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Screening Adults with Substance Use Disorder for Adverse Childhood Experiences

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Screening for Adverse Childhood Events for Individuals with Substance Use Disorder

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Abstract

Objective: The purpose of this project was to assess the incidence of ACE, and the efficacy and feasibility of a trauma informed screening for ACE among individuals in a substance use disorder recovery program.

Method: This clinical translation study used individual interviews, and questionnaires to assess the incidence of ACE, and the efficacy and feasibility of trauma informed screening for ACE among individuals in a substance use disorder recovery program. Descriptive statistics were used to analyze demographic, ACE scores, protective childhood experiences, self-reported diagnoses, and post-intervention survey data.

Results: Thirty clients participated in the interview process. Among the 29 participants who complete the questionnaires, all reported at least one ACE, and 82.8% reported six or more ACE. Additionally, 96.6% reported experiencing more than four protective factors. Twelve (40%) clients were referred for further mental health counseling following the interviews. Notable findings from the interviews were the general lack of awareness of the relationship between ACE and current SUD among participants. Gaining knowledge about the impact of ACE on their recovery seemed to provide a sense of relief and a feeling that they were “normal”.

Conclusions: Trauma-informed care promotes mindfulness of the impact of ACE on this population, and the necessity of screening for ACE, so that effective intervention can be provided, with the goal of improving client outcomes.

Keywords: ACE, adverse childhood experiences, screening, trauma, child abuse, mental health, substance use disorder, addiction.

Screening and Brief Intervention for Adverse Childhood Experiences
in Women with Substance Dependence

Adverse childhood experiences (ACE) propagate long-term physical, psychological, and developmental problems. A study of 17,421 in southern Californians, examined the relationship among ACE, health risk behavior, and disease in adults (Felitti et al., 1998). A graded relationship was found between the amount of exposure to ACE as a child with early morbidity and mortality in adulthood (Felitti et al., 1998). Previous studies related to childhood abuse focused mainly on a specific type of abuse, such as sexual abuse. Numerous exposures to multiple ACE's were not examined (Felitti et al., 1998). According to a study by Edwards, Holden, Felitti, and Anda (2003), methodological flaws exist when studies are focused on a single type of abuse related to a single event. Statistical analysis does not account for multiple categories of childhood maltreatment, but rather single episodes, mainly sexual and physical abuse. Thus, graded effect of multiple adverse events in childhood are excluded, reducing identification of individuals with cumulative trauma (Edwards et al., 2003). Chronicity of abuse compounded by multiple traumas results in cumulative long-term psychological and physical disorders (Cloitre et al., 2009; Felitti et al., 1998).

ACE specifically addresses exposure to multiple abusive situations (Felitti et al., 1998). The more chronic exposure to traumatic situations a child endures, the more complex the symptom presentation as an adult (Felitti et al., 1998). A dose-response relationship between ACE exposure and 10 risk factors was found (Felitti et al., 1998). These risk factors are smoking, severe obesity, physical inactivity, alcoholism, depression, suicide attempts, any drug abuse, parenteral drug abuse, increased number of sexual partners, and sexually transmitted diseases (STD's) (Felitti et al., 1998). More recently, Kalmakis and Chandler (2014) developed a

conceptual meaning of ACE consisting of five specific characteristics with the goal of addressing these to improve identification and treatment of adults in the primary care setting. The five characteristics of ACE are harmful, chronic, cumulative, distressing, and symptom severity (Kalmakis & Chandler, 2014).

People with a history of ACE are at greater risk of developing substance use disorder (SUD) and other psychiatric symptoms. As the number of ACEs increase, so does the risk for a substance abuse disorder increase later in life (LeTendre & Reed, 2017). Many substance abuse treatment communities continue to adhere to philosophies and guidelines without regards to current research pertaining to simultaneously treating SUD and mental health disorders (Destefano et al., 2015; Hien, Campbell, Ruglass, Hu, & Killeen, 2010). The separation of SUD and mental health treatment is entrenched within both the recovery and mental health community (Blakey & Bowers, 2014). This separation has been shown to impact recovery from both disorders, primarily due to different treatment philosophies and funding resources. Negative outcomes have been associated with inability to manage trauma symptoms once the primary coping mechanism of substance abuse has been removed (Blakey & Bowers, 2014).

Women with a history of trauma are particularly vulnerable to revictimization, sexual abuse, shame, and stigma (Najavits & Hien, 2013). Studies have overwhelmingly demonstrated women with a diagnosis of post-traumatic stress disorder (PTSD) have increased rates of substance abuse and co-morbid psychiatric disorders (Banducci, Hoffman, Lejuez, & Koenen, 2014; Cohen, Field, Campbell, & Hien, 2013; Hien et al., 2010). Men, however, are equally effected by trauma and SUD, and require intervention for both simultaneously (Centers for Disease Control and Prevention, 2010; Lisa M. Najavits & Johnson, 2014).

The lack of trauma-informed practitioners precludes identification of a trauma history

among individuals presenting for SUD treatment because of the entrenched belief that mental health issues are separate from substance abuse and should be addressed separately (Grupp, 2008; Kalmakis, Chandler, Roberts, & Leung, 2016). Thus, screening and referral for treatment opportunities are missed. Critical gaps exist in recognition of and responding to those individuals with a history of ACE (Oral et al., 2015). Knowledge concerning the prolonged effects of ACE on the physical, emotional, and psychological long-term functioning is lacking. Education on the underlying pathology contributing to physical and mental illness throughout the lifespan in individuals with a history of ACE is needed within the SUD treatment community (Blakey & Bowers, 2014; Cohen et al., 2013; Grupp, 2008; Mandavia, Robinson, Bradley, Ressler, & Powers, 2016; Strine et al., 2012). Although women are particularly vulnerable, implementation of a trauma-informed care (TIC) model is essential for all individuals with a history of ACE, given the severity and complexity of their co-occurring mental health and SUD's (Grupp, 2008). Nurse practitioners (NPs) can readily administer the three part screening tool for the presence of ACEs that is efficient, effective, and compassionate (Mitchell et al., 2015).

The plan for this study is to recruit individuals with a diagnosis of SUD participating in an intensive outpatient program (IOP) and/or residing in a recovery house for screening for ACE based on previous studies implemented in the primary care setting with an adult population (Kalmakis & Chandler, 2015; Kalmakis, Chandler, Roberts, & Leung, 2016; Shafer, 2017). In addition, the treatment staff received education and training on the screening protocol, to assure fidelity to the original protocol (Kalmakis et al., 2016). (Appendix C).

