

**EXPLORING THE RELATIONSHIP BETWEEN CHILDHOOD SEXUAL ABUSE AND
SUBSTANCE USE AMONG WOMEN**

by

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BS, Pennsylvania State University, 2008

Submitted to the Graduate Faculty of
Graduate School of Public Health in partial fulfillment
of the requirements for the degree of
Master of Public Health

University of Pittsburgh

2010

UNIVERSITY OF PITTSBURGH

Graduate School of Public Health

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Childhood sexual abuse can lead to a lifetime of negative health outcomes and disorders. These outcomes include problems of substance use, other high-risk behaviors, and psychological and biological disorders with increasing rates of morbidity and mortality, thus making this relationship a significant public health issue. This literature review focuses on the relationship of childhood sexual abuse (CSA) to substance use disorders and problem use in women. The rate of substance use and abuse among women is significantly higher in CSA victims than in the general population. However, this relationship is very complex due to various other factors found to play a role in this relationship. Literature on third factors (e.g., PTSD, neurobiological disorders, poor social outcomes, depression, other forms of abuse, and family and environmental factors), are examined for their possible role in this relationship and their implications for treatment of childhood sexual abuse and substance use.

TABLE OF CONTENTS

PREFACE.....	VII
1.0 INTRODUCTION.....	1
1.1 TERMS	4
1.1.1 Childhood Sexual Abuse Terminology	4
1.1.2 Substance Abuse Terminology	5
1.2 RELATIONSHIP OF CHILDHOOD SEXUAL ABUSE AND SUBSTANCE USE.....	7
2.0 METHODS	10
2.1 ARTICLE SELECTION AND SEARCH CRITERIA	10
3.0 RESULTS	13
3.1 CSA IS DIRECTLY RELATED TO SUBSTANCE USE.....	13
3.2 THE RELATIONSHIP BETWEEN CSA AND SUBSTANCE USE IS THE RESULT OF A THIRD FACTOR.....	16
3.2.1 Post-Traumatic Stress Disorder (PTSD)	17
3.2.2 Neurobiological Disorder	21
3.2.3 Poor social outcomes	24
3.2.3.1 Lack of Social Resources or Networks.....	25
3.2.4 Depression	27

3.2.5	Other Forms of Abuse.....	29
3.2.6	Family and Environmental Factors	33
4.0	DISCUSSION	38
4.1	LIMITATIONS.....	40
4.2	FUTURE DIRECTIONS.....	43
5.0	CONCLUSION.....	48
	BIBLIOGRAPHY	50

PREFACE

This thesis was inspired by the experiences I had as an intern in the summer of 2009 at Sojourner House in Pittsburgh, PA. Sojourner House is a residential rehabilitation facility focusing on pregnant women and women who are addicted to drugs and alcohol and have children. In my time there, I had the opportunity to observe various group meetings in which women discussed aspects of their addictions and how it directly affected their lives and being a parent. I quickly noticed the common theme that emerged: the majority of these women were abused, mostly sexually, in childhood. I could not help but think that sexual abuse in childhood had to play a role in later substance use and addiction. It is my hope that the content of this thesis will be instrumental in increasing the knowledge of health providers in developing a further understanding of the possible link between childhood sexual abuse and later substance use and addiction, and to develop better interventions or treatment programs for victims of childhood sexual abuse before they turn to alcohol and drugs.

ACKNOWLEDGEMENTS

I would like to acknowledge the assistance and expertise of Dr. Beth Nolan, Dr. Cynthia Larkby, and Dr. Martha Terry. This thesis would not have been completed without their knowledge and continued support throughout the process.

1.0 INTRODUCTION

Childhood sexual abuse (CSA) is a serious public health issue. CSA is estimated to occur in about one third of females before the age of eighteen, depending on the definition used and the community sampled (Danielson, 2004; Ullman, 2003). Most studies of CSA prevalence report that females are at an increased risk of victimization (Dube et al., 2005). The risk of CSA is two and a half to three times greater among females than males (Putnam, 2003).

The reported rates of CSA vary, due to multiple methodological issues such as the design used, populations from which respondents were drawn, and how CSA was defined in the study (Johnson, 2004). The actual number of children that experience CSA is unlikely to ever be known. Most incidents of CSA are never reported, but rather only estimated by child welfare reports and self-report surveys. Child protective services have estimated only one half to four fifths of child maltreatment cases, including victims of CSA, are known (Fallon et al., 2010). The low rates of reported and recognized cases of CSA were thought to be due to several factors. Children that experience CSA at a younger age may not recognize the CSA incident(s) as wrong, especially if the perpetrator was a caregiver or someone they trust. Children may also lack the sufficient communication skills to tell someone about the abuse or be able to supply details. The perpetrator may threaten the child, making the child fearful of possible consequences if the child were to speak of the abuse. Children may also forget or repress unpleasant memories as a coping mechanism (Dube et al., 2003).

Statistics from the National Child Abuse and Neglect Data System: NCANDS (2007) indicated that, of the victims who were sexually abused, 35.2% were aged 12 to 15 years, 23.8% were 8 to 11 years, and 23.3% were 4 to 7 years. Research has shown that risk for CSA increases with age. Some authorities indicate that age of CSA affects females differently than males. In females, CSA often occurs at an earlier age and lasts longer into childhood and adolescence (Putnam, 2003).

Perpetrators of CSA are most frequently neighbors or friends of the child (57.7%). They are also commonly found to be child daycare providers (23.9%) and other relatives (32.0%) (NCANDS, 2007). Identification and reporting of CSA is difficult, especially when the perpetrator may be someone the child trusts, such as a parent, or someone the child has been taught to recognize as one who cares about the child (Johnson, 2004).

NCANDS collects only data on CSA cases that has been reported or investigated by a child protective agency. The United States has laws surrounding child abuse and neglect reporting which require institutions and certain professionals to report to child protective agencies any case of alleged child maltreatment, including CSA. Health care providers, social workers, teachers and school staff, daycare employees, foster care providers, and law enforcement officials are all mandatory reporters (NCANDS, 2007). Since data are recorded only on cases that are officially reported or substantiated, it further emphasizes the likelihood of skewed rates of sexual abuse since many cases are never investigated.

Gathering accurate data on the prevalence and characteristics of CSA is important in helping health care, social service agencies, and criminal justice programs and agencies prevent and treat CSA (Johnson, 2004). Newberger (1977) addresses the complexity of CSA and the limitations of various types of measurement to try to accurately represent rates of CSA:

Our concern with child abuse neglect, and most research on the problems, derives from cases that have come to light through the existing social agencies. In focusing our attention only on those children readily accessible to study, we are working within a very narrow frame and within entirely too limited a population (p.374).

For victims who self-report abuse in various studies, the method of data collection used may influence the amount and/or type of information disclosed by the CSA victim. For example, interviewing allows for greater verbal exploration of the details of abuse, but questionnaires have the advantage of anonymity. The type of research method used can produce very different rates of CSA. Also, the selection of CSA respondents is likely to have a substantial impact on research. Biased selection procedures can create samples of victims unrepresentative of the target populations in terms of their experience of CSA (Moncrieff & Farmer, 1998). Due to the various issues surrounding CSA detection, there are no existing data collection method that can possibly reflect the experience of all victims of CSA. Adult retrospective recall studies provide the greatest estimate of CSA, since incidents are commonly left unreported in childhood for reasons discussed above (Arnow, 2004).

Research on the long-term consequences of CSA has recently flourished. Studies have reported that long-term stressors in childhood increase the risk for outcomes as wide-ranging as psychiatric disorders, substance abuse, suicide, and numerous other health and social problems such as gastrointestinal tract problems and sexual and behavioral disorders (Resnick, Acierno, Amstadter, Self-Brown, & Kilpatrick, D. G., 2007). Victims of CSA do not fit one type; some move beyond the experience with no negative outcomes, while others may develop risky life styles and, therefore, are at an increased risk of encountering negative health outcomes (Danielson & Holmes, 2004). Physical injury from CSA can heal in time, as CSA rarely results

in death, but other negative health consequences can follow the victim into adulthood terms (Meyerson, Long, Miranda, & Marx, 2002).

1.1 TERMS

1.1.1 Childhood Sexual Abuse Terminology

An array of sexual activities is included in the term CSA. Examination of the literature on CSA needs to consider the methodological and term-defining difficulties that beset this area of research. There are many actions that may be considered as CSA and the subjectivity inherent in construing events as abusive mean that a precise and universal definition of sexual abuse is very difficult to construct. Some studies and surveys only ask about rape or intercourse, while others only ask about contact abuse (e.g., fondling) and/or noncontact abuse (e.g., genital exposure) (Vogeltanz, Wilsnack, & Harris, 1999). In some studies, CSA is considered to be any activity by a considerably older child or an adult for their sexual gratification with a child under the legal age of consent. Actions that can be considered CSA include, but are not limited to, “oral-genital, genital-genital, genital-rectal, hand-genital, hand-rectal, and hand breast” (Johnston, 2004, p.462).

