

The Relationship Between Child and Adolescent Sexual and Physical Abuse and  
Self-efficacy as an Adult Among HIV-positive Substance Users

by

Jennifer Leigh Rackliff

Duke Global Health Institute  
Duke University

Date: \_\_\_\_\_

Approved:

\_\_\_\_\_  
Rae Jean Proeschold-Bell, Supervisor

\_\_\_\_\_  
Kathleen Sikkema

\_\_\_\_\_  
Kathryn Whetten

Thesis submitted in partial fulfillment of  
the requirements for the degree of  
Master of Science in the Duke Global Health Institute  
in the Graduate School  
of Duke University

2013

ABSTRACT

The Relationship Between Child and Adolescent Sexual and Physical Abuse and  
Self-efficacy as an Adult Among HIV-positive Substance Users

by

Jennifer Leigh Rackliff

Duke Global Health Institute  
Duke University

Date: \_\_\_\_\_

Approved:

\_\_\_\_\_  
Rae Jean Proeschold-Bell, Supervisor

\_\_\_\_\_  
Kathleen Sikkema

\_\_\_\_\_  
Kathryn Whetten

An abstract of a thesis submitted in partial fulfillment of  
the requirements for the degree of  
Master of Science in the Duke Global Health Institute  
in the Graduate School  
of Duke University

2013

Copyright by  
Jennifer Leigh Rackliff  
2013

## **Abstract**

**Background:** Over one million people have HIV infection in the United States (U.S.), where HIV has permeated all regions of the nation and all ethnic and racial groups. HIV transmission occurs through a number of mechanisms, many of which can be exacerbated by substance use. In 2008, nearly one in four of the HIV-positive population was in need of substance use treatment. The lives of HIV-positive substance users can be further complicated by histories of sexual and physical abuse which is related to worse overall health, health behaviors, and health outcomes.

**Objective:** This study explores the relationship between the age of initiation of abuse, the type of abuse, psychological symptoms that may result from abusive events, and the confidence in one's ability to communicate with a health care provider, get support from family and friends, and manage his or her mood.

**Methods:** In the current study, 206 HIV-positive patients were recruited from three infectious disease clinics. The participants screened positive for alcohol or substance use and, as part of a larger study, consented to twelve months of integrated HIV-substance use treatment. Using pre-intervention, baseline data, multiple regression analysis was used to examine the relationship between sexual and physical abuse during childhood and adolescence and current self-efficacy among HIV-positive substance

users. Mediation analysis was used to test whether psychological symptoms mediated the relationship between abuse and self-efficacy.

**Results:** Because of the small sample size, individual categories of abuse were reported but interpretations of these results could not be justified. The primary focus of the discussion focused on individuals who experienced any abuse before the age of 19. Any abuse was not directly associated with one's confidence to communicate ( $p=0.78$ ). In the relationship between any abuse, psychological symptoms, and communication self-efficacy, anxiety and depression trended towards significance ( $B_{\text{anxiety}}=-0.03$ ,  $p=0.06$ ;  $B_{\text{depression}}=-0.02$ ,  $p=0.10$ ), but was not a mediator of the relationship. Any abuse was not directly associated with one's confidence to seek support from others ( $p=0.35$ ). When accounting for psychological symptoms, depression was associated with one's confidence to seek support ( $B=-0.06$ ,  $p=0.01$ ). Results were inconclusive for determining a mediation relationship. Any abuse trended toward significance of being negatively associated with one's confidence to manage one's mood ( $B=-0.34$ ,  $p=0.11$ ). In the relationship between any abuse, psychological symptoms, and mood management self-efficacy, anxiety and depression were associated with one's confidence to manage one's mood ( $B_{\text{anxiety}}=-0.08$ ,  $p=0.01$ ;  $B_{\text{depression}}=-0.06$ ,  $p=0.01$ ), but were not mediators of the relationship.

**Conclusion:** The findings suggest that one's confidence to apply positive health behaviors are tied to psychological symptoms and may be tied to histories of abuse. This

study suggests that efforts to improve health behaviors should focus on one's self-efficacy in communicating with health care providers, seeking support from others, and managing one's mood. Additional efforts should be made to address symptoms of depression and anxiety and particularly the correlation that abuse may have in aggravating these symptoms.

# Contents

Abstract .....	iv
Contents.....	vii
List of Tables.....	x
List of Figures .....	xi
Acknowledgements .....	xii
1. Introduction .....	1
2. Background .....	5
2.1. Child and adolescent sexual and physical abuse.....	5
2.1.1. Child and adolescent abuse .....	6
2.1.2. Sexual and physical abuse .....	7
2.2. Psychological symptoms .....	9
2.3. Self-efficacy.....	11
3. Objective and hypotheses.....	14
3.1. Hypotheses .....	14
4. Ethical considerations.....	17
5. Methods .....	18
5.1. Sample: Recruitment and interviews.....	19
5.2. Measures.....	19
5.1.1. Child and adolescent sexual and physical abuse.....	19
5.1.2. Psychological symptoms .....	20

5.1.3. Self-efficacy .....	23
5.3. Statistical analysis .....	25
6. Results .....	28
6.1. Description of sample .....	28
6.2. Correlations between abuse, psychological symptoms, and self-efficacy .....	30
6.3. Primary analysis: Abuse, psychological symptoms, and self-efficacy .....	31
6.3.1. Confidence to communicate with health care providers .....	31
6.3.2. Confidence to seek support from others .....	32
6.3.3. Confidence to manage one's mood .....	34
6.4. Secondary analysis: Psychological symptoms and self-efficacy .....	36
6.4.1. Confidence to communicate with health care providers .....	37
6.4.2. Confidence to seek support from others .....	38
6.4.3. Confidence to manage one's mood .....	38
7. Discussion .....	40
7.1. Confidence to communicate with health care providers .....	40
7.2. Confidence to seek support from others .....	42
7.3. Confidence to manage one's mood .....	43
7.4. Secondary analysis: Psychological symptoms and self-efficacy .....	44
8. Limitations .....	46
9. Conclusion .....	48
Appendix A: Hospital Anxiety and Depression Scale .....	50
Appendix B: Patient Health Questionnaire 9-symptom checklist for depression .....	51



Appendix C: Impact of Events Scale .....	52
Appendix D: HIV Self-Efficacy Questionnaire .....	53
References .....	55

## List of Tables

Table 6.1: Selected characteristics of study sample .....	28
Table 6.2: Frequencies of abuse of the sample population (n=204).....	29
Table 6.3: Frequencies of abuse by demographic characteristic and sexual identity (percentage) .....	29
Table 6.4: Spearman’s rank correlation coefficient matrix for all main effect models .....	30
Table 6.5: Multivariate analysis of the relationship of abuse and one's confidence to communicate with health care providers (Model 1).....	31
Table 6.6: Multivariate analysis of the relationship of abuse and one's confidence to communicate with health care providers (Model 2).....	32
Table 6.7: Multivariate analysis of the relationship of abuse and one's confidence to seek support from others (Model 1).....	32
Table 6.8: Multivariate analysis of the relationship of having experienced any abuse before the age of 19 and one's confidence to seek support from others (Model 2).....	33
Table 6.9: Multivariate analysis of the relationship of abuse and one's confidence to manage his or her mood (Model 1) .....	34
Table 6.10: Multivariate analysis of the relationship of having experienced any abuse before the age of 19 and one's confidence to manage his or her mood (Model 2).....	34
Table 6.11: Multivariate analysis of psychological symptoms and one's confidence to manage his or her mood among individuals who experienced any abuse before the age of 19, depicting models with each psychological symptom entered separately and simultaneously (Model 2).....	36
Table 6.12: Multivariate analysis of psychological symptoms and one's self-efficacy in each of the three domains, depicting models with each psychological symptom entered separately and simultaneously (Model 3) .....	37

## List of Figures

Figure 5.1: Multivariate analysis of the relationship between abuse and self-efficacy ..... 27

## Acknowledgements

First and foremost, I would like to thank Dr. Rae Jean Proeschold-Bell, Dr. Kathryn Whetten, Dr. Kathleen Sikkema, and Lysa MacKeen for their support and encouragement as I navigated the ropes of international global health research. None of my research could have been conducted without Dr. Proeschold-Bell, my advisor and mentor, whose willingness to commit to a nearly unfeasible research turnaround could not be more appreciated. Her support and guidance is immeasurable. Dr. Whetten was instrumental in the development of my initial fieldwork proposal and her leadership throughout that process was invaluable. Dr. Sikkema's eagerness to be a part of this endeavor was much needed and greatly appreciated. Lysa was there through it all and for that, I could not be more grateful.

I would also like to thank Dr. Brian Pence and Julia Yao for their statistical guidance and STATA expertise. I am forever grateful for my colleagues and friends at Duke's Global Health Institute and my family, whose unwavering support and encouragement made this all possible.

This study was funded by grant TI18825 from the Substance Abuse and Mental Health Services Administration.

# 1. Introduction

Over one million people in the United States (U.S.) have HIV infection, and nearly one in five are unaware that they are infected<sup>1</sup>. The disease reaches all regions of the nation and across all ethnic and racial groups. However, the diagnoses are widely varied. In 2011, the rate of HIV diagnosis was 20.9 per 100,000 in the South, 18.1 in the Northeast, 12.0 in the West, and 9.3 in the Midwest<sup>2</sup>. Blacks/African Americans experience the highest burden of HIV accounting for nearly 44% of the new HIV cases in 2011, even though they only represent 12% of the total U.S. population<sup>1</sup>. The rate of HIV diagnosis among blacks/African Americans was 60.4 per 100,000 in 2011, compared to 19.5 among Hispanic/Latinos, 15.3 among Native Hawaiian/other Pacific Islanders, 9.3 among American Indian/Alaska Natives, and 7.0 among whites<sup>2</sup>.