Problem Statement

Individuals with a history of ACE are at greater risk for failure in treatment for SUD. This may be that they are not routinely screened for a history of trauma, which may be a

significant contributor to their SUD. Therefore, these individuals do not respond to traditional substance abuse treatment alone. Because a history of multiple traumas results in complex symptomatology, screening, and providing a brief intervention can facilitate identification treatment for clients with a history of ACE. Therefore, the purpose of this translational research project is to incorporate evidence-based guidelines for Trauma-Informed Care (TIC) and screening for individuals presenting for SUD treatment (SAMHSA, 2014). The goal of this project is to translate research evidence through screening with a three part interview tool among clients receiving treatment for SUD in a IOP (Kalmakis & Chandler, 2015). This will be accomplished through utilization of the ACE screening tool used in previous studies, to facilitate patient-provider collaboration through compassion, trust, and motivation for change (Kalmakis, Schafer, Chandler, Aponte, & Roberts, 2018).

Organizational “Gap” Analysis of Project Site

The current standards at the IOP did not include screening for a trauma history among individuals presenting for SUD treatment. The pervading beliefs continue to focus on SUD treatment only, as addressing other mental health issues will take the focus off of recovery. Providing an environment that is validating to individuals with trauma, having an awareness of the need for safety, and additional resources. These beliefs are not grounded in current research that recommends the simultaneous treatment of both SUD and trauma for optimal recovery outcomes for individuals with a history of trauma (Blakey & Bowers, 2014; Najavits & Johnson, 2014; Najavits, Lande, Gragnani, Isenstein, & Schmitz, 2016; SAMHSA, 2014).

Thus, barriers to treatment included the lack of a formal screening process for the presence of trauma in patients presenting for substance abuse treatment. The staff lacked training to screen for trauma and were unfamiliar with trauma symptoms and the challenges associated

with success in recovery without additional coping skills.

Lastly, education concerning the impact of trauma on SUD treatment is lacking. Because individuals are not routinely screened upon admission for substance abuse treatment, no additional resources or services are offered. Subsequently, individuals do not receive treatment tailored to their specific needs, resulting in higher rates of relapse from SUD's (Blakey & Bowers, 2014; Edwards et al., 2017; López-Castro, Hu, Papini, Ruglass, & Hien, 2015).

Review of the Literature

Methods

The databases searched for this literature review included The Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, Published International Literature on Traumatic Stress (PILOTS), and PsycARTICLES. The Substance Abuse and Mental Health Services Administration guidelines (SAMHSA), National Institute of Health (NIH), Center for Disease and Prevention (CDC), and Google websites were utilized for locating current guidelines related to trauma-informed care, PTSD, and women with substance abuse. This yielded excellent guidelines from SAMHSA for TIC. The CDC site was accessed for additional resources in terms of data and research from the ACE study (CDC, 2015).

Medical Subject Headings (MeSH) terms included the following: trauma stress disorders, post-traumatic stress, disorders, PTSD, substance dependence, adverse childhood experiences, child maltreatment. Inclusion criteria included articles pertaining to women, substance abuse, ACE screening, trauma intervention, English language, and published within fifteen years, with additional inclusion for articles published since 1998 building upon the groundbreaking ACE studies. About half of these articles were eliminated as they didn't meet the inclusion criteria of individuals with a history of ACE, substance dependence, and, screening interventions. A review

was included because it provided an in-depth overview of the psychopathology of trauma and the brain with rationale for inclusion of trauma-informed healthcare.

Boolean search term combinations in CINAHL included trauma, ACE, trauma and interventions, substance abuse, dependence, recovery houses, and nursing. The inclusion criteria were ACE, adult trauma, substance dependence, interventions for women with substance abuse and trauma, and neurological underpinnings of brain development. Utilizing “adverse childhood experiences, substance abuse, and women”, yielded more articles versus “trauma, substance abuse, ACE”.

A literature review for SBIRT, trauma, and motivational interviewing (MI) was conducted to contribute additional evidence for the use of three-phase protocol developed by Kalmakis and Chandler (2016) for this study. SBIRT and MI have been extensively studied and are utilized in a variety of healthcare settings.

A total of 33 articles were extrapolated from the search, and after excluding for relevancy to topic, which were then critiqued by Johns Hopkins Nursing Evidence- Based Practice appraisal tool; Synthesis and Recommendations Tool (Dearholt & Dang, 2012).

Results

This literature review provided evidence to support the three main objectives: (1) the negative impact of ACE on the physical and mental health of adults over their lifespan, (2) the neurobiological underpinnings of developmental trauma, (3) the negative outcomes for individuals receiving treatment for SUD with a history of untreated trauma, and (4) the necessity of incorporating trauma-informed care through screening for ACE, while developing sensitivity to the specific needs of traumatized individuals.

ACE impact on physical and mental health. The literature over the last decade has provided a significant amount of research demonstrating the lasting impact of ACE on risk factors over the lifespan in terms of psychological, emotional, and physical illness (Banducci et al., 2014; Felitti et al., 1998; SAMHSA, 2014). The Center for Disease Control (CDC)-Kaiser Permanente Adverse Childhood Experiences (ACE) study was conducted over a two-year period and consisted of data collection from over 17,000 Health Maintenance Organization (HMO) members who had physical exams; confidential surveys were administered asking questions related to childhood abuse and current health behaviors (CDC, 2015). The evidence from the ACE study demonstrated a “strong dose response relationship between the breadth of exposure to abuse or household dysfunction during childhood and multiple risk factors for several of the leading causes of death in adults” (Felitti et al., 1998, p. 251). Although this study is over 19 years old, the findings provided the foundation for future research providing evidence for present need to incorporate ACE histories in all areas of healthcare. A recent study, one of the first to focus on a socio-economically disadvantaged population, found a higher rate of growing up in a household with a substance abuser and individuals sentenced to prison. (Public Health Management Corporation, 2013). The original Kaiser study had a 49.7% population of whites, with 51.4% having a college education (Felitti et al., 1998). This provides important information when implementing policies and procedures for targeted populations.