CSA definitions can further vary in how childhood is defined; most studies use the ages 16 or 18 as cutoffs. Also, CSA definitions may include whether or not the respondent is asked to self-define the experience as CSA. CSA may be considered any sexual act, consensual or not, with someone five or more years older than the child or just be broadly defined as any sexual act with a minor (Simpson & Miller, 2002). Other factors that are measured in studies may also vary, such as: frequency of CSA, duration of CSA, age of the child, “gender of the child, age [of the perpetrator], gender of the perpetrator, and the nature of the relationship between the child and [the] perpetrator” have also been included (Putnam, 2003, p.271).

Adverse childhood experiences, such as CSA, are both common and destructive in children and can persist into adulthood. The short and long-term effects make this issue important in determinants of health and well-being (Beitchman, Zucker, Hood, & Ackman, 1992). CSA is a significant public health issue, because evidence has shown that CSA leads to high-risk behaviors, such as substance use and misuse, increasing rates of morbidity and mortality (Harrison, Fulkerson, & Beebe, 1997).

Studies examining the long-term effects and related stressors of CSA, have found female victims to be at an increased risk for a variety of health outcomes discussed above (Resnick et al., 2007). Female victims of CSA are also substantially over-represented among females who have substance use problems when compared to non-CSA victims (Vogeltanz, Wilsnack & Harris, 1999; Simpson & Miller, 2002). Even though there seems to be a relationship between CSA and later alcohol and drug problems, there are many complexities to address. Third factors in this relationship, such as possible psychiatric disorders, behavioral and social problems, and environmental conditions, need to be taken into consideration. The relationship between CSA and later alcohol and substance use, including any third factors, will be reviewed.

1.1.2 Substance Abuse Terminology

The National Survey on Drug Use and Health (2008) found that 45.9% of females aged 12 or older are current drinkers (defined as non-binge drinkers). Approximately 6.6 million of the nation's population (17.4 %) are identified as binge drinkers, and 2.1 million (5.5%) of those are heavy drinkers. Binge drinking is defined as five or more drinks for males and four or more drinks for females within two hours. For nearly three decades, approximately 10% of the adult population has at least moderate life problems related to alcohol and/or is dependent on alcohol,

making the possible association of CSA leading to substance use disorders an issue of concern (National Survey on Drug Use and Health, 2008).

In this area of research, the definitions of alcohol use and misuse have varied. Alcohol problems can range from a higher than average or hazardous intake to physical dependence. This variation in definition may account for some of the inconsistencies in the research literature. (Moncrieff & Farmer, 1998).

The terms alcohol use disorder (AUD), substance use disorder (SUD), and problem use (relating to both alcohol and other substances such as drugs), will be used throughout this review to describe variations of substance use. Alcohol use disorders (AUD) include alcohol abuse/dependence and substance use disorders (SUD) include substance abuse/dependence. Individuals who have an AUD or SUD will use alcohol and drugs despite having significant alcohol-related or substance-related problems in their life (Clay, Olsheski, & Clay, 2000).

The DSM-IV criteria for the diagnosis of abuse include having one or more of the following within a 12-month period: failure in fulfilling major obligations, using when physically hazardous, and experiencing recurrent legal problems and social or interpersonal problems related to the abuse (American Psychiatric Association, 2004). The DSM-IV criteria for dependence requires experiencing three or more of the following within a 12-month period: tolerance and/or withdrawal, using larger amounts or for a longer time, unsuccessful efforts in cutting down, increasing time spent in obtaining the substance/using the substance/recovering from its use, reducing recreational, occupational, and social activities due to substance use, and consuming substances even when aware of various adverse consequences (American Psychiatric Association, 2004). In this review, SUD will be used for studies that also include AUDs. AUD will only be applied when a study focuses only on alcohol consumption.

Other risky patterns of alcohol or substance use, not including diagnosed SUDs, include bingeing and hazardous levels of intake. Bingeing refers to the heavy consumption of alcohol over a short period of time (five drinks for males and four drinks for females within two hours). The dangerous pattern of consumption may begin with a couple of days (i.e. weekends), followed by multiple days or weeks of sobriety (NIAAA, 2004). The term bingeing is more commonly used to describe alcohol, but the concept can also be applied to substance use. Problem use of substances can be defined by the quantity and frequency of use (Simpson & Miller, 2002). Various studies included in this literature review did not incorporate formal diagnosis of substance use disorders into their evaluation, but instead, employed other criteria (i.e. self-reporting by victims) so the term problem use will be used to describe those studies.

1.2 RELATIONSHIP OF CHILDHOOD SEXUAL ABUSE AND SUBSTANCE USE

There is a striking consistency of findings in studies that indicate that survivors of childhood abuse (all forms) are over-represented among females with alcohol and drug problems (Simpson & Miller, 2002). Women with a history of CSA have elevated rates of SUDs, regardless of whether they were sampled from populations of mental health treatment patients, medical clinic attendees, or general community members (Vogeltanz et al., 1999).

Several hypotheses have been developed to explain why victims of sexual abuse are at increased risk for substance use in adulthood.

Substances may serve as (1) a way to cope with or escape from the trauma of the adverse childhood experience and the related depression to CSA, (2) a way to decrease feelings of loneliness and isolation, (3) an option to self-medicate in an attempt to deal with or feel

like they have control over the situation, (4) a way to improve self-esteem, or (5) a form of self-destructive behavior (Widom & Hiller-Sturmhofel, 2001, p.53).

Substance use can be a short-term method used to forget the abuse, rather than constantly being reminded and aware of the experience that causes considerable pain (Briere & Runtz, 1993).

The relationship between CSA and substance use is further complicated due to the varying order of sequence between CSA and SUDs. In some cases, the use of substances may have occurred before, during, or after the CSA. These different sequences could produce different reactions and responses for the abuse victim (Anderson, Chi, Palmer, & Poitra-Chalmers, 2005). It also makes sense to consider how greater severity of CSA (e.g. if penetration occurred and/or frequency and duration of CSA) or exposure to other adverse childhood experiences can make an individual more likely to develop negative health disorders or conditions, such as SUDs in adulthood (Arnow, 2004).

Further, CSA may not be the only type of trauma or negative experience present in the life of a victim, but may be just part of the problem. CSA commonly occurs with other types of abuse (e.g. neglect, emotional and physical abuse) and other adverse childhood experiences such as having a parent(s) that has a SUD or witnessing multiple forms of violence (Jarvis, Copeland, & Walton, 1998). Data on the various types of abuse is limited by the inability to account for other adverse childhood experiences of CSA victims in study design. This makes examining the level of influence these adverse experiences and CSA have on the development of a SUD very difficult (Zlotnick et al., 2006).

Causal inference is difficult as well. Observational studies cannot draw conclusions about causation. Studies that use control groups, which also may include observational studies, are

more effective at establishing associations between sexual abuse and other factors, but causation still cannot be determined. Various confounding factors, such as family and environmental factors and experiencing others forms of abuse, along with others that may remain unidentified, can complicate comparisons in these case-control studies (Moncrieff & Farmer, 1998).

In spite of the methodological difficulties present in the study of the relationship between CSA and SUDs, a great deal of research has been conducted to determine whether various negative childhood experiences may be part of the development, maintenance, and recurrence of SUDs (Ompad et al., 2005). A number of literature reviews on this topic have been conducted, with the majority concluding that women with SUDs and problem use are much more likely than women in the general population to have been sexually abused as children (for example, Simpson & Miller, 2002).

This review will examine the relationship of childhood sexual abuse and later development of substance use disorders or problem use in women. This will include examining the literature on third factors that play into this association. The third factors that will be reviewed are post-traumatic stress disorder (PTSD), neurobiological disorders, poor social outcomes, depression, other forms of abuse, and family and environmental factors. Additionally, limitations in study design and treatment considerations for victims of CSA and SUDs will be discussed.

2.0 METHODS

2.1 ARTICLE SELECTION AND SEARCH CRITERIA

This thesis is based on a literature review of journal articles and reports on the association between CSA and substance use. Articles were selected using the inclusion and exclusion criteria:

- (1) Data must have been published in a peer-reviewed journal, government report, or website with a publication date of 1988 or later. This was chosen as a cut-off to make reviewing the literature more manageable due to the large volume of research in this area.
- (2) Access to the full article, not just the abstract, must have been granted.
- (3) Studies were not included if the sexual abuse was not reported to have occurred prior to or at the age of 18.
- (4) Studies including various methods of data collection (questionnaires/surveys and interviews) on CSA history were incorporated to be more representative of the target population due to the complexity of the relationship of CSA and substance use.
- (5) Articles were excluded if the study population did not include females.
- (6) Articles pertaining to both community and treatment samples were incorporated.

(7) Data and studies were included if they addressed the criteria developed for the target population: subjects were females, reported childhood sexual abuse before or at the age of 18, and have been diagnosed or self-identify with a type of substance use disorder or problem use.