HIV is transmitted a number of ways, including male-to-male sexual contact and heterosexual contact. In 2011, transmission through injection drug use made up over 10% of all HIV diagnoses<sup>1</sup>. The link between substance use and the spread of HIV has long been established, but the relationship stretches beyond just aiding in the spread of the disease<sup>3</sup>. Substance use can impair judgment and increase risky behaviors promoting the spread of HIV, but it is also a common coping strategy among HIV-positive individuals. Importantly for longevity, substance use has also been linked with decreased HIV medication adherence<sup>4-5</sup>. In 2010, the Substance Abuse and Mental Health

Services Administration reported that nearly one-quarter of the HIV-positive population was in need of substance use treatment in the previous year<sup>6</sup>.

To add to this, the life histories of HIV-positive individuals are often complicated and can be filled with negative experiences, such as traumatic events or mental health issues<sup>7</sup>. Among HIV-positive individuals, traumatic experiences, especially childhood sexual and physical abuse, are more prevalent than among the general population<sup>8</sup>. These events can have significant lifetime impacts and profound implications on health and health behaviors, such as increased hazards of HIV disease progression, increased odds of ARV nonadherence, and lower physical health scores<sup>9</sup>. Traumatic life experiences may directly affect an individual's ability to manage his or her own health and an individual's response to traumatic events may even further exacerbate trauma's effects on health and health behaviors. Furthermore, greater exposures to traumatic events are associated with a wide range of impact on health and behaviors, especially among HIV-positive individuals<sup>9</sup>. Pence et al. (2012) found that each additional trauma experienced was associated with increased odds of unprotected sex, ARV nonadherence, hospitalization, and emergency department use. These results persisted even after controlling for psychosocial mediators, such as adaptive coping styles, social support, self-efficacy, trust, posttraumatic stress disorder symptomology, and alcohol and drug use<sup>9</sup>.

A better understanding of the confidence that HIV-positive substance users with a history of trauma have in addressing their health is needed to address the unique intersection of disease, addiction, and psychological distress that these individuals face in their lives and efforts to maintain and improve health. This knowledge is critical for the development of health services and supports that will meet the needs of this population and instill within them confidence to manage their health needs successfully. Numerous studies have looked at the impact of trauma on disease management, using medication adherence as a proxy, across a number of diseases<sup>10</sup>. No studies were identified, however, that looked at trauma and disease management in a broader context, examining other elements that are essential for the successful management of health problems such as managing symptoms and emotions or getting help and support. These other elements are important determinants in managing disease and maintaining beneficial health behaviors.

Early studies have shown positive outcomes in disease management and improved health behaviors when focus is placed on improving an individual's overall confidence in his or her ability to manage specific behaviors or to complete tasks, especially among populations with HIV and other chronic diseases<sup>10</sup>. This confidence, known as self-efficacy, has been associated with better use of social resources, improved stress management, and a reduction in some of the negative psychological impacts of

HIV among HIV-positive individuals<sup>10-11</sup>, suggesting that confidence is an important factor in health management. However, studies exploring the relationship between traumatic experiences, specifically abuse, and self-efficacy are limited. Critical for the successful treatment of HIV-positive substance users is the knowledge and understanding of an individual's life experiences, the influences those experiences may have on his or her thoughts and behaviors, and the impact that these have on one's confidence in managing one's own health.



## **2. Background**

### ***2.1. Child and adolescent sexual and physical abuse***

The impacts of abuse have long been researched and their implications on health and health behaviors are far-reaching<sup>9</sup>. Studies have shown that the severity and lifetime accumulation of abuse can have negative consequences on health-related outcomes<sup>9,12</sup>, and abusive experiences are linked to higher levels of anxiety, depression, and dissociation, among other psychological responses<sup>13</sup>. Childhood abuse can create immediate distress and disruption and often leads to longer-term damaging effects on the victim's health and functioning<sup>14</sup>.

Not every population is affected equally by abuse. Compared to the general public, a history of both sexual and physical abuse is more common among HIV-positive individuals<sup>13</sup>. A study of HIV-positive individuals living in the southern region of the United States found that over 50% had experienced some form of lifetime abuse, and nearly one-third had experienced lifetime sexual abuse<sup>8</sup>. Furthermore, having a history of childhood abuse can lead to behaviors that may jeopardize an individual's overall health, including reducing his or her adherence to HIV treatment<sup>8</sup>. These findings indicate that abuse and the physical and emotional response to it may directly affect individuals' health-seeking behaviors and their successful disease management.

### **2.1.1. Child and adolescent abuse**

The abuse of individuals under the age of 18 is widespread across the United States where it reaches across all ethnic, cultural, and educational backgrounds. Every income level is affected by abuse; however, child abuse is more frequently found within high-risk, low-income populations while adolescent abuse is spread more evenly across all income levels<sup>15,21</sup>. In the United States, over 675,000 children under the age of 18 were victims of abuse in 2010 alone with sexual and physical abuse being the two most prominent forms of abuse among these victims<sup>15,41</sup>. The United States Department of Health and Human Services reports that over three-quarters (76.8%) of all reported incidents of abuse occur among children under the age of 12 while adolescents aged 12-17 make up 23.2%<sup>41</sup>. Over nine percent of incidents of abuse were sexual, 17.6% were classified as physical abuse. Among sexually abused victims, children under the age of 12 made up 51.4% of the reported incidents; adolescents between 12 and 17 made up 48.1%<sup>41</sup>. Children under the age of 12 were significantly overrepresented among incidents of physical abuse as compared to adolescents aged 12 to 17 (70.9% and 28.4%, respectively)<sup>41</sup>.

A vast number of studies have been conducted on the impacts, both short- and long-term, of abuse on children and adolescents. Much of this research has focused

---

\* The other 0.5% of sexually abuse victims fell into a category of unborn, unknown, or 18-21.

† The remaining 0.7% of physically abused victims fell into a category of unborn, unknown, or 18-21.

generally on the under 18 population or explicitly on younger children and has established strong correlations between abuse before the age of 18 and long-term adverse effects in adulthood, including depression, anxiety, substance abuse, and dissociation<sup>16-17</sup>. Some studies have shown that the timing of first abuse may not have implications on adulthood health status<sup>12</sup>, while researchers of other studies have speculated that the implications of and responses to abuse are likely to be profoundly different for younger children compared to adolescents<sup>21</sup>. Research that separates these populations, however, is limited<sup>21</sup>. As a primary focus of the current study, these two populations were analyzed separately in order to explore the unique sequelae of each population.

### **2.1.2. Sexual and physical abuse**

When studying the effects that abuse has on an individual, it is important to look both at all abusive experiences to understand its broader implications and to examine the specific types of abuse inflicted<sup>14-15</sup>. Different types of abuse may lead to similar negative consequences in adulthood<sup>14</sup>, but there are important differences between the effects of sexual and physical abuse, especially in the short- and long-term emotional and behavioral responses to them<sup>15</sup>. Therefore, research must look at both the different effects between sexual and physical abuse and the total effect that any abuse may have

on an individual. Without doing so may lead to spurious conclusions and misleading significance of one type of abuse over another<sup>14</sup>.

Two types of abuse are of particular importance for this study: sexual abuse and physical abuse. Sexual abuse, defined as unsolicited sexual advancements for which consent is not given or the violation of social taboos, includes touching of sex organs, such as breasts, penis, pubic area, or anus, and sexual intercourse<sup>16</sup>. Sexual abuse can be inflicted by and upon both females and males. Physical abuse is defined as intentional violence against an individual that has a high likelihood to result in the harm of an individual, specifically on health, survival, development, or dignity and can include hitting, beating, kicking, biting, and burning, among other actions<sup>16</sup>. Numerous studies have been conducted on the lifetime implications of both sexual and physical abuse. Studies have linked sexual abuse to personality disorders, increased somatization, social isolation, low self-esteem, poor adjustment to intimate relationships, marriage disruption, dissatisfaction with sex, problems in child-rearing, and adult victimization<sup>17-20</sup>. Physical abuse is associated with increased anger and aggression, criminality including violent offenses, eating disorders, and risky sexual behaviors<sup>16,18-19</sup>. Studies have found that individuals who have endured either type of abuse exhibit both externalization and internalization issues such as aggressive or antisocial behaviors and depression and anxiety<sup>19</sup>. Additionally, abuse of either type has been linked to increased

substance use and sexual problems, suicidality and self-injurious behaviors, and general psychological symptoms such as depression and anxiety<sup>16,17-19</sup>.

The effects of these two types of abuse can lead to different long-term sequelae, but may also produce similar patterns of future outcomes<sup>14</sup>. In order to explore both divergent and similar long-term outcomes of sexual and physical abuse, this study included analyses of each type of abuse separately as well as an analysis of having experienced either kind of abuse.

## **2.2. *Psychological symptoms***

Every traumatic experience is followed by an individual's unique reaction to it. Responses to trauma are tied to behavioral and psychological theories on how people overcome negative life events<sup>22</sup>. These responses are unique and are likely to directly affect an individual's overall coping mechanisms<sup>15</sup>. An individual's psychological symptoms may lead to the adoption of coping strategies that interfere with daily life, impact multiple domains of functioning<sup>23-25</sup>, and result in poorer psychological outcomes<sup>17</sup>. Symptoms can be particularly severe among child sexual abuse victims, who frequently experience poor psychological and psychosocial adjustment in adulthood<sup>23-24</sup>.

The relationship between sexual and physical abuse and the diagnosis of anxiety and depression has widely been accepted [for reviews, see Paolucci et al., 2001; Putnam, 2003; Rodriguez et al., 1998]<sup>26</sup>. In addition to anxiety and depression, Horowitz et al.

(1979) recognized that there were common qualities of psychological responses to trauma among diverse populations. Through in-depth evaluation and psychotherapy interviews, two psychological reactions to stress were identified: intrusion and avoidance responses<sup>30</sup>. Intrusion is defined as thoughts, feelings, and imagery that are unwanted, disturbing dreams, intense emotions, and repetitive behaviors<sup>30</sup>. Avoidance is characterized by a numbness of responsiveness, making efforts to escape feelings, situations, and ideas, emotional detachment, and a sense of foreshortened future<sup>30-31</sup>.

