RACE AND SOCIOECONOMIC DIFFERENCES IN THE LONG-TERM OUTCOMES OF CHILDHOOD MALTREATMENT

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Childhood maltreatment (CM) is associated with negative physical, psychological, and social outcomes throughout life. Among the important psychosocial outcomes for female victims of CM is the risk for subsequent violent victimization during adulthood. Few studies have examined the risk and protective factors associated with revictimization and following CM. Additionally, although both CM and adult violent victimization (AVV) are associated with factors that impact women's socioeconomic status, there is a paucity of research explicitly examining socioeconomic outcomes, such as neighborhood characteristics, among victimized women.

Racial and socioeconomic differences exist in the prevalence of both CM and AVV, yet little data exists to show demonstrate, how those factors impact the CM-AVV relation. This study examined the role of race in the association between CM and AVV and related socioeconomic outcomes among adult women. The goals were to; 1) Characterize the association between CM and AVV; 2) Examine whether there are racial differences in the association between CM and AVV; and 3) Determine whether victimization history is associated with the characteristics of the neighborhood in which one resides.

Women (n=477) participating in a longitudinal study of the effects of prenatal exposure to alcohol and marijuana were interviewed about their history of exposure to CM and AVV. Other measures included demographic characteristics, social support, substance use, depression and anxiety, and household environment.

The results demonstrated an increased likelihood of experiencing AVV among women who reported a history of CM; regardless of the type of maltreatment experienced. Baseline illicit drug use partially mediated the CM-AVV relation. The risk of AVV associated with CM was not different by race; however, baseline marijuana use was found to mediate the CM-AVV relation for Caucasian women only. Victimization was not associated with neighborhood-level characteristics.

There are several important public health implications of this study. When all forms of CM exposure are considered there is a substantial increase in the odds of experiencing AVV, both intimate partner violence and non-intimate partner violence. This study also suggests that approaches to prevent revictimization should differ depending on race, and that drug interventions may be more relevant for Caucasian women.

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1.0 INTRODUCTION/OVERVIEW

Childhood maltreatment is associated with negative physical, psychological, and social outcomes throughout life. However, little is known about the risk and protective factors for these outcomes. A gap exists in the research literature on psychosocial factors that influence the relations between maltreatment in childhood and adverse psychosocial outcomes in adult life, particularly violent victimization of women. Of particular interest are whether race and psychological functioning affect the relations between childhood maltreatment, adult revictimization, and subsequent socioeconomic outcomes. The goal of the proposed research is to examine the role of race in the association between childhood maltreatment and adult violent victimization and related socioeconomic outcomes among adult women. The following research aims and hypotheses will be used to achieve this goal:

Aim 1: Characterize the association between childhood maltreatment (CM) and adult violent victimization (AVV). Women with a history of CM will be compared to those without such a history on AVV to determine how characteristics of the exposure (#forms of maltx) and risk/protective factors impact subsequent victimization.

H1: Women with a history of exposure to more forms of CM will report more AVV.

H2: The relation between CM and AVV will be mediated by demographic, environmental, social, and psychological factors as well as substance use/abuse.

H3: The association between CM and AVV will remain significant after controlling for significant mediators.

Aim 2: To examine whether there are racial differences in the association between CM and AVV.

H4: Caucasian women will report CM with greater frequency than African American women.

H5: African American women will report AVV with greater frequency than Caucasian women.

H6: Among those with a history of CM, rates of revictimization will be higher among African American women.

H7: The mediators in the CM-AVV relation will differ by race.

H8: Sociodemographic factors will moderate the CM-AVV relation.

Aim 3: Determine whether victimization history is associated with the characteristics of the neighborhood in which one resides. Three different levels of victimization, CM only, AVV only, or revictimization, will be examined as exposures and the participant's neighborhood at the time of the most recent data collection will be the outcome.

H9: Revictimization will be associated with living in areas of more social disorganization when compared to a history of CM only or AVV only.

H10: Revictimization will lead to a higher likelihood of living in an area of high social disorganization for Caucasian women compared to African American women.

H11: Victimization (CM, AVV, or both) will lead to higher likelihood for living in a race discordant neighborhood for Caucasian women compared to African American women.

1.1 CHILDHOOD MALTREATMENT

1.1.1 Definition

Childhood maltreatment (CM) is defined as behavior towards a child which is outside the norms of conduct and entails a substantial risk of causing physical or emotional harm (National Research Council, 1993). Such behaviors can be acts of commission or omission and can be either intentional or unintentional (Christoffel et al., 1992).

There are three categories of abuse: physical, emotional, and sexual. Physical abuse can include punching, beating, kicking, biting, burning, shaking, or otherwise harming a child. Sexual abuse includes fondling a child's genitals, incest, penetration, rape, sodomy, indecent exposure, and commercial exploitation through prostitution or the production of pornographic materials. Emotional abuse is defined as any pattern of behavior that harms a child's emotional development or sense of self-worth, including frequent belittling, rejection, threats, and withholding of love and support.

Neglect is defined as failure to provide for a child's basic needs and can be either physical or emotional. Physical neglect can include failure to ensure provision of adequate supervision, education, or medical care. Examples of emotional neglect include abandonment, lack of nurturance, or lack of emotional availability (Centers for Disease Control and Prevention, 2007; National Research Council, 1993).

1.1.2 Assessment

Three main methods of assessing the occurrence of CM are use of child protection service (CPS) agency data, interviews, and self-report. CPS agencies rely upon referrals alleging that children have been abused or neglected. Approximately one-third of referrals to CPS agencies are screened-out and do not receive further attention. The reasons a referral may be screened-out include issues that are outside the responsibility of the CPS, insufficient information to enable follow-up, and agency workload. The remaining two-thirds of referrals are screened-in as official CPS reports. More than half of official CPS reports are made by professionals, including educators, legal and law enforcement personnel, social services personnel, medical personnel, mental health personnel, child daycare providers, and foster care providers. Such professionals are mandated by law to report any suspected abuse. Non-professional reporters often include parents, other relatives, friends and neighbors, alleged victims, alleged perpetrators, or anonymous callers (U.S. Department of Health and Human Services, 2005).

