium: A survey surveillance study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *137*(1), 37-42.

Sagrestano, L. M., Carroll, D., Rodriguez, A. C., & Nuwayhid, B. (2004). Demographic, psychological, and relationship factors in domestic violence during pregnancy in a

sample of low-income women of color. *Psychology of Women Quarterly*, *28*(4), 309–322. doi:10.1111/j.1471-6402.2004.00148.x

Saltzman, L. E., Johnson, C. H., Gilbert, B. C., & Goodwin, M. M. (2003). Physical abuse around the time of pregnancy: An examination of prevalence and risk factors in 16 states. *Maternal and Child Health Journal*, *7*(1), 31–43. doi:10.1023/A:1022589501039

Sandberg, L. (2013). Backward, dumb and violent hillbillies? Rural geographies and intersectional studies on intimate partner violence. *Affilia*. Retrieved from http://liu.diva-portal.org/smash/record.jsf?pid=diva2:626567

Schumacher, J. A., Feldbau-Kohn, S., Smith Slep, A. M., & Heyman, R. E. (2001). Risk factors for male-to-female partner physical abuse. *Aggression and Violent Behavior*, *6*(2–3), 281–352. doi:10.1016/S1359-1789(00)00027-6

Selzer, M. L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *The American Journal of Psychiatry*, *127*(12), 1653–1658.

Sherin, K. M., Sinacore, J. M., Li, X. Q., Zitter, R. E., & Shakil, A. (1998). HITS: a short domestic violence screening tool for use in a family practice setting. *Family Medicine*, *30*(7), 508–512.

Shumway, J., O'campo, P., Gielen, A., Witter, F. R., Khouzami, A. N., & Blakemore, K. J. (2009, July 7). Preterm labor, placental abruption, and premature rupture of membranes in relation to maternal violence or verbal abuse. research-article. Retrieved October 21, 2013, from http://informahealthcare.com/doi/abs/10.3109/14767059909020465

Silverman, J. G., Decker, M. R., Reed, E., & Raj, A. (2006). Intimate partner violence victimization prior to and during pregnancy among women residing in 26 U.S. states:

Associations with maternal and neonatal health. *American Journal of Obstetrics and Gynecology*, *195*(1), 140–148. doi:10.1016/j.ajog.2005.12.052

Sohal, H., Eldridge, S., & Feder, G. (2007). The sensitivity and specificity of four questions (HARK) to identify intimate partner violence: A diagnostic accuracy study in general practice. *BMC Family Practice*, *8*, 49. doi:10.1186/1471-2296-8-49

Sokol, R. J., Martier, S. S., & Ager, J. W. (1989). The T-ACE questions: Practical prenatal detection of risk-drinking. *American Journal of Obstetrics & Gynecology*, *160*(4), 863–870. doi:10.1016/0002-9378(89)90302-5

Spangaro, J., Zwi, A. B., & Poulos, R. (2009). The elusive search for definitive evidence on routine screening for intimate partner violence. *Trauma, Violence, & Abuse*, *10*(1), 55–68. doi:10.1177/1524838008327261

Sprague, S., Madden, K., Simunovic, N., Godin, K., Pham, N. K., Bhandari, M., & Goslings, J. C. (2012). Barriers to screening for intimate partner violence. *Women & Health*, *52*(6), 587–605. doi:10.1080/03630242.2012.690840

Stewart, D. E., & Cecutti, A. (1993). Physical abuse in pregnancy. *CMAJ: Canadian Medical Association Journal = Journal de l'Association Medicale Canadienne*, *149*(9), 1257–1263.

Stith, S. M., Smith, D. B., Penn, C. E., Ward, D. B., & Tritt, D. (2004). Intimate partner physical abuse perpetration and victimization risk factors: A meta-analytic review. *Aggression and Violent Behavior*, *10*(1), 65–98. doi:10.1016/j.avb.2003.09.001

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) scales. *Journal of Marriage and the Family*, *41*(1), 75. doi:10.2307/351733

Straus, M. A., Hamby, S. L., BONEY-McCOY, S. U. E., & Sugarman, D. B. (1996). The Revised Conflict Tactics Scales (CTS2) Development and preliminary psychometric data. *Journal of Family Issues*, *17*(3), 283–316. doi:10.1177/019251396017003001

Straus, M. A., Gelles, R. J., & Steinmetz, S. K. (1980). *Behind closed doors: Violence in the American family*. New Brunswick, NJ: Transaction.