Findings from research have suggested that psychological symptoms may be more severe among individuals with histories of abuse, particularly sexual abuse, than those having experienced other types of traumatic events. While research generally acknowledges a strong relationship between abuse and psychological symptoms, the specific long-term consequences of abuse are often debated. Some propose that abuse is a relatively nonspecific risk factor for developing psychological symptoms, such as depression and anxiety, in adulthood, while others suggest that specific abuse may trigger specific psychological and emotional outcomes, such that physical abuse is linked to increased anger and aggression and sexual abuse to social isolation<sup>19,26</sup>. It is widely acknowledged that these symptoms may play a significant role in future development and emotional growth<sup>24</sup>. These symptoms are associated with negative behaviors, including substance use and dissociation, and may affect an individual's

daily functioning<sup>24</sup>. The effects that these symptoms have on an individual's behavior have large implications for self-efficacy and one's ability to manage his or her health, especially among high risk populations such as HIV-positive substance users. Many studies suggest that interventions aimed at addressing these psychological symptoms are needed to improve coping strategies among distressed individuals.

This study will explore avoidance, intrusion, anxiety, and depression symptoms as potential mediators in the relationship between abuse and self-efficacy.

### **2.3. Self-efficacy**

Self-efficacy is a construct of social learning theory defined as one's confidence in his or her ability to manage and complete a task or specific behavior in order to meet a goal or achieve a desired outcome<sup>32-33</sup>. Perceived self-efficacy is the impression of a greater sense of control over one's own circumstances which translates to an increase in confidence in overcoming challenges through behavioral modification and adaptation<sup>11</sup>. More plainly, self-perceptions influence actions, emotions, behaviors, and choices<sup>11,15</sup>. Bandura et al. (1997) have identified four major sources of efficacy: personal accomplishment, vicarious experiences, verbal persuasion, and emotional arousal. Personal accomplishment is personal mastery at meeting a goal or achieving an outcome<sup>11</sup>. Vicarious experiences are achieved when successes of others are witnessed and then modeled to achieve similar results<sup>11</sup>. Verbal persuasion focuses on the power of

suggestion where one is pushed towards success by prompting<sup>11</sup>. Verbal persuasion, however, can be easily overshadowed by failure of personal mastery<sup>11</sup>. Emotional arousal capitalizes on the notion that positive energies and feelings yield more confidence and better success<sup>11</sup>.

Clark et al. (1999) described self-efficacy as part of a reciprocal relationship of personal, behavioral, and environmental factors that determine behaviors. It is not an independent behavioral expression but a concept that must be examined within the larger context of the individual and his or her surroundings<sup>33</sup>. Assessing the level of one's self-efficacy provides important information about individual behaviors, albeit only a partial picture of how these are expressed<sup>33</sup>.

An individual's affective states help determine how traumatic experiences may affect one's psychological stability, level of self-efficacy, and health management behaviors<sup>34</sup>. Mirroring a sense of confidence and control, self-efficacy can result in the belief in one's ability to cope with traumatic experiences and the implications of these experiences through adaptive responses<sup>11,34</sup>.

Self-efficacy plays an important role in disease self-management by channeling perceived confidence to influence one's approaches to tasks and challenges associated with managing a disease, such as communicating with a health care provider<sup>11</sup>. Studies have shown that improving general self-efficacy, especially among HIV-positive



individuals, may increase an individual's use of social resources, improve mood management, and ultimately assuage adverse effects of poor physical health<sup>10-11</sup>. A number of these studies, however, have looked at self-efficacy as a singular factor toward a specific behavior, for example as one's confidence in using a condom or taking medication, rather than as a part of the dynamic intersection between lifetime experiences and the emotional and behavioral responses to these experiences<sup>33</sup>. It is critical to understand the broader implications that life experiences, especially negative ones, may have on one's confidence to accomplish tasks or meet goals that relate particularly to health behaviors, such as communicating with health care providers and seeking help when needed. Among HIV-positive substance users, having confidence in one's ability to implement positive health behaviors may play a critical role in improving their disease management and, possibly, overall health.

This study explores the relationship between abusive life experiences and self-efficacy among HIV-positive substance users. Self-efficacy in this study, described in more detail below, focuses on individuals' confidence to implement positive health behaviors, including the confidence in one's ability to communicate with health care providers, to get support from others, and to manage one's mood, which may directly or indirectly lead to improvements in health behaviors and, ultimately, health outcomes.

### **3. Objective and hypotheses**

This study explores the relationship between the age of initiation of abuse, the type of abuse, psychological symptoms, and the confidence in one's ability to communicate with a health care provider, get support from family and friends, and manage his or her mood.

Primarily, the study examined the relationship between child and adolescent sexual and physical abuse and present-day self-efficacy of HIV-positive substance users. Additionally, the study explored whether psychological symptoms mediate the relationship between abuse and self-efficacy.

#### **3.1. Hypotheses**

##### **Hypothesis 1: Confidence to communicate with health care providers.**

Participants who experienced any abuse, either physical or sexual, before the age of 19 will be less confident in their ability to communicate with health care providers than those who did not have a history of abuse. The confidence in one's ability to communicate with health care providers will not differ by age of initiation of abuse or by type of abuse. Having psychological symptoms will mediate the relationship between abuse and one's confidence to communicate with a health care provider, such that greater psychological symptoms will relate to less confidence.

**Hypothesis 2: Confidence to seek support from others.** Participants who experienced any abuse before the age of 19 will be less confident in their ability to seek support from family and friends than those who did not have a history of abuse before the age of 19. The confidence in one's ability to get support from family and friends will not differ by age of initiation of abuse or by type of abuse. Having psychological symptoms will mediate the relationship between abuse and one's confidence to seek support from others, such that greater psychological symptoms will relate to less confidence.

**Hypothesis 3: Confidence to manage one's mood.** Participants who experienced any abuse before the age of 19 will be less confident in their ability to manage their mood than those who did not have a history of abuse. Participants who experienced sexual abuse before the age of 19 may be more likely to internalize the psychological effects of the abuse, while individuals who experience physical abuse may be more likely to respond to abuse outwardly and aggressively. Thus, individuals who experienced sexual abuse will be more confident in their ability to manage their mood than those who experienced physical abuse. The confidence in one's ability to manage one's mood will not differ by age of initiation of abuse. Having psychological symptoms will mediate the relationship between abuse and one's confidence to manage his or her mood, such that greater psychological symptoms will relate to less confidence.

A secondary study objective was to explore the relationship between current psychological symptoms, which may or may not be responses to abuse, and self-efficacy.

**Hypothesis 4: Abuse, psychological symptoms, and self-efficacy.** Greater avoidance, intrusion, anxiety, or depression symptoms will negatively relate to one's confidence to communicate with a health care provider, to seek support from family and friends, and to manage one's mood.

## **4. Ethical considerations**

Informed consent was obtained from all participants. Participants were assured of confidentiality and informed that their participation in the study or not would not interfere with their medical care. All procedures were approved by the Duke University Medical Center and the University of North Carolina Institutional Review Boards.

## 5. Methods

This study is part of a larger intervention study that integrated HIV and substance use treatment in three infectious disease clinics across North Carolina. Patients who were HIV-positive were screened for substance use by an HIV provider's medical interview and/or by self-administration of the Substance Abuse and Mental Illness Symptoms Screener (SAMISS). The SAMISS, developed as a screener to identify individuals who may have substance use disorders and/or mental illness, was created from existing scales to address the need for a shorter and easier-to-use tool for screening<sup>7</sup>. The SAMISS has proven to be a model tool for identifying both substance use and mental illness with high sensitivity and moderate specificity among patients with HIV (substance use: 86% sensitivity, 75% specificity; mental illness: 95% sensitivity, 49% specificity)<sup>35</sup>. In the larger study, as substance use cases were detected, medical providers discussed treatment options with patients and referred them to on-site addiction specialists. Patients who were referred by medical providers or screened positive for substance abuse met with addiction specialists at one of the three clinics. The specialists verified patient eligibility for participation, including HIV-positive status, age 18 or higher, English-speaking, location of medical care, and interest in substance use treatment. Participants interested in the study were referred to study interviewers who conducted a 50-75 minute baseline interview which focused on substance use, lifetime

traumatic experiences, psychological symptoms, HIV medication adherence, and sexual behaviors. Participants received a \$20.00 gift card as compensation.

All data used for this analysis were collected before substance use treatment began.

### **5.1. Sample: Recruitment and interviews**

For this study, a total of 206 baseline interviews were eligible for inclusion. Of the 206 eligible, 204 were selected for analysis. Two (2) were excluded from this study because of significant missing data. Additionally, two (2) participants identified as transgender and they were included in the analysis. However, because there were only two transgender participants, these participants were included in a female plus transgender category for analysis.

### **5.2. Measures**

#### **5.1.1. Child and adolescent sexual and physical abuse**

During the interviews, participants were asked questions about negative sexual and physical events that occurred during childhood (before the age of 13) and adolescence (between the ages of 13 and 18). Participants were asked to identify forced or unwanted sexual experiences and any incidents of violence outside of the normal range of discipline. Sexual abuse was defined as unwanted sexual intercourse or touching of private areas or sex organs, such as penis, breasts, pubic area, or anus, of

their own or someone else's body. Physical abuse was defined as being beaten, hit, kicked, bit, or burned by anyone, including family members or friends.

For this study's targeted analysis, participants were classified into four subgroups and a total group, those who:

- Experienced sexual abuse before the age of 13;
- Experienced physical abuse before the age of 13;
- Had initiation of sexual abuse between the ages of 13 and 18;
- Had initiation of physical abuse between the ages of 13 and 18; and
- Experienced any abuse before the age of 19.

### **5.1.2. Psychological symptoms**

Multiple scales were used to assess participants' psychological stress reactions to negative life events, including the the Hospital Anxiety and Depression Scale (HADS), the Patient Health Questionnaire 9-symptom checklist for depression (PHQ-9), and Impact of Event Scale (IES).

**Hospital Anxiety and Depression Scale (HADS).** Originally developed in 1983 by A.S. Zigmond and R.J. Snaith, HADS was a tool designed to determine the levels of anxiety and depression that an individual was experiencing<sup>36</sup>. By not focusing on specific somatic symptoms of illness, Zigmond and Snaith proposed the tool for assessing anxiety and depression in people in good physical health<sup>36</sup>. It is a fourteen item



scale of which seven relate specifically to anxiety and seven to depression (Appendix A).