There are several potential biases associated with CPS data. These include under-representation of minor forms of maltreatment, under-representation of forms of maltreatment that do not result in physical injury, over-representation of low socioeconomic status populations, and potential over-representation of certain racial/ethnic groups due to the personal bias of reporters or CPS staff (National Research Council, 1993).

In order to minimize potential biases in research studies, the majority of maltreatment data is obtained through interviews or self-reports. In addition, because of ethical and legal concerns with regard to reporting and intervening on known or suspected maltreatment, most maltreatment research data are obtained retrospectively. Interview data on CM are usually

obtained through structured or semi-structured interview with the victim. Victim interview data can be supplemented with sibling, parent, or other informant interviews. Most interviews assess multiple forms of maltreatment, as well as other childhood traumatic events, simultaneously (Roy & Perry, 2004). The reliability and validity of interviews and questionnaires in retrospectively assessing CM are within acceptable ranges and have been shown to be comparable (Hardt & Rutter, 2004).

1.1.3 Epidemiology

Estimates of the prevalence of CM vary depending upon data source and the forms of maltreatment that are measured. Estimates based upon CPS data often underestimate cases of emotional abuse or neglect (Cicchetti & Toth, 2005). The accuracy of prevalence estimates from research studies is limited by a tendency to focus on a single form of maltreatment (e.g. sexual abuse), or on the larger categories (e.g. any neglect) (Cicchetti & Toth, 2005; Dong, Anda et al., 2004). Furthermore, research samples may under-represent more severe cases of maltreatment due to their reliance on self-report (Cicchetti & Toth, 2005).

The National Incidence Study (NIS), conducted by the National Center on Child Abuse and Neglect, supplements CPS data with those from other investigatory agencies, professionals in schools, and hospitals. Based upon the most recent NIS study, 23.1 per 1000 children under the age of 18 were victims of maltreatment. The rates of any form of abuse (physical, sexual, or emotional) and neglect (physical or emotional) were 11.1 and 13.1 per 1000, respectively. The majority of cases were physical maltreatment, abuse and/or neglect (Sedlak & Broadhurst, 1996). Other research indicates that neglect accounts for approximately half of all CM (Elliott & Urquiza, 2006; U.S. Department of Health and Human Services, 2005) .

Estimates obtained in research studies of community samples are much higher. For instance, in the National Family Violence Survey, a national telephone survey of adults in households with at least one child under age 18, the reported prevalence rate for physical abuse was 49 per 1000 (Straus MA, Hamby, Finkelhor D, Moore, & Runyan, 1997). It is important to note that the rates in this study are based on reports from perpetrators of the maltreatment, or their partners, and therefore, may underestimate rates of CM. A more recent study of children and youth, ages 2 to 17, revealed 124 per 1000 reported having experienced some form of maltreatment. The rates of physical abuse and any form of neglect among the same sample were 15 per 1000 and 11 per 1000, respectively (Finkelhor, Ormrod, Turner, & Hamby, 2005).

Many studies on CM and its sequelae focus on a single CM type. However, multiple studies have demonstrated that exposure to a single form of CM is uncommon (Bensley, Van Eenwyk, & Simmons, 2000; Briere & Runtz, 1990; Dong, Anda et al., 2004). For example, in the Adverse Childhood Experiences Study of adults from a health management organization (n=8,629), 86.5% reported having experienced at least one additional adverse childhood experience (ACE), which included maltreatment as well as household dysfunction. At least three additional ACEs were reported by 52% of the same study population. When non-maltreatment ACEs (e.g. household dysfunction) were excluded, the odds for having experienced an additional form of abuse or neglect given the occurrence of one form ranged from 2.4 to 17.7 ($p<.0001$) (Dong, Anda et al., 2004).

1.1.3.1 Racial differences in occurrence of childhood maltreatment

Data on race/ethnicity and CM also vary considerably depending upon the source. National data based on CPS reports estimate rates of any maltreatment among African Americans and Native Americans at 20.4 per 1000 and 21.3 per 1000. In contrast, the rates for

Caucasians, Latinos, and Asians were 11.0, 9.9, and 2.7 per 1000, respectively (U.S. Department of Health and Human Services, 2005). However, as the majority of abuse is not reported to the police or other agencies, all of these rates are likely underestimates (Finkelhor, 1984; Straus & Gelles, 1990b). Differential reporting of CM by race may account for a large proportion of the variation in rates. In fact, data from the National Incidence Studies revealed no significant differences in the prevalence of abuse across ethnic groups (Sedlak & Schultz, 2001).

Using self-report data from adults aged 18 and older, Scher et al., (2004) found that Caucasians were two times more likely than African Americans to report histories of emotional abuse and neglect, while African Americans were 1.5 times more likely than Caucasians to report a history of physical abuse (Scher, Forde, McQuaid, & Stein, 2004). Adult retrospective reports of physical abuse were higher among African Americans compared to Mexican Americans, Native Americans, and non-Hispanic whites (Roosa, Reinholtz, & Angelini, 1999).

Race/ethnicity is important with regard to the prevalence and reporting of CM. This is particularly true when considering CPS data, as there is increasing evidence of overrepresentation of ethnic minorities in the child welfare system (Elliott & Urquiza, 2006). Race/ethnicity likely contributes to institutional-level differences in the manner in which maltreatment is reported and substantiated within the CPS system. Racial/ethnic factors may also affect whether victims report abuse that has occurred as well as how they cope with abuse (Rau et al., 2003). Additionally, there is evidence of differences in the degree of restrictive or punitive interventions (e.g. mandated parenting classes, removal of children from the home) mandated following CM depending upon the race/ethnicity of the family (Elliott & Urquiza, 2006).