Every effort was made to include relevant studies published in peer-reviewed journals and government reports retrieved via the internet. Studies were located through PubMed and Google Scholar. Google Scholar was used to retrieve articles that were unable to be accessed by PubMed. Key terms and their variants were used to identify studies focusing on CSA; child sexual abuse, incest, and molestation resulted in 4,787 articles. Due to the search terms being so broad, many studies identified did not specifically meet inclusion data listed above. Of the 4,787 studies, 4,755 were excluded because they did not meet one or more of the inclusion criteria, leaving 32 to be included from this search.

The searches referring to childhood sexual abuse AND substance use disorders, included the terms and variants: alcohol, drugs, substance abuse, substance use disorder, alcohol use disorder, problem use, and hazardous use. Of the 421 studies identified, 395 were excluded because they did not meet one or more of the inclusion criteria, leaving 26 studies to be included from this search.

In searches pertaining to the third factors, the combination of terms childhood sexual abuse AND “third factor” and substance use disorder AND “third factor” (post-traumatic stress disorder, social outcomes, neurobiological disorder, depression, physical abuse, emotional abuse, family, family environment, and environmental factors) were used. This yielded 567 studies. Of

the 567 studies, 521 were excluded because they did not meet one or more of the inclusion criteria, leaving 46 studies to be included from this search.

In addition, a cross-sectional literature search was performed. Literature was found by references identified from bibliographies of the articles obtained by previous searches. Database searches were also conducted on specific authors known to have publications in the field. Searches of journals in which articles pertaining to child sexual abuse and substance use are frequently published were also conducted (e.g., *Child Abuse and Neglect*, *Child Maltreatment*, *Journal of Interpersonal Violence*, *Journal of Traumatic Stress*, *Journal of Substance Abuse Treatment*, and *Alcohol & Alcoholism*). A total of 19 studies were selected that met the inclusion criteria in this search.

Including all inclusion and exclusion criteria outlined above, there were a total of 123 studies reviewed in this paper through the various search methods listed above.

3.0 RESULTS

The studies included in this review are organized within the framework of two lines of inquiry: (1) whether CSA is directly related to substance abuse and (2) whether the relationship between CSA and substance abuse is due to a third factor which may be responsible for the relationship between CSA and substance abuse.

3.1 CSA IS DIRECTLY RELATED TO SUBSTANCE USE

The first possible way to explain the apparent relationship between CSA and the development of SUDs or problem use is that CSA is directly associated with substance use in women. Several researchers have explored the relationship between CSA and substance use or misuse. The majority of these studies have been performed on alcohol use retrospectively in clinical, community, or college samples; fewer studies have been conducted prospectively and on other substances.

Burnam and colleagues (1988) constructed a case-control sample, matching each subject with a history of CSA with a similar control to look at the prevalence of a substance disorder before and after the first episode of abuse. This study revealed a significantly increased risk for developing alcohol and drug misuse, as well as depression and some anxiety disorders, after

sexual abuse began or occurred. In a second study by Winfield et al. (1990), all cases of alcohol problems began after the first episode of sexual assault. Moncrieff et al. (1996) also found that alcohol problems developed some years after the first experience of sexual abuse for the majority of victims.

A study by Miller et al. (1993) found that 66-67% women who reported CSA also reported having an AUD, which was significantly higher than women reporting other types of abuse and their rates of an AUD (28-35%). This study controlled for the effect of seeking alcohol treatment by comparing women in treatment for alcohol-related indications with those in treatment for other problems. Silverman et al. (1996) found similar results between CSA and alcohol abuse and dependence in a 17-year longitudinal community study, with 43.5% of the females who reported a history of CSA (n=187) meeting the criteria for an AUD.

Draijer (1988) found in a survey of 1,054 women who experienced incestuous sexual abuse before the age of 16, that they were more likely to self-report alcohol use problems (12%) than those without incestuous incidents (5%). This study controlled for age and socio-economic status. Similar findings were established in a study by Pribor and Dinwiddle (1992). This study included a large sample of incest victims and a standardized instrument to assess for AUDs. Females who reported experiencing incest as a child and who were also in treatment for sexual abuse (n=52), reported a higher prevalence of lifetime AUDs (29%). The comparison group who was matched on age and race, were female mental health consumers (n=23) in which only 4% reported AUDs. Only 5% of females in the general population reported AUDs (no N was provided for this sample).

A retrospective ten year national survey by Wilsnack and colleagues (1997) 1,099 women on CSA and adult drinking behavior were surveyed. This study defined CSA as any

sexual behavior before the age of eighteen, including both extra-familial and inter-familial sexual activity with anyone who was five or more years older. The findings showed that women who experienced CSA were significantly more likely to have issues or negative outcomes pertaining to alcohol use than compared to non-CSA women. The survey found that women who experienced CSA were more likely to report at least one of the following: symptoms of dependence (e.g., unable to stop drinking or to be able to reduce quantity consumed, drinking in the morning, and memory loss due to drinking), alcohol-related life problems (e.g., fights or issues with family members and accidents in the home), alcohol use within 30 days prior to survey, and intoxication within the year before the survey.

However, Mullen et al. (1988) did not find an increased risk of the development of AUDs in smaller community samples of women reporting CSA. Brown and Anderson (1991) found no overall increase in rates of AUDs in CSA subjects, although there was a significant association in the subgroup whose abuse had been severe (e.g. intercourse). A study reported by Biere and Zaidi (1989) of a sample of 50 female crisis center consumers found no significant association between AUDs and CSA. These variations could be due to small sample size and other methodological issues.

In summary, nine of the 11 population studies reviewed provide support for a positive association between CSA and SUDs. Among females, there are indications of a link between CSA and substance abuse. It is very common and tempting to conclude that the pathway between CSA and SUDs is direct. The temporal progression of CSA commonly occurring before the development of an SUD further promotes the idea of a direct pathway being present. However, due to methodological limitations such as study design, inability to control for other possible factors playing into the relationship, lack of consistency in measurement instruments of

substance abuse, reporting bias, and terms used depending on the focus of the study, it is hard to draw conclusions about the existence of a *direct* link or pathway. For a direct link to be concluded, all other factors (e.g., psychological and mental disorders, other forms of abuse and neglect, family environment) would have to be controlled or accounted for. In more recent research, the relationship between CSA and SUDs has been seen to be more complex. There is commonly more than one form of abuse or maltreatment and other negative factors occurring to a victim of CSA, which can also play a significant role in the association between CSA and SUDs (Mulvihill, 2005). This has led to studies focusing on possible third factors or conditions which play into the relationship, which will be discussed.

3.2 THE RELATIONSHIP BETWEEN CSA AND SUBSTANCE USE IS THE RESULT OF A THIRD FACTOR

A second possible way to explain the apparent relationship between CSA and SUDs is if the relationship is affected by a third factor. In such a situation, CSA would not necessarily have a direct association with substance use, but instead would have a direct association with another condition or factor. Evidence of the relationship between the two factors (CSA and SUDs) would indicate that CSA is just simply one factor associated with substance use. The evidence of this relationship would indicate that CSA has both a direct and an indirect association with substance abuse later in life. Thus, whether an individual with CSA goes on to develop an SUD appears to be largely dependent on whether she develops or is exposed to an intervening condition. Nash et al. (1998) states an example:

Most researchers have moved away from the magic bullet idea that a specific sexual event invariably leads to a specific outcome or syndrome, instead emphasizing that the psychological effects of sexual abuse must be understood and studied within the context of the family-social environment in which it is embedded (p.568).

Several third factors contribute to the relationship between CSA and the development of SUDs, including but not limited to, post-traumatic stress disorder (PTSD), neurobiological disorders, poor social outcomes, depression, other forms of abuse, and family and environmental factors.

3.2.1 Post-Traumatic Stress Disorder (PTSD)

According to the DSM-IV (2004), a PTSD diagnosis requires the incidence of a major stressor including fear of death or serious injury as well as (a) constant symptoms of arousal (e.g. trouble concentrating and sleeping), (b) commonly occurring flashbacks of the traumatic event through intrusive thoughts and/or nightmares, and (c) the avoidance and lack of general responsiveness to current events. These symptoms must have lasted more than one month and have functional significance. That is, the stressor causes substantial impairment and distress in occupational, social, and/or other principal areas in the individual.

PTSD is frequently experienced by victims of CSA (Miller et al., 1997; Widom, 1999). Women who experience CSA, especially intercourse, when compared to non-CSA women, have significantly higher reported rates and severity of PTSD symptoms (Biere & Runtz, 1993; Widom, 1999). Research suggests that between a third to half of female CSA victims display a long-term or lifetime prevalence of PTSD (Kessler et al., 1995).

Three potential pathways between PTSD and SUDs have been explored through research. The self-medication hypothesis is the most commonly studied. This hypothesis states that PTSD is developed after a traumatic incident and has an influence on a later occurrence of an SUD. It has been hypothesized that drugs and alcohol are used to repress or forget any memory of the trauma and possible other symptoms of PTSD (Stewart, 1996). There are two other explanations in which a SUD is associated with PTSD, such as the “high risk hypothesis” and “susceptibility hypothesis”. The high risk hypothesis states that substance use is part of a broader group of high risk behaviors. That is, the purchase of drugs could potentially increase the risk of exposure to another harmful or traumatic incident. The susceptibility hypothesis suggests that substance use causes possible stress or coping brain alterations which make substance users more susceptible to PTSD following a traumatic event. Of the three, the self-medication hypothesis is most cited by studies (Chilcoat & Breslau, 1998).