The Behavioral Risk Factor Surveillance System (BRFSS) began collecting ACE data after the CDC-Kaiser ACE Study was completed on childhood neglect and abuse, among other dysfunctions within the home (CDC, 2015). Since 2009, over 32 states have included the ACE questions into the BRFSS (CDC, 2015). See Appendix A. Research specific to women with co-

occurring trauma and SUD have demonstrated poor outcomes when trauma is not identified during initial evaluation (Cranston & Davis, 2011; Najavits & Hien, 2013; Oral et al., 2015).

Several correlational Level III studies, found a significant relationship of ACE on alcohol and mental health disorders (Choi, Dinitto, Marti, & Choi, 2017), adult mental health within a health maintenance organization (Edwards et al., 2003), negative affect as a predictor of impact of ACE on mental health (Lanoue, Graeber, Helitzer, & Fawcett, 2013), relationship between ACE and psychological distress, alcohol use (Strine et al., 2012); and ACE and adult substance abuse (Banducci et al., 2014; Mandavia et al., 2016; Mersky, Topitzes, & Reynolds, 2013). A Level II systematic review of health consequences of ACE provided evidence for the necessity of screening for ACE in the primary care setting (Kalmakis & Chandler, 2015). Based on the work of Kalmakis and Chandler (2016), two pilot translational research studies demonstrated the impact of ACE on primary care patients, contributing additional evidence for the necessity of screening for ACE to reduce negative health consequences in the primary care setting (Aponte, 2017, Kalmakis, et al., 2018, & Shafer, 2017).

Developmental impact of trauma. The developmental impact of traumatic events occurring during childhood can produce a change in neurological processes in the brain, resulting in long-term consequences over the lifespan (Ford et al., 2014; Van Der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). The effects of childhood abuse on the developing brain is well documented in the literature (D'Andrea, Ford, Stolbach, Spinazzola, & Van der Kolk, 2012; Ford et al., 2013; Van Der Kolk et al., 2005). A Level I controlled, randomized trial examined the effects of SUD and childhood maltreatment on altered limbic neurobiology, relapse severity in SUD, and reduced limbic gray matter volume using structured magnetic resonance (MRI) with the goal of finding neurobiological structural changes in the brain (Van Dam et al. 2014). Clients presenting

with a history of trauma had higher rates of relapse, in addition to having worse outcomes than those with SUD without a history of childhood maltreatment and PTSD (Choi et al., 2017; Edwards et al., 2017; Grupp, 2008; Hien et al., 2010; Hien, Cohen, Miele, Litt, & Capstick, 2004; Valerie, George, Vincent, & Robert, 2003).

The profound effects of childhood abuse on neuronal and hormonal processes has been shown to alter the developing brain resulting in social, cognitive, and psychological dysfunction (Ford et al., 2013). Several studies examined the effects of complex trauma on the developing brain in terms of emotion regulation, with resultant inability to modulate distressing emotions in a healthy manner (Cloitre et al., 2009). Thus, self-medicating with substances may reduce overwhelming emotions as an attempt to cope.

Developing an understanding of the neurobiological consequences of ACE on the developing brain could reduce the stigma associated with mental health and SUD's. Understanding the neurobiological changes resulting from the brain's response to a perceived threat, and the resultant sympathetic (SNS) and parasympathetic nervous system (PNS) activation, is imperative for understanding the impact of ACE on physical and mental illness (Agerwala & McCance-Katz, 2013; Leitch, 2017).

In addition to the SNS, the neurochemical response to stress involves activation of the hypothalamic-pituitary-adrenal axis (HPA) which is responsible for increased cortisol levels, resulting over time in neurobiological changes within the hippocampus, synapses, receptors, and dendritic spines of the developing brain (Horner, 2014). The brain exposed to toxic stress is in a constant state of activation, thus, the inherent evolutionary purpose of the limbic system for survival is over utilized, with detrimental effects on the developing brain, including the immune and inflammatory processes (Horner, 2014). In response to these assaults, the individual develops

faulty coping mechanisms resulting in physical disease, and behavioral and social limitations over time (Cloitre et al., 2009; D'Andrea et al., 2012; Van Der Kolk et al., 2005).

Substance abuse and trauma. Clients requiring SUD treatment are not routinely evaluated for a trauma history or other mental health disorders; therefore, they receive diagnoses that are not consistent with a history of childhood maltreatment (Symes, Maddoux, McFarlane, & Pennings, 2015). Interventions for trauma geared towards women were examined, however, both males and females are equally affected (CDC, 2010). Additional research and funding is needed for this high-risk population, given the existing research specific to women with co-occurring trauma and SUD have demonstrated poor outcomes when trauma is not identified during initial evaluation (Cranston & Davis, 2011; Najavits & Hien, 2013; Oral et al., 2015).

Without effective gender-specific intervention for both SUD and PTSD, there is a continued risk for relapse and continued exposure to trauma (Blakey & Bowers, 2014). Numerous studies have linked women with a history of childhood abuse and neglect with poor outcomes and higher rates of SUD's and comorbidities (Banducci et al., 2014; Cohen et al., 2013; Grupp, 2008; Hien et al., 2010; Hien et al., 2004; Najavits et al., 2014; Najavits & Johnson, 2014; van Dam et al. 2010). In a study from participants recruited from a residential treatment program in Washington D. C., a significant association between childhood abuse and the presence of SUD and DSM-IV-R disorders ($p < .001$) was found (Banducci et al., 2014).

A study by López-Castro et al., (2015) found that addressing and reducing trauma symptoms in women while receiving treatment for SUD improved their ability to manage their SUD more effectively. Several studies conducted research on evidence-based treatment modalities for women with significant results in terms of SUD recovery (Cohen et al., 2013; Najavits et al., 2014; Najavits & Johnson, 2014; Najavits, Lande, Gagnani, Isenstein, &

Schmitz, 2016), solidifying the importance of providing treatment focused on trauma to improve outcomes for SUD recovery. Again, the literature has demonstrated that treatment outcomes for individuals with SUD and PTSD with their specific vulnerabilities, requires the need to provide evidence-based treatment (Najavits & Hien, 2013). To begin, one must have a knowledge of the effects of ACE to exam the specific barriers for integration of the simultaneous treatment of trauma and SUD can facilitate positive outcomes through addressing ways to overcome resistance (Blakey & Bowers, 2014).

Conceptual definition of ACE. Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being (Menschner & Maul, 2016). PTSD is often related to combat, horrific events, not specifically childhood maltreatment. Studies primarily based a diagnosis of PTSD from the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for PTSD. The current research by Dr. van Der Kolk addresses the major differences in symptom presentation for childhood maltreatment that is specific to this population. The DSM-5 does not address the profound impact of developmental ACE with later psychopathology in adulthood (D'Andrea et al., 2012).