1.1.3.2 Individual-level socioeconomic differences in occurrence of childhood maltreatment

In 2002, the U.S. poverty rate for families with children under 18 years was 13.6%. The percentages of Caucasian and African American children living below the poverty level were 9.5 and 32.3, respectively (Proctor & Dalaker, 2003). The association between child maltreatment, particularly neglect, and low income levels is well established (Ards, Chung, & Myers, 1998; Drake & Pandey, 1996; Gil, 1970; Hampton & Newberger, 1985; Lindsey, 1994 ; Waldfogel, 1998; Wolfner & Gelles, 1993; Zellman, 1992). Berger (2005) found that income played a more important role in child maltreatment in single-parent families than in two-parent families (Berger, 2005). In general, single-parent families below 200% of the poverty level have much higher probabilities of family violence. This is thought to be indirectly related to stress, among other variables, although Berger (2005) did not find respondent stress to be significant predictor of violence. Covariates of maltreatment identified in this study included: single parent status, depression, maternal alcohol consumption, and history of family violence (Berger, 2005). In their longitudinal study, Dunlap et al. (2003) found that inner-city, low-income girls with histories of childhood sexual abuse were at high risk for school dropout, limited involvement with jobs, drug abuse, teen pregnancy, early motherhood, multiple children by different fathers, being single-parents, and being involved in prostitution, all of which increase the likelihood of perpetuating poverty (Dunlap, Golub, & Johnson, 2003). This study illustrates the importance of exploring the relationships between income, race, child maltreatment, and subsequent outcomes. The few studies of child maltreatment that mention income include it as a predictor of occurrence. Most do not examine income as a correlate of negative outcomes, nor do they examine income in conjunction with race.

1.1.3.3 Neighborhood-level socioeconomic differences in occurrence of childhood maltreatment

In the past decade, several multi-level studies of parenting, child outcomes, and child maltreatment have been conducted (Caughy, O'Campo, & Muntaner, 2003; Coulton, Korbin, & Su, 1999; Korbin, Coulton, Lindstrom-Ufuti, & Spilsbury, 2000; Molnar, Buka, Brennan, Holton, & Earls, 2003; Silk, Sessa, Morris, Steinberg, & Avenevoli, 2004). The most common approach to defining neighborhoods has been to utilize census tracts and/or census blocks. A consistent finding is that neighborhood can affect child adjustment, development, and behavior through its effects on factors such as parenting, family environment, or stress. Molnar et al. (2003) examined both family- and neighborhood-level socioeconomic disadvantage and found an association between both forms of disadvantage and parent-to-child physical aggression (Molnar et al., 2003). Interactions between race, size of neighborhood social networks, and use of physical aggression were also found. Few, if any, similar studies have explicitly examined the correlation between neighborhood and long-term outcomes of multiple forms of maltreatment. Neighborhood level factors may be independently associated with child maltreatment outcomes or they may only be important as proxies for race or socioeconomic status. Understanding the degree and nature of neighborhood influences on outcomes following CM may allow the development of more accurate risk profiles for victims, and may inform efforts at prevention.

1.1.4 Etiology

There are many etiologic models of CM. Most of the current models propose interactions among causal or predisposing factors internal and external to the victim (Ammerman, 1990; National Research Council, 1993). The most prominent models are based upon Bronfenbrenner's

ecological model (Belsky, 1980). In ecological models, maltreatment is viewed within a system of risk and protective factors on four nested levels: 1) individual or ontogenic, 2) family microsystem, 3) exosystem, and 4) social macrosystem. Individual/ontogenic factors are characteristics of the adult or child such as demographics, personality, temperament, or age. Characteristics of the family microsystem that may be important in the etiology of CM can include family functioning (e.g. marital discord, parent illness or absence), parenting style, or discipline methods. The exosystem refers to the larger community that surrounds the family and the individual. Community factors can include the neighborhood, workplace, school, peer groups or religious organizations. The macrosystem is comprised of cultural and social values which influence all other levels of the ecologic model. Examples of such values include individuals' and families' rights to privacy, or norms of certain levels of physical discipline (National Research Council, 1993).

1.1.5 Outcomes

Childhood maltreatment has a variety of impacts on its victims, both psychological and physiologic. The nature, severity, and longevity of the impacts vary depending upon the type(s) of maltreatment experienced, duration of maltreatment, as well as characteristics of the individual and family which may intensify or buffer the effects of abuse/neglect. There are two prominent approaches to understanding the mechanisms of change in victims of maltreatment, developmental psychopathological and neurobiological.

1.1.5.1 Developmental psychopathological mechanism

The basic tenet of developmental psychopathology is that normal child development follows a predictable course, which begins with physiological regulation of functions like eating and sleeping, followed by development of closeness and attachment to others, peer relationships, and social competence (Wolfe, 1999). Under adverse circumstances, such as CM, these processes are disrupted resulting in impairments which can persist into adulthood.

Impacts on every stage of development, from infancy and early childhood to adulthood have been demonstrated in the research literature. For example, in early childhood (birth to age 6) characteristics found to be associated with CM include: delayed motor development and higher rates of enuresis, insecure attachment, social withdrawal, disturbed peer relationships, and decreased ability to engage in problem solving, deduction and complex memory tasks (Trickett & McBride-Chang, 1995). In middle childhood (ages 6-12), some of the observed changes in maltreated individuals include the emergence of academic performance deficits, low peer status, inappropriate sexual behavior, as well as internalizing and externalizing behavior problems (Trickett & McBride-Chang, 1995). In adolescence, the changes observed in middle childhood are found to persist and escalate. Internalizing and externalizing problems lead to a higher likelihood of suicide or self-injurious behavior, delinquency, multiple sex-partners, running away and a higher likelihood of repeating a grade in school. In adulthood, the final stage in the developmental pathway, early social and psychological problems often culminate in criminal activity, psychiatric disorders, social isolation, decreased marital success and satisfaction (Trickett & McBride-Chang, 1995).