The self-medication hypothesis has support from various animal studies that show when animals are put in a stressful situation they will use various substances for their numbing effects (Epstein et al., 1998). Women who experience CSA often have increased levels of emotional distress. This can cause PTSD following a stressful incident which makes these women at increased risk for substance abuse as indicated by this hypothesis (Nash et al., 1998).

Roth et al. (1997) screened female community members (n=128) and psychiatric patients (n=395) for PTSD and history of physical abuse or CSA. It was found that 234 females reported experiencing at least one form of abuse. Of the 234 reporting abuse, 39 females (16.7%) reported both forms of abuse (physical and sexual), 67 females (28.6%) reported physical abuse only, and 128 females (54.7%) reported CSA only. Females who reported both physical abuse and CSA were more likely to be diagnosed with PTSD by a factor of 14.5. In another study by Rodriguez

and colleagues (1997), it was reported that 87% of women with CSA histories in treatment were diagnosed with PTSD. In comparison, only 19% of women with no CSA history reported being diagnosed with PTSD.

PTSD is commonly a comorbid disorder, meaning that PTSD is frequently seen to co-occur with various disorders or conditions (Simpson & Miller, 2001). In many cases, the traumatic events that lead to the development of PTSD can also lead to the development of other negative conditions or disorders. This concept means that some females who are diagnosed with PTSD will develop SUDs, whereas others might develop a different disorder or condition, depending on the individual's vulnerability (Reed et al., 2007).

Miller and colleagues (1997) found that women who had a history of CSA and were diagnosed with PTSD were more likely to report having two or more problems with alcohol. Women who did not report CSA or who had reported CSA but were not diagnosed with PTSD, reported significantly lower rates of alcohol problems.

Another adverse outcome of CSA that has been seen to affect the rate of substance use is women's social perceptions. Experiencing CSA can have the effect of altering women's emotional and/or cognitive outlook of their surrounding environment, which can cause them to feel that it is unfavorable, unmanageable, and unpredictable. Alcohol or substance use can be a means for women to handle this view of life (Reed, Anthony, & Breslau, 2007). These self-perceptions and feeling a lack of control or not being able to predict what will occur next in their environment can be factors influencing SUD development (Epstein, 1998).

A 10-year longitudinal prospective study by Breslau et al. (2003) compared the risk of developing an SUD in young persons who were diagnosed with PTSD after a trauma and those who did not develop PTSD after a trauma, to those who never experienced a trauma. It was

found that those who were diagnosed with PTSD were at a significantly increased risk to develop an SUD. Those who did not experience PTSD after being exposed to a trauma were found to not be at an increased risk to develop an SUD when compared to unexposed persons. The study findings show that experiencing a traumatic event, such as CSA, without developing PTSD does not necessarily put an individual at an increased risk to develop an SUD. Instead, PTSD can be found to be only one condition for SUDs and the co-occurrence of PTSD and the other conditions might be influenced by a shared risk factor(s) other than exposure to a traumatic event.

A study by Epstein et al. (1998) examined the link between PTSD, experiencing rape in childhood, and AUDs in women. Women who experienced rape in childhood were found to have twice as many PTSD symptoms and higher rates of AUD symptoms than women with no rape history. Childhood rape victims who experienced PTSD symptoms were found to have twice as many alcohol-related symptoms when compared to women without symptoms of PTSD. Epstein suggested that PTSD might be a factor between rape in childhood and developing an AUD. PTSD should be considered as one possible condition that has an effect on the relationship between CSA and AUD development.

In summary, PTSD is a common consequence of a traumatic event, such as CSA. Women with CSA histories are found to have significantly higher rates and severity of PTSD. In many cases, people deal with the feelings of PTSD by self-medicating. As noted above in the discussion of the self-medication hypothesis, substances such as alcohol and drugs are used to numb the effects of the stressor, in this case CSA. There is evidence from the studies reviewed supporting the self-medication hypothesis in the association between CSA and SUDs in women (Chilcoat & Breslau, 1998; Stewart, 1996).

3.2.2 Neurobiological Disorder

The make-up of the human brain depends upon a unique set and sequence of environmental and developmental experiences that affect an individual's genome. The human brain is vulnerable to extreme incidences of stress during critical periods of brain development in childhood. Extreme stress can sometimes permanently impair the brain and neuro-regulatory systems causing severe neurobehavioral consequences (Dube et al., 2003).

In the human brain, the hypothalamic-pituitary-adrenal (HPA) axis is critical in the stress response; the amygdala mediates fear responses, and the prefrontal cortex is involved with mood, emotion regulation and cognitive responses. The interaction between brain development and early life stressors, such as CSA, can interfere with the proper development and function of all of these (Gould & Tanapat, 1999).

New evidence indicates that early life stressors, such as CSA, can cause enduring brain dysfunction. This dysfunction can affect the quality of life and health status of the individual throughout the lifespan (Kaukinen & DeMaris, 2005). Early traumas and stressors, like CSA, interfere with multiple brain systems. The experience of CSA often makes a child think that she has little control over what occurs and can cause a state of "powerlessness". The feeling of powerlessness can become a serious stressor and affect neurodevelopment (Dube et al., 2005).

Perry (1999) found that the longer and more intense a traumatic event is perceived to be, the more likely changes will take place to neural systems. A study by DeBellis et al. (1999) indicated that the most significant anatomical finding in children with a history of PTSD and abuse was a reduced corpus callosum. A smaller corpus callosum has been seen to decrease the ability for the cortical hemispheres to communicate effectively. Shiffer et al. (1995) found that adults with CSA history had significant differences in hemispheric activation when they were

asked to recall a distressing memory such as CSA. Lastly, Mulvihill (2005) found that the thymus gland, which is part of the immune system, is found to much smaller in victims of CSA or other forms of maltreatment.

During stressful experiences, such as CSA, the body's secretion of cortisol has been seen to increase. Cortisol secretion initially increases the feelings of well-being, alertness, and activity levels. However, prolonged secretion of cortisol from constant or reoccurring stress such as CSA, has been seen to depress the immune system (Mulvihill, 2005).

Alterations in EEG activity in the frontal cortex of the brain, which is associated with higher level thinking, planning, and goal formulation, are also affected in abused children (Dube et al., 2003). DeBellis et al. (1999) found that abuse victims had decreased cerebral and intracranial volumes than those not reporting abuse. Various studies on magnetic resonance imaging (MRI) have found adults with abuse histories to have smaller hippocampal volumes when compared to those without abuse histories (Bremmer et al., 1997; Driessen et al., 2000; Stein et al., 1997)

Victims of childhood maltreatment are seen to experiment in more high-risk behaviors such as substance use and abuse, which can risk negatively affect health due to interference with brain development (Arnow, 2004). Young women with CSA histories have been seen to have numerous sexual partners, be more likely to have unprotected sex, and have higher rates of sexually transmitted infections and unexpected pregnancies. These findings are more consistently found in women who experienced severe forms of sexual abuse in childhood, such as intercourse or rape (Fergusson et al., 1996).

A randomly selected sample of 1,225 women was surveyed for the effect of childhood maltreatment experiences or lack of (before or at the age 17). The women were compared on the

quantity and various types of negative health risk behaviors self-reported on their physical health status, and physician-coded ICD-9 diagnoses. Women who reported being neglected or abused in childhood were more likely to report that they had sex frequently with strangers, drank to intoxication on various occasions, and drove a car while being drunk, when compared to non-abused women (Walker et al., 1999).

A study was conducted to further explore these findings by Anda and colleagues (2005). The Adverse Childhood Experiences (ACE) study included 17,337 adults who were assessed for eight adverse childhood experiences before or at the age of 18. Some of the adverse childhood experiences included in the study were abuse, household dysfunction, and being a witness to domestic violence. The study found that the risk of each negative outcome within the domains studied (substance abuse, sexual, memory, somatic, affective) increased as the ACE score also increased. A relationship was therefore found between early adverse experiences and the development of SUDs. The ACE study also had significant neurobiological findings. A higher ACE score was associated with impaired memories of childhood. This may be due to interference in memory retrieval and storage as a result to changes to the hippocampus from experiencing adverse events in childhood. Magnetic resonance imaging (MRI) found that the hippocampus and amygdala were reduced in volume among those that were sexually abused as children compared to women without such a history (Anda, 2006). This study clearly showed a connection between early life stressors, such as CSA, and the effect on the development of the brain which can lead to life-long brain dysfunction.

In summary, literature on the consequences of CSA addresses how CSA can affect regulatory processes and development in the brain. Excessive stress, such as CSA, interferes with the proper brain development, which can cause an altered or impaired brain. Women with CSA

histories have been seen to have altered brain function (e.g., Dube et al., 2003; DeBellis et al., 1999; Bremner et al., 1997). This may worsen impulse control, which can lead to negative health behaviors or habits in victims, such as drugs and alcohol abuse (Liebschutz et al., 2002).