Sugarman, D. B., & Frankel, S. L. (1996). Patriarchal ideology and wife-assault: A meta-analytic review. *Journal of Family Violence*, *11*(1), 13–40. doi:10.1007/BF02333338

Sugarman, D. B., & Hotaling, G. T. (1997). Intimate violence and social desirability a meta-analytic review. *Journal of Interpersonal Violence*, *12*(2), 275–290. doi:10.1177/088626097012002008

Taillieu, T. L., & Brownridge, D. A. (2010). Violence against pregnant women: Prevalence, patterns, risk factors, theories, and directions for future research. *Aggression and Violent Behavior*, *15*(1), 14–35. doi:10.1016/j.avb.2009.07.013

Tilley, D. S., & Brackley, M. (2004). Violent lives of women: critical points for intervention—phase i focus groups. *Perspectives in Psychiatric Care*, *40*(4), 157–170. doi:10.1111/j.1744-6163.2004.tb00013.x

Tjaden, P., & Thoennes, N. (2000, November). Full report of the prevalence, incidence, and consequences of violence against women. Retrieved October 13, 2013, from http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=REPIDISCA&lang=p&nextAction=lnk&exprSearch=31172&indexSearch=ID

Van Wyk, J. A., Benson, M. L., Fox, G. L., & DeMaris, A. (2003). Detangling individual-, partner-, and community-level correlates of partner violence. *Crime & Delinquency, 49*(3), 412–438. doi:10.1177/0011128703049003004

Vatnar, S. K. B., & Bjørkly, S. (2010). Does it make any difference if she is a mother? An interactional perspective on intimate partner violence with a focus on motherhood and pregnancy. *Journal of Interpersonal Violence, 25*(1), 94–110. doi:10.1177/0886260508329129

Ventura, S. J., Martin, J. A., Curtin, S. C., & Mathews, T. J. (1999). Births: final data for 1997. *National Vital Statistics Reports: From the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, 47*(18), 1–96.

Waalen, J., Goodwin, M. M., Spitz, A. M., Petersen, R., & Saltzman, L. E. (2000). Screening for intimate partner violence by health care providers: Barriers and interventions. *American Journal of Preventive Medicine, 19*(4), 230–237.

Waltermaurer, E. (2005). Measuring intimate partner violence (IPV): You may only get what you ask for. *Journal of Interpersonal Violence, 20*(4), 501–506. doi:10.1177/0886260504267760

Websdale, N., & Johnson, B. (1997). The policing of domestic violence in rural and urban areas: The voices of battered women in Kentucky. *Policing and Society, 6*(4), 297–317. doi:10.1080/10439463.1997.9964759

Websdale, N., Town, J. M., & Johnson, B. (1999). Domestic violence fatality reviews: From a culture of blame to a culture of safety. *Juvenile and Family Court Journal, 50*(2), 61–74. doi:10.1111/j.1755-6988.1999.tb00800.x

Weil, A., Fletcher, S. W., & Sokol, H. N. (2013). Intimate partner violence: Diagnosis and screening. Wolter Kluwer Health. Retrieved from http://www.uptodate.com/contents/intimate-partner-violence-diagnosis-and-screening/contributors

Weiss, S. J., Ernst, A. A., Cham, E., & Nick, T. G. (2003). Development of a screen for ongoing intimate partner violence. *Violence and Victims*, *18*(2), 131–141.

Wendt, S. (2009). *Domestic violence in rural Australia*. Annandale: Federation Press.

Whitaker, D. J., Baker, C. K., & Arias, I. (2007). Interventions to prevent intimate partner violence. *Handbook of Injury and Violence Prevention* 203–221.