Clarifying definitions of trauma to specifically identify women who present with these symptoms requires additional research to determine tools for improving outcomes of both childhood maltreatment and SUD. A concise definition can hopefully direct assessment of and subsequent treatment based on the enduring effects of trauma. A consistent, generalizable, and clear conceptual definition of trauma is needed to increase the validity of research on ACE.

Kalmakis and Chandler (2014) developed a conceptual meaning of ACE consisting of five specific characteristics with the goal of addressing these to improve identification and treatment of adults in the primary care setting. The five characteristics of ACE are harmful, chronic, cumulative, distressing, and symptom severity (Kalmakis & Chandler, 2014). Harmful adverse experiences refer to either the lack of positive experiences, or the presence of negative experiences. Chronic ACE experiences concerns repeated trauma over time. Cumulative experiences refer to a relationship of accumulating adverse events over time. Distressing events are those that engender feelings of helplessness, exposure to toxic stress, resulting in physiological and psychological sequelae. Lastly, severity is determined by an individual's perception and response to an adverse event (Kalmakis & Chandler, 2014).

This conceptual framework could facilitate SUD providers in addressing ACE in individuals presenting for treatment to identify risk factors impeding recovery, in addition to development of protocols, procedures assimilated within SUD treatment program. See Appendix B. The screening protocol for ACE designed by Kalmakis and Chandler, 2014, could readily be incorporated in the admission evaluation as a one-page brief screening tool. (See Appendix C).

Discussion

The research review included studies on ACE demonstrating a significant effect on the psychological, physical, and developmental processes over the lifespan, including an increased risk for SUD, and mental health disorders, with worse outcomes. Articles supporting integrating evidenced-based guidelines for treatment of SUD and trauma were also reviewed (Felitti et al., 1998).

The literature over the last decade has provided a significant amount of research demonstrating the lasting impact of ACE on risk factors over the lifespan in terms of

psychological, emotional, and physical illness (Banducci et al., 2014; Felitti et al., 1998; SAMHSA, 2014). The Center for Disease Control (CDC)-Kaiser Permanente Adverse Childhood Experiences (ACE) study was conducted over a two-year period and consisted of data collection from over 17,000 Health Maintenance Organization (HMO) members who had physical exams; confidential surveys were administered asking questions related to childhood abuse and current health behaviors (CDC, 2015). The evidence from the ACE study provided the foundation for future research focused on the need to incorporate ACE histories in all areas of healthcare.

The Behavioral Risk Factor Surveillance System (BRFSS) began collecting ACE data after the CDC-Kaiser ACE Study was completed on childhood neglect and abuse, among other dysfunctions within the home (CDC, 2015). Since 2009, over 32 states have included the ACE questions into the BRFSS (CDC, 2015). See Appendix B. Research specific to women with co-occurring trauma and SUD have demonstrated poor outcomes when trauma is not identified during initial evaluation (Cranston & Davis, 2011; Najavits & Hien, 2013; Oral et al., 2015).

Theoretical Framework/Evidence Based Practice Model

Trauma-informed care provides a framework for incorporating a safe, empathetic environment, cognizant of the effect of trauma on individuals. The TIC Treatment Improvement Protocols (TIPs) were developed based on best practice guidelines for treatment of substance abuse and other mental disorders (SAMHSA, 2014). Trauma-informed care (TIC) acknowledges the profound impact of trauma on people receiving care in behavioral and substance abuse centers, and the provision of an environment responsive to the needs of people affected by trauma (SAMHSA, 2014).

Several studies examined TIC within the SUD treatment programs and the impact on recovery from SUD and trauma (Jason, Olson, Mueller, Walt, & Aase, 2011; Oral et al., 2015;

Reeves, 2015). The major theme of a Level III meta-synthesis of the literature on TIC found that in spite of the extensive research on the effects of trauma on physical and mental health, there is limited research and implementation of TIC within diverse settings (Reeves, 2015). A Level III qualitative study on a unique TIC model for women in sober living housing demonstrated the significant role of incorporating TIC in the recovery process through provision of resources, and provision of tools to aid in daily living (Edwards et al., 2017).

Trauma-informed care focuses on trauma and the impact it can have across settings, services, and populations (Reeves, 2015). The advantages of this model are that it views trauma through an ecological, cultural lens, and recognizes that context plays a significant role in how individuals perceive and process acute or chronic traumatic events (Butler, Critelle, & Rinfrette, 2011). This model also supports the notion that people who have experienced trauma are doing the best they can to cope given their life history. Their coping skills may have been effective in the past, but currently result in greater difficulties and may lead to more difficulty in terms of substance dependence. Formulating care from a trauma-informed lens allows treatment providers to tailor interventions with the goal of recognition of the effects of ACE on SUD, while not retraumatizing clients (Kezelman & Stavropoulos, 2012; SAMHSA, 2014).

The ACE Study (CDC and Prevention, 2013), and the Women, Co-occurring Disorders and Violence Study (SAMHSA, 2007) formed the foundation for the TIC guidelines. An expert consensus panel from a variety of disciplines within SAMHSA and the Department of Mental Health and Human Services (HHS) developed the TIP for evidence-based guidelines on treatment of trauma within the behavioral, substance abuse treatment systems (SAMHSA, 2014).

The TIC framework, along with the three part screening tool, will guide the screening and brief intervention for the DNP student at the selected IOP. As the prevailing beliefs continue to

focus on separation of trauma and SUD treatment, creating an environment inclusive of clients with a trauma history could facilitate the recovery process, with additional supports provided (Grupp, 2008; Kezelman & Stavropoulos, 2012). Increasing awareness of the current research on ACE and recovery could readily assist with early identification through screening and subsequent referral as deemed necessary.

Goals, Objectives and Expected Outcomes

The SMART objectives of this project were to:

Specific:

1. Recruit participants from the IOP and recovery houses through use of a flyer placed in the houses and at the IOP. Additionally, SUD counselors, Clinical Director of the IOP, and Clinical Director of housing will be briefed on study and provided flyers.
2. Administer the screening interview to individuals with SUD after obtaining consent. The screening interview will take approximately 10 to 30 minutes (See Appendix E).
3. Provide resources on trauma for referral as needed through brochures and therapy follow-up.