3.2.3 Poor social outcomes

CSA has been associated with the feelings of self-blame, decreased self-esteem, guilt, and a state of helplessness and confusion in victims. These feelings may cause children to feel as though their experiences have caused them to be different from other girls of the same age (Mullen et al., 1995; Briere & Runtz, 1993). CSA victims are prone to confusion about their identity and may lack a sense of “self,” experience feelings of “emptiness”, and have boundary issues. This less developed sense of “self” can impair the victim’s ability to critically evaluate the actions or demands of others, which can lead to a significantly greater chance of being re-victimized or exploited (Briere & Runtz, 1993).

CSA negative effect on the sense of “self” can also cause young females to pull away from the more normative circles of friends and move towards fringe groups in which they may feel more accepted with less judgment. In many cases, these fringe groups experiment in heavy drinking or drug-use. Evidence has found that learning these behaviors at a young age can lead to continued substance use and/or SUD development in adulthood (Miller, Downs, & Testa, 1993).

Research by Becker-Lausen and Mallon-Kraft (1997) focuses on how dysfunctional relationships are a frequent result of CSA. Victims of CSA have been seen to develop one of two types of interpersonal styles: either intrusive or avoidant. These are opposite of each other, but can both be described as dysfunctional and usually leave the victim in a state of loneliness and despair. The intrusive style can be described as people who are almost smothering. They have

the strong need for closeness with and excessive self-disclosure to others. On the other hand, people who are avoidant have very few social connections and are less likely to be in a relationship or be married. Most seem to lack communication skills and self-disclosure with others, and exhibit interdependency. These two styles, intrusive and avoidant are both very common characteristics in CSA victims.

A study of female CSA victims reported that 93% were anxious and afraid when met with situations or experiences that reminded them of past abuse in comparison to non-abused females. The majority of the abused women reported that they were mistrusting and had a very negative view of life toward others and themselves (Teegan, 1999). Similarly, other studies including female CSA victims thought that others were unable to be trusted and would use them (Kendall-Tackett, 2002).

3.2.3.1 Lack of Social Resources or Networks

Social resources, such as the ability to get along and to have support from others, are important in coping with stress and help to promote healthy mental functioning (Dohrenwend, 2002). The ability to form positive social relationships is important in the health of humans. To be able to have a healthy relationship, one must be able to read and understand social cues, have one's own voice, speak up for one's self, and build positive relationships with others that include self-support and self-improvement (Hobfoll, 2002). Social resources can act as a buffer against various effects of stress (Beitchman et al., 1992). In both clinical and community samples, a CSA victim's attachment with parents and/or romantic partners has been seen to be negatively affected (Aspelmeier, Elliott, & Smith, 2007; Becker-Lausen & Mallon-Kraft, 1997; Teegan, 1999).

Aspelmeier and colleagues (2007) conducted a study on the effect of CSA and later attachment issues in relationships. The study included female undergraduate college students (N=324) aged 18 to 21. Thirty-seven percent of the females reported through a questionnaire that they had experienced CSA before the age of 16. The females that reported CSA stated that they were significantly more fearful, less trusting, dismissing, and preoccupied in adult relationships when compared to females without such CSA histories.

Victims of CSA may have difficulty in building positive relationships with others. Many women who are victims of childhood sexual abuse often lack social resources and have smaller supportive networks, and the relationships they do have are more exploitive or victimizing. (Widom et al., 2001). CSA victims may have limited family support. In many cases a parent(s) and/or other relative(s) was the CSA perpetrator. This can lead to significantly lower social support in adulthood due to the victim not understanding what constitutes a healthy relationship (Anda, 2006).

In summary, lack of social resources and the resulting poor social outcomes represent another pathway through which CSA can lead to SUDs. CSA leaves the victim with a decreased feeling of “self” and in an overall state of helplessness and confusion (Briere & Runtz, 1993). In many cases, CSA victims lack positive social resources and support, which can act as a positive buffer to the effects of stress and allow individuals cope better (Beitchman et al., 1992). Evidence has shown that people with poor or negative social support are significantly less likely to partake in health-promoting activities but instead have health-deteriorating habits, such as substance use or abuse (Hobfoll, 2002). Substances can be used as method to cope with the CSA and to also self-medicate in an attempt to forget about the abuse.

3.2.4 Depression

Depression is a leading public health problem and is one of the most frequently occurring outcomes of CSA (Davis, 2008). Chronic depression and earlier onsets of depression are related to CSA (Arnow, 2004). Women with a history of CSA are three to five times more likely to report major depression than non-CSA victims (Mullen et al., 1995).

It has been hypothesized that life stressors, such as CSA, are risk factors for depression and the development of major depressive disorder (Mazure, 1998). In recent studies focusing on risk factors and through case-control study designs, it has been concluded that stressful experiences are powerful predictors for the development of major depression (Kendler et al., 2000).

Rates of depression increase among victims of CSA, along with consumption of alcohol and use of other substances, which may be a response to primary depression (Moncrieff & Farmer, 1998). The prevalence of depression and SUDs in the general population is about 8.5 to 21.4%. The lifetime rate of co morbid SUDs have been estimated to range from 27 to 40% (Grant, 1995).

A face-to-face survey, by the National Epidemiologic Survey on Alcohol and Related Conditions, interviewed 43,000 individuals from the general public. The survey found that adults who reported having depression were at an increased risk to report having an AUD (14%) and SUD (5%), when compared to those that did not report depression. Individuals who reported lifetime depression reported significantly higher rates of AUDs (40%) and SUDs (17%)(Grant et al., 2002).

Peters (1988) interviewed a community sample of 248 Caucasian and African American females on family and personal histories. The interviews found that females with a CSA history

were more likely to have experienced multiple episodes of depression when compared to the non-CSA counterparts. Fergusson et al. (1996) found that victims of CSA when compared to non-CSA victims had an odds ratio of 4.6 for developing major depression. The CSA victims who reported more severe forms of abuse (e.g. intercourse) had an odds ratio of 11.8 for attempting suicide and also 8.1 for developing major depression. Similarly, a study by Stein et al. (1988) reported higher rates of depression in female CSA victims (17%) when compared to non-CSA victims (3%).

Studies have also investigated the relationship between CSA and depression in a highly functioning group of college women. Multiple studies reported that college women who experienced CSA reported significantly more depressive symptoms than non-abused women (Yama et al., 1993; Biere et al., 1988).

As indicated, depression is a common comorbid disorder. Kendler et al. (2000) studied 1,411 twin pairs and found significant odds ratios in women with CSA histories for PTSD and depression, along with other psychiatric disorders, when controlling for family environment. The effects were the most significant in women with CSA-histories in the development of SUDs (OR=5.7) and AUDs (OR=4.8).

Zuravin and Fontanella (1999) examined whether CSA was associated with the development of depression or if depression was associated with family dysfunction which may have permitted the CSA to occur. Low-income women (N=513) were evaluated for depression, family dysfunction, and other forms of maltreatment. Women who experienced CSA were found to be three times more likely to experience depression when compared to non-CSA victims. Abuse (including all forms) was found to be an independent factor in developing depression over other negative childhood experiences.

Researchers speculate that since major depression has been seen to co-occur with PTSD, the combination of both increases the risk of SUDs rather than experiencing just one condition (Reed et al., 2007). Depression is also linked to PTSD through the deterioration of psychological resources. CSA often reduces victims' psychological resources which can cause psychological distress and increase the development of depression and other conditions such as substance use (Grant, 1995).

In summary, research indicates a relationship is present between CSA and depression in women (Mullen et al., 1995). The relationship between CSA and depression is found to exist even after controlling for various other factors that may play a role in this relationship. Depression has been associated with the development of AUDs and SUDs, which may be another possible pathway between CSA and the development of an SUD (e.g., Kendler et al., 2000; Grant et al., 2002; Grant, 1995).

3.2.5 Other Forms of Abuse

The role of childhood abuse in the development of adult disorders in females commonly focuses on sexual and physical abuse, with emotional abuse receiving considerably less attention from researchers (Mullen et al., 1995). Survivors of sexual, physical, and emotional abuse can often exhibit an array of behavioral and/or psychological conditions with no one form of abuse being associated with an exact health outcome (Meyerson, Long, Miranda, & Marx, 2002). Evidence has shown that children who experience abuse are usually exposed to multiple forms. This makes researching this topic difficult since focusing research on just one form of abuse, may risk a false conclusion on the strength of effect the specific form of abuse has if other forms are not considered (e.g., Sweet et al., 1991; Brown & Anderson, 1991).

It has been concluded through research that abuse in childhood is found to be associated with many negative health outcomes, but it still remains in question whether or not a specific type of abuse (sexual, physical, and/or emotional) may cause a particular range or pattern of health outcomes in a victim (Mullen, 1995).