Woods, S. M., Melville, J. L., Guo, Y., Fan, M.-Y., & Gavin, A. (2010). Psychosocial stress during pregnancy. *American Journal of Obstetrics and Gynecology*, *202*(1), 61.e1–61.e7. doi:10.1016/j.ajog.2009.07.041

Yost, N. P., Bloom, S. L., McIntire, D. D., & Leveno, K. J. (2005). A prospective observational study of domestic violence during pregnancy. *Obstetrics and Gynecology*, *106*(1), 61–65. doi:10.1097/01.AOG.0000164468.06070.2a

APPENDICES

Appendix A: IRB Initial Full Review for TIPS

ETSU

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707 • (423) 439-6053
Fax: (423) 439-6060

IRB APPROVAL - Initial Full Review

June 14, 2007

Beth Bailey
Family Medicine
Box 70621

Re: Tennessee Intervention for Pregnancy Smoking
IRB#: 06-117f
ORSPA #: 07-0141

The following items were reviewed at the June 5, 2007 meeting:

-Non-Minor Modification Form
-Modification Request
-Narrative (3/27/07)
-Narrative (revised 3/27/07)
-Supplemental submission Form....Pregnant Women and Fetuses
- *ICD (revised 4/27/07)
-HIPAA Authorization
-TIPS Grant
-Pregnancy Assessments: Background Information, Pregnancy Smoking Information Questionnaire, Pregnancy Psychosocial Profile (PPP), Conflict Tactics Scale – Revised (CTS-2), Women Abuse Screening Test (WAST), HITS, Abuse Assessment Screen (AAS), CESD-10, Substance Abuse Questionnaire, T-ACE, Michigan Alcoholism Screening Test (MAST), Infant Feeding Questionnaire (done only during the second interview)
-CV (Beth Bailey)
-Previous Narrative (1/24/07)
-Previous approval Letter

Full AAHRPP Accreditation

Accredited Since December 2005

The IRB voted to approve this non-minor modification pending approval of the following requested changes.
The item with an asterick(*) above needed changes requested by the convened board.

The following documents with the incorporated requested changes have been received by the IRB Office on June 11, 2007

- ICD (rev 6/11/07)

The revised ICD (rev 6/11/07) incorporating the requested changes were reviewed and approved by an expedited process on June 14, 2007 by Kenneth Olive, M.D., Chair, ETSU/VA IRB.

On June 5, 2007 an approval was granted for a period not to exceed 12 months and will expire on 06/04/2008. Your Continuing Review is scheduled for 05/02/2008. The expedited approval of the requested changes [ICD (rev 6/11/07)], will be reported to the convened board on July 10, 2007.

The following **enclosed stamped, approved ICD** has been stamped with the approval and expiration date and this document must be copied and provided to each participant prior to participant enrollment:

- Informed Consent Document **(rev 6/11/07)**

Federal regulations require that the original copy of the participant's consent be maintained in the principal investigator's files and that a copy is given to the subject at the time of consent.

Based on the pregnancy advocate reviewer, the IRB determined that, for this study, it is scientifically appropriate to require preclinical studies, including studies on pregnant animals, and clinical studies, including studies on non-pregnant women, to have been conducted to provide data for assessing potential risks to women and fetuses as the smoking health risks to mother and fetus are well-known. The risk to the fetus is caused solely by interventions or procedures that hold out the prospect of direct benefit for the woman or the fetus as the standard of care and smoking cessation intervention equal potential benefits for mother and fetus. The IRB determined that any risk is the least possible for achieving the objectives of the research. The IRB determined that the research holds out the prospect of direct benefit both to the pregnant woman and the fetus as the study involves standard of care and smoking cessation case management.
The woman's consent will be obtained.
The IRB determined that each individual providing consent is fully informed regarding the reasonably foreseeable impact of the research on the fetus or neonate. The IRB determined that this research does not involve children as participants. The IRB determined that no inducements, monetary or otherwise, will be offered to terminate a pregnancy. The IRB determined that individuals engaged in the research will have no part in any decisions as to the timing, method, or procedures used to terminate a pregnancy. In addition, individuals engaged in the research will have no part in determining the viability of a neonate.