1.1.5.2 Neurobiological mechanism

Neurobiological impacts of CM include changes in the neurohormonal system as well as in the structure and function of specific regions of the brain. Major structural changes in the brain associated with early stress and CM include reduced size of the corpus callosum, and attenuated development of the hippocampus, amygdala, cerebral cortex, and cerebellum. Some of the related functional changes are increased amygdaloid activation, which is associated with heightened emotional memory and post-traumatic stress disorder. Changes in hippocampal volume impact the behavioral inhibitory system and retrieval of episodic information; suggesting these changes may be related to dissociative and disinhibitory behaviors. Cerebellar changes have been found to be associated with disruptions in cognition, language, social behavior, emotion and several psychiatric disorders (Teicher et al., 2003).

The neurohormonal changes most studied in relation to CM occur in the hypothalamic-pituitary-adrenal (HPA) axis. The HPA axis, which involves the sympathetic nervous system, neurotransmitter system, and immune system, controls the body's response to stress. Research results are mixed with some studies showing raised levels of the stress hormone cortisol, which activates the HPA axis; while others show normal levels of cortisol, suggesting adaptive functioning (Glaser, 2000). Increases in stress hormone levels are associated with numerous physical and psychological outcomes which will be discussed further below.

1.1.5.3 Physical outcomes of childhood maltreatment

The most obvious physical effects of CM include scars from burns, bites, scratches, or being struck with instruments like belts or whips. Mental retardation, seizures, blindness, deafness, cerebral palsy, or learning disabilities are additional sequelae associated with severe physical abuse. Sexually abused children are also at increased risk for sexually transmitted

diseases. Neglect, particularly medical, can also have physical impacts on children, including limb and vertebral deformity or stunted growth due to failure to seek medical attention for fractures. Speech disorders, developmental delays, and decreased visual acuity or blindness can result from failure to attend to hearing or vision problems. Severe malnutrition resulting from extreme physical neglect can also result in stunted growth (National Research Council, 1993; Rosenberg & Krugman, 1991).

Many of the physical outcomes, like scars or other physical deformities, persist throughout the victims' lifetime while others may lead to secondary outcomes as the child moves into adolescence and adulthood. For instance, untreated sexually transmitted diseases in children who contract the infections from abusers can lead to pelvic inflammatory disease and infertility (MacMillan & Munn, 2001; Rosenberg & Krugman, 1991). Other physical outcomes of CM do not manifest until later in life. For example, somatic disorders, irritable bowel syndrome, chronic fatigue syndrome, and autoimmune disorders like rheumatoid arthritis, have all been found to be related to a history of CM but usually are not present at a diagnosable level until adulthood (Arnow, Hart, Hayward, Dea, & Taylor, 2000; Kendall-Tackett, 2000; Mulvihill, 2005; National Research Council, 1993). These adult outcomes are likely more closely associated with neurobiological mechanisms such as changes in the HPA axis (Kendall-Tackett, 2000). There is also evidence that cardiovascular disease may be related to a history of CM, with individuals exposed to more forms of maltreatment at highest risk (Batten, Aslan, Maciejewski, & Mazure, 2004; Dong, Giles et al., 2004)

1.1.5.4 Psychosocial outcomes of childhood maltreatment

The psychosocial consequences of maltreatment during childhood include internalizing problems, such as emotional disturbances, sleep and eating disturbances, fears and phobias, guilt,

shame, or depression. Externalizing problem behaviors that are seen among maltreated children include running away, aggression, and inappropriate sexual or antisocial behavior (National Research Council, 1993). Similar problems are seen as maltreated children move into adolescence and adulthood. Externalizing behaviors may escalate into delinquency or violence during adolescence. Substance use and substance use disorders as well as other self-destructive behaviors, suicide, and psychiatric disorders begin to emerge during this time period as well. In addition to the emergence or escalation of substance use and psychiatric disorders like depression, anxiety, and post-traumatic stress disorder, adults with histories of CM often have problems in interpersonal relationships. This can include a higher likelihood of walking out on a partner, divorcing, being unfaithful to a romantic partner, or being revictimized (Colman & Widom, 2004; Gladstone et al., 2004; National Research Council, 1993).

1.1.5.5 Other outcomes of childhood maltreatment

Abused and maltreated individuals have been shown to exhibit cognitive and language deficits, particularly in verbal intelligence (National Research Council, 1993). In addition, through high school, maltreated children have been shown to perform significantly lower on standardized tests, have lower grades and are more likely to repeat a grade (Eckenrode, Laird, & Doris, 1993). There is also evidence that lower levels of intellectual functioning and academic failure that can occur among victims of CM persist into adulthood (Malinosky-Rummell & Hansen, 1993; Perez & Widom, 1994).

1.2 VIOLENCE AGAINST WOMEN

1.2.1 Definition

Violence against women (VAW) is an important public health issue in the United States. VAW is considered a subset of interpersonal violence, which can be defined as the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community (e.g. women) that has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). The World Health Organization Report on Violence and Health (2002) identifies four types of VAW: physical, sexual, psychological, and deprivation or neglect. This violence can occur at the family level where it is usually perpetrated by intimate partners, current or former. It can also occur at the community level and be perpetrated by acquaintances or strangers.

Intimate partner violence (IPV), a specific subset of VAW, is defined as any behavior within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship. This includes psychological abuse, forced intercourse, other forms of sexual coercion, and controlling behaviors such as isolating a person from friends and family, monitoring one's movements, and restricting one's access to information or assistance (Heise & Garcia-Moreno, 2002). This frequently used definition of IPV only includes physical violence committed against women within the context of intimate partner relationships.