In this study, the HADS scale was used to capture anxiety symptoms only.

Study participants reported the frequency of symptoms using a standardized scale (0-not at all, 1-from time to time/occasionally, 2-a lot of the time, 3-most of the time)<sup>36</sup>. Individual items from the subscale were summed to yield a total score, ranging from 0-21, for anxiety. Higher scores reflect a greater degree of symptoms characteristic of anxiety<sup>36</sup>.

**Patient Health Questionnaire 9-symptom checklist for depression (PHQ-9).**

The PHQ-9 is a nine item subcomponent of the full PHQ<sup>37</sup>. The PHQ is a self-administered version of a medically-administered mental health disorder diagnostic instrument<sup>37</sup>. The PHQ-9 focuses specifically on depressive symptoms experienced in the two weeks prior to completing the questionnaire and asks the frequency of symptoms<sup>37</sup>, and asks the frequency of symptoms (0-not at all, 1-several days, 2-more than half the days, 3-nearly every day) (Appendix B). Scores of 10 and higher, out of a range of 0 to 27, are considered likely cases of depression<sup>37,42</sup>.

**The Impact of Event Scale (IES).** The IES provides a scale of current self-reported distress related to a specific event that occurred within the previous seven days<sup>30</sup>. The instrument includes 15 items divided into two subscales of responses: seven items for intrusive experiences and eight for avoidance responses<sup>30</sup>. Intrusion was

defined as the presence of unwanted thoughts or images, disturbed dreams, intense and uncontrollable feelings or thoughts, and repetitive behavior<sup>30</sup>. Avoidance included unwillingness to acknowledge thoughts or emotions, denial of the consequences of the event, dulled feelings and emotions, behavioral reservation, and awareness of emotional numbness<sup>30</sup>.

The scale was designed to capture stress reactions in the previous seven days using the standardized scale (1-not at all, 2-rarely, 3-sometimes, 4-often)<sup>30</sup>. In this study, however, participants reported the frequency of symptoms in the month prior to the baseline interview (Appendix C). Individual items from each subscale were summed to yield a total score, ranging from 0-75, and two subscores, intrusion (ranging from 0-35) and avoidance (ranging from 0-40)<sup>30</sup>. Higher scores reflect a greater degree of symptoms characteristic of intrusion or avoidance<sup>30</sup>.

Two limitations must be considered in the analysis of psychological symptoms. The first is the modification of the self-report time scale on the IES from the standard seven days to one month, which may limit the interpretability and reliability of the responses<sup>38</sup>. This study parameter, however, was modeled after another study which also recorded responses over the previous month<sup>39</sup>. Additionally, the responses captured with any of the psychological symptoms scales are not necessarily directly experienced from sexual or physical abuse suffered as a child or adolescent. Responses may be

reactions to other traumatic events, such as witnessing parental violence, family-related drug and alcohol use, homicide, and even HIV-positive diagnosis, experienced as a child, adolescent, or adult.

### **5.1.3. Self-efficacy**

Select portions of the HIV Self-efficacy Questionnaire (HIV-SE) were used to measure three domains of self-efficacy: (1) confidence in one's ability to communicate with health care providers, (2) confidence in one's ability to seek support from others, and (3) confidence in one's ability to manage his or her mood. The HIV-SE, based on the model developed by Lorig et al. (1996), measures self-efficacy as the confidence in one's ability to manage HIV<sup>26</sup>. It contains six conceptual domains, including: managing mood, managing medications, managing disease symptoms, communicating with health care providers, getting support from others, and managing fatigue. Each item is scored on a standardized four-point scale based upon one's beliefs in their abilities as they relate to their health care (0-not at all sure, 1-somewhat sure, 2-moderately sure, 3-very sure, 4-totally sure). Scores from each domain are summed and divided by the number of items in the domain. A higher score indicates greater self-efficacy in that domain.

In this study, time constraints for interviews limited the ability to use the entire HIV-SE (see Appendix D). Three subscales were selected based on the likelihood of

individual improvement with successful substance use treatment: communicating with health care providers, getting support from others, and managing mood.

**Confidence to communicate with health care providers.** This domain contained four items to capture one's confidence in one's ability to communicate with a health care provider (e.g., "How sure you are that you can ask your HIV medical provider things about your illness that concern you?").

**Confidence to seek support from others.** This domain contained five items to capture one's confidence in one's ability to get help, information, and emotional support from family, friends, and other community resources (e.g., "How sure are you that you can get emotional support from family and friends?").

**Confidence to manage one's mood.** This domain contained nine items to capture one's confidence in one's ability to deal with discouragement, sadness, loneliness, or other emotional distress so that these feelings do not affect everyday life (e.g., "How sure are you that you can keep your sadness or depression from interfering with what you want to do?").

There are two limitations to consider when analyzing this measure. By selecting only three domains to study, interpreting overall self-efficacy is significantly limited. Additionally, the standardized scale is from 0-10 and the scale used for this study was 0-4. By reducing the Likert scale, there will be less variation in response options.

### 5.3. Statistical analysis

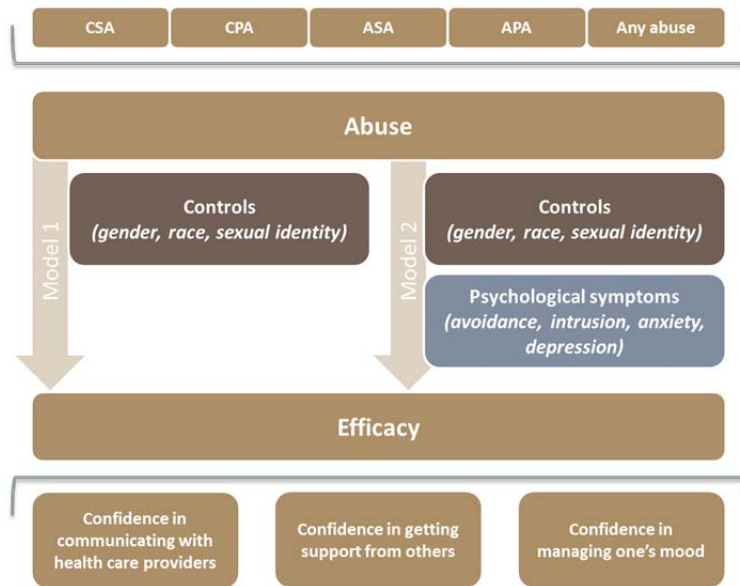
This study used multiple analyses to assess relationships between variables. For the primary analysis, a bivariate correlation analysis using Spearman's rank correlation coefficient was performed between all variables, including demographic variables, to assess baseline correlations. A Spearman correlation model was used to fit the continuous variables being measured, namely psychological symptoms and self-efficacy. Variables without a strong relationship (i.e.,  $p < 0.10$ ) were excluded from further analysis.

After establishing general correlations between abuse and efficacy, two multivariate models were tested using multivariate regression analysis. The first model examined the relationship between abuse and self-efficacy, controlling for gender, race, and sexual identity. The second model examined the relationship between abuse, psychological symptoms, and self-efficacy, controlling for gender, race, and sexual identity. If the addition of the psychological symptom variables modified the relation between abuse and self-efficacy, that was considered evidence of mediation. The equations for these two models are below, where  $\alpha$  is the intercept,  $\beta_{1-3}$  are regression coefficients, and  $\varepsilon$  is the error term:

$$\textbf{Model 1: } \textit{Self - efficacy} = \alpha + \beta_1(\textit{abuse}) + \beta_2(\textit{controls}) + \varepsilon$$

$$\textbf{Model 2: } \textit{Self - efficacy} = \alpha + \beta_1(\textit{abuse}) + \beta_3(\textit{psychological symptoms}) + \beta_2(\textit{controls}) + \varepsilon$$

The regression analysis plan is depicted in Figure 5.1 where abuse includes child and adolescent sexual and physical abuse. For each of these models, each category of abuse was analyzed singly, such that individuals having experienced sexual abuse during childhood were compared with those who did not experience sexual abuse during childhood and those experiencing any abuse were compared to those who had not experienced any abuse. Self-efficacy was measured by one's confidence in his or her ability to communicate with health care providers, seek support from others, and manage one's mood. Psychological symptoms included four variables: avoidance, intrusion, anxiety, and depression. These variables, because of the strong correlation between them, were included in the models (1) singly to assess the individual effect of each variable, (2) all together to assess the total effect of all variables, and (3) grouping avoidance, intrusion, and depression but excluding anxiety because avoidance and intrusion may be considered to be specific kinds of anxiety symptoms embedded within broader anxiety diagnoses such as posttraumatic stress disorder.



**Figure 5.1: Multivariate analysis of the relationship between abuse and self-efficacy**

For the secondary analysis, a multivariate regression analysis was carried out relating psychological symptoms and self-efficacy, this time, not including abuse status. The regression used the following equation, where  $\alpha$  is the intercept,  $\beta_{1-3}$  are regression coefficients, and  $\varepsilon$  is the error term:

$$\text{Model 3: } \textit{Self - efficacy} = \alpha + \beta_3(\textit{psychological responses}) + \beta_2(\textit{controls}) + \varepsilon$$

This model, like Model 2, incorporated psychological symptoms in the same procedure used above but excluded abuse.

## 6. Results

### 6.1. Description of sample

For this study, a total of 204 participant interviews were selected for analysis.

Males made up 62.3% (127) of the population, females 36.8% (75), and transgender 1.0%

(2). The average age of male and

female/transgender participants was 45 (range

for males 16, 64; range for females/transgender

28, 62). The study population largely identified

as black or African American, 82.4% (male

50.0%; female/transgender 32.4%), while 12.3%

identified as white and 4.9% identified as bi-

racial<sup>‡</sup>. Just over one-third of the population

identified as homosexual or bisexual (37.3%), and four participants (2.0%) did not report

their sexual identity. Additional information is provided in Table 6.1.