The waiver to alter or obtain informed consent and the HIPAA waiver of authorization was revoked as the study now utilizes informed consent and HIPAA authorization. This study status changes the study from expedite to full review.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research can not be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following it's implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,

Kenneth Olive, M.D., Chair
ETSU/VA Medical Institutional Review Board

Appendix B: IRB Modification

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707 • (423) 439-6053
Fax: (423) 439-6060

PENDING APPROVAL OF NON-MINOR MODIFICATION

January 8, 2009

Beth Bailey, Ph.D.
Family Medicine
Box 70621

RE:	Tennessee Intervention for Pregnancy Smoking
IRB #:	06-117f

The ETSU/VA IRB reviewed and approved the following items at the convened ETSU/VA IRB meeting on January 6, 2009 pending requested changes:

- Modification request to add 5 additional tools to the assessment interviews and increase compensation to $20 per interview.
- Weight concern scale
- Body Image inventory
- Adult eating patterns
- Eating attitudes test
- Pregnancy smoking- support and consequences
- Narrative (3/27/07)
- Currently approved ICD (10/17/08)
- *Proposed ICD (12/11/08)

CONTINGENT APPROVAL- REVISED ITEMS DUE: 01/16/09

The requested changes are:
1. Proposed ICD (12/11/08), page 3, last sentence of contact for questions section – correct "nay" to "any"

Accredited Since December 2005

Please submit to the IRB Office at Box 70565. A final approval letter will be issued when the changes have been approved.

Sincerely,

George Youngberg, M.D.
Chair, ETSU/VA IRB

Appendix C: Informed Consent Document

INFORMED CONSENT DOCUMENT (ICD)

PRINCIPAL INVESTIGATOR: Beth A. Bailey, PhD
TITLE OF PROJECT: Tennessee Intervention for Pregnancy Smoking

INTRODUCTION:

This Informed Consent Document will explain about being a research subject in an experiment. It is important that you read this material carefully and then decide if you wish to be a volunteer.

PURPOSE:

As part of your prenatal care, your health care provider and his/her staff will be providing you with information about smoking and second-hand smoke exposure, as well as general assistance with pregnancy issues. The purposes of the related research study you are being asked to participate in are as follows: First, we hope to find out how useful you find the information your provider gives you. Second, we want to look at how useful you find the information and assistance provided to you by other staff at the provider's office. Finally, we want to look at how your life circumstances may impact the outcomes of your pregnancy and how useful you find the information and assistance you receive.

We hope that the information obtained from this research study will lead to the development of better care for pregnant women.

DURATION:

If you choose to participate in this research study you will be interviewed during four separate visits to your prenatal care provider while you are pregnant. The first interview will last approximately 30 minutes. The subsequent interviews will last 5 to 10 minutes. In addition, you will be contacted for a 10 to 20 minute interview six weeks after your baby is born, and again six to eight months after your baby is born. These interviews after your baby is born will be conducted either over the phone or in person. All eligible women who receive prenatal care here and at other locations throughout Northeast Tennessee will be invited to participate in this study.

PROCEDURES:

If you choose to participate in this research study, you will be asked to participate in four pregnancy interviews. Before the first interview begins, you will be asked to sign this informed consent document as well as other legally required paperwork. Interviews will be individual, private meetings with a project staff person. You will be asked questions about your background and medical history. You will also be given several forms to complete that include questions about smoke exposure, your feelings, and how conflict is dealt with in your home. If health-related or mental health concerns are revealed during participation in this research, you will be referred for further services. Finally, you will be asked to blow in to a carbon monoxide detector that will provide information about the level of carbon monoxide in the air you breathe out. This level is an indicator of the amount of smoke you have been exposed to.

_____ Subject Initials

PRINCIPAL INVESTIGATOR: Beth A. Bailey, PhD
TITLE OF PROJECT: Tennessee Intervention for Pregnancy Smoking

ADDITIONAL DATA COLLECTION:

As part of the research study, project staff will need access to your medical records. By agreeing to participate (indicated by signing below), you are also agreeing to allow research project staff to access your medical records here at your health care provider's office and at the hospital where you deliver your baby. Additionally, project staff will need to access your baby's newborn hospital chart and discharge summary. Finally, you agree to allow us to contact you in the future, using whatever information you provide to us or that we obtain from your medical charts, for participation in a phone interview and other possible follow up studies. If you choose to participate in research interviews after delivery, you will also be asked about your baby's health and development. You will, of course, have the right to refuse participation in any portion of the study or in any future study at that time.