1.2.2 Assessment

Data on IPV/VAW can come from a variety of sources, including police, clinical settings, non-governmental organizations, and research. However, most VAW incidents are not reported to the police. It is estimated that only 20% of IPV rapes or sexual assaults, 25% of physical assaults, and 50% of stalkings directed toward women are reported to officials (Centers for Disease Control and Prevention, 2007). Hence, self-reports of victimization are heavily relied upon in research.

The most commonly employed self-report methods are questionnaires, face-to-face interviews, and telephone surveys (Cusack, Frueh, & Brady, 2004; Schwartz, 2000). Telephone surveys have been used increasingly in recent years, including their use in the National Violence Against Women Survey and the National Crime Victimization Survey. Face-to-face surveys, though considered to be the best method for gathering data in many subject areas, can be problematic when sensitive subjects such as CM or VAW are considered. Due to embarrassment or shame, women can be less forthcoming in face-to face interviews (Schwartz, 2000). However, less personal interview methods like telephone surveys, particularly those which employ random-digit dialing sampling, have the additional limitation of potential biases in response rates (Schwartz, 2000). In telephone surveys, no data are available on individuals who refuse to take part. Certain demographic groups or those who are in more volatile home situations may participate differentially.

Two commonly used VAW self-report questionnaires are the Conflict Tactics Scale (CTS) and the Trauma Assessment for Adults (TAA). The major limitation of the CTS is that it only assesses violence occurring in the context of intimate relationships. The TAA assesses lifetime history of traumatic events including physical and sexual assaults, and emotionally

traumatic events such as being in situations where one feared being killed or seriously injured. While the TAA is a more inclusive assessment of the range of victimization women experience, it does not allow the researcher to distinguish between victimization within and outside of the context of intimate relationships.

1.2.3 Epidemiology

It is estimated that 14-20% of women will experience rape. (Kilpatrick & Resnick, 1993; Koss, 1993; Tjaden & Thoennes, 2000a, 2000b), 52% will experience physical assault (Tjaden & Thoennes, 2000a, 2000b), and 8-24% will be stalked during their lifetime (Sheridan, Blaauw, & Davies, 2003; Spitzberg, 2002; Tjaden & Thoennes, 2000a, 2000b). Estimated annual victimization rates for women are 8.7 per 1000, 58.9 per 1000, and 10.0 per 1000 for rape, physical assault, and stalking, respectively (Tjaden & Thoennes, 2000a). When considering victimization occurring as adults (age ≥18), 9.6% of women reported having been raped, 30.6% physically assaulted, and 7.4% stalked (Tjaden & Thoennes, 2000a).

Only 16-20% of violence against women occurs at the hands of strangers (Kaukinen, 2004; Tjaden & Thoennes, 2000a, 2000b). In fact, women are more likely to be assaulted or killed by a male partner, current or former, than any other type of assailant (Browne, 1993; Browne & Williams, 1993; Schnitzer & Runyan, 1995; Tjaden & Thoennes, 2000a, 2000b). U.S. survey research over the last 25 years indicates that approximately 20% of all couples among the general population have had at least one occurrence of IPV (Field & Caetano, 2005). It is also estimated that 25-28% of women will be physically abused by an intimate partner (Elliott & Briere, 2003; Straus & Gelles, 1990a). Results from the National Violence Against Women Survey indicate that perpetrators of VAW are predominantly male. All rapes reported

against women as adults as well as 91.9% of physical assaults in adults, and 97.2% of adult stalking incidents were perpetrated by males (Tjaden & Thoennes, 2000a).

As in the CM research literature, the approach to IPV/VAW research has been fragmented. In many cases, research has focused on one type of violence women experience, without considering the potential for multiple exposures (Kilpatrick, 2004). Women who present with one form of victimization often have a history of previous victimization. This was illustrated in a study by Monnier, Resnick, Kilpatrick, and Seals in which a sample of recent rape victims was examined (2002). Thirty-six percent of these women had been victims of previous domestic violence, 60% had been victims of prior rape, and 17% sustained a new physical assault within 6-months of the initial assault. Of the subsequent assaults, 37% were perpetrated by someone other than an intimate partner. Such evidence of the co-occurrence of forms of VAW is found in general population and service-seeking samples (Kilpatrick, 2004).

1.2.3.1 Racial differences in IPV/VAW

In nationally representative studies, African Americans have consistently been found to have higher reported rates of partner abuse, and to be between 1.6-2.4 times more likely to report violence compared to Caucasians (Caetano, Cunradi, Clark, & Schafer, 2000; Coulton et al., 1999; Hampton & Gelles, 1994; Rennison & Welchans, 2000; Sorenson, Upchurch, & Shen, 1996; Tjaden & Thoennes, 2000b; West, 2004). African Americans seem to be at significantly greater risk of IPV even after controlling for other factors such as substance use and socioeconomic characteristics (Caetano et al., 2000; Field & Caetano, 2005). Gelles (1993) and Cunradi et al. (2002) also found that severity of IPV differed by ethnicity, where moderate violence consisted of things like pushing, shoving, grabbing, and/or slapping and severe violence consisted of kicking, biting, hitting with an object or hand, choking, burning, scalding, sex

and/or threatening with or using a knife or gun. African American and Hispanic couples were at 4-fold and 2-fold increased risks, respectively, for severe IPV compared to Caucasian couples (Cunradi, Caetano, & Schafer, 2002; Gelles, 1993; Jasinski, Asdigian, & Kaufman-Kantor, 1997).