**Table 6.1: Selected characteristics of study sample**

	Mean or frequency	SD or %
<b>Gender (n=204)</b>		
Male	127	62.25
Female	75	36.76
Transgender	2	0.98
<b>Age (n=204)</b>	45	±7.85
<b>Race (n=203)</b>		
Black	168	82.35
White	25	12.25
Bi-racial	10	4.90
Missing	1	0.49
<b>Sexual identity (n=200)</b>		
Heterosexual	124	60.78
Homosexual/bisexual	76	37.25
Missing	4	1.96

---

<sup>‡</sup> The identification of bi-racial included three individuals who identified as black or African American and American Indian, four who identified as white and American Indian, and three who identified as black or African American and white.



**Table 6.2: Frequencies of abuse of the sample population (n=204)**

	Frequency	Percentage
CSA	73	35.78
CPA	26	12.75
ASA	9	4.41
APA	4	1.96
Any abuse	95	46.57

CSA=sexual abuse before the age of 13; CPA=physical abuse before the age of 13; ASA=adolescent sexual abuse initiated between the ages of 13 and 18; APA=adolescent physical abuse initiated between the ages of 13 and 18. The sum of individual categories is more than 'All abuse' because each age group may have experienced both types of abuse and were counted in both physical and sexual abuse categories.

Nearly half of the study population (95 of 204, 46.6%) reported some form of abuse before the age of 19 (Table 6.2).

Over one-third of the population experienced sexual abuse during childhood and 12.8% experienced physical abuse during childhood. Less than seven

percent of the population experienced sexual or physical abuse during adolescence.

Eighty-three participants

(40.7%) reported

experiencing abuse before the

age of 13, while 61 (29.9%)

reported initiation of abuse

between the ages of 13 and

18. Table 6.3 shows the

frequencies of abuse by

demographic characteristics and sexual identity.

**Table 6.3: Frequencies of abuse by demographic characteristic and sexual identity (percentage)**

	CSA (n=193)	CPA (n=194)	ASA (n=193)	APA (n=194)
<b>Gender</b>				
Male	20.10	8.33	2.94	0.49
Female plus transgender	15.69	4.41	1.47	1.47
<b>Race</b>				
Black	26.96	9.80	3.43	1.47
White	5.88	2.45	0.98	<0.001
Bi-racial	2.45	0.49	<0.001	0.49
Missing	0.49	<0.001	<0.001	<0.001
<b>Sexual identity</b>				
Heterosexual	13.24	6.37	2.45	1.47
Homosexual/ bisexual	22.55	6.37	1.96	0.49

CSA=sexual abuse before the age of 13; CPA=physical abuse before the age of 13; ASA=adolescent sexual abuse initiated between the ages of 13 and 18; APA=adolescent physical abuse initiated between the ages of 13 and 18.

## 6.2. Correlations between abuse, psychological symptoms, and self-efficacy

Significant multicollinearity was identified among the psychological symptoms, avoidance and intrusion ( $\rho(rho)=0.8221$ ,  $p<0.01$ ) and anxiety and depression ( $\rho=0.7008$ ,  $p<0.01$ ). To test whether simultaneous inclusion in a multivariate model would cause problems, the standard errors were examined with each psychological symptom variable in the model individually, and then with each added variable. The standard errors did not substantially increase with the inclusion of additional psychological symptom variables, signaling that it is acceptable to include multiple of these variables in the same model. To allow the reader to understand fully these relationships, each variable was included singly, as well as together, in the appropriate models. Table 6.3 shows the Spearman's rank correlation coefficient matrix for all main effect models.

**Table 6.4: Spearman's rank correlation coefficient matrix for all main effect models**

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 CSA	1.00											
2 CPA	0.28	1.00										
3 ASA	-0.17*	-0.09	1.00									
4 APA	-0.11	-0.06	0.14	1.00								
5 Any abuse	0.80*	0.40*	0.23*	0.15*	1.00							
6 Avoidance	0.20*	0.16	-0.24*	-0.03	0.13	1.00						
7 Intrusion	0.21*	0.21*	-0.22*	-0.04	0.21*	0.82*	1.00					
8 Anxiety	0.21*	0.12	-0.11	-0.01	0.19*	0.39*	0.50*	1.00				
9 Depression	0.18*	0.11	-0.08	0.09	0.20*	0.33*	0.40*	0.70*	1.00			
10 Communication	0.11	0.01	<0.001	<0.001	0.05	0.03	0.03	-0.17*	-0.15*	1.00		
11 Getting support	-0.04	-0.05	0.03	-0.14	-0.08	-0.06	-0.04	-0.22*	-0.34*	0.31*	1.00	
12 Managing mood	-0.11	-0.09	0.04	<0.001	-0.15*	-0.20*	-0.27*	-0.48*	-0.53*	0.29*	0.54*	1.00

The values shown are Spearman's rho ( $\rho$ ) which is analogous to Pearson's correlation coefficient. Asterisks (\*) indicate statistically significant correlations ( $p\leq 0.05$ ). Statistically significant values where  $\rho(rho)$  is less than -0.50 or greater than 0.50 may indicate multicollinearity.

### 6.3. Primary analysis: Abuse, psychological symptoms, and self-efficacy

#### 6.3.1. Confidence to communicate with health care providers

The association of abuse with one’s confidence in his or her ability to communicate with health care providers was not significant among individuals who

**Table 6.5: Multivariate analysis of the relationship of abuse and one's confidence to communicate with health care providers (Model 1)**

	B	CI		p value
CSA	0.12	-0.14	0.38	0.37
CPA	-0.05	-0.40	0.30	0.79
ASA	0.15	-0.13	0.42	0.31
APA	0.36	0.18	0.55	<0.001
<b>Any abuse</b>	0.03	-0.19	0.25	0.78

All models controlled for gender, race, and sexual identity.

experienced childhood sexual or physical abuse, or adolescent sexual abuse. It was statistically significant for adolescent physical abuse (B=0.36,  $p < 0.001$ ); however, only four participants indicated experiencing

adolescent physical abuse so it is not possible to be confident in this result. The relationship between any abuse and self-efficacy was not statistically significant (see Table 6.5). Because of data limitations, particularly the limited sample size of each individual category, this led to a final model which looked at the association between any abuse experienced before the age of 19, psychological symptoms, and confidence to communicate with a health care provider.

This final model (Model 2, shown in Table 6.6) suggested that some psychological symptoms may relate to communication self-efficacy, but that abuse itself may not be related. The relationship between any abuse, psychological symptoms, and communication self-efficacy showed neither avoidance nor intrusion were related to one's confidence to communicate with health care providers ( $p > 0.10$ ). However, both anxiety and depression had a negative relationship with one's confidence to communicate with health care providers which trended towards significance ( $B_{\text{anxiety}} = -0.03$ ,  $B_{\text{depression}} = -0.02$ ;  $p < 0.10$ ). A mediation analysis (Model 3) was not conducted because any abuse was not significantly associated with communication self-efficacy.

**Table 6.6: Multivariate analysis of the relationship of abuse and one's confidence to communicate with health care providers (Model 2)**

	B	P value
Any abuse	0.03	0.85
Gender	-0.14	0.45
Race	-0.06	0.67
Sexual identity	-0.20	0.23
Avoidance	0.00	0.98
Intrusion	0.01	0.29
Anxiety	-0.03	0.06
Depression	-0.02	0.10

### 6.3.2. Confidence to seek support from others

The association of abuse on one's confidence in his or her ability to seek support from others was significant among individuals who experienced physical abuse initiated during their adolescence ( $B = -0.93$ ,  $p < 0.02$ ) (Table 6.7); however, only four participants indicated experiencing

**Table 6.7: Multivariate analysis of the relationship of abuse and one's confidence to seek support from others (Model 1)**

	B	CI	p value
CSA	-0.12	-0.49 0.24	0.50
CPA	-0.12	-0.53 0.28	0.55
ASA	0.16	-0.50 0.82	0.63
APA	-0.93	-1.68 -0.17	0.02
Any abuse	-0.17	-0.52 0.19	0.35

All models controlled for gender, race, and sexual identity.

adolescent physical abuse so it is not possible to be confident in this result. Among all other abuse categories, including any abuse experienced, the relationship between abuse and confidence in getting support was not statistically significant. Because of the limited sample size of each individual category, this led to a final model which explored the association between any abuse experienced before the age of 19, psychological symptoms, and one's confidence to seek support from others.

Findings from this final analysis (Model 2) are shown in Table 6.8. The data suggested that depression negatively related to one's confidence to seek support from

**Table 6.8: Multivariate analysis of the relationship of having experienced any abuse before the age of 19 and one's confidence to seek support from others (Model 2)**

	B	p value
Any abuse	-0.39	0.21
Gender	-0.20	0.43
Race	-0.17	0.26
Sexual identity	0.13	0.60
Avoidance	0.00	0.97
Intrusion	0.01	0.47
Anxiety	0.00	0.96
Depression	-0.06	0.01

others (B=-0.06, p=0.01), whereas anxiety, avoidance, and intrusion did not.

However, the relation between any abuse and seeking support self-efficacy remained non-significant, even when depression was included in the model. A mediation

analysis (Model 3) was not conducted because any abuse was not significantly associated with one's confidence to seek support from others.

### 6.3.3. Confidence to manage one's mood

While each separate kind of abuse exhibited no significant relation with an individual's confidence to manage his or her mood, any abuse before the age of 19 trended towards significance of being negatively related to one's confidence in managing his or her mood (B=-0.30; p<0.10) (Table 6.9). This

**Table 6.9: Multivariate analysis of the relationship of abuse and one's confidence to manage his or her mood (Model 1)**

	B	CI	p value
CSA	-0.21	-0.57 0.15	0.25
CPA	-0.26	-0.72 0.21	0.28
ASA	0.23	-0.66 1.12	0.61
APA	0.08	-0.71 0.88	0.84
<b>Any abuse</b>	<b>-0.30</b>	<b>-0.65 0.04</b>	<b>0.09</b>

All models controlled for gender, race, and sexual identity.

negative association suggests that individuals who experienced any abuse before the age of 19 may be less confident in their ability manage their mood than individuals who did not experience any abuse before the age of 19. Because of the small sample size of each individual category, this led to a final model which looked at the association between any abuse experienced before the age of 19, psychological symptoms, and an

**Table 6.10: Multivariate analysis of the relationship of having experienced any abuse before the age of 19 and one's confidence to manage his or her mood (Model 2)**

	B	p value
Any abuse	-0.34	0.11
Gender	-0.18	0.42
Race	-0.09	0.45
Sexual identity	0.00	0.98
Avoidance	0.00	0.74
Intrusion	0.00	0.91
Anxiety	-0.08	0.01
Depression	-0.06	0.01

individual's confidence to manage his or her mood.