Emotional abuse may actually be the most prevalent form of child abuse, but it is also the most underreported, hidden, and least studied form of abuse (Wright, Crawford & Castillo, 2009). This type of abuse may be more difficult to identify and observe due to the fact that there may be no outwardly identified harm, such as bruising (Mullen et al., 1995). Emotional abuse appears in a variety of forms. Emotional abuse includes acts such as threatening physical harm and repeated behaviors such as terrorizing, ignoring, exploiting, isolating, and corrupting a child. It can include parents who neglect a child of emotional and/or physical needs and who expose their child to a constantly hostile home environment including yelling or fighting. On the other hand, it can also include “perfectionist” parents who have unreasonable and demanding expectations for their child and who are overly critical (Yates & Wekerle, 2009).

Physical abuse may be defined as intentional acts by a parent or caregiver that results in the physical injury of a child (Simpson & Miller, 2002). This may involve any physical punishment that causes injury or bruising in a child and occurs more than two times a year. Injuries caused by hitting a child with a type of weapon (e.g. belt or paddle) or with hands or fists are also considered to be physical abuse (Mullen et al., 1995).

Harrison and colleagues (1997) conducted an anonymous, self-administered questionnaire with 122, 824 public school students in the grades 6, 9, and 12. The study focus was to observe the effect sexual and/or physical abuse have on substance use in these high school students. Females in the study who reported both physical and sexual abuse reported greater use

of multiple substances (12.2%) than those that who reported only physical abuse (10%) or sexual abuse (9%). Similar results were found by two studies. Sweet et al. (1991) and Brown and Anderson (1991) evaluated mental health patients on the relationship of self-reported problems with alcohol and past physical abuse in childhood. The studies defined physical abuse as any assault before age 19. The studies found that there was a relationship present between physical abuse in childhood and alcohol problems. The highest prevalence of alcohol problems was found in female patients who reported both physical and CSA.

Martin and Elmer (1992) studied 19 males and females twenty years after they had been treated for multiple injuries due to physical abuse in childhood. Twenty six percent of the victims reported having problems with alcohol; however, many of these victims also identified their parents to have problems with alcohol also. Brown & Anderson (1991) found that CSA victims are more likely to experience physical abuse during childhood. Women that self-reported being both sexually and physically abused had double the rates of illicit drug use when compared to victims who did not report both forms of abuse. Similarly, Liebschultz et al. (2002) studied a clinical sample of 110 female participants of which 57% reported physical and sexual abuse before the age of 17, while only 4% reported only CSA.

Fewer studies included the effect of emotional abuse. Downs et al. (1992) and Miller et al. (1993) reported that a father's verbal and/or emotional abuse was a predictor in the development of AUDs in females. A study by Miller and colleagues (1993) examined the relationship between childhood victimization experiences and women's alcohol-related problems. The two forms of victimization this study examined were parent-to-child violence (physical and emotional) and CSA. Data was collected through two in-depth interviews from 472 women between the ages of 18-45. Women were grouped to allow for two comparisons: (1)

women with alcoholism in alcohol treatment (n = 98), first-time drinking and driving offenders (n = 100), and a household sample (without unhealthy alcohol use) (n = 82) and: (2) women with unhealthy alcohol use in treatment (n = 178), women without unhealthy alcohol use in treatment (n = 92), and a household sample (n = 82). Women from household samples chosen through random digit dialing served as controls.

Women with alcoholism were shown to have experienced greater levels of each type of sexual abuse (exposure 54%, touch 60% and penetration 47%) compared to the other two groups: drinking drivers (exposure 13%, touch 17%, and penetration 7%) and the household sample (exposure 26%, touch 21%, and penetration 9%). Women with alcoholism reported the highest levels of parent-to-child violence: verbal aggression (71%), moderate violence (56%), severe physical violence (45%) compared to drinking drivers (43%, 40%, 18%, respectively), and the household sample (31%, 35%, 13%, respectively). More than two-thirds of women in treatment with AUDs had experienced some form of sexual abuse as compared to approximately half of the women in these same treatment settings without AUDs. The alcohol treatment group also had significantly higher percentages of the various types of sexual abuse (exposure, touch, penetration) as compared to the women in the other treatment settings without alcohol problems. The high rates of women with alcohol problems who experienced victimization in childhood suggests a link present between victimization (sexual, physical, and emotional) and the alcohol problems in women.

In summary, studies have found a strong relationship between sexual and physical abuse in childhood, with less emphasis on emotional abuse (significantly fewer studies were found), and the relationship to substance use. There is increasing evidence that maltreated children do not experience only one type of one abuse, but are likely to be victims of other forms. It very

hard for studies to differentiate the possible outcomes and/or shared consequences due to experiencing a single or multiple forms of abuse in childhood. Evidence has shown that experiencing multiple forms of abuse result in higher and more severe substance use problems. Although an association is present between CSA and SUDs, the substance problem may be less severe when compared to victims experiencing various forms of abuse (e.g., Anderson, 1991; Sweet et al., 1991; Liebschultz et al., 2002).

3.2.6 Family and Environmental Factors

The eco-developmental theory recognizes that numerous risk factors in an abusive childhood can lead to the development of SUDs later in life. This theory states that evaluating a single condition or factor in isolation can cause for an overestimation in its effect and commonly is used to understand the effect of family and environment in relationships (Szapocznik & Coatsworth, 1999). This framework can be used to investigate how substance use develops within the interacting factors of family, friends, biology, and the general socio-cultural environment of an individual. The theory focuses on how a child's family environment is the strongest influence and plays the most direct role in the development of a child (Perrino et al., 2000).

Having a family history of alcohol problems is a strong risk factor for the development of alcohol abuse (Sher et al., 1991; Windle & Searles, 1990). When trying to understand the effect of having alcohol-abusing parents in developing an AUD or SUD, it must be understood that there may be a broad range of conditions or factors that are also playing a role in the intergenerational transmission of SUDs in children. Research has shown that a number of

environmental conditions and factors (for example, Velleman, 1992) and also genetic heritability (McGue, 1994) play important roles in developing a SUD.

The general nature of the family environment is important in determining the risk for both CSA and the development of SUDs. Research on this topic has tried to untangle the relationship between CSA and family environment. CSA victims often report that their family has high tension and very little cohesion (Meyerson, Long, Miranda, & Marx, 2002).

Various aspects of family disruption and poor parenting are found to increase the risk of CSA and some forms of adult psychopathology (Moncrieff & Farmer, 1998). Vogeltanz et al. (1999) found that in a national sample of women who reported feeling that they had unloving or un-wanting fathers reported higher rates of CSA. This was also the case for women who grew up living with both biological parents, one or both of whom have abused alcohol. Rates of CSA in this population of women ranged from 21-32% for a more inclusive definition of CSA, to 15%-26% for a less inclusive definition.

Sher et al. (1996) examined a sample of 457 clinical participants, including 238 females, on the relationships between paternal alcoholism, childhood stressors (abuse and/or neglect), and developing an AUD in adolescence and adulthood. Paternal alcoholism was found to be associated with more self-reported stressors in childhood and also increased the rates of developing an AUD.

There is evidence of a relationship between parents with AUDs showing higher rates of child abuse than parents without AUDs (Ammerman, 1999). Three possible theories to describe the relationship between parental AUDs and child abuse have been proposed by Miller et al. (1997),

- (1) *The cognitive disorganization hypothesis*: alcohol abuse increases the likelihood of violence, because it interferes with communication among family members and results in misinterpretation of social cues, overestimation of perceived threats, and underestimation of the consequences of violence.
- (2) *The deviance disavowal hypothesis*: the perpetrator blames the violence he committed on the effect of alcohol; therefore he feels no personal guilt or responsibility for the violent behavior.
- (3) *The disinhibition hypothesis*: alcohol's effect on the brain may play a role in interfering with the parts of the brain that control socially acceptable behaviors (p.371).

A history of family SUDs is known to increase the likelihood of SUDs in offspring, and it may also be associated with sexual abuse within or outside the family (Miller, 1993). This suggests that inadequate supervision and protection may be the mechanisms by which parental and family SUDs put children at risk (Vogeltanz et al., 1999).

The direct relationships between CSA and parental alcohol/drug abuse remain unclear (White & Widom, 2008). However, the indirect relationships between childhood victimization, parental alcohol and substance problems, and development of alcohol/substance problems in the victim must be considered. For example, children living in homes with parents with alcohol or drug problems may be at an increased risk for CSA perpetrated by adults outside the family because of the disorganization within the home, due to the lack of parental protectiveness of an alcoholic/drug-using parent(s) (Miller, 1993).

Low socio-economic status (SES) has been identified to be a risk factor for child maltreatment (Coulton et al. 1999; Korbin, 1998; Drake & Pandley, 1996). A low SES can be the result of having an AUD and also can lead to the development of an AUD. Consequently, parental AUDs may coincide with having a low SES, which can lead to child abuse (Zuravin & Fontanella, 1999).