Measurable and Achievable:

1. The screening interview will be administered to participants at the IOP at a date established after meeting with and brief education of the treatment staff. The data from the interviews, along with ACE scores, and the NP follow-up survey will be compiled and results reported.
2. A brief post-questionnaire will be administered to DNP student and treatment staff to assess their comfort level with the three part screening protocol.

3. Data collection and results should be completed by the tenth week of the project initiation. The demographics, screening, and post-intervention questionnaire will be completed at each presentation and kept in a locked file cabinet for future analysis.

Realistic and Timely:

1. The timeline of the screening interview , and post questionnaire will be established at the first meeting with the clinical director. The DNP student will provide a toolkit with all the study material to the staff.
2. The data analysis utilizing SPSS statistical software for descriptive statistics of the demographics, screening, and post questionnaire will not require more than one-two months

Outcomes

The expected outcomes of this translational research project are to implement the use of a three part screening interview tool to identify ACEs among individuals with SUD receiving treatment at an IOP through the framework of a TIC. Furthermore, the protocol can be administered in a timely manner, with relative ease by the interviewer.

Project Design

This project is a research translation to practice design, incorporating evidence through education on the effects of trauma (ACE), ACE screening, and to promote identification of ACE among individuals presenting for SUD treatment (SAMHSA, 2014). The literature review clearly demonstrated the importance of addressing ACE and providing intervention to improve outcomes for SUD's.

Project Site and Population

The translational research project was executed by the DNP student, a psychiatric nurse practitioner (PMHNP) with over 15 years of clinical experience, who has a private PMHNP practice with other PMHNP's in the Baltimore, Maryland area. The project participants were clients from a recovery housing and treatment IOP for SUD meeting the inclusion/ exclusion criteria. A flyer for recruitment of study participants was distributed to the IOP and housing managers to display. Additionally, the DNP student presented the purpose of the project at the beginning of classes for client recruitment. The DNPs cell phone number was provided for the staff and directors when potential participants were identified.

The treatment program is certified by the Maryland Department of Health and Mental Hygiene with the purpose of providing abstinence based alcohol and drug treatment services. Treatment and counseling is provided by licensed professional counselors in a safe and comfortable setting. The typical length of treatment is 16 to 26 weeks in duration depending on the needs of the client. Services provided include assessment and evaluation of SUD, psycho-education sessions on SUD, family education, urinalysis, and introduction to 12-Step programs, including Alcoholics Anonymous (AA), and Narcotics Anonymous (NA). Attending an IOP allows clients to continue to work and stay at home during SUD treatment.

The transitional/recovery is the housing program that provides safe, clean and supportive housing for men and women recovering from drug and alcohol addiction. The recovery houses provides a healing environment with the primary purpose to transition the recovering addict from active addiction to a sober way of living. Clients reside in a single room in a home shared by other client's struggling with abstinence from substances, including alcohol. Stringent rules and regulations are initiated upon admission for the safety of the client and other's in the home. A flyer was distributed to the staff to housing managers with contact phone number provided when

potential participants were identified. UMass Amherst Institutional Review Board (IRB) approval was obtained prior to recruitment and participation.

Inclusion and Exclusion Criteria

Inclusion criteria included adults age 21 or older, currently residing in the housing and/or participating in the IOP with a history of SUD. Participants under the age of 21, refusal to sign consent, and no SUD history were excluded. Patients with untreated, severe mental health disorders were excluded if they were unable to provide consent. Of the 30 participants, no one was excluded from the project because of a severe, co-occurring mental illness.

Setting facilitators and barriers. Barriers to implementation of the project included time and space constraints for the interviews to take place. The willingness of the substance abuse staff to facilitate the study, and accommodate the DNP student went smoothly and time was allotted at the beginning of each class for a brief overview of the study and times and location for interview. The process took place during normal IOP hours, about 15 minutes prior to start of class, just as clients were coming to the center. Time constraints caused some difficulty because participants had to miss some of the class. As part of participation in the study, \$15 was provided to the participants after the interview processes ended. Resources, including brochures, and flyers were made available in the IOP and recovery houses, in addition to the DNP students' website.

Implementation Plan/Procedures

The first step of the project consisted of a brief education of the treatment staff on the history of ACE, ACE and primary care, the three part screening tool for the interview. The Director, and study facilitators, were provided background on previous studies, ACEs, and TIC.

Initially, having additional staff administer the interview was planned, however, completion of the CITI training for research participation was not feasible, so all interviews were

completed by the DNP student. The DNP student recruited all participants. The DNP student was readily accessible via cellphone throughout the study implementation process.

After meeting inclusion/ exclusion criteria, and signing the consent form, participants from the recovery housing and/ or IOP were simultaneously recruited, enrolled, and administered the study protocol. Additionally, instructions were provided for further access to the study information, and resources, referrals were provided to the clients who requested it. The entire process took place in a room provided for purposes of the study, with the three-part screening tool was administered by the DNP student.

At the start of each session a rapport was established, with introduction of the study purpose, consent process, with an emphasis on confidentiality, and the right to not participate and stop the study at any time. The consent, ACE screening, brief intervention, and follow-up survey took approximately 30 minutes from start to finish. See Appendix E. The screening tool was originally designed for use with adult primary care patients, so the screening tool was adjusted to focus on clients with SUD currently receiving treatment (Kalmakis et al., 2016).

The DNP student was available for four-hour time frames during each week of the project. Private meeting rooms in the clinic were reserved for interviews. The goal was a minimum of 20 participants, however, a total of 30 patients participated, meeting expectations. Beverages, snacks and gift cards, were provided to clients at each session, along with the provision of resources, and referrals for a screening positive for ACE. The entire was completed within the timeframe. A three-month time was allotted for data collection, however, to facilitate completion of the project, the DNP student collected and entered the data at each visit.

Measurement Instruments

The three part screening tool was administered by the DNP student in a private room. Following the screening, a 20-question PACE questionnaire was administered. See Appendix D. The ACE questionnaire was originally developed by Felitti et al. to assess three different areas of abuse, including physical and emotional abuse, neglect, and abuse associated with living in a dysfunctional environment (1998). The original ACE questionnaire developed by Felitti et al. (1998) is a valid, reliable, retrospective assessment of adverse childhood experiences, with a good test-retest reliability and internal consistency (Cronbach's alpha = .88) (Murphy et al., 2014). For the purposes of this study, a 20-item ACE questionnaire, based on the ACE criteria was used.