ALTERNATIVE PROCEDURES/TREATMENTS:

There is currently no alternate research study. However, you may choose not to participate.

POSSIBLE RISKS/DISCOMFORTS:

The possible risks and/or discomforts of your involvement include possible discomfort with answering personal questions. Your privacy is important to us. Questions will be asked in private and answers will be kept confidential. However, you may choose not to answer any question that makes you too uncomfortable. There are not other known risks associated with participating in this research study.

POSSIBLE BENEFITS:

The possible benefits of your participation include having someone to talk with about pregnancy related issues. Information from this study may benefit pregnant women and children born to them in the future. Findings from this study will provide health care professionals with information about the effectiveness of the information they give patients, which can help them to better help their patients. Findings from this study may also lead to the development of programs to help women have healthier pregnancies.

COMPENSATION FOR MEDICAL TREATMENT:

East Tennessee State University (ETSU) will pay the cost of emergency first aid for any injury that may happen as a result of your being in this study. ETSU makes no commitment to pay for any other medical treatment. Claims against ETSU or any of its agents or employees may be submitted to the Tennessee Claims Commission. These claims will be settled to the extent allowable as provided under TCA Section 9-8-307. For more information about claims call the Chairman of the Institutional Review Board of ETSU at 423/439-6055.

APPROVED
By the ETSU/VA IRB

DOCUMENT VERSION EXPIRES

11/11/2010

NOV 02 2010

NOV 01 2011

_____ Subject Initials

By _____
Chair/IRB Coordinator

ETSU/VA IRB

PRINCIPAL INVESTIGATOR: Beth A. Bailey, PhD
TITLE OF PROJECT: Tennessee Intervention for Pregnancy Smoking

FINANCIAL COSTS:

There will be no cost to you as a result of participation in this research study. Usual charges related to you prenatal visit will still apply.

COMPENSATION FOR STUDY PARTICIPATION:

You will receive financial compensation for your involvement in this research study, should you choose to participate. You will receive $20 for the first pregnancy interview, $10 for each of the second and third pregnancy interviews, and $20 for the fourth pregnancy interview. You will also receive $20 for each of the two postnatal interviews, for a maximum compensation of $100.

VOLUNTARY PARTICIPATION:

Participation in this research study is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatments to which you are otherwise entitled will not be affected. You may quit by calling Dr. Beth Bailey, whose phone number is (423) 439-6477. You will be told immediately if any of the results of the study should reasonably be expected to make you change your mind about staying in the study.

CONTACT FOR QUESTIONS:

If you have any questions, problems, or research –related medical problems at any time, you may call Dr. Beth Bailey at (423)439-6477, or Dr. Fred Tudiver at (423)439-6738. You may call the Chairman of the Institutional Review Board at (423)439-6055 or at (423)439-6002 for any questions you may have about your rights as a research subject.

CONFIDENTIALITY:

Every attempt will be made to see that information collected as part of this research study is kept confidential. A copy of the records from this study will be stored in the office space within the Research Division of the Department of Family Medicine at East Tennessee State University for at least 10 years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the ETSU Institutional Review Board, and personnel particular to this research project have access to the study records. Your information will be kept completely confidential according to current legal requirements. It will not be revealed unless required by law, or as noted above.

APPROVED
By the ETSU/VA IRB
NOV 02 2010
By _____
Chair/IRB Coordinator

DOCUMENT VERSION EXPIRES
NOV 01 2011
ETSU/VA IRB

11/11/2010

_____ Subject Initials

PRINCIPAL INVESTIGATOR: Beth A. Bailey, PhD
TITLE OF PROJECT: Tennessee Intervention for Pregnancy Smoking

AUTHORIZATION TO USE AND DISCLOSE PROTECTED HEALTH INFORMATION FOR RESEARCH PURPOSES:

The privacy law, Health Insurance Portability & Accountability Act (HIPAA), protects my individually identifiable health information (protected health information). The privacy law requires me to sign an authorization (or agreement) in order for researchers to be able to use or disclose my protected health information for research purposes in the study entitled *Tennessee Intervention for Pregnancy Smoking.*

I authorize *Dr. Beth Bailey* and her research staff to use and disclose my protected health information for the purposes described below. I also permit my doctors and other health care providers to disclose my protected health information for the purposes described below.