Race and ethnicity have been shown to be among the most consistent predictors of a person's risk for any violence, with highest rates of violent victimization in African Americans and Latinos. In fact, African American females have been found to have significantly higher rates of nonstranger (e.g. family, friend, or acquaintance) violence than Latino and Caucasian women. African American and Latino women also experience significantly higher rates of stranger violence (Lauritsen & White, 2001).

These studies illustrate significant differences in violent victimization by race/ethnicity. These findings also raise the question of whether risk factors for victimization also differ by race/ethnicity. In general, findings from multiple longitudinal and cross-sectional studies indicate that generalizing the risk factors associated with IPV across race/ethnic groups may not be appropriate (Field & Caetano, 2003).

1.2.3.2 Individual-level socioeconomic differences in IPV/VAW

Violence is an important public health problem for impoverished women (Bassuk et al., 1996; Goodman, Dutton, & Harris, 1995). This is especially true for partner violence. Poverty has been associated with increased risk for IPV victimization among women in numerous studies (Tjaden & Thoennes, 2000a; Vogel & Marshall, 2001). In a 2001 study of women receiving welfare, the prevalence rate of lifetime physical abuse by a male partner ranged from 28% to 63% (Tolman & Rosen, 2001).

Less is known about how the interaction of race and socioeconomic status (SES) impacts risk for violent victimization. Rennison and Planty (2003) stated that racial differences in rates of partner abuse disappear or are attenuated when economic factors are taken into consideration (Rennison & Planty, 2003). However, several studies of low-income populations have reported significant racial differences in the predictors of IPV. Among African American women, earning lower incomes and living in rental housing have been independently associated with higher rates of IPV (Campbell, Sharps, Gary, Campbell, & Lopez, 2002). Such associations have not been reported in the literature for Caucasian women.

In addition to differences in risk of occurrence, there is evidence that low income women may be victims of more frequent IPV (Goetting, 1995; Jasinski et al., 1997). Two studies analyzed IPV risk for low income women and identified factors similar to those found in the general population of women, such as poor social support, psychological distress, or history of child maltreatment (Centerwall, 1995; Wenzel, Tucker, Elliott, Marshall, & Williamson, 2004). However, none of these studies of income and IPV accounted for race, maltreatment, and neighborhood factors simultaneously.

1.2.3.3 Neighborhood-level socioeconomic differences in IPV/VAW

In addition to individual level characteristics such as race and income, personal and neighborhood environmental factors, such as social support, unemployment rates, crime rates, poverty rates, and home ownership ratios, may also be correlates of IPV victimization (O'Campo et al., 1995; Smith & Jarjoura, 1989). Couples who are urban dwellers have been found to report more IPV, particularly if African American (Cunradi, Caetano, Clark, & Schafer, 2000). This suggests that economic or social disadvantage may increase the risk of IPV (West, 2004). Associations have been found between characteristics of couples' socioeconomic environment,

such as neighborhood level poverty, and IPV (Fox & Benson, 2006). These associations have also been more pronounced for African Americans (Campbell, Masaki, & Torres, 1997; Cunradi et al., 2000).

Although neighborhood-level SES is consistently a significant risk factor for IPV/VAW, it has not been examined as extensively as individual-level SES. In addition to increasing individual risk for adverse socioeconomic outcomes, violent victimization may also increase risk for living in areas of high socioeconomic disadvantage. This relation has not been examined, thus far.

1.2.4 Etiology

Etiologic models of VAW/IPV are similar to the ecological models of CM. Risk and protective factors for victimization exist on separate, interacting levels, including the individual, relationship, and context/situation (Tolan, Gorman-Smith, & Henry, 2006). Individual risk factors might include low self-esteem, while examples of relationship and contextual factors are communication effectiveness and disadvantaged neighborhood residence, respectively (Tolan et al., 2006).

1.2.5 Outcomes

Similar to childhood maltreatment, adult violent victimization can have psychological and physical impacts on its victims. In addition, there are several related sociologic outcomes.

1.2.5.1 Psychological impacts of IPV/VAW

There are numerous mental health correlates of physical and/or sexual victimization, including anxiety (Gleason, 1993; Kemp, Green, Hovanitz, & Rawlings, 1995), depression (Campbell, Sullivan, & Davidson, 1995; Gleason, 1993; Orava, McLeod, & Sharpe, 1996; Plichita & Weisman, 1995), hopelessness and low self-esteem (Janoff-Bullman, 1992), post-traumatic stress (Astin, Lawrence, & Foy, 1993; Kilpatrick & Resnick, 1993), dissociation (Briere, Woo, McRae, Foltz, & Sitzman, 1997), somatization (Ullman & Brecklin, 2002), sexual problems (Briere, Elliott, Harris, & Cotman, 1995), substance use (Epstein, Saunders, Kilpatrick, & Resnick, 1998; Kilpatrick et al., 2000; Martin, Kilgallen, Dee, Dawson, & Campbell, 1998), and suicidality (Golding, 1999; Thompson, Kaslow, & Kingree, 2002; Ullman & Brecklin, 2002). Similar correlates have been identified for stalking and other forms of emotional or psychological abuse (Davis, Coker, & Sanderson, 2002; Mechanic, 2002; Migeot & Lester, 1996; Pathe & Mullen, 1997; Vitanza, Vogel, & Marshall, 1995).

1.2.5.2 Physical impacts of IPV/VAW

The physical effects of violent victimization on women can be immediate or long-term. Some of the immediate health impacts include minor injuries such as scratches, bruises or welts, or more severe injuries like lacerations, knife wounds, broken bones, head and internal injuries, broken teeth, burns, or bullet wounds (Plichta, 2004; Tjaden & Thoennes, 2000a, 2000b).