This final analysis (Model 2) suggested that some psychological symptoms may relate to mood management self-efficacy, although they may not be

mediators of the relationship (Table 6.10). The relationship between any abuse, psychological symptoms, and managing mood self-efficacy showed that avoidance and intrusion were not associated with one's confidence to manage one's mood ( $p>0.10$ ); however, anxiety and depression were negatively associated with one's confidence to manage one's mood ( $B_{\text{anxiety}}=-0.08$ ,  $B_{\text{depression}}=-0.06$ ;  $p=0.01$ ).

Drawing from the Model 1 analysis and expanding on the results shown in Table 6.10, psychological symptoms were explored using the mediation analysis described in Section 5.3. These results indicated that all psychological symptoms may play a role in the confidence one has to manage one's mood and may attenuate the relationship between abuse and confidence to manage one's mood (Table 6.11). Across all models, the psychological symptom variables had a significantly negative association with one's confidence to manage one's mood ( $p<0.05$ ). In all models except the model controlling for avoidance, abuse itself became less significant than detected in the main model (Model 1). It is notable that intrusion, anxiety, and depression, controlled for singly, made the relationship between any abuse before the age of 19 and confidence to manage one's mood insignificant. Excluding anxiety from the model increased the negative coefficient of depression ( $B=-0.10$ ;  $p<0.001$ ) and decreased the significance of the abuse variable ( $B=-0.27$ ;  $p>0.10$ ) compared to Model 1. In the model that included all psychological symptom variables (Tables 6.10 and 6.11), both anxiety and depression

were associated with less confidence in managing one’s mood compared to individuals who had not experienced any abuse ( $p<0.01$ ). In this full model, any abuse before the age of 19 trended towards significance ( $p=0.11$ ). These findings suggest that these psychological symptoms may attenuate the relation between abuse and confidence to manage one’s mood.

**Table 6.11: Multivariate analysis of psychological symptoms and one's confidence to manage his or her mood among individuals who experienced any abuse before the age of 19, depicting models with each psychological symptom entered separately and simultaneously (Model 2)**

	Model 1		Model 2											
	Main model <sup>†</sup>		Avoidance		Intrusion		Anxiety		Depression		Excluding anxiety		Full (also shown in Table 6.12)	
	B	P value	B	P value	B	P value	B	P value	B	P value	B	P value	B	P value
Any abuse	-0.30	0.09	-0.51	0.08	-0.43	0.16	-0.17	0.27	-0.08	0.59	-0.27	0.23	-0.34	0.11
Avoidance	--	--	-0.02	0.03	--	--	--	--	--	--	<0.001	0.73	<0.001	0.74
Intrusion	--	--	--	--	-0.03	0.01	--	--	--	--	-0.01	0.52	<0.001	0.91
Anxiety	--	--	--	--	--	--	-0.11	<0.001	--	--	--	--	-0.08	0.01
Depression	--	--	--	--	--	--	--	--	-0.09	<0.001	-0.10	<0.001	-0.06	0.01

Cross-symbols (†) indicates models were significant at  $p<0.10$ . All other models were significant at  $p<0.05$ . All models controlled for gender, race, and sexual identity.

#### **6.4. Secondary analysis: Psychological symptoms and self-efficacy**

Results from this study indicated that a relationship between psychological symptoms and one’s self-efficacy in each of the three domains may exist. Table 6.12 provides an overview of findings relating psychological symptoms across each of the three domains of self-efficacy explored in this study.



**Table 6.12: Multivariate analysis of psychological symptoms and one's self-efficacy in each of the three domains, depicting models with each psychological symptom entered separately and simultaneously (Model 3)**

	Confidence to communicate with providers		Confidence to seek support		Confidence to manage one's mood	
	B	p value	B	p value	B	p value
Avoidance	<0.001	0.85	<0.001	0.58	-0.02	0.02
Intrusion	<0.001	0.75	-0.01	0.48	-0.03	<0.001
Anxiety	-0.03	<0.001	-0.05	<0.001	-0.11	<0.001
Depression	-0.02	<0.001	-0.06	<0.001	-0.09	<0.001
Excluding anxiety						
Avoidance	<0.001	0.99	<0.001	0.87	0.01	0.65
Intrusion	0.01	0.37	0.01	0.63	-0.01	0.37
Depression	-0.04	<0.001	-0.07	<0.001	-0.10	<0.001
Full						
Avoidance	<0.001	0.99	<0.001	0.87	0.01	0.63
Intrusion	0.02	0.26	0.01	0.65	-0.01	0.68
Anxiety	-0.03	0.06	<0.001	0.94	-0.07	0.02
Depression	-0.02	0.10	-0.07	<0.001	-0.06	0.01

All models controlled for gender, race, and sexual identity.

#### **6.4.1. Confidence to communicate with health care providers**

Avoidance and intrusion did not significantly relate to one's confidence to communicate with health care providers. Anxiety and depression, however, when analyzed singly, were associated with less confidence in one's ability to communicate with health care providers ( $p < 0.001$ ). When anxiety was excluded from the analysis, depression appeared to be the only variable that was related to one's confidence ( $B = -0.07$ ;  $p < 0.001$ ). Results from the full model showed no significant relationship between any of the psychological symptoms variables to one's confidence in communicating with health care providers, although anxiety and depression showed trends towards significance ( $p < 0.10$ ). For full results, see Table 6.12.

#### **6.4.2. Confidence to seek support from others**

As in the relationship above, avoidance and intrusion did not significantly relate to one's confidence in seeking help and support from family and friends ( $p > 0.10$ ).

Results indicated that both anxiety ( $B = -0.05$ ) and depression ( $B = -0.06$ ) were negatively associated with one's confidence in this domain ( $p < 0.01$ ). In both models that included multiple response variables, depression was the only variable that showed statistical significance in the relation with one's confidence to get help and support ( $B = -0.07$ ;  $p < 0.01$ ). For full results, see Table 6.12.

#### **6.4.3. Confidence to manage one's mood**

Unlike the other two domains of self-efficacy, avoidance ( $B = -0.02$ ) and intrusion ( $B = -0.03$ ) appeared to have a statistically significant negative association with one's confidence to manage his or her mood ( $p < 0.05$ ) when controlled for singly. Anxiety and depression, similarly, had a negative relation, although with slightly larger coefficients ( $B_{\text{anxiety}} = -0.11$ ,  $B_{\text{depression}} = -0.09$ ;  $p < 0.001$ ). Excluding anxiety marginally increased the negative relation depression had with confidence in managing mood ( $B = -0.10$ ,  $p < 0.01$ ), while avoidance and intrusion no longer showed significance ( $p > 0.10$ ). When controlling for all psychological symptoms variables, both anxiety ( $B = -0.07$ ) and depression ( $B = -0.06$ ) appeared to negatively relate to an individual's confidence in managing his or her mood ( $p < 0.05$ ), and avoidance and intrusion no longer showed significance ( $p > 0.10$ ).

Findings from these last two models suggest that anxiety and depression more fully explain the relationship between psychological symptoms and confidence in managing one's mood. For full results, see Table 6.12.

## 7. Discussion

This study identified possible associations between abuse and one's confidence in communicating with health care providers, seeking support from others, and managing one's mood. Additionally, the results affirmed a relationship between psychological symptoms and self-efficacy across the three domains.

While the analyses were conducted using four categories of abuse (e.g., adolescent physical abuse) to explore their relationship to one's confidence to communicate, seek support, and manage one's mood, results could not be justifiably interpreted for each individual category because of data limitations, including a small sample size. However, the series of analyses led to a final set of models that focused on the relationship between any abuse and self-efficacy, which was possible to interpret.

### **7.1. Confidence to communicate with health care providers**

Hypothesis 1 summarized the relationship that was expected between abuse and confidence to communicate with health care providers. Specifically, it stated that participants who experienced any abuse, either physical or sexual, before the age of 19 will be less confident in their ability to communicate with health care providers than those who did not have a history of abuse and that this confidence will not differ by age of initiation of abuse or by type of abuse.. It also stated that having avoidance, intrusion, anxiety, or depression symptoms will mediate the relationship between abuse and one's

confidence to communicate with a health care provider, such that greater psychological symptoms will relate to less confidence.

In the direct relationships between individual categories of abuse, child and adolescent sexual and physical abuse, and one's confidence to communicate with health care providers, data was insufficient for interpreting results because of the limited size of the sample. Analyses of the individual categories of abuse should be conducted with a larger sample size to justify any interpretations of their relationship with one's confidence to communicate with health care providers.

The direct relationship between having experienced any abuse before the age of 19 and one's confidence to communicate with health care providers was not significant. In exploring the association between psychological symptoms and communication self-efficacy, results indicated that anxiety and depression had a statistically significant negative association with communication self-efficacy. These findings, if validated by additional research, suggest that efforts aimed at improving one's self-efficacy in communicating with health care providers should consider addressing symptoms of anxiety and depression. Further research, however, should be conducted to better understand these linkages between any abuse, psychological symptoms, and one's confidence to communicate with health care providers.

## **7.2. Confidence to seek support from others**

Hypothesis 2 summarized the relationship that was expected between abuse and confidence to seek support from family and friends. Specifically, it stated that participants who experienced any abuse before the age of 19 will be less confident in their ability to get support from family and friends than those who did not have a history of abuse before the age of 19. Additionally, the hypothesis stated that confidence in one's ability to get support from family and friends will not differ by age of initiation of abuse or by type of abuse. Furthermore, it stated that having avoidance, intrusion, anxiety, or depression symptoms will mediate the relationship between abuse and one's confidence to seek support from others, such that greater psychological symptoms will relate to less confidence.

Data was insufficient for interpreting results because of the limited size of the sample in the direct relationships between individual categories of abuse (sexual or physical) and age of abuse (childhood or adolescent) and one's confidence to seek support from others. Analyses of the individual categories of abuse should be conducted with a larger sample size to justify any interpretations of their relationship with one's confidence to seek support.