My protected health information that may be used and disclosed includes:

- Demographic information
- Intake assessment including medical history
- Visit notes and ACOG charting
- Results of all laboratory procedures
- Delivery and newborn chart information

The Investigator, Dr. Beth Bailey, may use and share my health information with:

- The East Tennessee State University Human Research Protections Program (HRPP) Institutional Review Board Administration when the researcher or the research site is undergoing *Quality Improvement Program (QIP)* auditing.
- Government representatives, when required by law
- Research project staff

Once my health information has been disclosed to anyone outside of this study, the information may no longer be protected under this authorization.
Dr. Beth Bailey and the State of Tennessee agree to protect my health information by using and disclosing it only as permitted by me in this Authorization and as directed by state and federal law.

I do not have to sign this Authorization. If I decide not to sign the Authorization:

- It will not affect my treatment, payment or enrollment in any health plans nor affect my eligibility for benefits.
- I may not be allowed to participate in this research study.

APPROVED
By the ETSU/VA IRB
NOV 02 2010
By _____
Chair/IRB Coordinator

DOCUMENT VERSION EXPIRES
NOV 01 2011
ETSU/VA IRB

11/11/2010

_____ Subject Initials

PRINCIPAL INVESTIGATOR: Beth A. Bailey, PhD
TITLE OF PROJECT: Tennessee Intervention for Pregnancy Smoking

After signing the Authorization, I can change my mind and:

- Not let the researcher disclose or use my protected health information (revoke the Authorization).
- If I revoke the Authorization, I will send a written letter to: Dr. Beth Bailey, P.O. Box 70621, Johnson City, TN 37659 to inform her of my decision.
- If I revoke this Authorization, researchers may only use and disclose the protected health information **already collected** for this research study.
- If I revoke this Authorization my protected health information may still be used and disclosed should I have an adverse event (a bad effect, or experience something unanticipated).
- If I change my mind and withdraw the authorization, I may not be allowed to continue to participate in the study.

This Authorization does not have an expiration date.
If I have not already received a copy of the Privacy Notice, I may request one by contacting the Privacy Officer. If I have any questions or concerns about my privacy rights, I should contact the East Tennessee State University, James H. Quillen College of Medicine Privacy Officer, Paula Wright,, at 423/433-6074 or the Compliance Manager at Phone: (423)439-5651.

I am the subject or am authorized to act on behalf of the subject. I have read this information, and I will receive a copy of this form after it is signed.

By signing below, I certify that I have read or had this document read to me. I will be given a signed copy. I have been given the chance to ask question and to discuss my participation with the investigator. I freely and voluntarily choose to be in this research project. In addition, by signing below, I am authorizing the use and disclosure of my protected health information for research purposes as described above.

SIGNATURE OF VOLUNTARILY PARTICIPATING PATIENT **DATE**

PRINTED NAME OF PARTICIPANT

SIGNATURE OF INVESTIGATOR/DESIGNEE **DATE**

APPROVED
By the ETSU/VA IRB
NOV 02 2010
By _____
Chair/IRB Coordinator

DOCUMENT VERSION EXPIRES
NOV 01 2011
ETSU/VA IRB

11/11/2010

_____ Subject Initials

Appendix D: Demographic Questionnaire

BACKGROUND INFORMATION FORM (all questions)

Thank you for agreeing to participate in our study of pregnancy lifestyles. We know your time is valuable, and we appreciate you taking your time to answer our questions today. We understand that some of the questions may make some people uncomfortable, or make them consider not giving truthful information. Please be assured that we will not share what you tell us with anyone, and we are not here to judge you based on any answers you may give us. Our goal is that you be comfortable enough to openly and honestly answer our questions. It is only by everyone giving us honest answers that information from this study might be useful to health care providers working with pregnant patients in the future. Again – thank you!