A brief follow-up questionnaire was completed by the DNP student, to evaluate the comfort, and confidence level of each interview. The timeframe for the entire process was also recorded. See Appendix E. (Shafer, M., 2017). This questionnaire has been utilized in several other studies, providing qualitative data on the usability of this tool.

Data Collection Procedures

The demographics, ACE scores, and follow-up survey data were collected solely by the DNP student and kept in a file at her private practice, in a locked file cabinet. The data was collected immediately during each session. No client identifiers were used, including, names, addresses, and social security numbers. Study participants were assigned a number that the DNP student will put in an Excel spreadsheet.

The data collection and analysis process took about three-months. The time was sufficient for the duration of the project. Once all the initial data from the sessions had been collected, data analysis was completed using the Statistical Package for the Social Sciences software (SPSS).

Data Analysis

The survey results were analyzed using descriptive statistics for measurement of demographics, ACE score, self-reported diagnoses, and post-intervention brief survey questionnaire. All results were entered and analyzed in the SPSS statistical software. All data was collected by the DNP student. The variables of interest were ACE scores, self-reported diagnoses and previous treatment.

Cost-Benefit Analysis/Budget

The cost of the project was minimal overall. On-line resources were available on the PsychNP, LLC website from the DNP students practice. Copies of the ACE screening tool, post-survey, and resources for trauma were completed at the DNP students practice and cost was incurred for the time and cost of the project.

Ethical Considerations/Protection of Human Subjects

IRB approval was given prior to initiation of any part of the project. The project was a part of a previously approved IRB study, so process went relatively smoothly. All information collected as part of this project had no protected patient information and the screening and survey results were locked up in DNP student's file cabinets with no potential patient identifiers. The DNP student has completed CITI training and is highly knowledgeable about Health Information and Privacy ACT (HIPPA) procedures from having a private practice.

Evaluation**Results, Findings, and Data Analysis**

There was a total of 30 subjects that were consented and participated in the study. As specified in the implementation phase, after consent was signed, demographics were collected, followed by the three-phase treatment protocol. The ACE questionnaire was then given to the

subjects, with assistance from the DNP student. Following the interview, the DNP student completed the post-intervention survey. Use of the standardized three-phase interview protocol resulted in a streamlined process repeated with each subject. The process resulted in the collection of pertinent data, and informative responses consistent with existing research.

Characteristics of participants were representative of the SUD population. Substance abuse affects all ages, races, and socioeconomic levels. All participants had a SUD diagnosis, with ages ranging from 21 to 70. Just over half were African American, with the majority being single. Educational levels were varied (Table 1).

Over 80% of participants were not currently working. According to the subject's, not working was primarily related to their substance use, with the inability to sustain any length of employment. Many had lost their jobs because of substance abuse problems. Funding for substance abuse treatment was available through the state. Time at the IOP ranged from one day to up to 51 days. There were 20% of participants who had just been admitted within the last two days. Although not a part of the statistical analysis, 100% of participants came directly from an inpatient treatment facility. This is relatively standard for client's to be medically detoxified prior to admission to an outpatient program.

Table 1

Participants Demographics (N=30)

Demographic variables	Participants (N=30)
Gender	
Male	11
Female	19
Race/Ethnicity	
Caucasian	14
African American	14
Hispanic	2
Marital status	
Single	20

Separated/divorced	8
Married/living with partner	2
Age	
21-30	14
31-40	7
41-50	5
50+	4
Education completed	
Grade school	8
GED	4
High school	15
College	3

The data collected from the interviews was inputted into an Excel spreadsheet by the DNP student and then exported into SPSS for analysis. Variables were coded into numeric form in preparation for analysis. There was one missing value. One participant forgot to fill out the ACE questionnaire. A total of 30 subjects participated in the project after meeting the inclusion, exclusion criteria, and signing the approved consent form. Non-parametric, descriptive statistics were utilized to describe nominal level demographic characteristics of the participants. A non-parametric Spearman’s rho correlational analysis, utilizing ordinal level variables, determined positive relationship existed between the DNP student’s comfort, and security in the screening process. There was a significant relationship between comfort and confidence level ($r=.639$)($p=0.01$), suggesting that confidence in the interview process was related to how comfortable the interviewer was with the interview process (Table 2).

Table 2

Relationship Between Interview Comfort and Confidence Level

Spearman’s rho	survey question 1	Correlation Coefficient	1.000	.639**
		Sig. (2-tailed)	.	.000
		N	30	30

Time to Administer Survey	survey question 2	Correlation Coefficient	.639**	1.000
		Sig. (2-tailed)	.000	.
		N	30	30

Note. **Correlation is significant at the 0.01 level

Analysis to determine relationship between ACE scores, and time it took to administer screening, was conducted utilizing Pearson Correlation. There was no significant correlation between ACE score and the time to administer the survey, which was surprising, given the complexity of participants with a history of ACE (r=.273) (Table 3).

Table 2

Descriptive Statistics

Relationship Between ACE Scores and Administration Time

	Mean	Std. Deviation	N
Total ACE Score	5.7931	2.35098	29
Time to Administer Survey	4.2667	6.87290	30

Total ACE Score ^a	Pearson Correlation	1	.273
	Sig. (2-tailed)		.152
	N	29	29
Time to Administer Survey ^b	Pearson Correlation	.273	1
	Sig. (2-tailed)	.152	
	N	29	30

Note. ACE=Adverse Childhood Experience

^an=29. ^bn=30.

Information obtained from the interview process revealed important information for future practice. All 30 participants were not familiar with the impact of ACE on their SUD, mental illness, and physical conditions. They were visibly relieved to hear that they weren't damaged, or "crazy". Gaining knowledge about the impact of ACE on their recovery provided a sense of relief and "normalization".

Limitations

Limitations included cost to the DNP student, and time constraints. The project required that all study facilitators go through CITI training, which given the short notice, became overwhelming for them. Thus, the DNP student performed all the interviews.

More interval level variables, most notably, ACE scores and rates of relapse within the SUD population, could demonstrate the necessity of screening for ACE. Time was limited, thus, tracking participant's for at least six months was not a viable option. If additional time and resources had been available, data to fortify the argument for the effectiveness of this three-phase screening protocol could have been available. This data could be used to determine the rates of relapse among SUD clients with a history of ACE versus those without a history of ACE. In addition, the training of facilitators in CITI, ACE, and the interview process, should have done at an earlier time, with pre-post testing to determine effectiveness of education provided.