The direct relationship between having experienced any abuse before the age of 19 and one's confidence to seek support was not significant. Including psychological

symptoms, results indicated that depression had a statistically significant negative association with one's confidence to seek support. Further research must be conducted to verify these findings; but, if validated by additional research, they suggest that efforts aimed at improving one's self-efficacy in seeking support from others should address symptoms of depression.

### **7.3. Confidence to manage one's mood**

Hypothesis 3 summarized the relationship that was expected between abuse and confidence to manage one's mood. Specifically, it stated that participants who experienced any abuse before the age of 19 will be less confident in their ability to manage their mood than those who did not have a history of abuse, and further, that those who experienced sexual abuse before the age of 19 will be more confident in their ability to manage their mood than those who experienced physical abuse before the age of 19. Additionally, it stated that the confidence in one's ability to manage one's mood will not differ by age of initiation of abuse. Furthermore, it stated that having avoidance, intrusion, anxiety, or depression symptoms will mediate the relationship between abuse and one's confidence to manage his or her mood, such that greater psychological symptoms will relate to less confidence.

Among the direct relationships between individual categories of abuse, i.e., child and adolescent sexual and physical abuse, and one's confidence to manage his or her

mood, data was insufficient for interpreting results because of the limited size of the sample. Further research should be conducted with a larger sample size.

The direct relationship between having experienced any abuse before the age of 19 and one's confidence trended towards significance, such that having an abusive experience before the age of 19 was associated with a decrease in one's confidence to manage his or her mood. In exploring the association that psychological symptoms may have, anxiety and depression had a statistically significant negative association with one's confidence to manage his or her mood, but they were not mediators of the pathways. These findings, if validated by additional research, suggest that services and supports aimed at improving one's self-efficacy in managing one's mood should facilitate efforts to help individuals develop skills for managing their moods and focus specifically on addressing symptoms of anxiety and depression. Further research, however, should be conducted to better understand these linkages between any abuse, psychological symptoms, and one's confidence to manage one's mood.

#### ***7.4. Secondary analysis: Psychological symptoms and self-efficacy***

Hypothesis 5 summarized the relationship that was expected between abuse and confidence to communicate with health care providers. Specifically, it stated that having avoidance, intrusion, anxiety, or depression symptoms will negatively relate to one's



confidence to communicate with a health care provider, to get support from family and friends, and to manage one's mood.

This hypothesis was partially supported by the data, which indicated that avoidance and intrusion were associated with less confidence in one's ability to manage his or her mood. Anxiety and depression symptoms, however, were associated with less confidence across all three domains, confidence to communicate with health care providers, to seek support from family and friends, and to manage one's mood.

This finding is noteworthy as it relates to the treatment of HIV-positive substance users who may suffer from psychological symptoms, especially anxiety and depression. The findings suggest that services and supports aimed at improving self-efficacy within these domains should focus specifically on addressing anxiety and depression symptoms. Further research, however, should be conducted to validate this hypothesis.

## 8. Limitations

While the results of this study may have important implications in developing strategies for improving self-efficacy among HIV-positive substance users, limitations of the study must also be noted. First and foremost, the study relies entirely on self-report measures which are subject to bias from motivation and social desirability<sup>17</sup>. Conducting face-to-face interviews asking participants to share very private life and health details may have dissuaded some participants from total openness and prevented them from disclosing accurate information. In general, data from self-reported measures should be interpreted cautiously as they are subject to bias, especially when inquiring about psychological symptoms such as avoidance<sup>17</sup>.

Secondly, two of the scales used in the study were modified, such that the results cannot be directly compared to other studies. The Impact of Events Scale was modified to capture participant's response to traumatic events from the standard seven days to the past month. Additionally, the current study only included three out of six subscales of the HIV Self-efficacy Questionnaire. Accordingly, this study reports findings from each individual subscale rather than assuming that the three subscales can be combined into a larger subscale of HIV self-efficacy.

Thirdly, analyses conducted on all psychological symptoms, avoidance, intrusion, anxiety, and depression, sought to relate abuse in early life with current

behavioral responses and emotions. It is possible that responses to these questions mark an individual's reaction to current circumstances or even the accumulation of a lifetime of events and not specifically a history of abuse.

Finally, the study sought only to explore associations and correlations between abuse and self-efficacy. Neither the data nor the methodologies used were adequate to determine causality within this relationship, nor does this study provide an approach for resolving this issue.

## 9. Conclusion

The study findings highlight the need for further research to investigate the relationship between abuse, psychological symptoms, and self-efficacy. The relationship between any abuse experienced before the age of 19 and confidence to manage one's mood trended towards significance; however, there were no significant relationships between abuse and one's confidence to communicate with a health care provider or one's confidence to get support from others. Correlations were discovered among individuals experiencing anxiety and depression and self-efficacy. While the relationship between abuse and anxiety and depression has largely been explored and validated, further research is needed to explore the role that anxiety and depression may play in predicting one's confidence in communicating with health care providers, seeking support, or managing one's mood. However, these findings suggest that by addressing psychological symptoms, self-efficacy within the three domains may, in turn, be improved.

Among the findings of this study, the need to address the emotional and mental health needs of HIV-positive substance users is demonstrated. The findings suggest that one's confidence to apply positive health behaviors are tied to psychological symptoms and may be tied to histories of abuse. If validated by additional research, this study suggests that efforts to improve health behaviors should focus on one's self-efficacy in

communicating with health care providers, seeking support from others, and managing one's mood and particularly address symptoms of anxiety and depression. Services and supports aimed at helping HIV-positive substance users cope with a history of abuse and overcoming anxiety and depression may positively influence their confidence to employ positive health behaviors.

## **Appendix A: Hospital Anxiety and Depression Scale**

The Hospital Anxiety and Depression Scale is a fourteen item scale of which seven relate specifically to anxiety and seven to depression. In this study, the HADS scale was used to capture anxiety symptoms only. Participants were asked to determine how frequently that each item bothered them using a standardized scale (0-not at all, 1-from time to time/occasionally, 2-a lot of the time, 3-most of the time).

### ***HADS anxiety scale***

- I feel tense or wound up
- I get a sort of frightened feeling as if something bad is about to happen
- Worrying thoughts go through my mind
- I can sit at ease and feel relaxed
- I get a sort of frightened feeling like butterflies in the stomach
- I feel restless and have to be on the move
- I get sudden feelings of panic

## **Appendix B: Patient Health Questionnaire 9-symptom checklist for depression**

The PHQ-9 is a self-administered, 9-item subcomponent of a medically-administered mental health disorder diagnostic instrument. The PHQ-9 focuses specifically on depressive symptoms experienced in the two weeks prior to completing the questionnaire. Using a standardized scale, PHQ-9 captures the frequency of symptoms an individual experiences over the previous two weeks (0-not at all, 1-several days, 2-more than half the days, 3-nearly every day).

### ***PHQ-9 symptom checklist***

- Little interest or pleasure in doing things
- Feeling down, depressed, or hopeless
- Trouble falling or staying asleep, or sleeping too much
- Feeling tired or having little energy
- Poor appetite or overeating
- Feeling bad about yourself—or that you are a failure or have let yourself or your family down
- Trouble concentrating on things, such as reading the newspaper or watching television
- Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual
- Thoughts that you would be better off dead or of hurting yourself in some way

## **Appendix C: Impact of Events Scale**

The Impact of Events Scale measures subjective stress levels of individuals. These questions were administered to individuals who experienced any sexual and physical abuse in their lifetime. Participants were asked to determine how frequently during the past month that each item was true using a standardized scale (1-not at all, 2-rarely, 3-sometimes, 4-often, 5-refused, 6-skipped).

### ***Intrusion***

- I thought about it when I didn't mean to.
- I had trouble falling asleep or staying asleep because of pictures or thoughts that came into my mind.
- I had waves of strong feelings about it.
- I had dreams about it.
- Pictures about it popped in to my mind.
- Other things kept making me think about it.
- Any reminder brought back feelings about it.

### ***Avoidance***

- I avoided letting myself get upset when I thought about it or was reminded of it.
- I tried to remove it from my memory.
- I stayed away from reminders of it.
- I felt as if it hadn't happened or wasn't real.
- I tried not to talk about it.
- I was aware that I still had a lot of feelings about it, but I didn't deal with them.
- I tried not to think about it.
- My feelings about it were kind of numb.



## **Appendix D: HIV Self-Efficacy Questionnaire**

The HIV Self-Efficacy Questionnaire measures self-efficacy for specific disease management behaviors among HIV-positive individuals. The questionnaire used in this study focused on three specific domains of self-efficacy: (1) one's confidence in his or her ability to communicate with health care providers; (2) one's confidence in his or her ability to get support from others; and (3) one's confidence in his or her ability to manage his or her own mood. Participants were asked to assess their beliefs of their individual capabilities as they relate to health care based upon a standardized scale (0-not at all sure, 1-somewhat sure, 2-moderately sure, 3-very sure, 4-totally sure).

### ***Communicate with health care provider***

How sure are you that you can...

- Ask your HIV medical provider things about your illness that concern you?
- Discuss openly with your HIV medical provider any problems that may be related to your medications?
- Work out differences with your HIV medical provider when they arise?
- Ask your HIV medical provider things about your medications and treatments that concern you?

### ***Seek support from others***

How sure are you that you can...

- Get information about your illness and its treatments from community resources?
- Get family and friends to help you with the things you need (such as household chores like shopping, cooking, or transportation)?
- Get community resources to help you with the things you need (such as household chores like shopping, cooking, or transportation)?

- Get emotional support (such as listening or talking over your problems) from family and friends?
- Get emotional support (such as listening or talking over your problems) from resources other than friends and family?

### ***Manage mood***

How sure are you that you can...

- Keep from getting discouraged when nothing you do seems to make a difference?
- Do something to make yourself feel better when you are feeling discouraged?
- Keep from feeling sad or down in the dumps?
- Do something to make yourself feel better when you feel sad or down in the dumps?
- Keep yourself from feeling lonely?
- Do something to make yourself feel better when you are feeling lonely?
- Keep your sadness or depression from interfering with what you want to do?
- Do something to make yourself feel better when your sadness or depression interferes with what you want to do?
- Reduce the emotional distress caused by your health condition so that it does not affect your everyday life?