Poor parenting (e.g., CSA, parental substance abuse) also appears to cause criminal behavior in offspring. The lack of a positive and supportive family environment has been associated with crime, which can be another pathway to SUDs and problem use in children. SUDs can develop at the same time as or following participation in felonious activities and in criminal subculture. Prospective studies have found evidence of an association between criminal behavior in later adolescence and/or adulthood and child maltreatment (Smith & Thornberry 1995; Maxfield & Widom, 1996). In addition, traits of sexually abused children (e.g., lack of control, impulsivity, and emotional instability) put individuals at risk for delinquency and SUDs. A prospective cohort study by White and Widom (2008) revealed that crime played a role between child abuse and neglect, and drug use in women in later adulthood.

A family environment including CSA can lead to school problems in children. School problems, in turn, are another risk factor for substance use. Abused children are at risk for an array of behavioral, cognitive, and emotional difficulties which can interfere with school success. Prospective studies by Jonson-Reid et al. (2004) and Leiter (2007) have found that poor school performance is often an outcome of abuse in childhood. Also, studies support the relationship between child maltreatment and multiple other school problems, like dropping out, which in turn, can increase the likelihood of substance abuse (McBroome, 1994; Drapela, 2006).

In summary, children of alcoholics and substance users are exposed to more undesirable family conditions and stressors than children without substance abusing parent(s) (e.g., Meyerson et al., 2002; Moncrieff & Farmer, 1998; Miller et al., 1997). Children who experience CSA often report that they feel their family has very little unity along with high levels of tension. These familial environmental conditions can increase the risk of substance abuse in their lives (for example, Vogeltanz et al., 1999; Meyerson et al., 2002). The relationships between CSA,

family environment, parental substance use, potential of re-victimization, non-supportive environment, and development of AUDs/SUDs in the victim must be considered in an association between CSA and other disorders.

4.0 DISCUSSION

The studies reviewed incorporated various study designs including samples from diverse populations. The striking conclusion of the findings is that studies of wide variation in methodology and samples yielded similar results. Studies consistently found evidence that among females who were sexually abused during childhood, there was an increase in the development of an SUD (for example, Dube et al., 2005; Danielson, 2004; Ullman, 2003; Putnam, 2003).

The research summarized in this review examined two possible relationships: (1) whether CSA is directly related to substance use and (2) whether the relationship between CSA and substance use was due to a third factor which may be responsible for the relationship between CSA and substance use.

Literature indicated that a direct relationship between CSA and SUDs is difficult to determine due to methodological issues; still many reviewed studies indicated that this relationship exists. For a direct link to be proven, all other factors (e.g. mental disorders, other forms of maltreatment, family environment, etc) would have to be controlled or accounted for, which is an extremely difficult task, and none of the studies reviewed were able to do so.

The second relationship focused on third factors, or conditions, in the relationship between CSA and SUD: PTSD, neurobiological disorders, poor social outcomes, depression, other forms of abuse, and family and environmental factors. Literature indicated that whether a given individual with a CSA history goes on to develop a SUD may be dependent on whether

she develops an intervening emotional disorder or condition. Studies found that other factors played a role in the development of an SUD, since CSA put females at a significantly increased risk of developing or experiencing these conditions (PTSD, neurobiological disorders, poor social outcomes, depression, other forms of abuse, and family and environmental factors). This indicates that the relationship between CSA and SUDs is possibly indirect, demonstrating that multiple pathways can be present.

There is little agreement on which third factor or condition most commonly occurs after CSA and, subsequently, can lead to a SUD, but there is extensive data indicating that alcohol and drugs are used to self-medicate symptoms of third factors, such as depression or PTSD, resulting from earlier CSA experiences (for example, Danielson et al., 2009; Epstein et al., 1998; Nash et al., 1998).

There is additional evidence that the age of onset, frequency, and type of sexual abuse experienced by a CSA victim can be directly related to outcomes experienced by the victim. The level of severity of sexual abuse (e.g., intercourse vs. fondling) experienced by the victim may cause an increase in experimentation with various high-risk behaviors (e.g., having sex frequently with strangers, drinking to intoxication on various occasions, driving a car while intoxicated, or experiencing an unexpected pregnancy) and more severe symptoms and outcomes of subsequent third factors, when compared to non-CSA women (Arnow, 2004; Putnam, 2003). For example, women who experience CSA, especially intercourse, when compared to non-abused women, have significantly higher reported rates and severity of PTSD symptoms. A higher severity of CSA can also lead to more significant problems with alcohol and drugs (Epstein et al., 1998).

CSA victims were also found to be at a higher risk for the development of an SUD if they were exposed to or experienced more than one third factor. Therefore, a higher likelihood of developing an SUD among females exists, for example, in those who have experienced both physical and sexual abuse during childhood (e.g., Sweet et al., 1991; Brown & Anderson, 1991; Liebschultz et al., 2002). It is of interest to further discuss the role of protective factors in this relationship. Success in school, having positive relationships, and growing up in a supportive household environment can prevent a victim of CSA from developing an SUD or other negative health consequences (Drapela, 2006). In many cases though, CSA victims are exposed to undesirable life outcomes and often report having a dysfunctional family environment, possibly including a parent(s) who is a substance abuser, lack of family cohesion and support, and exposure to additional conflict and violence. Evidence suggests that these family and environmental factors, along with other forms of abuse, may be two of the strongest risk factors for experiencing CSA, which subsequently can lead to SUD development (for example, Ammerman et al, 1999; Drapela, 2006; Meyerson et al., 2002).

4.1 LIMITATIONS

Researchers have consistently used variations of the definition of sexual abuse. It is fair to assume that researchers who limit their work to more restricted definitions of CSA (e.g. intercourse/rape) report significantly more severe outcomes than studies with more extensive definitions for CSA. Until there is a universal definition of CSA used by all professionals in the field, findings regarding abuse should be evaluated in terms according to the appropriate definition.

The extent of the prevalence of CSA will probably never be known, due to estimations rather than exact numbers given by child welfare reports and self-report surveys (Fallon et al., 2010). Adult retrospective research studies are used to gain an idea of the prevalence of CSA, but this method relies only on participants' reports of past events (Arnow, 2004). CSA recollection can be affected by children repressing the memories of the CSA as a coping mechanism. Even in supportive environments, CSA victims still might not be able to disclose CSA if memories are repressed. The length of time between the occurrence of the CSA experience and when the CSA victim is asked to disclose can decrease complete and accurate memories of the CSA (Johnson, 2004). Additionally, when adults are asked to recall CSA, they may experience embarrassment in reporting CSA later in life (Moncrieff & Farmer, 1998).

Confounding variables are also present in the relationship between CSA and SUDs. These variables have an individual effect on experiencing or developing both the independent (CSA) and dependent (SUD) variable in the association. Numerous family and environmental factors such as experiencing neglect and extreme conflict in the household, having a parent(s) who is a substance user, being a victim of physical and/or emotional abuse, and being of low SES, are confounding variables for experiencing both CSA and also independently in developing an SUD (Rind, 1998). Having a parent who is a substance abuser is both a risk factor for being sexually abused and also for developing an SUD. Children living in homes with parents that abuse alcohol or drugs are exposed to higher occurrences of violence and abuse resulting from substance use, lack parental protectiveness, which increases the likelihood adults outside the family can sexually abuse their children, and the general nature of the home environment is unsupportive and full of conflict (Miller, 1993). These factors increase the risk of experiencing CSA and SUDs. Evidence has also shown that children who experience CSA are usually exposed

to multiple forms of abuse (Mullen, 1995; Miller, 1993; Liebschultz et al., 2002; Harrison et al., 1997). Physical and/or emotional abuse can be a precursor to, and increase the likelihood of an occurrence of sexual abuse. Research has also indicated that victims of all forms of abuse are at an increased risk to develop an SUD (Martin & Elmer 1992; Sweet et al., 1991; Brown & Anderson, 1991; Downs et al., 1992) indicating that CSA is not the only form of abuse increasing the likelihood of developing an SUD. Low socio-economic status (SES) has been identified as a risk factor for child maltreatment, including abuse (Coulton et al. 1999; Korbin, 1998; Drake & Pandley, 1996). A low SES can be a result of having a SUD and can also lead to the development of a SUD. Consequently, parental SUDs may work along with having a low SES, which can lead to child abuse (Zuravin & Fontanella, 1999).

There is also a great limitation in this research on CSA and SUDs on comparison groups being unequal. CSA is not a condition that can be randomly assigned to an experimental group. It is unrealistic to think CSA victims and non-CSA victims are equal in all other respects other than experiencing abuse (Arnold, 2004; Ompad et al., 2005). This makes it impossible to see if the differences found in studies comparing these two groups are due to the abuse and not to other factors. If CSA and non-CSA groups vary not only from abuse history, but also family environment, age, and social class, study findings cannot be linked only to experiencing or not experiencing CSA (Anderson et al., 2005; Jarvis et al., 1998). It is also difficult to match groups on relevant variables, offering a more attractive comparison, such as race and education level, because the study design still ignores other obvious factors pertaining to abuse (Johnson, 2004). It may be better to draw representative CSA and non-CSA participants within the same community, rather than trying to match for approximate equivalence.