First you will be asked some basic background information about yourself, your family, and your medical history. After that you will be asked questions about your relationships, your moods, and past and present alcohol and drug use. The tester will read the instructions and questions out loud. You can either answer the tester aloud and let him/her fill out the forms, or if you prefer you can fill our the forms yourself as the tester reads through them. It is your choice – whichever makes you more comfortable. And you can switch options in the middle of the session if you want too. If at any point during the session something is not clear or you need more information, please be sure to ask. We want this to be as quick and as comfortable as possible, so please just ask if there is anything you need.

QUESTION	CODES	RESPONSE
1. How old are you?		
2. How many pregnancies have you had, including this one?		
3. How many live children have you given birth to?		
4. What is your marital status?	1=Married 2=Unmarried, living with partner 3=Divorced 4=Widowed 5=Single, never married	
5. What is your highest level of education?	*Enter number of years* (12=HS grad, add one year for each full year of college; college grad=16; MA=18; PhD/MD=20)	
6. How many people currently live with you?		
7. How many of these people are children under 18?		
8. How many of the children that you live with are YOUR biological children?		

QUESTION	CODES	RESPONSE
9. Circle all people you currently live with.	1=Spouse/partner 2=Own child(ren) 3=Others child(ren) 4=Mother/step-mother 5=Father/step-father 6=Brother(s) 7=Sister(s) 8=Other relative 9=Other non-relative	
10. Do you work outside the home?	0=No 1=Did before pregnancy 2=Part-time 3=Full-time	
11. Do you currently attend school?	0=No 1=Yes, part-time 2=Yes, full-time	
12. If you work outside the home, what do you do? *Write in occupation below and describe duties. Then, in right column, circle the correct code* _____	1=menial, no occupation 2=unskilled worker 3=semiskilled worker 4=skilled manual 5=clerks, sales 6=technicians, semi-professionals 7=small business owner; teacher 8=administrators 9=executives, high level professionals	
13. Does anyone else in your household contribute to the family income?	0=No 1=Yes	
14. If yes to 13, what is that person's highest grade completed?	*Enter number of years* (see #5 above)	
15. If yes to 13, what is that person's occupation? *Write occupation below and describe duties. Then in right column write the correct code (see #12 above)*_____		
QUESTION	**CODES**	**RESPONSE**
16. What was your income last year?	1=<$5000 2=$5,00-9,999 3=$10,000-14,999 4=$15,000-19,999	

	5=$20,000-29,999 6=$30,000-39,999 7=$40,000-49,999 8=$50,000-59,999 9=$60,000-69,999 10=$70,000-79,999 11=$80,000-89,999 12=$90,000-99,999 13=$100,000+	
17. What was your total household income last year, from all sources?	*Use codes from #16 above*	
18. What type of medical insurance do you have?	0=None 1=Medicaid 2=Private 3=TennCare 4=Medicaid & Private 5=Unknown	
19. What is the primary language spoken in your home?	1=English 2=Spanish 3=Other : _____	
20. What is your current zip code?		
21. How often do you attend church?	0=Never 1=Holidays (few times/year) 2=About once a month 3=A couple times/month 4=Once a week or more	
22. What is the date of your last menstrual period?	Mm/dd/yyyy	
23. What is your estimated due date?	Mm/dd/yyyy	
24. What is your current gestation week?		
25. What was your pre-pregnancy weight?	*Enter in pounds*	
26. What is your current weight? What is your height?	*Enter in pounds* *Enter in feet and inches*	_____lb _____ft _____in
27. Do you have any chronic medical or psychological conditions (developed before pregnancy)? *If yes, describe:*		
QUESTION	**CODES**	**RESPONSE**