## References

1. Centers for Disease Control and Prevention. Monitoring selected national HIV prevention and care objectives by using HIV surveillance data—United States and 6 U.S. dependent areas—2010. HIV Surveillance Supplemental Report 2012; 17(No. 3, part A).  
[http://www.cdc.gov/hiv/surveillance/resources/reports/2010supp\\_vol17no3/index.htm](http://www.cdc.gov/hiv/surveillance/resources/reports/2010supp_vol17no3/index.htm). Published June 2012. Accessed 13 March 2013.
2. Centers for Disease Control and Prevention. HIV surveillance report, 2011; vol. 23.  
<http://www.cdc.gov/hiv/topics/surveillance/resources/reports/>. Published February 2013. Accessed 13 March 2013.
3. National Institute on Drug Abuse, U.S. Department of Health and Human Services, National Institutes of Health. Drug abuse and HIV.  
<http://www.drugabuse.gov/sites/default/files/rrhiv.pdf>. Published July 2012. Accessed 13 March 2013.
4. Mugavero, M., Ostermann, J., Whetten, K., Leserman, J., Swartz, M., Stangl, D., & Thielman, N. (2006). Barriers to antiretroviral adherence: The importance of depression, abuse, and other traumatic events. *AIDS patient care and STDs*, 20(6), 418–428. doi:10.1089/apc.2006.20.418
5. Pence, B., Thielman, N., Whetten, K., Ostermann, J., Kumar, V., & Mugavero, M. (2008). Coping strategies and patterns of alcohol and drug use among HIV-infected patients in the United States Southeast. *AIDS patient care and STDs*, 22(11), 869–877. doi:10.1089/apc.2008.0022
6. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (December 1, 2010). *The NSDUH Report: HIV/AIDS and Substance Use*. Rockville, MD. <http://www.samhsa.gov/data/2k10/HIV-AIDS/HIV-AIDs.htm>. Accessed 13 March 2013.
7. Whetten, K., Reif, S., Swartz, M., Stevens, R., Ostermann, J., Hanisch, L., & Eron, J. (2005). A brief mental health and substance abuse screener for persons with HIV. *AIDS patient care and STDs*, 19(2), 89–99. doi:10.1089/apc.2005.19.89
8. Whetten, K., Leserman, J., Lowe, K., Stangl, D., Thielman, N., Swartz, M., Hanisch, L., et al. (2006). Prevalence of childhood sexual abuse and physical trauma in an HIV-positive sample from the Deep South. *American journal of public health*, 96(6), 1028–1030. doi:10.2105/AJPH.2005.063263

9. Pence, B., Mugavero, M., Carter, T., Leserman, J., Thielman, N., Raper, J., Proeschold-Bell, R., et al. (2012). Childhood trauma and health outcomes in HIV-infected patients: An exploration of causal pathways. *Journal of acquired immune deficiency syndromes (1999)*, *59*(4), 409–416. doi:10.1097/QAI.0b013e31824150bb
10. Huang, L., Li, L., Zhang, Y., Li, H., Li, X., & Wang, H. (2013). Self-efficacy, medication adherence, and quality of life among people living with HIV in Hunan Province of China: A questionnaire survey. *The Journal of the Association of Nurses in AIDS Care : JANAC*, *24*(2), 145–153. doi:10.1016/j.jana.2012.04.006
11. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
12. Leserman, J., Drossman, D., Li, Z., Toomey, T., Nachman, G., & Glogau, L. (1996). Sexual and physical abuse history in gastroenterology practice: How types of abuse impact health status. *Psychosomatic medicine*, *58*(1), 4–15.
13. Whetten, K., Reif, S., Whetten, R., & Murphy-McMillan, L. (2008). Trauma, mental health, distrust, and stigma among HIV-positive persons: Implications for effective care. *Psychosomatic medicine*, *70*(5), 531–538. doi:10.1097/PSY.0b013e31817749dc
14. Mullen, P., Martin, J., Anderson, J., Romans, S., & Herbison, G. (1996). The long-term impact of the physical, emotional, and sexual abuse of children: A community study. *Child abuse & neglect*, *20*(1), 7–21. doi:10.1016/0145-2134(95)00112-3
15. Singer, M., Humphreys, K., & Lee, S. (2012). Coping self-efficacy mediates the association between child abuse and ADHD in adulthood. *Journal of attention disorders*. doi:10.1177/1087054712465337
16. Norman, R., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. *PLoS medicine*, *9*(11). doi:10.1371/journal.pmed.1001349
17. Batten, S., Follette, V., & Aban, I. (2001). Experimental avoidance and high-risk sexual behavior in survivors of child sexual abuse. *Journal of child sexual abuse*, *10*(2), 101–120. doi:10.1300/J070v10n02\_06
18. Briere, J., & Runtz, M. (1990). Differential adult symptomatology associated with three types of child abuse histories. *Child abuse & neglect*, *14*(3), 357–364. doi:10.1016/0145-2134(90)90007-G
19. Trickett, P. (1995). The developmental impact of different forms of child abuse and neglect. *Developmental Review*, *15*. doi:10.1006/drev.1995.1012

20. Sikkema, K., Hansen, N., Kochman, A., Tarakeshwar, N., Neufeld, S., Meade, C., & Fox, A. (2007). Outcomes from a group intervention for coping with HIV/AIDS and childhood sexual abuse: Reductions in traumatic stress. *AIDS and behavior, 11*(1), 49–60. doi:10.1007/s10461-006-9149-8
21. Garbarino, J., Eckenrode, J., Barry, F. D., & Center, N. Y. S. C. of H. E. F. L. D. (1997). *Understanding abusive families: an ecological approach to theory and practice*. Jossey-Bass.
22. Sundin, E., & Horowitz, M. (2003). Horowitz's Impact of Event Scale evaluation of 20 years of use. *Psychosomatic medicine, 65*(5), 870–876. doi:10.1097/01.PSY.0000084835.46074.F0
23. Kaplow, J., Dodge, K., Amaya-Jackson, L., & Saxe, G. (2005). Pathways to PTSD, part II: Sexually abused children. *The American journal of psychiatry, 162*(7), 1305–1310. doi:10.1176/appi.ajp.162.7.1305
24. Plumb, J., Orsillo, S., & Luterek, J. (2004). A preliminary test of the role of experiential avoidance in post-event functioning. *Journal of behavior therapy and experimental psychiatry, 35*(3), 245–257. doi:10.1016/j.jbtep.2004.04.011
25. Polusny, M. A., & Follette, V. M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied and Preventive Psychology, 4*. doi:10.1016/S0962-1849(05)80055-1
26. Gibb, B., Chelminski, I., & Zimmerman, M. (2007). Childhood emotional, physical, and sexual abuse, and diagnoses of depressive and anxiety disorders in adult psychiatric outpatients. *Depression and anxiety, 24*(4), 256–263. doi:10.1002/da.20238
27. Paolucci, E., Genuis, M., & Violato, C. (2001). A meta-analysis of the published research on the effects of child sexual abuse. *The Journal of psychology, 135*(1), 17–36. doi:10.1080/00223980109603677
28. Putnam, F. (2003). Ten-year research update review: Child sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*(3), 269–278. doi:10.1097/00004583-200303000-00006
29. Rodriguez, N., Kemp, H. V., & Foy, D. W. (1998). Posttraumatic stress disorder in survivors of childhood sexual and physical abuse: A critical review of the empirical research. *Journal of Child Sexual Abuse, 7*(2), 17–45. doi:10.1300/J070v07n02\_02
30. Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic medicine, 41*(3), 209–218.

31. Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. Guilford Press.
32. Bandura, A. (1978). Self-efficacy: Toward a unifying theory of behavioral change. *Advances in Behaviour Research and Therapy*, 1. doi:10.1016/0146-6402(78)90002-4
33. Clark, N. M., & Dodge, J. A. (1999). Exploring self-efficacy as a predictor of disease management. *Health Education & Behavior*, 26. doi:10.1177/109019819902600107
34. Luszczynska, A., Benight, C. C., & Cieslak, R. (2009). Self-efficacy and health-related outcomes of collective trauma. *European Psychologist*, 14. doi:10.1027/1016-9040.14.1.51
35. Pence, B., Gaynes, B., Whetten, K., Eron, J., Ryder, R., & Miller, W. (2005). Validation of a brief screening instrument for substance abuse and mental illness in HIV-positive patients. *Journal of acquired immune deficiency syndromes (1999)*, 40(4), 434–444.
36. Zigmond, A., & Snaith, R. (1983). The hospital anxiety and depression scale. *Acta psychiatrica Scandinavica*, 67(6), 361–370. doi:10.1111/j.1600-0447.1983.tb09716.x
37. Kroenke, K., Spitzer, R., & Williams, J. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of general internal medicine*, 16(9), 606–613.
38. Weiss, D.S. (2004). The Impact of Events Scale-Revised. In J.P. Wilson & T.M. Keane (Eds.), *Assessing psychological trauma and PTSD: A practitioner's handbook* (2<sup>nd</sup> ed., pp. 168-189). New York: Guilford Press.
39. Sikkema, K., Ranby, K., Meade, C., Hansen, N., Wilson, P., & Kochman, A. (2012). Reductions in traumatic stress following a coping intervention were mediated by decreases in avoidant coping for people living with HIV/AIDS and childhood sexual abuse. *Journal of consulting and clinical psychology*. doi:10.1037/a0030144
40. Lorig, K., Stewart, A., Ritter, P., Gonzalez, V., Laurent, D., and Lynch, J. (1996). *Outcome measures for health education and other health care interventions*. Thousand Oaks, CA: Sage.
41. U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2012). *Child Maltreatment 2011*. Available from <http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment>.

42. Proeschold-Bell, R.J., Miles, A., Toth, M., Adams, C., Smith, B.W., & Toole, D. (2012). Prevention of mental health problems in community gatekeepers and leaders: The case of clergy. Unpublished manuscript, Duke University, Durham, NC.