In CSA research, along with trying to match for equivalence in groups, sampling biases have been a limitation characterized in abundant work in this area. Researchers sample from numerous populations, including patients of mental health and psychiatric facilities, substance users in treatment, college students, and general community members. The findings reported in these different populations are very restricted (Vogeltanz et al., 1999). For example, individuals in treatment or other clinical settings often report more severe CSA histories, and the findings cannot be generalized to the public who commonly report less severe CSA. Community samples cannot be totally representative of CSA either. Older adults and various minority groups have rarely been the focus of CSA research (Drake & Pandley, 1996).

Also, much of the research conducted on substance use is limited to alcohol abuse and misuse. To better understand the complexities of substance use, more research needs to be done that including populations of drug users. It may be important to see the possible variations in types of drugs and possible outcomes, and to see if a history of CSA is linked more to one type of drug over others.

4.2 FUTURE DIRECTIONS

After reviewing the literature, it can be suggested that researchers should try to describe their studies on CSA in a uniform manner. Some research focuses on more severe versions of sexual abuse (e.g., intercourse or rape), while others focus on less severe sexual abuse (e.g., fondling). It would be helpful for a CSA severity scale to be developed and applied to help capture the experience of individuals who have suffered CSA, whatever the severity. Also, the term CSA varies in how it is defined by researchers in studies; the cut-off age of a child varies from 16 to

18 in studies. There should be a universal definition when working with the term sexual abuse. Using a different selection or method of data collection can cause reporting biases, as indicated previously. This is further emphasized when researchers define what constitutes sexual abuse differently. The Centers for Disease Control and Prevention (2009) have recently developed, *Child Maltreatment: Uniform Definitions for Public Health and Recommended Data Elements*, which includes definitions and data elements for the purpose of promoting consistency in definitions pertaining to this topic. These uniform definitions should be adopted by researchers and practitioners in future work.

Future studies on CSA should also consider including additional variables related to bias in reporting, including the approach taken for social desirability and CSA disclosure. Study-specific participation rewards for those who report CSA should be removed to eliminate any possible false reporting (for example, Biere & Runtz, 1993; Simpson & Miller, 2002). It should also be important to test how different CSA reporting methods could influence the frequency of study participants in reporting CSA, such as the wording of an abuse question in a survey and the type of data collection method used. In many cases, victims may not realize and identify that they were “sexually abused,” but would answer “yes” to a question about being touched inappropriately by an adult during childhood. Depending on the data collection method, victims may be more likely to disclose experiences of abuse. Examples are using face-to-face interviews conducted by experienced female interviewers, questions about general life experiences in an attempt to establish a rapport with the victim before asking questions their abuse, and in incorporating numerous types and wording of questions to better determine the incidence of CSA, such as using words other than “abuse” (e.g., Moncrieff & Farmer, 1998; Szapocznik & Coatsworth, 1999, Ullman, 2003).

It is important to intervene with CSA victims early, if possible. Developing an intervention focused on early drinking or substance use with adolescents is one way to reach CSA victims. Drinking and/or using other substances at an early age are shown to be powerful predictors of later abuse and dependence (Beitchman et al., 1992; Danielson et al., 2009; Kaukinen & DeMaris, 2005). Some adolescents, who are victims of CSA, may already be using substances as a coping mechanism. An intervention for adolescent substance users would include a focus on improving self-esteem, dealing with emotional pain, and developing healthier methods for coping with stressful situations without using drugs and alcohol. These skills would be helpful, not only for CSA victims, but also for adolescents, in general. Many adolescents may be experimenting with alcohol and drugs due only to the nature of this age group, but if the intervention reached just one victim of CSA who was already self-medicating with alcohol and drugs, the intervention could be successful.

Another way to help victims of CSA early would be to educate healthcare providers, teachers, and child care workers on the warning signs of abuse. For example, children who are victims of sexual abuse may display the following behaviors: interests or knowledge of sexual topics or actions inappropriate for their age, problems sitting or walking, refusing to participate in physical activities or to change clothes near others, gets pregnant or contracts an STI before the age of 15, and tries to avoid a certain person(s) for an unknown reason (Bellmonte, 2010). Developing an awareness of these behaviors in people interacting with children may help to lessen the negative effects associated with CSA through an early childhood intervention. This can increase the accuracy rates of reporting CSA also.

There should also be more effective treatments for women who report both CSA and a SUD. Throughout this review, it was found that a significant amount of women in treatment for

SUDs report histories of CSA. Multiple pathways, involving different disorders, have been seen to be present from CSA to development of SUDs. Each pathway has different implications for treatment. Comorbid disorders and conditions may be occurring in CSA victims, so therapy and treatment should acknowledge and be modified to the individual patient.

Treatments that focus on an isolated problem (e.g., substance use) fail to account for other co-existing problems. Many women in treatment come from a dysfunctional family environment that may include a parent(s) who is a substance user and was also the perpetrator of the CSA (e.g., Ammerman et al., 1999; Meyerson et al., 2002; Drapela, 2006; Velleman, 1992). This environment would be a detrimental for a woman in substance recovery to return to after treatment. Instead, safe housing should be offered to women following completion of a treatment program. Similarly, the lack of positive social networks affects substance use after experiencing CSA. Positive social networks and/or relationships are protective factors in limiting the development or reoccurrence of a SUD after CSA. Treatment should help women find support groups and healthier social networks once leaving treatment. Having a high school diploma, job, and secure housing also addresses multiple factors that lead to substance use; women should have help obtaining these in treatment to increase their chances of recovery (e.g., Resnick et al., 2007; Velleman, 2002; Szapocznik & Coatsworth, 1999).

CSA can never be experimentally manipulated. Ultimately, the issues around CSA and SUDs would be best addressed through prospective and longitudinal study designs. The existence of multiple comorbid conditions and dysfunctional paths of life traveled by CSA victims indicates that longitudinal studies would be most useful in this relationship. Prospective designs help to examine, more thoroughly, the possible factors and conditions that may be present in the relationship between CSA and SUDs in females (e.g., Dube et al., 2005; Simpson

& Miller, 2002; Biere & Elliot, 1994). Prospective study designs involve a significant amount of time, funding, and planning. A prospective design on CSA is difficult to construct since locating victims of CSA immediately after experiencing the abuse and following them into adulthood is the desirable way to proceed, but it is not always feasible. Cross-sectional studies are also valuable in this field since there are difficulties surrounding prospective study designs. A cross-sectional study incorporating a large, representative sample, using a refined measurement of CSA in an attempt to distinguish between CSA and other developmental or psychological factors in playing a role in later development of a SUD would be optimal (Putnam, 2003; Jarvis et al., 1998; Silverman et al., 1996).

5.0 CONCLUSION

Female victims of CSA are at a significantly increased risk of developing SUDs along with an array of other negative health outcomes in their lifetime, compared to non-CSA victims (Putnam, 2003; Dube et al., 2005; Danielson, 2004; Ullman, 2003). This paper outlines the results of various research on the suggested relationship between a history of CSA and SUD development in females.

The existence of this relationship between CSA and SUDs may depend on the development of a third factor(s) and/or condition(s). PTSD, neurobiological disorders, poor social outcomes, depression, other forms of abuse, and family and environmental factors may develop in response to CSA, which can increase the likelihood of an SUD. Since study designs contain multiple limitations, (e.g., sampling and reporting bias, unequal comparison groups, and uncontrollable confounding variables and other underlying conditions) it is difficult to conclude that CSA and SUD have a direct relationship; instead it can be assumed this relationship is affected by third factors and multiple pathways can exist in the association between CSA and SUDs. It is important to develop an understanding of the many possible pathways and associations present in this relationship when intervening with a CSA victim and during the treatment of an individual with an SUD.

In reviewing the literature, it can be concluded that health professionals and those having frequent interactions with children should develop an awareness of CSA symptoms, therefore,

increasing the likelihood of an early intervention and decreasing possible negative health outcomes. Previous CSA may alter a victim's response to treatment. In this case, there needs to be a development of multidimensional interventions and treatments which do not focus on one isolated problem of CSA, such as SUDs, but rather address the various conditions that may co-occur and play significant roles in the relationship between CSA, which can lead to SUD development.

It is vital that future research on the association between CSA and SUDs ultimately incorporates a prospective and longitudinal study design including variables addressing report bias, in an attempt to account for the possible effects of underlying factors and conditions that can play a role in this multi-pathway relationship between experiencing CSA and the possible development of an SUD throughout the progression of adolescence into adulthood (e.g., Simpson & Miller, 2002; Dube et al., 2005; Biere & Elliot, 1994).

With increased knowledge, identification, and treatment of the various underlying risk factors and along with third factors for SUDs in women, it may be possible to reduce SUDs and other negative health outcomes in CSA victims. It is only by addressing the possible conditions and factors in the relationship between CSA and SUDs, that we can hope to improve the health outcomes in CSA victims. Once a clearer understanding of the relationship between CSA and SUDs is developed, professionals can assimilate this knowledge into early intervention strategies for the prevention of subsequent SUDs, and in the formulation of effective treatment and therapies.

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