The long-term effects can be direct or indirect. Examples of direct health effects of IPV/VAW victimization are traumatic brain injury due to frequent, severe blows to the head. Other outcomes related to strangulation or head trauma include dizziness, left-or right-side weakness, paralysis, headaches, and memory loss. Chronic pain, particularly that associated with disorders such as fibromyalgia, temporomandibular joint disorder, and gastrointestinal disorders

has also been found among IPV victims (Plichta, 2004). The long-term indirect health effects of IPV/VAW are related to poor health behaviors like high rates of smoking, drug and alcohol use, poor diets, unhealthy weight control behaviors (e.g. vomiting, use of laxatives), risky sex practices (e.g. failure to use condoms), and failure to receive adequate prenatal care (Plichta, 2004). Some associated problems are pregnancy difficulties like low birthweight or perinatal death, sexually transmitted diseases including HIV/AIDS, and heart or circulatory diseases (Centers for Disease Control and Prevention, 2007).

1.2.5.3 Sociologic impacts of IPV/VAW

As a result of victimization, women often face a number of social consequences, including restricted access to information and services, isolation from social networks, and strained interactions with health providers and employers (Heise & Garcia-Moreno, 2002; Plichta, 2004). Research on female children and adolescents has demonstrated the adverse effect of violent victimization on educational and socioeconomic attainment well into early adulthood (Macmillan, 2001). In addition, young adults with histories of victimization have lower educational attainment and lower occupational status as measured by income.

One population based study of 3,600 women demonstrated a significant association between experiencing IPV in the previous year and housing instability; which included difficulty paying rent, mortgage or utility bills, frequent moves, and living in overcrowded conditions with family or friends (Pavao, Alvarez, Baumrind, Induni, & Kimerling, 2007). Experiencing such adversity may increase women's likelihood to return to, or remain in, relationships with an abusive partner.

1.3 REVICTIMIZATION

1.3.1 Definition

Revictimization occurs when an individual who has suffered childhood or adolescent abuse or neglect subsequently suffers one or more forms of victimization as an adult. The adult victimization (revictimization) can occur at the hands of an intimate partner, a non-intimate acquaintance, or a stranger. Revictimization can be form-specific (e.g. adult sexual victimization following childhood sexual abuse) or non-specific (e.g., any adult victimization following any form of childhood maltreatment). In addition, revictimization can be an isolated or recurring event.

1.3.2 Epidemiology

Many researchers have noted that a history of childhood maltreatment is a risk factor for subsequent victimization, including IPV/VAW (Coid et al., 2001; Messman-Moore & Long, 2002; Schaaf & McCanne, 1998; Whitfield, Anda, Dube, & Felitti, 2003; Widom, 1997). These studies have largely examined specific forms of child maltreatment, most commonly physical or sexual abuse, as predictors. One meta-analysis revealed between 15% and 79% of female victims of childhood sexual abuse report adult sexual assault (Roodman & Clum, 2001). The wide variation in the estimates of revictimization rates is likely due to several factors, including differences in the study population (e.g. sample size, age, community vs. clinical), differences in definitions of child and adult victimization, and differences in questionnaires (e.g. number or wording of questions).

An analysis of National Violence Against Women Survey (2002) data yielded estimates of the risk of both specific and non-specific revictimization at the hands of intimate partners as well as by any perpetrator. After adjustment for age, race, ethnicity, education, employment status and marital status, women who were physically abused during childhood were 2.8 times more likely to experience adult physical victimization and 2.6 times more likely to experience adult sexual victimization by an intimate partner. Those women who experienced childhood sexual abuse were 2.3 times more likely to experience adult physical victimization and 1.1 times more likely to experience adult sexual victimization by an intimate partner. Those women who experienced childhood sexual abuse were 1.3 times more likely to experience adult physical victimization and 3.0 times more likely to experience adult sexual victimization by a non-intimate partner. In addition, those who experienced childhood physical abuse were 3.0 times more likely to experience adult physical victimization and 2.7 times more likely to experience adult sexual victimization by a non-intimate partner. (Desai, Arias, Thompson, & Basile, 2002). In the same study, women who experienced both childhood physical and sexual abuse were between 1.8 times more likely to experience adult physical victimization and 4.8 times more likely to experience adult physical or sexual victimization (Desai et al., 2002).

1.3.2.1 Racial differences in occurrence of revictimization

Schafer et al. found racial differences in the relationship between child maltreatment history and IPV (Schafer, Caetano, & Cunradi, 2004). Among African American females, a history of childhood physical abuse increased the likelihood of reporting IPV victimization. Urquiza and Goodlin-Jones found that African Americans with a history of child sexual abuse were also more likely to be raped as adults than were Caucasians, Latina, or Asian women with similar abuse histories (Urquiza & Goodlin-Jones, 1994).

1.3.2.2 Socioeconomic difference in occurrence of revictimization

Very few studies have examined socioeconomic differences, at the individual or community level, in the relation between childhood maltreatment and subsequent adult victimization. One study of low-income African American women showed that current social support mediated the relation between child maltreatment and adult IPV (Wenzel et al., 2004). This study illustrates an additional shortcoming in the literature, studies of socioeconomic differences in revictimization have generally been conducted in racially homogeneous populations and/or only account for individual level SES (Bender, Cook, & Kaslow, 2003). Little is known about how SES impacts risk for revictimization among non-African American populations. Likewise, it is not known whether risk for revictimization varies depending upon characteristics of the neighborhood in which one resides.

One conceptualization of the influence of the neighborhood on interpersonal violence is social disorganization. Social disorganization is a lack of social order, which is defined as a relatively stable system of institutions, pattern of interactions and customs, capable of continually reproducing at least those conditions essential for its own existence (Shaw & McKay, 1942). The concept of social order thus refers to the aspects of a society which remain relatively constant over time.