28. Do you have any medical or psychological conditions that developed during pregnancy? *If yes, describe:*		
29. Please describe your level of support from other people.	1=I know there is always someone I can turn to if I need practical (i.e. a ride, money, help with a child, etc) or emotional (i.e. someone to talk to, someone to do things with) help. 2=Most of the time there is someone I can turn to if I need practical or emotional help. 3=Only sometimes is there someone I can turn to if I need practical or emotional help. 4=There is hardly ever someone I can turn to if I need practical or emotional help 5=There is never anyone I can turn to if I need practical or emotional help.	
30. How many people do you have that you could turn to for practical or emotional help?	0=None 1=1-2 2=3-5 3=6-10	

	4=More than 10	
31. Was this pregnancy planned?	0=No 1=Yes	
32. How did you initially feel about your pregnancy?	1=Very upset and scared 2=Upset, but it wasn't the end of the world 3=Ambivalent (upset/scared and excited both) 4=Happy 5=Overjoyed and excited	
33. How do you feel about your pregnancy now?	*Use codes in #32 above*	

Appendix E: Modified HITS screen

Examiner: _____ ID: _____

Date: _____/_____/____

HITS

Please respond to the questions below using the following scale:

1=Never
2=Rarely
3=Sometimes
4=Fairly often
5=Frequently

Since you were pregnant, has a partner or ex-partner

_____ 1. Physically hurt you?

_____ 2. Insulted you fairly often?

_____ 3. Threatened you?

_____ 4. Screamed at you fairly often?

_____ 5. Forced unwanted sexual activity?

Appendix F: Prenatal Psychosocial Profile Stress Scale

Stress scale of the Prenatal Psychosocial Profile

Below is a list of factors that might be stressful in your life right now. Please indicate the level of stress or hassle you feel each of the following causes you.

	No Stress 1	**Some Stress 2**	**Moderate Stress 3**	**Severe Stress 4**
1. Financial worries (e.g. food, shelter, health care, transportation)	1	2	3	4
2. Other money worries (bills, etc)	1	2	3	4
3. Problems related to family (partner, children, etc)	1	2	3	4
4. Having to move, either recently or in the future	1	2	3	4
5. Recent loss of a loved one	1	2	3	4
6. Current pregnancy	1	2	3	4
7. Current abuse (sexual, emotional, physical)	1	2	3	4
8. Problems with alcohol and/or drugs	1	2	3	4
9. Work problems (e.g. being laid off, trouble with boss/co-workers, etc.)	1	2	3	4
10. Problems related to friends	1	2	3	4
11. Feeling generally “overloaded”	1	2	3	4

Appendix G: Prenatal Psychosocial Profile Social Support of Others Scale

The next set of questions asks how satisfied you are with the amount of support you receive from your partner and/or other people.

First of all, do you have a partner?

_____ **No (answer only about support from others)**
_____ **Yes**

Below is a list of statements describing types of support. On a scale of 1 to 6, with 1 being *very dissatisfied* and 6 being *very satisfied*, indicate how satisfied you are with the support you receive from your partner and/or other people.

	Partner						Other People					
	Very Dissatisfied					**Very Satisfied**	**Very Dissatisfied**					**Very Satisfied**
1. Shares similar experiences with me	1	2	3	4	5	6	1	2	3	4	5	6
2. Helps keep up my morale	1	2	3	4	5	6	1	2	3	4	5	6
3. Helps me out when I am in a pinch	1	2	3	4	5	6	1	2	3	4	5	6
4. Shows interest in my daily activities and problems	1	2	3	4	5	6	1	2	3	4	5	6
5. Goes out of his/her way to do special or thoughtful things for me	1	2	3	4	5	6	1	2	3	4	5	6
6. Allows me to talk about things that are very personal and private	1	2	3	4	5	6	1	2	3	4	5	6
7. Lets me know I am appreciated for the things I do for him/her	1	2	3	4	5	6	1	2	3	4	5	6
8. Tolerates my ups and downs and unusual behaviors	1	2	3	4	5	6	1	2	3	4	5	6
9. Takes me seriously when I have concerns	1	2	3	4	5	6	1	2	3	4	5	6
10. Says things that make my situation clearer and easier to understand	1	2	3	4	5	6	1	2	3	4	5	6
11. Lets me know that he/she will be around if I need assistance	1	2	3	4	5	6	1	2	3	4	5	6

VITA

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