This project, however, provided insight into the lack of trauma-informed care among SUD treatment staff, missing out on the evidence supporting worse outcome among SUD clients with a history of trauma. Further exploration of methods to implement for increasing awareness of the problem, could improve processes when treating this vulnerable population.

Discussion

This translational research project provided valuable information concerning the use of the three-part screening tool among individuals with a diagnosis of SUD. The protocol has been effective in studies conducted in the primary care area as a valid screening tool for identification of individuals affected by ACE. Building upon the previous studies, conducting the interviews was relatively straight forward, and provided a validating, compassionate atmosphere when asking particularly sensitive questions. Individuals in the early phases of treatment for SUD are vulnerable to relapse, so asking the questions pertaining to ACEs can elicit negative, uncomfortable emotions. Before any questions were asked, the three-part screening tool supported a non-judgmental framework, that clearly supported a more relaxed, and trusting session. The DNP student became more comfortable and confident with practice, and with each interview, supporting the use of this three-phase approach to screen for ACE. Participants were initially guarded, but as interview progressed, became noticeably relaxed, validating the effectiveness of the protocol, with the third phase emphasizing responding with compassion.

Consistent with previous studies, there was an increased number of ACE in the SUD population compared to the general population. Of the 30 participants, 29 reported at least one ACE and 82.8% >4 ACEs. This is compared to the finding from the Behavioral Risk Factor Surveillance System ACE Data of a random national sample, in which 14.3% of respondents reported > 4 ACE (CDC, 2016). ACE scores of four or more have previously been associated with binge drinking, heavy drinking, smoking, risky HIV behavior, and depression (Campbell, Walker & Egede, 2016).

The number of participants who reported experiencing protective factors in their childhood was unexpected; 96.6% reported experiencing at least 4 protective factors. Adverse childhood experiences can interrupt healthy development, yet, if protective factors are accessible,

it is hypothesized, that stress may provide an opportunity to build resilience, Rutter (2012) referred to as a ‘steeling effect to support health and well-being. This small sample of 29, did not support the idea that protective factors lead to resiliency and improved health outcomes in this population.

One of the most notable findings was the lack of awareness of how early trauma, abuse, and neglect, had any relationship to current problems. Participant’s appeared visibly relieved, thinking that their symptoms, and challenges in staying clean, were because they were “damaged goods.” Participant’s talked openly about traumatic events in childhood and felt encouraged to divulge sensitive information. So as not to activate them, the session ended with discussion on current progress, and brochures were provided with grounding, and mindfulness skills. As the purpose of the project was to gather data concerning the three-phase protocol, and not therapy, caution was required to prevent overwhelming emotions, and resources, and referrals were provided as an option. The DNP student was skilled in trauma therapy, thus, recognized signs of being overwhelmed, and contained emotions as necessary. Given this potential risk, knowledge of traumatic responses should be included in the educational portion of person’s administering the screening. Awareness and education could provide tools that practitioners can immediately provide to clients.

Future studies could investigate the nature of the SUD population, the increased risk for traumatic triggers, and interventions to stabilize clients. Implementing a trauma-informed model of care should be the at the forefront of SUD treatment facilities. Trauma-informed care promotes mindfulness to the impact of ACE on this population, and the necessity of screening for ACE, so that effective intervention can be provided, with the goal of improving outcomes in

these individuals. This project demonstrated the efficiency of this three-part screening tool, and how it could readily be implemented at initial SUD evaluation for treatment.

Conclusion

Early childhood trauma results in profound, developmental injuries that manifest over the lifespan in certain individuals. Research validates the lasting effects on physical, and mental health. Chronic medical illnesses, including heart disease, diabetes, asthma, cancer, and obesity are related to the chronic inflammation resulting from an overactive hypo-thalamic-pituitary alarm system. The three phase screening interview resulted in valuable information concerning the impact of ACE on the SUD population. Implementing screening, and providing referrals, and resources can facilitate optimal chances for long-term maintenance of recovery from SUD's. Based on the results of this project, nurse practitioners, or SUD counselors could effectively administer the screening within a reasonable time frame.

Person's with SUD are at greater risk for relapse when history of trauma is present. Because clients with SUD are not typically screened for ACE when initially evaluated for treatment, further intervention is not initiated, and outcomes are poor for the majority of these clients.

Successful resolution of each phase of development as a child is contingent upon environmental stressors, emotion regulation, validation, and perceived support. Studies overwhelmingly demonstrated the deleterious effects of abuse on future functioning, and for the purposes of this study, recovery from substance abuse disorders.

Clients were screened in a compassionate way concerning history of trauma, with the emphasis on non-judgmental, validating, and mindful questioning, promoting an atmosphere of trust. The three-part approach was user-friendly, and once comfort with the process was

achieved, was time efficient to administer. Incorporating this screening tool within the initial evaluation for SUD treatment could readily identify those clients in need of further intervention. Incorporating TIC within the SUD treatment will offer those suffering from trauma a means to access additional resources. Provision of screening, resources, and referral options can facilitate future screening for the presence of ACEs and incorporate a trauma-informed care recovery environment allowing for more comprehensive treatment of individuals with SUD and trauma.

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Appendix A

Prevalence of ACEs by Category for Participants Completing the ACE Module on the 2010 BRFSS.

ACE Category	Women	Men	Total
	Percent (N =32,539)	Percent (N =21,245)	Percent (N =53,784)
ABUSE			
Emotional Abuse	34.1%	35.9%	35.0%
Physical Abuse	15.8%	15.9%	15.9%
Sexual Abuse	15.2%	6.4%	10.9%
HOUSEHOLD CHALLENGES			
Intimate Partner Violence	15.6%	14.2%	14.9%
Household Substance Abuse	27.2%	22.9%	25.1%
Household Mental Illness	19.3%	13.3%	16.3%
Parental Separation or Divorce	23.1%	22.5%	22.8%
Incarcerated Household Member	5.2%	6.2%	5.7%

Note: Reports and articles that use data from other years and/or other states may contain different estimates.

ACE Score Prevalence for Participants Completing the ACE Module on the 2010 BRFSS.