Social disorganization theory suggests that neighborhoods plagued with poverty and economic deprivation tend to experience high rates of population turnover. This, in turn, leads to failure of informal social structures, such as schools, families, churches, or law enforcement, which in turn lead to difficulties to maintaining social order. There is evidence of a direct relation between neighborhood social disorganization and intimate partner violence against

women (Benson, Greer, DeMaris, & Van Wyk, 2003; Browning, 2002). However, these studies have not taken prior victimization, especially childhood maltreatment, into consideration.

1.3.3 Etiology

There are few published etiologic models of revictimization. Similar to CM and IPV/VAW, a commonly used etiologic conceptualization of revictimization is an ecological one with risk and protective factors on several interactive levels. An example is an adaptation of Bronfenbrenner's ecological model (Bronfenbrenner, 1977) to sexual revictimization. In this model, sexual revictimization is a function of the victim's personal history (e.g. childhood sexual abuse), the context or relationship in which the revictimization occurs (e.g. substance use by either partner), the community (e.g. level of social support and resources), and the culture (e.g. blaming the victim) (Grauerholz, 2000).

1.3.4 Outcomes

The effects of victimization are cumulative (Classen, Field, Koopman, Nevill-Manning, & Spiegel, 2001; Follette, Polusny, Bechtle, & Naugle, 1996; Messman-Moore, Long, & Siegfried, 2000). Hence, revictimization likely has greater negative sequelae than either CM or adult IPV/VAW alone. In addition, experiencing multiple forms of CM and/or adult victimization may confer greater risk for adverse outcomes. The majority of studies conducted on the consequences of revictimization thus far have focused on physical and psychological effects of sexual revictimization.

When sexual revictimization was examined in one study, higher rates of trauma symptoms were found with increasing levels of victimization. Compared to women with no history of sexual victimization, women who experienced one, two, or three types of victimization/revictimization (childhood sexual abuse, adult sexual assault, and/or physical partner violence) were significantly more likely to report having symptoms of anxiety, depression, dissociation, sexual problems, and sleep disturbances (Follette et al., 1996).

Physical health problems have also been reported in relation to sexual revictimization. Compared to women who were sexually abused during childhood only, sexually revictimized women experienced more problems conceiving, repeated vaginal infections, sexually transmitted diseases, and painful intercourse (West, Williams, & Siegel, 2000)

Exposure to multiple forms of CM is common. There is also evidence that different forms of adult victimization co-occur. Both CM and IPV/VAW have been shown to have various long-lasting effects on the physical, mental, and social functioning of their victims. Given that the link between CM and subsequent victimization is well established, particularly for sexual victimization, improving knowledge of the cumulative effects on multiple aspects of victims' lives has important public health implications. However, there is a dearth of research on the relation between multiple forms of CM, multiple forms of IPV/VAW, and their cumulative outcomes.

1.4 SUMMARY OF LITERATURE

Women who experience CM are at increased risk for subsequent victimization during adulthood. Not all women who are victims of CM experience IPV/VAW as adults, however. Factors such as

psychological status, social support, and substance use predict a woman's vulnerability to subsequent violence victimization. Socioeconomic factors such as low educational attainment, low income, and residing in a high-poverty, high-crime neighborhood also affect whether a woman who was maltreated as a child continues to be victimized throughout her life. These same factors predict the occurrence and severity of intimate partner violence and other traumatic victimization. A few studies have examined covariates of subsequent adult traumatization such as race or neighborhood poverty among victims of child maltreatment. To our knowledge, none has addressed race, current income, and neighborhood characteristics simultaneously while also examining the relations between multiple forms of maltreatment and adult violence victimization (including, but not limited to IPV).

The current literature on child maltreatment, IPV/VAW, and the relations between them is limited by:

1) Focus on selected forms of maltreatment rather than multiple forms of exposure. Most large scale epidemiological studies have reported on only one or a few types of maltreatment. As stated previously, the large degree of overlap in forms of maltreatment necessitates the assessment of all forms simultaneously (Dong, Anda, Dube, Giles, & Felitti, 2003; Edwards, Holden, Felitti, & Anda, 2003).
2) Failure to examine race/ethnicity and socioeconomic status simultaneously in relation to maltreatment. A recently suggested approach to heath disparities research is to analyze racial disparities simultaneously with (socioeconomic) class-disparities rather than treating race as a proxy for class. As suggested by Kawachi et al. (2005), interactions between race and class-based disparities should be considered whenever possible (Kawachi, Daniels, & Robinson, 2005). Additionally, Campbell et al. (2002) called for studies on SES variables

such as employment, education, poverty, single parenthood, and job type in relation to IPV (Campbell et al., 2002).

3) Level of approach. Most studies have either approached maltreatment from the micro-level (individual or family level) or macro-level (whole neighborhood, city, or state) without evaluating these effects simultaneously or examining the interactions between multiple forms of maltreatment and long-term sequelae of maltreatment.
4) Analysis of cases from Child Protective Services. Use of data from social service agencies is particularly problematic as these cases usually represent the most extreme situations and minority groups tend to be overrepresented (Scher et al., 2004; Wyatt & Peters, 1986).
5) Lack of standardized measures of CM. Most studies of the long-term outcomes of CM have focused on assessing the outcomes. Frequently, the assessment of CM is not done with a standardized instrument, leading to variations in the definitions of maltreatment (Lang, Stein, Kennedy, & Foy, 2004).
6) Focus on IPV rather than the full range of violence that women experience. Many studies that have addressed violence victimization as an outcome of CM have focused solely on intimate partner violence.
7) Failure to examine the cumulative impacts of CM and IPV/VAW. There is evidence that CM increases risk for being revictimized as an adult. Both forms of victimization have long-lasting physical, emotional, and social consequences. Few studies on the outcomes of the childhood and adult victimization have been conducted.

The proposed study will address some of these limitations. The Maternal Health Practices and Child Development project (MHCPD) is a longitudinal study in which all interviews are conducted in person. Data obtained in this study may be more reliable than those obtained in a