Number of Adverse Childhood Experiences (ACE Score)	Women Percent (N =32,539)	Men Percent (N =21,245)	Total Percent (N =53,784)
0	40.0%	41.4%	40.7%
1	22.4%	24.9%	23.6%
2	13.4%	13.2%	13.3%
3	8.0%	8.1%	8.1%
4 or more	16.2%	12.4%	14.3%

Note: Reports and articles that use data from other years and/or other states may contain different

estimates. Source: Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance System*

Survey ACE Module Data, 2010. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers

or Disease Control and Prevention; 2015. Available from <https://www.cdc.gov/violenceprevention/acestudy>

Appendix B

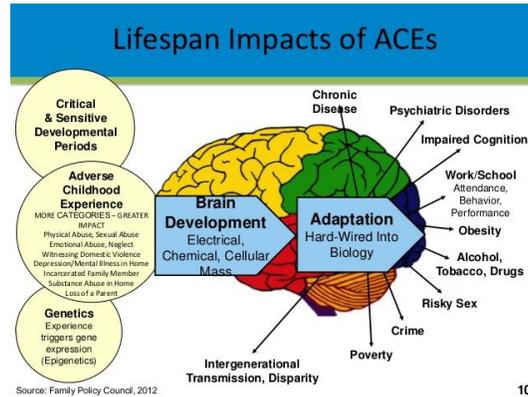
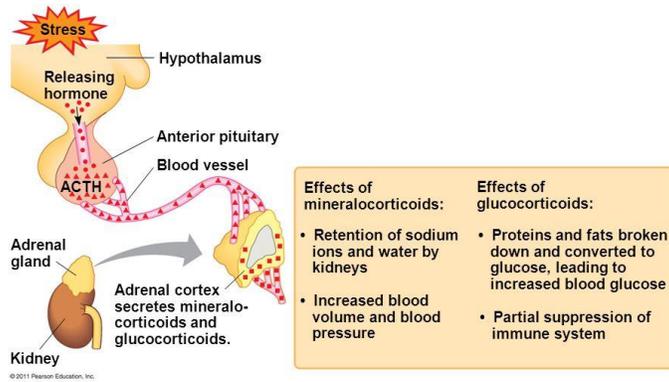


Figure 45 Z1b

(b) Long-term stress response and the adrenal cortex



Appendix C

Screening for ACE among adult patients in recovery

A. Who to screen?

1. Clients of Promise One
2. Substance abuse disorder (includes alcohol, illicit drugs)
3. 21 years of age or older

B. How to screen.

Follow this three-phase approach to screening;

Phase 1 – provide information about why we are screening:

We know that childhood experiences may have a long-term effect on adult health

Phase 2 – ask about childhood adversity in a clear, concise, non-judgmental manner:

Did you experience hardship or abuse when you were a child? (e.g., living in poverty, living with a family who abused substances, physical, psychological abuse, and or neglect)

You may want to use follow-up questions if the patient responds yes, but seems hesitant to talk about their childhood (e.g., “*Tell me more about your experience*”. “*If you feel comfortable sharing your experiences, I am ready listen*”).

Phase 3 – Respond with compassion.

I am sorry/sad this happened to you. How do you think this has affected your health? What can I do to help you? (Example; referral to counseling, schedule a follow-up visit, be available as needed in the future, etc.)

If the patient reports no childhood hardships or abuse, use the following response: *Thank you for answering.*

Appendix D

Screening Questionnaire:

P.A.C.E.S

1. Was there an adult in your family who took an interest in you in a positive way?

Y N

2. Was there someone in your family that really seemed to understand the good things about you? Y N

3. Not including spanking did any adult in your home ever physically hurt you (by hitting, kicking, etc.)? Y N

4. Did anyone in your home often swear at you, insult you, put you down or humiliate you? Y N

5. Was there an adult outside the family who took an interest in you? Y N

6. Did anyone at least 5 years older than you sexually abuse you, including unwanted touch? Y N

7. Did your family look out for each other and support each other most of the time? Y N

8. Did you often or very often feel that no one in your family loved you or thought you were special? Y N

9. Were there groups you belonged to outside your family that made you feel good about yourself? Y N circle any that made you feel good: school club team, gang, church other

10. Did you often or very often feel you didn't have enough to eat, had to wear dirty clothes, or were left alone or with other young children without an adult in the house? Y N

11. Did any adults that lived with you use drugs or get drunk in front of you so much that they couldn't care for your needs? Y N

12. Did you experience death of a parent, abandonment, or divorce? Y N

13. If hard things were happening in your life did you have positive ways to help yourself feel safe or better?

14. Was there violence in your house such as hitting, throwing things, kicking, threatening with a weapon such as gun or knife? Y N
15. Did anyone in your home get arrested or go to jail/prison? Y N
16. Did your family have things they liked to do together? Y N
17. Was anyone in your home depressed, mentally ill or suicidal? Y N
18. Was there someone in your home who gave you guidance or good advice? Y N
19. Was there someone at home who paid attention to how you were doing in school?
Y N
20. Did you have physical activities that you regularly did? Y N

Appendix E**Demographic Questionnaire**

1. What is your age range: ___ 21-30 ___ 31- 40 ___ 41-50 ___ 51-60 ___
61-70 ___ over 71
2. What is your gender (**circle one**): Male Female Transgendered
3. Which of the following best represents your race/ethnicity (**circle one**):
 - Black or African American
 - White or European
 - Hispanic or Latino
 - American Indian
 - Asian
 - Middle Eastern/Arabic
 - Native Hawaiian or Pacific Islander
 - Other (please describe): _____
4. How long have you been in treatment at One Promise? _____
5. Education completed (**circle one**):
 - Grade school
 - High school
 - College
 - Graduate school
7. What is marital status (**circle one**):
 - Single
 - Married
 - Living with partner
 - Separated
 - Divorced
 - Widowed
 - Other (please describe): _____

8. Do you have a job (**circle one**)?

No

Yes

a. If yes, how many hours on average do you work in one week? _____

Appendix F

Baltimore post intervention form

Patient Study ID _____ Date of intervention _____ ACE score _____

1. Please indicate your comfort level during the ACE intervention with this client? (Choose one response)

- Very uncomfortable
- Somewhat uncomfortable
- Somewhat comfortable
- Very comfortable

4. Please indicate how secure you felt about your knowledge and ability to screen for ACE intervention with this client? (Choose one response)

- Very insecure
- Somewhat insecure
- Somewhat confident
- Very confident

5. How much time did you spend on this intervention?
_____ minutes

6. Indicate the follow-up plan for this client:

- Referred to primary care for follow-up
- Referred to psychological counseling
- Patient requests none at this time
- No follow-up needed

7. Notes about the interview:
