The Relationship Between Parental Trauma History and Perceptions Regarding Their Child’s Healthcare and Utilization of Healthcare Services

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The Relationship Between Parental Trauma History and Perceptions Regarding Their Child’s Healthcare and Utilization of Healthcare Services

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Regarding Their Child’s Healthcare and Utilization of Healthcare Services

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Abstract

TITLE: The Relationship Between Parental Trauma History and Perceptions Regarding Their Child’s Healthcare and Utilization of Healthcare Services

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Adverse child events (ACEs) have been associated with a number of physical and mental health problems and have also been linked to increased health care utilization. While parents who have an ACE history may tend to seek healthcare services for themselves, limited studies have examined the impact of their trauma history on seeking healthcare services for their child. Healthcare utilization may also depend on the parents’ level of health anxiety, as well as their anxiety about their child’s health status. This study is the first to examine the relationship between parental ACE history, perceptions of their personal health anxiety and health anxiety for their child, and child healthcare utilization in the context of trauma informed care.

A total of 58 parents who experienced at least one ACE and had at least one child <18 years of age living in the home were included in the study. The results from this study found that although parents with higher levels of ACEs did not report significantly higher levels of personal health anxiety, they reported significantly higher levels of health anxiety for their child. In addition, parents with high levels of parental health anxiety reported higher levels of health anxiety for their child. Parental perception of their child’s health status and parent ratings of health anxiety for their child significantly predicted healthcare utilization for their child. Specifically, parents who perceived their child’s health status to be less optimal and reported greater perceptions of health anxiety for their child had higher healthcare utilization.

Additionally, parents who reported utilizing healthcare services for themselves had higher levels
of parents’ healthcare utilization for their child. These collective study results should serve to
remind healthcare providers to screen for family history of ACEs and to consider parental
anxiety about their child’s health which may affect child health outcomes and use of health-based
services for their child.
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Chapter 1: Review of the Literature

Brief Introduction on Trauma

According to the Substance Abuse and Mental Health Services Administration (SAMHSA, 2012), trauma results from an event, frequent exposure to events, or set of circumstances that is experienced by an individual as harmful either physically or emotionally that leads to lasting adverse impacts on the physical, emotional functioning, or spiritual well-being of a person (SAMHSA, 2012, p. 2). Exposure to a highly adverse event could lead to intense physical and psychological stress reactions, produce fear, vulnerability, and helplessness, and promote a fight, flight, or freeze reaction. The Diagnostic and Statistical Manual of Mental Disorders, 5th edition, Text Revision (DSM-V-TR; American Psychiatric Association [APA], 2000) defines traumatic events as those that involve:

- actual or threatened death, serious injury, or sexual violence in some way but differ in how the individual is exposed to them, which can be through directly experiencing the traumatic event (Criterion A1), witnessing in person the event as it occurred to others (Criterion A2), learning that the event occurred to a family member or a close friend (Criterion A3), or indirect exposure in the course of occupational duties, through being exposed to grotesque details of an event (Criterion A4). (p. 305).

The DSM-5-TR identifies several disorders to which exposure to a traumatic event is listed explicitly as a diagnostic criterion including post-traumatic stress disorder (PTSD), acute stress disorder, adjustment disorders and prolonged grief disorder (APA, 2022 p. 296; Taylor-Desir, 2022). Exposure to one or more traumatic incidents may result in varying clinical presentations that include fear-based re-experiencing; emotional, and behavioral symptoms; anhedonic or depressive mood states and negative cognitions; and arousal and reactive-externalizing...
symptoms (p. 305). Some individuals exhibit combinations of these symptom patterns, whereas others may not develop PTSD symptoms related to a traumatic event (APA, 2022). Even if an individual does not meet criteria for a trauma-related diagnosis, they may still be impacted in other ways by the traumatic event. Part 3, Section 1, of the SAMHSA Treatment Improvement Protocol [TIP] (2014) discusses in depth the relationship between trauma and the individual, notably adding complex traumatic stress that may occur but is not fully covered in the DSM 5th edition. Culturally, some individuals may somatically meet the criteria for a DSM-V-TR diagnosis for PTSD, but religious or spiritual beliefs may impact how a person experiences the traumatic event and whether they report the distress (SAMHSA, 2014 p. 84). SAMHSA [TIP] (2014) proposes to bridge the gap between identifying trauma symptoms within an individual and proactively implementing trauma-informed care within the realm of healthcare services.

**Prevalence and Demographics of Trauma**

Research indicates men have a higher lifetime prevalence of experiencing a traumatic event during their life than women (Olff et al., 2007; Tolin and Foa, 2008; Valentine et al., 2019). When examining the types of traumas, women are more likely to experience intimate partner violence and sexual assault not only in adulthood, but also in childhood, compared to men (Pratchett et al., 2010). Even so, not everyone who is exposed to a traumatic event will develop PTSD. The DSM-5 reports that the prevalence rate of PTSD in the United States among the adult population is roughly 8% (APA, 2013) with women being twice as likely as men to have the disorder in their lifetime (APA, 2022; Breslau, 2002; Cox et al., 2014; Kessler et al., 1995; Kilpatrick et al., 1993). In a more recent study, among a sample of roughly 36,000 adults, researchers found the overall prevalence of lifetime PTSD to be 6.9% (Smith et al., 2016). Several factors may account for whether an individual meets criteria for a PTSD diagnosis.
following exposure to traumatic events including resilience, self-esteem or assertiveness, information processing styles, intelligence, coping styles, and social support (Agaibi and Wilson, 2005; Ashana et al., 2020; Merrick et al., 2019; Oral et al., 2016; SAMHSA, 2014).

Traumatic events may affect individuals in many different ways, such that they may not recognize or disclose their symptoms. Findings suggest that men have been less likely than women to be forthcoming in the discussion about childhood sexual abuse (CSA), and adults are less likely to report CSA when the perpetrator is a family member (Ullman et al., 2005). Literature suggests that despite individuals experiencing several traumas, prolonged and repeated during childhood, their response to the experience has varying degrees of symptomology (Herman, 1992). SAMHSA further recognizes that complex traumatic stress extends beyond a trauma-related DSM-5 diagnosis and that variable clusters of symptoms may not match diagnostic criteria (SAMHSA, 2014).

Despite there being multiple types of traumatic events and variable responses to trauma among individuals, there are similarities in cultural and demographic risk factors for experiencing post-traumatic stress following trauma exposure across studies. One of the most common risk factors for the prevalence of developing PTSD is the female sex (Goldstein et al., 2017; SAMHSA, 2014; Yehuda et al., 2015). Other identified risk factors of PTSD severity include younger age, being unmarried, unemployed, lower income, being African American or Latin American, and experiencing assaultive rather than non-assaultive trauma (Chiu et al., 2011). Additionally, Ozer et al. (2003) conducted a meta-analysis including close to 400 studies focusing on varying risk factors for PTSD (SAMHSA, 2014). They found several risk factors for PTSD, including a history of prior trauma, pre-existing behavioral and mental health issues, family history of behavioral health problems, perceived threat during the event, extreme negative
emotional responses following the trauma, and peritraumatic disassociation during or subsequent to the traumatic event (Ozer et al., 2003).

Trauma can impact people of all races, ethnicity, sexual orientation, age, psychosocial background, and geographic locations (SAMHSA, 2014). Rates of PTSD are higher among U.S. Latinx, African Americans, and American Indians compared with Whites (APA, 2013). Some reasons for these discrepancies in prevalence include exposure to past adversity and racism, availability or quality of treatment, socioeconomic status, and social resources, all confounding with ethnic and racial background (APA, 2022). Alegria et al. (2013) found that African American individuals are more likely to develop PTSD in their lifetime compared to non-Hispanic Caucasian individuals. Additionally, exposure to trauma and PTSD rates are documented to be greater among individuals who identify as lesbian, gay, bisexual, or transgender when compared with individuals who identify as heterosexual (Roberts et al., 2010). According to SAMHSA (2014, p. 87), additional diagnostic groups (individuals with developmental disabilities) and at-risk populations (individuals without a home or incarcerated) have a greater susceptibility to trauma exposure and the development of PTSD.

Childhood trauma relates to exposure to a traumatic event in earlier periods of life. Several studies have examined the prevalence and risk factors for experiencing this type of trauma. Wrenn et al. (2011) studied a primarily African American inner-city sample of individuals who had experienced trauma and found that childhood trauma significantly influenced the development of PTSD later in life more than trauma experienced in adulthood. Their findings showed a higher PTSD risk among those who experienced childhood abuse compared to those who experienced other types of traumas in childhood (SAMHSA, 2014). Additionally, several studies reported that minority children have higher occurrences of adverse
childhood experiences that were correlated with systemic racism (Barnett et al., 2020; Felitti et al., 1998) and racial stigmatization (Roberts et al., 2011).

**Adverse Childhood Experiences (ACEs)**

Adverse childhood experiences are common types of adversity seen in America. Roughly 60% of adults surveyed across twenty-five states endorsed at least one type of ACE before they were eighteen, and about one in six reported experiencing four or more types of ACEs (CDC, 2022). Furthermore, Dong et al. (2004) demonstrated that exposure to one ACE category significantly increased the likelihood of exposure to additional ACE types. Several categories exist within childhood trauma, including child abuse, neglect, and household dysfunction. Within these categories are negative experiences such as emotional, physical, or sexual, as well as domestic violence, substance use, mental illness or illegal activities, or parental absence/neglect. Categories also include economic adversity, bullying, and school and community violence (Jahn et al., 2021; Marie-Mitchell et al., 2020). Adversity is also described as traumatic loss, frequent relocations, severe accidents, terminal chronic illness/injury, pornography (exposure or participation), kidnapping, prostitution, torture, war, natural disaster, refugee camps, and terrorism. Additionally, major childhood adversities are also identified as contributors to ACE history. These include peer rejection and limited friends, growing up in poverty, poor academic performance, property crime, and witnessing community violence, which are correlated with an increased risk for adverse life events and negative health outcomes (Anda et al., 2006).

Substantial evidence supports the relationship between ACEs and long-term mental health, social, and physical concerns among adults (Felitti et al., 2019). A positive relationship has been reported between adverse childhood experiences and somatic, affective, substance abuse, memory, and sexual and aggression-related outcomes in adulthood (Anda et al., 2006).
Several studies also discuss social outcomes such as individuals with ACEs are less satisfied with their lives (Mersky et al., 2013), have more work-related problems, and high levels of unemployment (Felitti et al., 1998). One comprehensive study using the Behavioral Risk Factor Surveillance System data collected by the CDC (2012) found that more ACEs were associated with lower educational attainment, marriage, and income (Font & Maguire-Jack, 2016). When looking at the types of ACEs that most impacted adult outcomes, results showed that individuals who experienced physical or emotional abuse in childhood were less likely to marry; sexual abuse correlated with lower levels of marriage and income. Additionally, the researchers found that roughly 17% of the adult participants who experienced ACEs reported sub-optimal health (Font & Maguire-Jack, 2016). Their findings were commensurate with previous research (Felitti et al., 1998) demonstrating ACEs of the abusive type and living with a person with mental illness or substance problems in their childhood were most directly correlated with health risks such as depression, tobacco use, and reports of fair or poor health in adulthood. Using a longitudinal study, Currie et al. (2010) found that adults with a history of childhood abuse and/or neglect had lower levels of employment, earnings, and fewer assets in adulthood.

In the original landmark ACEs study, health-related data was obtained from over 17,000 adults in the United States who had completed a standard medical evaluation at the Kaiser Permanente’s Health Appraisal Clinic in San Diego, California (Felitti et al., 1998). The researchers found that individuals who experienced four or more ACEs were more likely to report poor self-related health, worse health outcomes, socioeconomic barriers, and the practice of several health-risk behaviors, including tobacco use, substance use, sexual behaviors, and obesity (Felitti et al., 1998). They also found a significant relationship between multiple ACEs and the number of health risk factors associated with leading causes of death in adults (Felitti et
al., 1998). One study collecting data from the second survey wave of the original Felitti et al. (1998) study found that physical and sexual abuse, as well as emotional neglect, significantly reduced one’s health-related quality of life, whereas emotional abuse or physical neglect alone did not (Corso et al., 2008).

Emerging literature suggests a notable impact that childhood adverse experiences have on the medical and mental health of children and adolescents (Koball et al., 2021). Difficulties in learning, attention, externalizing, and internalizing behaviors, and obesity emerge in early childhood after exposure to childhood ACES (Burke et al., 2011; Koball et al., 2021). Specifically, experienced ACEs by the age of five are not only associated with the development of behavior problems but are also predictive of a middle school ADHD diagnosis (Hunt et al., 2017; Jimenez et al., 2016). Similar to the Felitti et al. (1998) study conducted among adults, supporting research also has demonstrated that younger children with greater ACEs are at risk for mental health concerns and chronic medical problems before the age of eighteen, such as asthma, and at greater risk of poor health, sadness, sleep, and anger problems (Kerker et al., 2015; Marie-Mitchell et al., 2020). Children exposed to specific ACEs (their parent/caregiver had a mental illness, they were among the poverty stratification level) were at a greater risk of experiencing physical, emotional, and behavioral health care needs (Lanier et al., 2018). A longitudinal study collecting data from roughly one-thousand children at higher risk of child abuse and neglect (cohorts recruited from social services and medical settings), examined at birth, four years of age, and again at the age of six, found that two-thirds of the sample had experienced at least one adverse exposure; this single exposure almost doubled the child’s risk of overall poor health and tripled their risk of illness that would require medical attention (Flaherty et al., 2006).
Parental ACE history influences children’s psychological and behavioral outcomes. One study that examined the association between parental ACEs and child behavioral outcomes among 3,000 children and adult participants found that maternal ACE history had a stronger influence on child behavioral outcomes than the ACE history of fathers (Schickedanz et al., 2018). Researchers explained that the discrepancy was likely due to mothers being the principal caregivers for the children in this sample, suggesting that the child’s behavioral outcomes were moderated by their mother’s experienced adversity and more time spent between the mother and her child. Relatedly, one study found greater general anxiety among children with mothers who endured physical and/or emotional abuse in childhood than children with mothers who were not abused (Jovanovic et al., 2011). In addition, one study using data from the Behavioral Risk Factor Surveillance System in South Carolina found that caregivers who had been exposed to four or more ACEs had a three times greater likelihood that their child would develop depression and/or anxiety compared to caregivers with no ACEs (Haynes et al., 2020).

**Trauma Influences on the Brain**

The brain is the primary organ dealing with stress, perceiving threatening stimuli, and adapting to stressors. Two primary mechanisms involved in the stress response are the sympathetic and parasympathetic nervous systems, which include the immune system, metabolic hormones, and hypothalamic–pituitary–adrenal (HPA) axis (McEwen, 2017). These mechanisms typically promote adaptation through allostasis—a bodily response to stressors in order to reattain homeostasis. However, some individuals may face difficulty maintaining homeostasis through allostasis (adaptation and protection) and regulating allostatic load/overload (McEwen, 2017). Allostatic load/overload consists of the negative outcome of chronic or repeated exposure to stressors, placing a toll on an individual’s brain and body. Repeated experiences of chronic
stressors (i.e., environmental, social, internal) result in immune suppression as catecholamines and glucocorticoids increase resistance in appropriate response and processing (Dhabar et al., 2012 as cited in McEwen, 2017). For example, patients that require hematopoietic cell transplantation, exposure to intense chemotherapy, and prolonged immune suppression increase the risk of long-term adverse outcomes and a higher need for healthcare utilization (Shankar et al., 2007).

Stress is characterized as good, tolerable, and toxic (McEwen, 2017; Center on the Developing Child at Harvard University, 2007). Good stress indicates a drive to accomplish a goal, challenge and take risks that frequently reward with a positive outcome. Evidently, good stress enables the individual to collect experiences that promote growth and is seen among individuals who demonstrate positive characteristics such as resiliency during adversity. Tolerable stress refers to experiencing adverse events; however, the individual can adapt with the support of their family, friends, and other social system members. These opposing challenges may also promote growth for resilient individuals during adversity, much like good stress. However, these individuals may feel distressed due to the uncomfortable degree to which they lack the ability to control the stressor. Lastly, toxic stress is indicative of negative situations when an individual’s support and coping mechanisms are absent. When combined with adverse early experiences, the individual may demonstrate impaired impulse control, poor judgment, and low self-esteem. The degree and duration of the experienced distress are greater among individuals dealing with toxic stress than those experiencing tolerable stress.

Stress is experienced throughout the lifetime in various ways. An example of a positive stressor includes studying for an exam when the fight or flight response is activated and may help the individual utilize coping resources to overcome the stressor – facilitating survival and
promoting growth. Tolerable stressors occur when an adolescent is diagnosed with cancer, and
their entire support system is involved; they are likely to adapt adequately to the circumstance
when combined with nurturing relationships. On the other hand, chronic stressors, when
combined with the absence of a nurturing or supportive system, may result in toxic stress.

Adverse childhood experiences can be traumatic for some, even igniting toxic stress
responses that may lead to sudden and long-term negative physiological and psychological
impacts on adult functioning (Merrick et al., 2019). According to McEwen (2017), stress is
inevitable, and how individuals adapt to stressors differs depending on the individual, the
event/threat, presence of early adverse experiences, and healthy coping mechanisms. When
combined with adverse early life experiences, specific alleles produce poor effects on the brain
and body. This epigenetic process may compromise the ability to demonstrate structural and
functional plasticity to threats, including neuron and synapse replacement and dendrite
restructuring. While the brain is constantly adapting to different stressors using its unique ability,
there are times when an individual’s neural circuitry may remain unbalanced despite the threat
passing. This maladaptation would require behavioral and medical interventions to promote
optimal health in adults – interventions that assist in preventing dysregulated mood states,
improved decision-making, and decreased anxiety.

The recent emergence of findings suggests that the brain may be sensitive to perceived
stress (Wu et al., 2020), and this is correlated with the process of aging, DNA methylation
(Jiménez et al., 2018), and telomere length (Mathur et al., 2016). When young adults exposed to
trauma underwent magnetic resonance imaging, researchers found associations with the
development of the corpus callosum, fasciculus, and cingulum bundle as affected negatively and
the development of the sensory system that processes stressful experiences as altered (Weis et

In addition to impacted sensory systems, the trajectory of brain development affecting the network circuits involved in emotional regulation, threat detection, and reward-seeking behaviors is impacted by childhood adversity, specifically maltreatment. Maltreatment in childhood puts individuals at risk for reductions in hippocampal volume, anterior cingulate, and ventromedial and dorsomedial cortices in adulthood (Teicher et al., 2016). Among adults, dysfunction in the medial prefrontal cortex and limbic structures, including the hippocampus and amygdala, appears to mediate anxiety and mood dysregulation following childhood abuse (Teicher et al., 2000). Anda et al. (2006) conducted a brief review of the neurobiology of trauma experienced in childhood using data from the original ACE study (Felitti et al., 1998). Among the women from this study who were sexually abused in childhood, Anda et al. (2006) found reductions in the hippocampus (Bremner et al., 1997; Stein et al., 1997) and amygdala (Driessen et al., 2000; Schmahl, 2003), as well as deficits in verbal declarative memory (Teicher et al., 2000). Additionally, researchers found that as ACEs increase, impaired memory continues to increase from childhood to adulthood (Anda et al., 2006).

In reports of ACE history, inflammatory diseases were found to be increased in children and young adults with a history of early childhood abuse, including chronic exposure to harsh verbal, physical, and sexual abuse (McEwen, 2017). Some studies examining structural differences found that the timing of the trauma might impact brain development, especially among children who are in their critical period of development (Pechtel & Pizzagali, 2011; Teicher et al., 2006).

**Trauma Influences on Physical Health**

Studies have consistently shown that experiencing childhood trauma may also negatively impact an individual’s physical health. Several diseases among adults, including heart disease
and stroke, liver disease, lung cancer, chronic obstructive pulmonary disease, and autoimmune disease, are associated with ACEs (Oral et al., 2016). According to the American Heart Association, a strong association exists between exposure to ACEs and cardiometabolic syndromes, including hypertension, type 2 diabetes, and cancer (Bryan, 2019). More than four ACEs have been linked with high-risk behaviors and health risks for alcoholism, depression, suicide attempts, drug use; a doubled increase in smoking, and self-reported poor health (Felitti et al., 2019; Hughes et al., 2017; Oral et al., 2016). A history of ACEs is also associated with adulthood-related diseases, including ischemic heart disease, skeletal fractures, chronic lung disease, and liver disease (Felitti et al., 2019).

Short- and long-term physical complications due to trauma exposure continue to be researched. Specifically, ACEs reflecting abuse exposure and having lived with an individual with a mental health illness or substance problems were directly correlated with adult negative health risks (Felitti et al., 1998; Font & Maguire-Jack, 2016). Many studies have demonstrated positive associations between ACE history and trauma with cardiovascular diseases (Boullier & Blair, 2018; Bryan, 2019; Campbell et al., 2016; D’Andrea et al., 2011; Felitti et al., 1998; Kalmakis & Chandler, 2015; Kartha et al., 2008; Kendall-Tackett, 2009; Yang et al., 2013), diabetes and cancer (Bryan, 2019; Yang et al., 2013), lung disease (Boullier & Blair, 2018; Campbell et al., 2016; Felitti et al., 1998; Kalmakis & Chandler, 2015), chronic pain (Kendall-Tackett, 2009), obesity (Bryan, 2019; Kalmakis & Chandler, 2015; Kendall-Tackett, 2009; van den Berk-Clark et al., 2018), sleep difficulties (Briere and Runtz, 1987), and compromised immune functioning (Dhabhar et al., 2012; McEwen, 2017; Oral et al., 2015; Yang et al., 2013). In addition, 4 or more ACEs have been associated with greater odds for binge and heavy drinking, smoking, HIV exposure, depression, and disability due to poor health conditions.
ACEs are also related to poor quality sleep (Chapman et al., 2011; Strine and Chapman, 2005), which is important for reducing perceived stress and stress effects (Fleshner, 2005; Rimmele et al., 2009).

Other poor health outcomes that occur among individuals with ACE history include obesity and eating disorders (Dube et al., 2001; Kendall-Tackett, 2009; Raja et al., 2015), increased suicide risk (Bartholow et al., 1994; Briere & Runtz, 1997; Dube et al., 2001), and high-risk sexual behaviors (Kendall-Tackett, 2009). Risky health behaviors and maladaptive coping strategies in adults with a trauma history include abusing alcohol and illicit and intravenous drugs (Dube et al., 2001; Kendall-Tackett, 2009). Adults with a history of childhood abuse are also more likely to smoke (Dube et al., 2001). In one study examining Swedish young adults, an increase in ACEs was related to increased use of psychotropic medication (Bjorkenstam et al., 2013; Koball et al., 2021).

Given the well-documented relationship between adult ACE history and worse health outcomes, researchers have more recently started to examine the association between parental ACE history and child health outcomes and generally found that children of parents with an ACE history are at greater odds for developing more health problems. For example, one large study conducting a cross-sectional random sampling survey of the Philadelphia area reported that parents exposed to domestic violence in childhood have children with poorer health than children whose parents have not experienced domestic violence in childhood (Forke et al., 2019). Similarly, Le-Scherban et al. (2019) examined a large sample comprised of parent-child dyads using a cross-sectional random sampling survey and found that with each 1-point increase in parental ACEs, the likelihood of poor health in their child increased by 19% and of developing asthma by 17%.
Additionally, literature has found associations between ACE history among children/adolescents and poor health outcomes. Exposure to adverse childhood experiences may also result in changes in immune functioning that increase the risk of infections among children (Anyigbo et al., 2022). Specifically, the type of traumas experienced in childhood, such as the loss of a parent due to parental migration or death, not only increases the risk for depression, anxiety, and conduct disorder but also for suicidal ideation and infectious diseases in children (Fellmeth et al., 2018 as cited in Kappel et al., 2021). Furthermore, adversity may increase proinflammatory markers indicative of a greater risk for acute and chronic infections (Chen & Lacey, 2018; Heard-Garris et al., 2020; Rasmussen et al., 2020 as cited in Anyigbo et al., 2022). This outcome may increase the need for individuals, particularly children, to visit the emergency department (Anyigbo et al., 2022).

The Association Between Trauma and Anxiety

Perceived stress is the appraisal of a situation in one’s life as stressful. There is abundant literature demonstrating that adverse childhood experiences (ACEs) are associated with worse physical and mental health outcomes in adulthood (Hughes et al., 2017), and perceived stress may play a role in this relationship (Hager & Runtz, 2012). For instance, adults with at least four ACEs (compared to those with no ACEs) had greater perceived stress (Hughes et al., 2017), which was associated with poorer mental and physical health outcomes, including psychiatric disorders, early mortality (Lovallo, 2015) and reduced life expectancy and influenced the onset of chronic diseases (Scorza et al., 2022). In fact, much of the empirical research supports that exposure to ACEs is related to exposure to greater perceived stress (Bosse et al., 2018; Han et al., 2016; Mc Elroy & Hevey, 2016; Nurius et al., 2015). One study of 2,000 volunteers from the United States, Australia, and Europe and part of the Brain Research International Database
(BRID; Gordon, 2003) demonstrated that individuals who have experienced three or more ACEs reported greater emotional distress in adulthood (Cohen et al., 2006). Albeit a small effect, a longitudinal study examining ACEs, perceived stress, and poor health outcomes among Puerto Rican children followed for seventeen years, a significant association was found between ACEs and perceived stress in adulthood (Scorza et al., 2022).

Other outcomes, specifically psychological symptoms such as depression and anxiety, present in adulthood as a function of increasing number of ACEs (Poole et al., 2017). For instance, Premji et al. (2020) observed that Pakistani women with more ACEs and elevated perceived stress levels were at a heightened risk of developing anxiety. In another study, Ikram et al. (2022) found an association between ACEs and elevated levels of perceived stress, anxiety, and cortisol. A study assessing perceived vulnerability among 380 young adults who had experienced the death of a parent before the age of eighteen and a nonbereaved control group; accordingly, showed an association between this childhood adverse event and increased depression and anxiety in adulthood and heightened anxiety to future adverse events (Mireault et al., 1992). Some studies suggest an interplay between perceived stress among individuals with ACEs and the development of anxiety. In addition, one study found that high childhood perceived stress and trait anxiety were significantly related to developing an anxiety disorder in adulthood (Mundy et al., 2015). These findings supported the assumption that childhood trauma increases the likelihood of developing anxiety symptoms in adulthood.

One explanation for poor mental and health outcomes among individuals with childhood trauma may be that stressful experiences are perceived negatively and elicit greater anxiety levels, resulting in poor coping strategies and difficulty adapting to the environment (Steck & Steck, 2016). Individuals with an ACE history and higher perceived stress levels have greater
odds of developing physical health problems (Cromer & Sachs-Ericcson, 2006 as cited in Hager & Runtz, 2012) and higher healthcare utilization rates (Dobkin et al., 2003 as cited in Hager and Runtz, 2012). Given that individuals with an ACE history typically endure greater stress levels, this suggests that exposure to adverse events in childhood may lead to immature coping strategies in adulthood (Boals & Banks, 2012; Han et al., 2016). In one retrospective, cross-sectional study of adult women who experienced some form of child maltreatment, those with greater perceived stress when compared to women with no trauma history were more likely to use avoidance coping reflected in unhealthy behavioral practices (i.e., poor sleep hygiene and diet, smoking, alcohol use; Hager & Runtz, 2012). This is consistent with research suggesting that individuals exposed to childhood maltreatment report greater subjective stress, fewer adaptive coping strategies throughout their lives, and a greater risk for deficits in physical health (Spaccarelli, 1994). In one longitudinal study among twenty breast cancer patients with and without childhood trauma, researchers looked at specific inflammatory biomarkers before, during, and after breast radiotherapy (RT; Han et al., 2015). The presence of childhood trauma among these patients significantly exacerbated their behavioral symptoms, such as increased fatigue, depression, and perceived stress before, during, and after RT. These findings suggest that ACE history may compromise one’s ability to cope with a chronic illness.

**Associations Between Trauma and Health-Related Anxiety**

Some research also supports the relationship between exposure to ACEs (illness-related or traumatic) and severe health anxiety among adults (Barsky et al., 1994; Noyes et al., 2002; Rachman, 2012; Reiser et al., 2012). Health-related fear is a type of anxiety known as health anxiety that refers to excessive preoccupation regarding one’s health and misinterpreting bodily sensations as having a serious medical condition (Reiser et al., 2014). Severe health anxiety can
be described as persistent worries about having a serious illness (previously diagnosed as hypochondriasis, now frequently diagnosed as illness anxiety disorder), which increases the utilization of medical services among adults (Abramowitz et al., 2007; Fink et al., 2004). Gehrt et al. (2022) found that exposure to physical abuse in childhood was associated with the development of severe health anxiety in adulthood. Adults with a childhood trauma history are prone to greater development of severe health anxiety, which may lead to higher healthcare utilization rates.

Early studies used conditioning theory to explain the relationship between exposure to traumatic events or repeated exposure to adverse stimuli, and phobias, and excessive fears (Rachman, 1990). Since then, Rachman et al. (2012) have found that experiencing disturbing or damaging events or exposure to traumatic events is associated with greater fears of developing a health illness or disease. Noyes et al. (2002) looked at over 100 adults (majority women) and determined a modest relationship between the severity of childhood trauma and hypochondriasis and somatic symptoms in adulthood. As this study used retrospective data, it was unclear whether other factors, such as depressive or anxiety symptoms influenced the outcome variables assessed and whether patients were, in fact, exposed to early adversity. Despite these limitations, the study findings are consistent with other literature that demonstrates the relationship between childhood maltreatment and somatic symptoms in adulthood, resulting in greater utilization of healthcare services and increased associated healthcare costs (Benjamin & Eminson, 1992; Bridges et al., 1991; Katon et al., 2001). Additionally, the development of insecure attachments due to childhood exposure to traumatic events has been associated with not only hypochondriasis but also health anxiety, which is associated with increased adult health care-seeking behaviors.
Health anxiety has clearly been linked to physical health issues and/or a medical illness (chronic or acute). Bozkurt et al. (2014) observed 100 participants split evenly among individuals with and without noncardiac chest pain and found that those with chest pain presented with higher levels of health anxiety. In addition, one study found that health anxiety was higher within a sample of individuals with multiple sclerosis than in an age-matched control sample (Kehler et al., 2009). Similarly, higher levels of health anxiety were reported among individuals with fibromyalgia and depression compared to the healthy control group (Uçar et al., 2015). Elevated health anxiety has also been reported among individuals with Ménière's disease (Kirby & Yardley, 2009) and those with chronic pain (Rode et al., 2006). Similarly, another adult population that has a relationship with trauma is parents with an ACE history, who also endure worrying excessively, not only about themselves but also about their children, regarding general and health-related outcomes.

**Associations Between Trauma and Parental Anxiety**

One of these findings suggested that parents or caregivers who reported more ACEs and unresolved toxic stress in their own childhood (excessive stress in the absence of protection from parents) typically struggled with self-regulation, worried excessively, and/or had high general anxiety (Dowd, 2019). One systematic review of twelve cross-sectional and case studies found a relationship between maternal ACEs and adverse parenting outcomes such as increased parenting stress and potential for maltreatment (i.e., reduced empathy and increased psychological control) toward their child (Hughes & Cossar, 2015). Despite the limitations that these studies included small sample sizes, other studies similarly support a significant
relationship between ACEs, parenting anxiety, and parenting outcomes. For instance, among mothers who have experienced childhood sexual abuse, those with higher anxiety levels were found to engage in fewer intimate interactions with their children (Douglas, 2000). One longitudinal study with a relatively large sample size determined that mothers with an ACE history were likely to parent their child differently (i.e., less sensitive parenting, harsh intrusive/controlling parenting, and porous boundaries) from those with no trauma history as their resources to parent effectively may have been compromised (Zvara et al., 2015). Some of the moderators for these findings were current income, education, and marital quality.

Other parental concerns among those who have a trauma history include anxiety about personally repeating the pattern of abuse, fearing they will not be able to protect their child from harm (Siverns & Morgan, 2019), decreased attachment with their child, and distancing from their interpersonal relationships (Liu, 2017; Mason et al., 2005). Cooke et al. (2019) reported similar outcomes associated with ACEs in mothers, such as avoidance of attachment to others and anxiety related to attachment with their child. Mothers with an ACE history have also been reported to have greater difficulty with child-rearing, specifically in offering praise to their child (Fujiwara et al., 2012), having appropriate developmental expectations (Kim et al., 2010), and anxiety with intimate childcare (Douglas, 2000). When these collective factors are combined with children’s externalizing and internalizing behaviors, anxiety may be further heightened among parents (Cooke et al., 2019; Rowell & Neal-Barnett, 2021).

The bulk of the literature focuses on parenting anxiety and behaviors among mothers; however, limited research has examined the role of fathers in the parenting process. A meta-analysis of 45 studies found that parenting stress was found to be associated with paternal anxiety during the perinatal period (Chhabra et al., 2020). In fact, maternal depression, marital
distress, and parental stress during the perinatal period were all risk factors for negative paternal mental health outcomes (Chhabra et al., 2020). Additionally, Smythe et al. (2022) reported that lower levels of education, unemployment, marital distress, or limited social support contributed to the development of paternal depression, which increases the risk of parental anxiety among both parents.

Some studies have examined the role of parental anxiety and the development of health anxiety in their children and adolescents. In one study using a family case-control design, findings suggested that mothers with high health anxiety reported more visits to their child’s general practitioner within the last 12 months, and the ratings of their health anxiety affected their child’s own report of health anxiety (Thorgaard et al., 2017). Bilani et al. (2019) interviewed 100 parents of children diagnosed with cancer, reporting that 21% of the parent sample experienced health anxiety. Greater levels of health anxiety were associated with helplessness, lower acceptance of the medical illness, inadequate income, and personal illness or illness occurring within a family member/close friend (Bilani et al., 2019). In one cross-sectional study, Llewelyn-Williams et al. (2022) found high levels of health anxiety among children and adolescents with congenital heart disease. They noted a trend of an inverse relationship between parental and child health anxiety; parental health anxiety increased as their child’s health anxiety decreased (Llewelyn-Williams et al., 2022). Other studies conducted in Hungary (Köteles et al., 2015) and Canada (Wright et al., 2017) support the majority of the literature that found that as parental health anxiety increased, so did health anxiety among adolescents (Köteles et al., 2015; Marshall et al., 2007). One discrepancy between the findings, commensurate with the inconsistencies in the literature, may be due to the majority of studies focusing on the influence of parental anxiety on typically developing/healthy youth versus children and adolescents with
chronic health conditions. Another reason is that atypical children and adolescents are regularly exposed to uncertainty and tolerance and greater reliance on their parents, who already have higher levels of anxiety related to their child’s health. Other reasons for the mixed findings in literature could be the use of varying health anxiety measures (i.e., Children Illness Attitudes Scale, Short Health Anxiety Inventory) across studies.

The Impact of ACEs on Healthcare Perceptions and Utilization of Healthcare Services

Overall, studies have shown that adults’ use of healthcare services is related to their trauma histories, likely secondary to the practice of unhealthy behaviors and health problems (da Fonseca et al., 2017; Warrick et al., 2018). Kalmakis et al. (2015) found that ACEs have been associated with increased adult healthcare utilization, decreased quality of care (Corso et al., 2008), financial burdens on the healthcare system, familial stress and dysfunction, and reduced health and functioning (Alfifi et al., 2008). In addition, childhood abuse survivors are more likely to experience health problems and become sick more often, which leads them to visit healthcare facilities more frequently (Felitti, 1991). Furthermore, these individuals are more likely to report greater health-related symptoms and less likely to describe their health as optimal as well as have more surgeries in adulthood (Kendall-Tackett, 2002). Similarly, a study looking at a sample of roughly 300 college students reported that child physical and sexual abuse was associated with a greater number of hospital admissions and surgeries in their adulthood (Salmon & Calderbank, 1996). The majority of literature supports that adults with an ACE history have engaged in greater healthcare utilization, primarily emergency room services (Chartier et al., 2010; da Fonseca et al., 2017; Felitti et al., 2010; Oral et al., 2016; Warrick et al., 2018).

Interestingly, adults’ healthcare utilization increases as their trauma also increases. Severe childhood sexual abuse has been linked with adult chronic pain and higher utilization of
medical care and emergency resources (Arnow, 2004). In addition, Koball et al. (2019) found that adults with four or more ACEs made more but maintained fewer appointments than those with three or fewer ACEs as well as had more cancelled and no-show appointments. A history of childhood maltreatment among both men and women has also been reported in individuals seeking specialty care such as emergency psychiatric facilities (Arnow, 2004). Testa et al. (2022) conducted a longitudinal study following individuals from adolescence to adulthood and found that a history of ACEs increased the odds of being uninsured in middle adulthood and using more emergency care services.

As some healthcare settings screen children for ACEs and provide resources to promote resilience in children, parents, and their families, a few studies looking at adversity among children and healthcare utilization found that children exposed to maltreatment and facing adversity were less likely to receive adequate preventative health care service and more likely to utilize urgent and emergency medical care (Logan et al., 2008; Newcomb & Locke, 2001 as cited in Eismann et al., 2019). One longitudinal study determined that four or more ACEs among children increased their primary care sick visits and emergency care services at age nine (Anyigbo et al., 2022). While children with ACEs are more likely to utilize specialty care, such as from a surgeon or an allergist, they also experience higher unmet needs with that level of care (Koball et al., 2021).

While studies have examined the influence of ACE history on health outcomes and healthcare utilization, there is limited research on parental ACE history and its impacts on their child's healthcare usage. Lê-Scherban et al. (2018) recruited 350 parent-child dyad participants and found that each parental ACE increased the likelihood of poor overall health status for their child and increased seeking of health care services for their child. This finding suggests that
caregivers with more ACEs were more likely to seek healthcare services for their children. Several studies have demonstrated that parenting stress is also associated with utilizing higher health care services for their child. In a U.S. population-based study, Raphael et al. (2010) determined that parents who experienced higher levels of parenting stress engaged in greater utilization of pediatric emergency care compared to parents with low parenting stress. In addition, parents who received less emotional support were more likely to use preventative care for their children when compared to parents who received more emotional support (Raphael et al., 2010). Several other studies found that greater parenting stress was associated with timely and appropriate medical care utilization for their children (Bucher et al., 2008; Raphael et al., 2010; Vermaes et al., 2008).

Several factors may influence parents to seek medical or psychological attention for their child. Adverse child experiences associated with developmental delays and injuries in four- and five-year-old children, behavioral problems and learning disorders, poor mental health outcomes, and a high body mass index associated with obesity (Burke et al., 2011; Kerker et al., 2016; Marie-Mitchell & O’Connor, 2013), may often drive families to seek psychological and medical services for their child. Parental ACE history has also been identified as another factor that increased re-utilization of hospital settings such as the emergency room, urgent care, and medical centers for their child (Shah et al., 2020). A history of childhood adversity and impaired current coping ability may lead to a parent’s heightened response in taking their child to the hospital and may affect their capacity to care for their child after he/she is discharged (Shah et al., 2020). One study found maternal depression was associated with decreased attendance at recommended routine medical visits for their child; however, a greater number of sick visits and utilization of emergency services were reported (Eismann et al., 2019). Furthermore, as parents with an ACE
history may be less likely to identify a primary care provider for their child, the lack of an established primary care physician (PCP) for the child will likely increase the frequency of utilization of pediatric emergency services (Raphael et al., 2010). One rationale for adults with ACEs seeking greater emergency care for their child is the lack of a primary care provider and the perception of the management in the ER as better than the medical home model (Purkey et al., 2020). Given these collective factors, and the importance of adverse experiences in healthcare outcomes, it is essential that healthcare settings provide trauma-informed care to children, parents, and their families to prevent re-victimization.

**Trauma-Informed Care**

Given the significant prevalence of experienced trauma and its numerous adverse consequences, it is imperative that the needs of individuals be considered, specifically within health care and human services. Not only is trauma epidemic, but it can also be costly as a public health problem. More researchers are discovering that addressing trauma is integral to delivering effective behavioral health services in a healthcare system. The Substance Abuse and Mental Health Service Administration (SAMHSA) constructed a framework that can be implemented in a behavioral health setting and adaptable to other fields such as primary health care. With supporting trauma-specific research and interventions, as well as feedback from experts and the public, SAMHSA developed a set of guidelines to direct healthcare delivery.

SAMHSA states the four “R’s” are key assumptions identified in the trauma-informed approach and include realization, recognition, response, and resisting re-traumatization. The first assumption includes a fundamental realization about trauma and how it can affect individuals, families, groups, and organizations. The second assumption includes that every person in the organization or system recognizes the signs of trauma specific to gender, age, or the setting and
that measures such as trauma screeners are utilized. The next key assumption is that the program, organization, or system responds with principles of a trauma-informed approach that include knowledge of the prevalence and impact of trauma. The fourth assumption is resisting the re-traumatization of individuals by ensuring that the trauma-informed approach effectively produces a conducive environment that is safe and understanding of their experiences (SAMHSA, 2014).

In addition to assumptions that are integral to practice in various settings, there are six key principles of a trauma-informed approach that can be generalized across several types of settings. The first principle includes safety, which enforces that within the organization, staff and served individuals feel physically and psychologically safe (SAMHSA, 2014). The second principle includes trustworthiness and transparency, as organizations should maintain clear, open, and direct communication about decisions and operations. Thirdly, peer support and mutual self-help are key components for building trust, improving collaboration, and establishing safety and hope to promote recovery (SAMHSA, 2014). The fourth principle stresses the importance of balancing power differences between staff, clients, and organizational staff. The fifth and sixth principles refer to empowering and strengthening individuals as well as sensitivity to gender and cultural needs while recognizing and addressing historical trauma, respectively (SAMHSA, 2014).

Despite the available research on the adverse impact of trauma on health outcomes, little is known about whether providers understand the significance of ACEs in healthcare (Horwitz et al., 2010; Williams et al., 2004). According to a study by Kerker et al. (2016), few pediatricians inquired about their patient’s ACE history; in fact, more than 30% did not ask about the ACE history of the pediatric patient or their family members. Additionally, screening within a primary
care setting is uncommon (Bryan, 2019), despite it being feasible and achievable with increased provider confidence (Glowa et al., 2016; Goldstein et al., 2017; Kalmakis et al., 2017).

The Felitti et al. (1998) Adverse Childhood Experiences study and the trauma-informed approach have highlighted the impact of traumatic events on multiple health indices. Findings from the Felitti et al. (1998) ACE study and trauma-informed care have helped reduce pathologizing symptomatic behaviors by (i) deeming reactions to atypical experiences as normal (Evans & Coccoma, 2014; Van der Kolk 2014 as cited in Leitch, 2017), (ii) implementing screenings for trauma history during initial intakes (Harris & Fallot, 2001), (iii) encouraging staff practices that promotes relationships between providers and the individual, (iv) improving personal safety, (v) providing welcoming and respectful service, and (vi) integrating early prevention strategies to vulnerable families and individuals (Leitch, 2017).

Furthermore, children represent a vulnerable population, specifically those not attending school, which may make ACEs challenging to identify. Early identification of ACEs is vital to their optimal development. The American Academy of Pediatrics (2014) recognizes that early life experiences affect long-term health outcomes, recommending that children attend seven well-child visits in the first year of their life, along with several visits during early childhood (Kerker et al., 2016). This promotes awareness among pediatricians by encouraging them to implement routine screening of ACEs at the level of the individual child, parental, familial, and community (Kerker et al., 2016).

**Barriers to Healthcare**

There is a multitude of factors that make accessing health care services difficult from a systemic level as well as individual barriers. From a systems framework, Goins et al. (2006) identified five challenges individuals face when accessing healthcare services: transportation
difficulties, financial constraints, limited supply of healthcare services, lack of adequate healthcare, and social isolation. In rural areas, cultural and financial constraints, scarce services, lack of trained physicians, limited internet availability, and public transportation were common reasons individuals were reluctant to seek health care services (Douthit et al., 2015).

According to the World Health Organization, “universal access to skilled, motivated and supported health workers, especially in remote and rural communities, is a necessary condition for realizing the human right to health, a matter of social justice” (Chen, 2010). Rural communities are found to be poorly developed, have weak economic infrastructures, as well as significant physical barriers to health care (Douthit et al., 2015; Goins et al., 2006). Since the Goins et al. (2006) study, other barriers to treatment, such as low income, lack of education and health literacy (Tait & Chibnall, 2014), difficulty with health insurance enrollment, feeling distrust of health care providers (Lazar & Davenport, 2018), and general cost of healthcare (Iezzoni, 2020; Keisler-Starkey & Bunch, 2020; Stepanikova & Oates, 2017) have been identified.

**Barriers to Treating Trauma in a Healthcare Setting**

In addition to several potential general barriers to accessing healthcare services, trauma experiences can also contribute unique challenges. However, research addressing parental ACE history effects on utilization of and barriers to health care for their child has been limited. Researchers have found that individuals who reported greater ACEs were more likely to have poorer access to medical and mental health services (Oral et al., 2016). Some of the factors influencing poor access include inadequate transportation, limited translation services and care coordination, and parents’ health literacy (Alwan et al., 2020). According to Alwan et al. (2020), many Syrian parents endorsed coping through their faith, resilience, use of natural remedies, and
seeking community resources for their child rather than seeking traditional healthcare services.

Additionally, they identified dissatisfaction with health care (i.e., emergency room wait time and lack of adequate testing and prescriptions), poor housing and neighborhoods, re-experiencing trauma, depression and anxiety, and social isolation as stressors that negatively impacted parental health-seeking behaviors for their child (Alwan et al., 2020).

A common saying among adults with children is that being a parent is extremely difficult and rewarding. Parents may feel conflicted about needing and fearing support as they may determine available resources for their child as unsafe, which results in increased isolation (Siverns & Morgan, 2019). One common threat to accessing support for parents includes fear of judgment from others when sharing their experiences (Siverns and Morgan, 2019). Researchers looking at multiple qualitative cases included a parent stating, “I remember asking someone what they do when they feel like they want to throw their kid in the river, and she was like, ‘I would never throw my kid in the river.’ I remember feeling so embarrassed. I thought we were friends. I thought that I could say something like that” (Hall, 2011 as cited in Siverns and Morgan, 2019).

According to other parents, professional settings such as social services are also deemed as “unsafe” and “anxiety-provoking,” and they feel that interventions received from these professionals are judgmental and threatening (Siverns & Morgan, 2019).

Out-of-pocket medical costs for individuals who have experienced ACEs nearly double from $184 to $311 annually when the number of ACEs increases from 1-2 to 3 or more compared with those who have no ACE history (Schickedanz et al., 2019). Demographically, findings suggest that medical costs were higher among single, childless adults and women – those who were high “utilizers” of healthcare services also had an ACE history (Koball et al., 2021). Research supports that ACEs, financial stress, and psychiatric problems were associated
with greater healthcare utilization and cost in adults (Bonomi et al., 2008; Sterling et al., 2018; Walker et al., 1999). In particular, personal financial burden is significantly associated with exposure to ACEs (Afifi et al., 2008). Despite this, as more late cancellations and no-show visits occur, less opportunity exists for the healthcare system to bring in revenue (Koball et al., 2021). These issues could be better addressed with a trauma-informed approach that allows for more family flexibility and promotes collaboration between the system and healthcare utilizers. These efforts may include open access and same-day scheduling to increase patient care availability (Anyigbo et al., 2022; Rose et al., 2011; Warrick et al., 2018).
Chapter 2: Study Rationale and Justification

Adverse childhood experiences (ACEs) may be stressful to an individual and last beyond years, contributing to poor health outcomes and negative consequences. ACEs have the ability to derail thriving health and development by changing gene expression, brain connectivity and function, immune system, and organ functioning (Merrick et al., 2019). Several studies highlight the significance of adverse childhood experiences on long-term health (Alcalá et al., 2018; Chartier et al., 2010), including effects on health-risk behaviors, poor health outcomes, and illnesses/diseases. For instance, increased tobacco and substance use, sexual behaviors, and obesity are linked as responses to the presence of an ACE history (Oral et al., 2015). Poor health outcomes among adults with ACEs include heart and liver disease, stroke, and lung cancer; individuals also have a higher risk for alcoholism, depression, and suicide (Felitti et al., 2019; Hughes et al., 2017; Oral et al., 2015). Several research studies report the impact ACEs have on health through the hypothalamic–pituitary–adrenal (HPA) axis and the sympathetic nervous system, which are activated and dysregulated for a longer duration when exposed to chronic stress (Oral et al., 2015).

Much speculation exists regarding the impact of parents’ dysregulated stress response on their child as well as the heightened risk to their child’s development and health. Several studies indicate that increased ACEs among maternal figures are correlated with poor developmental function (Folger et al., 2018; Sun et al., 2017), social and emotional dysregulation (Enlow et al., 2017; Folger et al., 2017; Madigan et al., 2017), and externalizing problems (Cooke et al., 2019; Hunt et al., 2017) among their children. Self-report measures indicate parental ACEs have been associated with poorer physical health of their children as well as a higher risk of ACEs in their child (Lê-Scherban et al., 2018).
The recent emergence of trauma-informed care has led to examining parental ACEs related to the health of their children (Lê-Scherban et al., 2018; McDonnell & Valentino, 2016). For instance, maternal childhood abuse has been associated with differences in their infant’s brain anatomy, emotional and behavioral problems, and worse adjustment (Lê-Scherban et al., 2018). However, limited research exists examining parental ACEs in relation to healthcare access and utilization for their children. Prior research has looked at parent-related factors other than ACEs that explain infrequent preventative healthcare visits and greater urgent care and emergency services utilization for their children. Previous literature highlights the increased utilization of emergency services when adults endorse ACEs related to sexual abuse and are secondary to limited access to care (Alcalá et al., 2018; Arnow, 2004). Eismann et al. (2019) found an intergenerational correlation between maternal ACEs predicting nonadherence in child healthcare utilization assessed by a number of missed well-child visits for children younger than the age of two.

The majority of the literature supports a positive relationship between ACE history and greater healthcare utilization despite some inconsistencies about barriers. ACE history may compromise an individual’s access to healthcare resources regarding preventative care, which is further compounded by low socioeconomic status and lack of health insurance (Alcalá et al., 2018). Among certain families, family adversity may create barriers for parents to meet their child’s health needs due to not being insured and subsequent reduced use of preventative healthcare visits (Alcalá et al., 2018; Berg et al., 2018; Fairbrother et al., 2005). Studies looking at children exposed to adverse experiences or maltreatment propose they are less likely to receive adequate preventative healthcare and more likely to utilize urgent or emergency care settings (Alcalá et al., 2018; Shah et al., 2020). However, it has been suggested that among adults with an
ACE history, there is greater healthcare utilization, frequent use of emergency services, overnight hospital stays, and healthcare costs (Bonomi et al., 2008; Chartier et al., 2010; Corso et al., 2008; Felitti and Anda, 2010; Hughes et al., 2017; Oral et al., 2015; Tang et al., 2006). Higher health anxiety among adults is associated with greater healthcare utilization for themselves (Thorgaard, 2016) and may be a strong predictor of parental decisions to seek healthcare services for their children (Janicke et al., 2001; Thorgaard et al., 2017). While findings have suggested that parents who have experienced ACE history seek health care services for themselves, relatively little is known about the impact of their trauma history on their health anxiety and their motivation to seek health care services for their child (Shah et al., 2020). Among children with autism spectrum disorder and ACE history, for example, there is a greater risk of utilizing emergency services while also having unmet healthcare needs (Berg et al., 2018; Koball et al., 2021).

Healthcare utilization, especially preventative care, is particularly important for children’s development and long-term physical and mental health (Eismann et al., 2019; Okeson et al., 2022). As part of the healthcare process, pediatricians are encouraged to identify social-emotional problems and adverse experiences of the child’s parents in order to prevent or mitigate short- and long-term pediatric health effects (Brennan et al., 2000; Field et al., 2010; Minkovitz et al., 2005). Notably, in one study, no pediatricians screened for ACEs in families of their patients (Kerker et al., 2016). Recently, pediatricians have begun to inquire more frequently about parental ACE history to provide trauma-informed care for their pediatric patients and family members (Eismann et al., 2019; Kerker et al., 2016). Identification of whether parents with an ACE history seek services for their child will assist pediatricians in working with parents to improve their child’s healthcare adherence earlier in the healthcare delivery process.
Chapter 3: Objectives & Hypotheses

- **Objective 1:** To examine the association of parental ACE history, parent ratings of their child’s health status, and health anxiety.
  
  1. **Hypothesis 1.1:** Parents with high levels of ACEs will have high levels of personal health anxiety.
  
  2. **Hypothesis 1.2:** Parents with high levels of ACEs will have high levels of health anxiety for their child.
  
  3. **Hypothesis 1.3:** Parents who rate their child’s health status as less optimal will have high levels of health anxiety (for their child) than parents who rate their child’s health status as highly optimal.
  
  4. **Hypothesis 1.4:** A positive association exists between parent ratings of their own health anxiety and their ratings of health anxiety for their child.

- **Objective 2:** To examine the variables that best predict health seeking behaviors (i.e., health care utilization; HCU) for their child among parents who have experienced trauma. Variables included age of child, child’s health status, number of parental ACEs, and parental/child health anxiety.
  
  1. **Hypothesis 2.1:** Parents who perceive their child’s health status as less optimal, whose child is younger, who have more ACEs, and have more health anxiety (for themselves and their child), are more likely to seek health care services for their child (i.e., greater HCU).
  
  2. **Hypothesis 2.2:** Parents with a high ACE history, specifically sexual abuse history, will report higher emergency and/or urgent care utilization for their child.
3. **Hypothesis 2.3:** There is a positive association between parental HCU (for themselves) and health seeking behaviors (i.e., HCU) for their child.

- **Objective 3:** To examine the relationship between child’s healthcare utilization and barriers to healthcare among parents with an ACE history from a trauma-informed perspective.

1. **Hypothesis 3.1:** Healthcare utilization will be influenced by the interaction of ACE history among parents and barriers to treatment. Parents with higher ACE history and fewer barriers to treatment will report greater rates of healthcare utilization for their child.
Chapter 4: Methods

Participant Eligibility

Eligible participants included in the study were: (I) parents who reported at least one traumatic event in their lifetime, as assessed by the ACE criteria, (II) were at least 18 years of age or older, and (III) able to read English fluently. Additionally, (IV) participants were required to have at least one child (<18 years old) living in the home. Only one parent/caregiver per family was eligible to participate in the study. For parents with multiple children living in the home, the survey was completed in reference to the child in the family about whom they have the greatest health concerns, who was identified as the target child for the study. Approval was obtained from the Florida Institute of Technology Review Board prior to the initiation of the recruitment process. All participants were provided with an informed consent that they were asked to complete before their participation. The recruitment process took place through online surveys.

Data Collection Process

Participants were directed to the survey through a link that was provided to them via the consent form. They were recruited through listservs of parents who are members of campus chapters of Clinical Psychology, recreational child programs (i.e., sports programs, youth groups), informal recruitment (e.g., word-of-mouth), and media platforms for parents. Additionally, information about this survey was disseminated to social media platforms and through websites such as Facebook, as well as email including a description about the study and access to the informed consent and survey. Participants completed the survey on a personal electronic device (e.g., phone, computer, or tablet). The online survey consisted of 100 items and took approximately 20-30 minutes to complete. To begin the survey, participants were required
to consent after reading the description about the study. They verified their eligibility by completing an initial set of questions and were informed they were able to withdraw from finishing the survey at any time. Participants had access to the “back” button to return to previous questions, if needed. Data gathered from the survey was entered into a HIPAA-compliant database with de-identified personal information of all participants.

**Measures**

Participants were directed to access the survey through the Qualtrics website. All data collected was stored in a secure server in the Department of Psychology at Florida Institute of Technology. Items from five measures and those that assess demographics comprised the content of the survey. These included the Adverse Childhood Experience (ACE) Questionnaire, modified Healthcare Utilization (HCU) questionnaire, Health Anxiety Inventory (HAI) short version, parent ratings of their child’s general health status, Barriers to Treatment checklist, plus items pertaining to participant demographics. All measures were self-reports and were the primary domains of the survey as described below: (see appendix B):

**Demographics**

The demographic characteristics of participants that were collected include age of the child and the parent, race, gender identity, ethnicity, education level, employment status, marital status, socioeconomic status (individual and household income), region of residency, child’s health status, and child’s insurance status.

**Trauma History**

Participants were asked about their childhood trauma using the 10-point Adverse Childhood Experience (ACE) questionnaire developed by Felitti and Anda (1998). The questionnaire identified 10 types of childhood trauma measured in the ACE Study. Five items
were related to personal factors: physical abuse, verbal abuse, sexual abuse, physical neglect, and emotional neglect. Five were related to other family members: a parent who’s an alcoholic, a mother who’s a victim of domestic violence, a family member in jail, a family member diagnosed with a mental illness, and the disappearance of a parent through divorce, death, or abandonment. For each of the questions, the individual gave a “Yes” or “No” response. When scoring, each “Yes” answer was given one (1) point. The sum of the points determined the individual’s ACE Score. Psychometric properties of this questionnaire include a high internal reliability ($\alpha = .77$; Mersky et al., 2017) and test-retest reliability (.65; Pinto et al., 2014) as well as sufficient convergent validity. All correlations were significant at $p < .001$.

Originally, this questionnaire first made its debut in the mid 1990s to determine whether adverse experiences prior to the age of 18 are correlated with negative health outcomes (medical, social, and public health problems) in adulthood (Morse et al., 2018). In the original study, the researchers reported more than half of the participants endorsed experiencing at least one of the adverse events across seven categories of abuse and household dysfunction. The researchers asked 17 questions rather than the current 10 across seven categories of adverse childhood experiences including abuse (psychological, sexual, and physical) and household dysfunction (substance abuse, mental illness, criminal behavior in the household, and a mother treated violently). This study influenced medical and public health research and data collection by the Centers for Disease Control and Prevention (CDC), which tracks incidence of risk factors, health patterns, and mortality in the original participant sample (CDC, 2014). Trauma-informed care has emerged in integrated health settings as a result of earlier trauma-based research with a focus on early prevention of negative health outcomes.
Healthcare Utilization

Participants were asked about their current healthcare utilization (HCU) practices for themselves and for their child in the past twelve months. Questions regarding their own and their child’s attendance at various healthcare services (e.g., emergency center/urgent care, annual dental visits, and annual health check-up), the types of health providers (e.g., primary care, specialist, ER doctor) visited for their annual check-ups, and nature of their visit (i.e., injury/accident, sports physical check-up, and immunization) were included. Both scales were scored similarly so that parent ratings of their own healthcare utilization and the healthcare utilization of their child could be compared. A composite score for HCU was calculated depending on the number of completed visits to a health care setting and health providers seen for assessment, consultation, and/or treatment. The composite score for HCU was 0-13, whereby higher scores indicated greater overall HCU. This measure was adapted from a collection of studies utilizing various versions of healthcare utilization in adult patients with diverse pathology (Felitti and Anda, 2009; Alcalá et al., 2018; Chartier et al., 2010; Eismann et al., 2019).

Additionally, two questions adapted from the Patient Trauma-Informed Care Survey (TIS) asked to identify whether the participants’ physician inquired about any of their trauma history or their child’s trauma history to gain understanding of the quality of care that they received from a trauma-informed perspective (TIC). (Kokokyi et al., 2021). The two questions assessed frequency of the inquiry with responses consisting of ‘never,’ ‘rarely,’ ‘occasionally,’ ‘frequently,’ ‘almost always’ and frequency of receiving patient-focused (supportive) responses from healthcare providers regarding trauma disclosures including, ‘never supportive,’ ‘rarely supportive,’ ‘occasionally supportive,’ ‘frequently supportive,’ ‘almost always supportive,’ which were a descriptive component in the measure.
**Child Health Status**

One additional question was included that utilized a one-item parent rating of their child’s health status. This question was derived from the Minnesota Student Survey (MSS), which is a statewide system utilized by the Departments of Health, Education, Human Services, and Public Safety and has been used in previous studies (Rider et al., 2018). The question asked parents “how would you describe your child’s health in general?” The responses consisted of ‘poor,’ ‘fair,’ ‘good,’ ‘very good,’ or ‘excellent’ with scores from 1-5, respectively.

**Health Anxiety Inventory (HAI) – Short Form**

The Short Health Anxiety Inventory (SHAI; Salkovskis et al., 2002) is an 18-item self-report brief screening measure of health anxiety/hypochondria symptoms for adults; the shortened version of the Health Anxiety Inventory (HAI; 64 items) was developed by Salkovskis et al. (2002). The SHAI assesses sensitivity to both normal levels of current health concerns/worries and severe medical conditions independently of physical health status over the past 12 months. Each item was scored on a scale from 0-3 (i.e., a=0, b=1, c=2, d=3). For purposes of this study, the SHAI was completed by parents in reference to their own personal health anxiety; parents were also asked to complete items related to their health anxiety for their child using an adapted version of the SHAI. Both scales were scored similarly so that parent ratings of their own health anxiety and the health anxiety of their child could be compared. Total scores ranged from 0 to 54 for the parent’s own health anxiety and 0 to 54 for the health anxiety related to their child, with elevated scores indicating greater symptomology; scores higher than 20 indicate clinical symptomatology (Cybulski et al., 2021; Kocjan, 2016; Österman et al., 2022). If multiple items were endorsed, the highest score was used (Salkovskis et al., 2002).
SHAI includes good internal consistency (alpha = 0.89), test-retest reliability (r=0.90), and convergent validity for the hypochondriasis measure (Abramowitz et al., 2007; Salkovskis et al., 2002).

**Barriers to Treatment**

The barriers to healthcare index included 16 items primarily focused on parents’ attitudes about and barriers to seeking healthcare services for their children – both mental health services and medical services. This measure was developed by the research team with some content based on the 2005 version of the National Health Interview Survey (NHIS) from the National Center for Health Statistics adapted for a study regarding parents’ barriers to their child’s healthcare utilization (Young & Rabiner, 2015). Parents were asked to rate items on a 5-point Likert scale (1=not at all, 2=rarely, 3=somewhat, 4=frequently, and 5=very much). Five items examined institutional barriers/logistical (e.g., “not being able to get through on the telephone,” “not being able to get an appointment soon enough”), five items assessed socio-economic factors (e.g., “not having transportation,” “not being able to afford the services”), 5 items evaluated the stigma domain (e.g., “worrying about friends and family finding out,” “worrying about the child’s teacher or school finding out”), and one item asked parents the likelihood off them delaying care because their child refused to attend the health appointment (i.e., doctor’s office/clinic). Each item that the parent affirmed had impeded their ability to receive services for their child received one point. The range of scores for the barriers to treatment index was 0-80 points. Higher scores on this measure represented more barriers to treatment. Two questions were included to inquire about whether COVID-19 influenced healthcare utilization. The questions “have your efforts to seek healthcare been affected by COVID-19?” and “are services harder to access post-COVID-19?” included responses of “yes” or “no” that were worth 1 point or 0, respectively.
Chapter 5: Research Design and Data Analysis

This study utilized a cross-sectional design. Descriptive statistics (e.g., means, standard deviations, and frequencies) was provided for the participants’ demographics and primary outcomes related to themselves and/or their child (trauma history, healthcare utilization, and health anxiety). Pearson product-moment and Spearman Rank Order correlations (\( \rho \)) correlations were conducted to examine the relationship between selected variables. The Mann-Whitney U test was performed to determine group differences on selected outcomes and Chi-Square tests of independence were utilized to examine associations between selected categorical variables. In order to examine predictors of child healthcare utilization, a linear regression model was used. A 2x2 ANOVA was conducted to examine the interaction effect between ACE history and barriers to treatment on healthcare utilization. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) - version 28. All analyses were considered significant at the p < .05 level.
Chapter 6: Results

Participants

Demographic Variables

A total of 171 individuals consented to and began the online survey for this study. Of these, twelve participants were excluded for having another family member take the survey. An additional seventeen were excluded because they were not a parent of a child or of a child at least 18 years of age and twenty-five were excluded for endorsing no ACEs. Another two individuals were excluded for not being 18 years of age or older, leading to a total of 115 eligible participants. Of these, 57 participants were excluded because they did not complete more than 80 percent of the survey, including key aspects of the survey, such as trauma-related or health anxiety items. The final sample consisted of 58 participants (age range: 25-34), including 8 men and 50 women. The majority of individuals identified as White/Caucasian (n = 49; 84.5%) and non-Hispanic/Latino (n = 50; 86.2%); one individual identified as Black/African American and six identified as Asian/Asian American. Two individuals did not report their race or ethnicity. Most participants were employed (n = 51; 87.9%). See table 1 for additional demographic information.

Trauma Variables

Adverse childhood events reported by the participants showed total scores on the ACE were generally high, with a majority of participants endorsing that they were exposed to more than one traumatic event (n = 44; 75.9%) and several participants were exposed to more than three traumatic events (n = 23; 39.7%). The most frequently endorsed traumas were family member abusing drugs or alcohol (33; 56.9%), verbal abuse (n = 32; 55.2%), parent
divorce/separation \((n = 30; 51.7\%)\), and family member with mental illness \((27; 46.6\%)\). See table 2 for additional information regarding frequencies of ACE exposure.

Frequency of patient-focused (supportive) responses from healthcare providers regarding trauma disclosures were also obtained in this sample. The majority of participants did not disclose their trauma \((n = 35; 62.5\%)\); however, when individuals did disclose, they described their child’s healthcare provider as ‘never’ supportive \((n = 13; 23.2\%)\), ‘occasionally’ supportive \((n = 3; 5.4\%)\), ‘frequently’ supportive \((n = 1; 1.8\%)\), and ‘almost always’ supportive \((n = 4; 7.1\%)\).

**Healthcare Variables**

Regarding participants’ healthcare utilization outcomes, the majority of participants reported they had a primary care provider for themselves \((n = 46; 80.7\%)\) and their child \((n = 53; 94.6\%)\) and majority of participants endorsed visiting their primary care provider for themselves \((n = 36; 62.1\%)\) and their child \((n = 48; 82.8\%)\) in the past 12 months. Most participants reported attending a routine check-up one to three times within the past twelve months for themselves \((n = 31; 54.4\%)\) and their child \((n = 45; 78.9\%)\). The majority of participants initiated doctor’s visits for themselves \((n = 25; 44.6\%)\) and their child \((n = 31; 54.4\%)\). Despite the majority of participants reporting not visiting urgent and emergency care in the last twelve months, several participants visited the urgent care one to three times for themselves \((n = 22; 39.3\%)\) and their child \((n = 13; 22.8\%)\) as well as emergency care one to three times for themselves \((n = 16; 28.1\%)\) and their child \((n = 11; 19.3\%)\). The types of providers most frequently seen within the past twelve months were primary care providers for themselves \((n = 36; 62.1\%)\) and for their child \((n = 48; 82.8\%)\) as well as specialists for themselves \((n = 33; 56.9\%)\) and for their child \((n
Eight people also indicated “other” to describe the type of provider they saw, and reported chiropractor, orthodontist, dermatologist, hematologist, and therapist.

The most common reasons participants attended healthcare visits for themselves were for routine physical exam/preventive healthcare visits \( (n = 34, 58.6\%) \), illness \( (n = 23, 39.7\%) \), and lab work \( (n = 21, 36.2\%) \). Fourteen people also indicated “other” to describe the nature of their visit, and reported pregnancy related, teeth cleaning, and mental health related. Forty-three participants selected “other” to describe their child’s health concern(s) such as asthma, allergies, learning, developmental, and neurocognitive disorders, anxiety, autoimmune disease, and infection. A majority of participants reported researching their child’s health concern more than once in the past twelve months \( (n = 26; 46.4\%) \). The most common reasons participants attended healthcare visits for their child were for routine physical exam/preventive healthcare visits \( (n = 47, 81.0\%) \), vaccinations \( (n = 23, 39.7\%) \), and illness \( (n = 20, 34.5\%) \). Six people also indicated “other” to describe the nature of visit, and reported reasons such as braces, medication follow-up, GERD, therapy, pain, and sinus infection. A majority of participants reported their efforts to seek healthcare for their child had not been affected by the COVID-19 pandemic \( (n = 44; 81.5\%) \). Similarly, most participants also reported that healthcare visits for their child were not more difficult to access due to the pandemic \( (n = 35; 64.8\%) \). See table 3 for additional information on healthcare-related variables, including number of visits, types of providers, and nature of visits.

**Objective 1.** To examine the association of parental ACE history, parent ratings of their child’s health status, and health anxiety.

**Hypothesis 1.1:** Parents with high levels of ACEs will have high levels of personal health anxiety.
The relationship between parental ACEs (as measured by the adverse childhood events questionnaire) and personal health anxiety (as measured by the Short Health Anxiety Inventory-SHAI) was investigated using a Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. There was a small, but not significant, positive correlation between the two variables, \( r = .20, n = 58, p = .06 \). The hypothesis that parents with higher ACEs (\( M = 3.73, SD = 2.37 \)) would have higher personal health anxiety (\( M = 16.80, SD = 7.98 \)) was not supported. ACEs help to explain 4.0% of the variance in respondents’ scores on the Short Health Anxiety inventory.

_Hypothesis 1.2: Parents with high levels of ACEs will have high levels of health anxiety for their child._

The relationship between parental ACEs (as measured by the adverse childhood events questionnaire) and child health anxiety (as measured by the Short Health Anxiety Inventory) was investigated using a Spearman's rank correlation coefficient, as the dependent variable, child health anxiety, violated the assumptions of normality and linearity. There was a moderate significant positive correlation between the two variables, \( r = .32, n = 58, p = .01 \). The hypothesis that parents with higher levels of ACEs (\( M = 3.73, SD = 2.37 \)), reported higher levels of health anxiety for their child (\( M = 15.86, SD = 8.40 \)), was supported. Parental ACEs help to explain 10.24% percent of the variance in respondents’ scores on the Short Health Anxiety inventory for their child.

_Hypothesis 1.3: Parents who rate their child’s health status as less optimal will have high levels of health anxiety (for their child) than parents who rate their child’s health status as highly optimal._
To investigate Hypothesis 1.3, a non-parametric Mann-Whitney test was conducted due to the non-normal distribution of the data. Participants were categorized into two groups based on their scores on the single item that asked parents to rate their child’s health status as ‘poor’ to ‘excellent’ and scored from 1-5. Group 1 was comprised of parents who rated their child’s health as ‘poor/fair/good’ (less optimal; n=15; 25.0%). Because only one parent rated their child’s health status as ‘poor’ and one parent rated their child’s health status as ‘fair,’ they were included with the parents who rated their child’s health status as ‘good’ for purposes of analysis. Group 2 consisted of parents who rated their child’s health status as ‘very good/excellent’ (optimal; n = 43; 75.0%). Parental health anxiety for their child was examined as a continuous variable with possible scores on this measure (SHAI) ranging from 0 to 54. Health anxiety for the child was not significantly higher among parents who rated their child’s health as highly optimal (Mdn = 14.00) than those who rated their child’s health as less optimal (Mdn = 19.00), \(U = 218.50\) \(z = -1.85, p = .06\); hypothesis 1.3 was not supported.

**Hypothesis 1.4: A positive association exists between parent ratings of their own health anxiety and their ratings of health anxiety for their child.**

The relationship between ratings of parent’s health anxiety for themselves (as measured by SHAI) and parent ratings of health anxiety for their child (as measured by SHAI) was investigated using a Spearman's rank correlation coefficient, as the dependent variable, child health anxiety, violated the assumptions of normality and linearity. Possible total scores for parent ratings of their own health anxiety and those of their child on the SHAI range from 0 to 54. There was a moderate positive correlation between the two variables, \(r = .37, n = 58, p < .01\), with high levels of parental health anxiety (\(M = 16.80, SD = 7.98\)) significantly associated with higher levels of health anxiety about their child (\(M = 15.86, SD = 8.39\)), supporting Hypothesis
1.4. Parental health anxiety scores helped to explain 13.7% of the variance in parent ratings of health anxiety for their child.

**Objective 2.** To examine the variables that best predict health seeking behaviors (i.e., health care utilization; HCU) for their child among parents who have experienced trauma. Variables included age of child, child’s health status, number of parental ACEs, and parental/child health anxiety.

*Hypothesis 2.1:* Parents who perceive their child’s health status as less optimal, whose child is younger, who have more ACEs, and have more health anxiety (for themselves and their child), are more likely to seek health care services for their child (i.e., greater HCU).

A standard multiple linear regression was conducted to examine if parent perceptions of their child’s health status, child age, number of ACEs, and health anxiety (for themselves and their child) were predictive of seeking health care services for their child (i.e., greater HCU). For this analysis, child’s health status was coded as less optimal and highly optimal such that Group 1 was comprised of parents who rated their child’s health as ‘poor/fair/good.’ Because only one parent rated their child’s heath status as ‘poor’ and one parent rated their child’s health status as ‘fair,’ they were included with the parents who rated their child’s health status as ‘good’ for purposes of analysis. Group 2 consisted of parents who rated their child’s health status as ‘very good/excellent.’ Child age, number of ACES, and health anxiety scores (for parents themselves and for their child) were treated as continuous variables. HCU scores were determined by a total score across selected items (i.e., does your child have a primary pediatric provider or pediatrician, how many routine healthcare, emergency care, emergency room visits, and hospitalizations has your child had in the past 12 months). Preliminary analyses were conducted
to ensure no violation of the assumptions of normality, linearity, and multicollinearity. Parental perception of their child’s health status significantly predicted healthcare utilization for their child, $b = -0.390, p = .005$ as did parent ratings of health anxiety for their child, $b = 0.366, p = .007$. Parents who perceived their child’s health status to be less optimal had higher HCU and those who reported greater perceptions of health anxiety for their child also reported higher HCU. Parent ratings of their own health anxiety ($b = -0.215, p = .120$), number of ACEs ($b = -0.026, p = .842$), and age of the child ($b = -0.099, p = .436$) did not significantly predict child healthcare utilization. Although not significant, an examination of the standardized beta coefficients showed that, parents’ own health anxiety, number of ACES, and child age were inversely related to HCU. Together, the set of predictors explained a significant amount of the variance in child healthcare utilization, adjusted $R^2 = .20$, $F(5, 51) = 3.74, p = .006$, supporting Hypothesis 2.1. See Table 4 for details.

**Hypothesis 2.2:** Parents with a high ACE history, specifically sexual abuse history, will report higher emergency and/or urgent care utilization for their child.

To test the association between parents’ ACE history (number of ACES), specifically sexual abuse history, and emergency (ER) and/or urgent care utilization for their child, two separate chi-square tests of independence (with Yates’ Continuity Correction) were utilized. One chi-square test was conducted to examine the association between ER/urgent healthcare services with ACE history and the other with sexual abuse history. Participants were categorized as those who endorsed a sexual abuse history on the ACEs measure ($n = 18; 31.0\%$) and those who did not ($n = 40; 69.0\%$). Similarly, of those participants who endorsed receipt of any healthcare services which included ER and/or urgent care, participants who reported ER and/or urgent care were coded into one group ($n = 20; 34.5\%$) and those who did not receive these healthcare service.
services were classified in the other group \((n = 38; 65.5\%)\). In addition, participants who reported < 3 ACEs \((n = 21; 36.2\%)\) were coded as Low ACEs, and participants who endorsed \(\geq 3\) ACEs \((n = 37; 63.8\%)\) were coded as High ACEs.

There was no significant association between parental ACE history and emergency and/or urgent care utilization for their child, \(\chi^2(2, n = 58) = .00, p = 1.000, \phi = .02\). In addition, there was no significant association between parental sexual abuse history and emergency and/or urgent care utilization for their child, \(\chi^2(2, n = 58) = .18, p = .673, \phi = .09\), such that Hypothesis 2.2 was not supported.

**Hypothesis 2.3: There is a positive association between parental HCU (for themselves) and health seeking behaviors (i.e., HCU) for their child.**

The relationship between parents’ ratings of healthcare utilization for themselves (as measured by adult HCU) and parent’s healthcare utilization for their child (as measured by child HCU) was investigated using a Pearson product-moment correlation coefficient. Possible scores on the HCU measure for both parent ratings of themselves and parent ratings for their child range from 0 to 13. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. There was a small positive, marginally significant correlation between the two variables, \(r = .26, n = 58, p = .05\), with high levels of parents’ healthcare utilization for themselves \((M = 6.78, SD = 1.91)\) associated with higher levels of parents’ healthcare utilization for their child \((M = 6.60, SD = 1.66)\), supporting Hypothesis 2.3.

**Objective 3. To examine the relationship between child’s healthcare utilization and barriers to healthcare among parents with an ACE history from a trauma-informed perspective.**
Hypothesis 3.1: Healthcare utilization will be influenced by the interaction of ACE history among parents and barriers to treatment. Parents with higher ACE history and fewer barriers to treatment will report greater rates of healthcare utilization for their child.

To investigate the hypothesis that healthcare utilization will vary depending on the ACE history of parents and barriers to treatment, a two-way between-groups ANOVA was conducted. Considering the median total score for barriers to treatment, (\(Mdn = 21\)), participants with a total score on the Barriers survey < 21 were coded as Low Barriers \((n = 25; 48.1\%)\), while participants with a total score \(\geq 21\) were coded as High Barriers \((n = 27; 51.9\%)\). Six participants did not complete the Barriers questionnaire. The most frequently reported barriers to treatment included ‘could not get appointment sooner’ \((n = 21; 40.4\%)\), ‘waited too long at the office to see a doctor’ \((n = 17; 33.4\%)\), ‘could not get through on the phone’ \((n = 16; 28.7\%)\), and ‘clinic/doctor’s office was not open’ \((n = 12; 24\%)\). ACEs were coded as low or high for the analyses using the median of the sample on this variable \((Mdn = 3\)). Participants who reported < 3 ACEs \((n = 18; 34.6\%)\) were coded as Low ACEs, and participants who endorsed \(\geq 3\) ACEs \((n = 34; 65.4\%)\) were coded as High ACEs.

For the two-way between groups ANOVA, the independent variables were ACE history of parents (low, high) and barriers to treatment (low, high), and the dependent variable was healthcare utilization. Health care utilization was treated as a continuous variable for this analysis with scores ranging from 0 to 13. Preliminary analyses were performed to ensure no violation of the assumptions of normality and linearity. Levene’s test suggests that the homogeneity of variances assumption was fulfilled, \(F(3, 52) = .46, p = .711\). The interaction effect between ACE history of parents and barriers to treatment was not statistically significant,
F(1, 50) = 1.46, p = .23. The main effects for ACEs, F(1, 50) = 1.27, p = .27 and barriers to treatment, F(1, 50) = .03, p = .85, also did not reach statistical significance. See table 5 for details.
Chapter 7: Discussion

Adverse childhood events are associated with poor mental and physical health outcomes in adulthood. In the literature, a substantial number of studies demonstrate clear associations between childhood adverse events and health problems and well-being in children (Kwong & Hayes, 2017; Moore & Ramirez, 2016) and adults (Briggs & Price, 2009; Felitti et al., 1998). Previous studies have found a link between adult ACEs and adult healthcare use (Alcalá et al., 2018; Chartier et al., 2010) as well as between child ACEs and child healthcare use (Duke et al., 2018; McKelvey et al., 2019). For instance, greater ACEs have been found to increase odds of visits to general practitioners, health professionals, and the emergency room among adults as well as greater odds of having inadequate preventive healthcare and greater emergency or urgent medical care among children. Higher levels of health anxiety among adults have also been demonstrated to lead to overutilization of general and specialty health care services and greater medical costs (Conroy et al., 1999; Jacobi & Martin, 2006, Taylor & Asmundson, 2004; Thorgaard, 2016) and may be a strong predictor in parents seeking healthcare services for their child (Ingeman et al., 2022), particularly when the child’s health deteriorates (Carter et al., 2020).

Our study examines the association between ACEs among parents, their personal health anxiety and health anxiety for their child, and healthcare utilization for their child. Understanding how parental ACEs and health anxiety affect perceptions of their child’s health and healthcare utilization is an important question from a trauma-informed care approach.

Results of the current study indicated that over half of the sample endorsed exposure to more than one ACE, which is comparable to rates of trauma exposure reported in other studies (Felitti et al., 1998; Giano et al., 2020; Panisch et al., 2020). In our sample, the majority of participants endorsed parental separation, household substance abuse, and verbal abuse as the
most common exposures. These results were similar to the findings reported by Giano et al. (2020) which indicated the most common type of ACE found in a comprehensive sample of over 200,000 participants was emotional abuse followed by parental separation/divorce and household substance abuse. Although half of the participants in the current study did not disclose trauma to their child’s healthcare provider, according to a quarter of participants, healthcare providers “never” asked about their trauma. This is consistent with previous studies suggesting that asking about trauma in the primary care setting is uncommon (Bryan, 2019) with limited dialogue between pediatric medical providers and parents about their family risk of ACEs (Szilagyi et al., 2016).

Despite the growing need to provide sensitive care to patients and their families, the vast majority of primary care and pediatric services have yet to adopt the practice of universally screening for ACEs. Identified barriers include billing and concerns about time restrictions (Biglan et al., 2017; Finkelhor, 2018), limited awareness of how to successfully integrate screening into pediatric care, and knowledge on effective programs at preventing and treating the outcomes associated with exposure to ACEs (Dube, 2018; Finkelhor, 2018). The results from this study, like many others, serves to inform the medical community that providing trauma-informed practice that is supportive, accessible, sensitive, and promotes clear communication and advice is important in reducing parents’ general anxiety and parental hesitancy about seeking help (Willebrand and Sveen, 2016).

Our findings indicated no significant association between number of ACEs experienced by parents and personal health anxiety. Although controversy exists in the literature about the role that traumatic experiences in childhood plays in health anxiety in adulthood (Barsky et al., 1994; Noyes et al., 2002; Salkovskis & Warwick, 2001), our findings are congruent with some
studies that identify little to no association between greater health anxiety and ACEs (Bailer et al., 2014; Weck et al., 2014). However, our findings indicated that parents with higher numbers of ACEs reported significantly higher levels of health anxiety for their child. Consistent with the majority of the literature, our findings also indicated that high levels of parental health anxiety were significantly associated with higher levels of health anxiety regarding their child (Köteles et al., 2015; Marshall et al., 2007; Wright et al., 2017). Despite their history of experience with multiple adversities, parents in the study sample, on average, reported mild to moderate levels of health anxiety, based on inspection of mean scores on the STAI measure for themselves and their child. Interestingly, these mean scores were below the threshold for clinical levels for anxiety as determined by the STAI (scores less than 20 on the STAI). The mild to moderate levels of parental health anxiety regarding their child may reflect that 75% of parents rated their child’s health as very good to excellent and very few rated their child’s health as poor to fair, suggesting that our parent sample perceived their children to be in generally good health. This may explain why there were no significant differences in parental health anxiety for their child based on their child’s health status.

An important finding from the current study was that parents with greater health anxiety about their child’s health, and those who perceived their child’s health as less optimal, were more likely to seek healthcare services during the previous 12 months assessed in this study. This finding expands on studies that have indicated parent’s perception of their child’s health status is a predictor of health-seeking behaviors for their child (Janicke et al., 2001), and more specifically that higher use of health care services is often a result of poor child health status (Cramer et al., 2014; Janicke et al., 2003). Parent’s health anxiety about their child’s symptoms has also been associated with increased healthcare utilizations (Jones & Jacobsen, 2007; Raphael
et al., 2010). Given that health anxiety contributes to excessive healthcare costs (Barsky et al., 2005), poorer psychosocial outcomes for their children (Monaghan et al., 2012), and could potentially lead to excessive and unnecessary health care seeking, it is important to promote early identification of health anxiety and implement proactive measures to manage parental worries in medical settings. Despite many healthcare providers likely not being trained in the assessment or identification of childhood trauma among parents and family members, it is of utmost importance that they engage in trauma-informed behaviors (i.e., realize, recognize, respond, and resist re-traumatization; SAMHSA, 2014) which allows parents to feel comfortable in seeking help and discussing their child’s health concerns. A number of therapeutic approaches, such as cognitive-behavioral interventions, have been shown to be effective in reducing health anxiety in individuals (Weck et al., 2014), suggesting that health perceptions of parents are modifiable. Targeting parent’s concerns about their child’s health may ultimately help to improve child health outcomes and result in more careful use of health care services for their child.

Relatedly, our findings suggest that parents utilizing health care services for themselves were more likely to use healthcare services for their child. This finding is consistent with prior studies that reported a positive association between healthcare utilization by both parent and child (Halfon, 1986; Riley et al., 1993). The majority of participants in our study indicated having a primary care provider for themselves and their child; they also consulted a different healthcare provider within the last 12 months. Although reasons why participants may have elected to consult with a different healthcare provider were not obtained in this study, other studies have found maladaptive utilization of health care among individuals with health anxiety, seeking to “doctor shop” for advice from multiple physicians for the same problems and remaining unreassured in their unalleviated symptoms (Barsky et al., 2005; Simon, 1992).
Although our study found no significant association between ACE history of parents and emergency and/or urgent care utilization for their child, participants in our study endorsed less use of intensive health care services (i.e., hospitalization, ER/UR) and greater use of primary care services (i.e., routine care). The majority of participants indicated they attended one to three routine medical visits for themselves and their child in the last 12 months, which may be reflective of the generally good health of children in the sample as described by their parents. Alternatively, the lack of trauma-informed care in a fast paced setting such as an ER or urgent care may prevent parents with trauma backgrounds from seeking higher-level healthcare services for their child as these settings and services may be perceived as challenging and stressful (Purkey et al., 2020). Given these collective factors, and the importance of adverse experiences in healthcare outcomes, it is essential that healthcare settings feel equipped to address trauma-related concerns. Emphasis should be placed on primary prevention and providing regular screenings for family risk of ACEs at routine child healthcare visits. Families would benefit from family-based intervention strategies including prevention of traumatic exposures and other adverse conditions, education, early intervention to address acute reactions and responses, maternal support, and early referrals (Miccoli et al., 2022), to prevent re-victimization.

Finally, results suggested that among parents with an ACE history, barriers to treatment did not play a significant role in their utilizing healthcare services for their child. Initially, this finding was surprising, given that it was assumed parents with higher ACE history and fewer barriers would report greater healthcare utilization for their child. Community and personal factors have been found to promote or prevent healthcare utilization including income, health insurance, consistent sources for care, travel accommodations, and waiting times (Anderson, 1995). Increased barriers to treatment are also related to greater likelihood of poor adherence to
treatment regimens among children (Devin et al., 2018), further exacerbating symptoms and utilization of emergency healthcare. In our study, frequently endorsed barriers included “could not get appointment sooner,” “waited too long at the office to see a doctor,” and “could not get through on the phone,” as seen similarly in prior studies (Gerreth & Borysewicz-Lewicka, 2016; Kourgiantakis et al., 2023; O'Callaghan et al., 2005). Financial hardship was not indicated as a common barrier across parents, as most of the parents who completed the survey had a higher household income and socioeconomic status. From SAMHSA's perspective (2014), it is critical to promote the linkage to recovery and resilience for those individuals and families impacted by trauma. Provision of services via telehealth platforms may be a viable option for families who are seeking healthcare services, as long as trauma-informed principles of care are integrated into treatment delivery. When conducting effective trauma treatment interventions over telehealth, clinicians must be mindful of ensuring that the patient identify a private or confidential space to be able to effectively process trauma in a safe environment. Improving access to treatment among families through understanding the context and needs of patients is important. Levesque et al. (2013) cultivated a framework to better understand health care access that conceptualizes accessibility across five dimensions: (1) approachability, (2) availability, (3) affordability, (4) appropriateness, and (5) acceptability.
Chapter 8: Limitations of Study and Directions for Future Research

There are several methodological limitations within this study that restrict the definitive conclusions that can be drawn. First, the small sample size may have affected the ability to detect statistically significant outcomes. Recruitment was another significant limitation, which in turn negatively impacted the sample size. Despite 115 eligible individuals beginning the survey, only 58 of those completed the majority of the survey. It is possible that several individuals discontinued prematurely due to the potentially triggering nature of the survey items. Therefore, there exists a possibility that participants who completed the survey in its entirety differ from those who discontinued prematurely, affecting the overall generalizability of the study results. In addition, our sample was comprised of mostly non-Hispanic white, upper middle class households that may limit the generalizability of findings, as the prevalence and outcomes of ACEs are well documented among adults from low-income communities of ethnic minorities (Giano et al., 2020; Merrick et al., 2019). In order to address this limitation, future research should be conducted with larger and more diverse samples. Additionally, recruitment efforts might be more successful targeting patients from specific primary care clinics, hospitals, school-settings, and other healthcare facilities. These settings may be more incentivizing in that they provide more personalized and direct face-to-face contact with participants rather than the limited interaction afforded by social media.

Parents’ retrospective reporting of their childhood adverse events may have been a potential bias in this study in that parents may have not accurately recalled past experiences. Previous research has found inconsistencies in self-reports of childhood trauma among those with mental health problems (i.e., depression, increase psychological distress, and work and chronic stress) that may contribute to reports of increased ACEs (Colman et al., 2016), and
information about mental health status was not obtained in this study. Exploring these variables, parenting behaviors, and other protective factors should be considered in future studies as considering these may promote more targeted interventions for parents from a trauma-informed framework. In addition, types of ACEs (i.e., forms of abuse, neglect, household dysfunction) were not individually considered when examining the impact on healthcare utilization of child.

Another limitation that must be considered is the cross-sectional design of the study which limits the ability to determine directionality of the relationship between parents’ adverse childhood events, health anxiety, and their healthcare utilization for their child as well as the changes in outcomes over time. Future studies might utilize a longitudinal design and further assess whether there are other factors that affect parental perceptions of their child’s health and healthcare utilization for children, outside of exposure to parental ACEs.

Despite the study limitations, this study is one of the first to assess ACEs, health anxiety, and healthcare utilization from the parent perspective. Studies may benefit from examining further the duration of risk exposure regarding ACEs and provide a qualitative or mixed method strategy to offer contextualized and lived experiences of parents, found to be rarely expressed in quantitative studies. Concerning interventions, trauma-informed care should include the family – both children and their parents (Goodman & Garber, 2017; Luthar & Eisenberg, 2017). Although evidence-based healthcare interventions for exposure to ACEs in families are not firmly established, several studies have indicated that encouraging positive parenting skills and parent-child relationships through health care settings is recommended to promote resilience and protect against future neglect and maltreatment (American Academy of Pediatrics, 2014; Cates et al., 2016; Cohen et al., 2008). A growing literature supports that a trauma-informed framework among adults with ACE exposure offers comfort and confidence in healthcare
(Purkey et al., 2020). Efforts from healthcare providers to recognize the effectiveness of trauma-informed care should be emphasized.
References


Centers for Disease Control and Prevention [CDC], 2014


Colman, I., Kingsbury, M., Garad, Y., Zeng, Y., Naicker, K., Patten, S., ... & Thompson, A. H. (2016). Consistency in adult reporting of adverse childhood experiences. *Psychological Medicine, 46*(3), 543-549.


Running Head: PARENT’S ACEs AND CHILD’S HCU


Haynes, E., Crouch, E., Probst, J., Radcliff, E., Bennett, K., & Glover, S. (2020). Exploring the association between a parent’s exposure to Adverse Childhood Experiences (ACEs) and outcomes of depression and anxiety among their children. *Children and Youth Services Review, 113*, 105013.


Table 1

Demographic Variables

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>(N = 58)</th>
<th>M (SD)</th>
<th>n (%)</th>
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<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18-24</td>
<td>3</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>22</td>
<td>37.9</td>
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</tr>
<tr>
<td>35-44</td>
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<td>31.0</td>
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<tr>
<td>45-64</td>
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<td></td>
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</tr>
<tr>
<td>Female</td>
<td>50</td>
<td>86.2</td>
<td></td>
</tr>
<tr>
<td>Male</td>
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<td>13.8</td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td>Asian/Asian American</td>
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<td>10.3</td>
<td></td>
</tr>
<tr>
<td>Prefer Not To Disclose</td>
<td>2</td>
<td>3.4</td>
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</tr>
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<td><strong>Ethnicity</strong></td>
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<td>Hispanic/Latino</td>
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<td>10.3</td>
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<tr>
<td>Non-Hispanic</td>
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<td><strong>Region of Residency</strong></td>
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<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>19</td>
<td>32.8</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>18</td>
<td>31.0</td>
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</tr>
<tr>
<td>Midwest</td>
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<td>25.9</td>
<td></td>
</tr>
<tr>
<td>West</td>
<td>6</td>
<td>10.3</td>
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<tr>
<td><strong>Employment</strong></td>
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</tr>
<tr>
<td>Employed (Full-Time)</td>
<td>37</td>
<td>63.8</td>
<td></td>
</tr>
<tr>
<td>Employed (Part-Time)</td>
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<td>24.1</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>5</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
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<td></td>
<td></td>
</tr>
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<td>High School Graduate</td>
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</tr>
<tr>
<td>Some College</td>
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<td>13.8</td>
<td></td>
</tr>
<tr>
<td>Two Year Degree</td>
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<td>12.1</td>
<td></td>
</tr>
<tr>
<td>Four Year Degree</td>
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<td>Professional Degree</td>
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<tr>
<td>Doctorate</td>
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<td>3.4</td>
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</tr>
<tr>
<td><strong>Marital Status</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>10</td>
<td>17.2</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>42</td>
<td>72.4</td>
<td></td>
</tr>
<tr>
<td>Divorce</td>
<td>4</td>
<td>6.9</td>
<td></td>
</tr>
<tr>
<td>Married But Separated</td>
<td>1</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.7</td>
<td></td>
</tr>
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</table>
Table 1 Continued

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>(N = 58)</th>
<th>M (SD)</th>
<th>n (%)</th>
</tr>
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<tr>
<td>Socioeconomic Status</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Individual</td>
<td>Household</td>
<td>3.290</td>
<td>3.042</td>
</tr>
<tr>
<td>$0 - $19,999</td>
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<td>1</td>
<td>13.8</td>
</tr>
<tr>
<td>$20,000 - $39,999</td>
<td>8</td>
<td>6</td>
<td>27.6</td>
</tr>
<tr>
<td>$40,000 - $59,999</td>
<td>16</td>
<td>6</td>
<td>18.9</td>
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<tr>
<td>$60,000 - $79,999</td>
<td>11</td>
<td>6</td>
<td>6.9</td>
</tr>
<tr>
<td>$80,000 - $99,999</td>
<td>4</td>
<td>11</td>
<td>12.1</td>
</tr>
<tr>
<td>$100,000 - $149,999</td>
<td>7</td>
<td>10</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Note. Two participants preferred not to disclose their ethnicity or race.
Table 2

*Frequencies for Adverse Childhood Events*

<table>
<thead>
<tr>
<th>Event</th>
<th>Total Sample (N = 58)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
</tr>
<tr>
<td>Verbal Abuse</td>
<td>32 (55.2%)</td>
</tr>
<tr>
<td>Physical Assault/Abuse</td>
<td>21 (36.2%)</td>
</tr>
<tr>
<td>Sexual Assault/Abuse</td>
<td>17 (29.3%)</td>
</tr>
<tr>
<td>Emotional Neglect</td>
<td>22 (37.9%)</td>
</tr>
<tr>
<td>Physical Neglect</td>
<td>8 (13.8%)</td>
</tr>
<tr>
<td>Parental Divorce/Separation</td>
<td>30 (51.7%)</td>
</tr>
<tr>
<td>Witnessing Parent/Caregiver Being Abused</td>
<td>14 (24.1%)</td>
</tr>
<tr>
<td>Family Member Abusing Drugs Or Alcohol</td>
<td>33 (56.9%)</td>
</tr>
<tr>
<td>Family Member With Mental Illness</td>
<td>27 (46.6%)</td>
</tr>
<tr>
<td>Family Member In Jail</td>
<td>6 (10.3%)</td>
</tr>
</tbody>
</table>

*Note.* Percentages may not add up to 100.0 due to participants endorsing more than one item.
Table 3  
*Frequencies for Healthcare Utilization for Self and Child Variables*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total Sample (N = 58)</th>
<th>Total Sample (N = 58)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent n (%)</td>
<td>Child n (%)</td>
</tr>
<tr>
<td>Primary Care Provider</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>46 (80.7%)</td>
<td>53 (94.6%)</td>
</tr>
<tr>
<td>No</td>
<td>11 (19.3%)</td>
<td>3 (5.4%)</td>
</tr>
<tr>
<td>Consulted Different Healthcare Provider</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40 (70.2%)</td>
<td>33 (57.9%)</td>
</tr>
<tr>
<td>No</td>
<td>17 (29.8%)</td>
<td>24 (42.1%)</td>
</tr>
<tr>
<td>Total # of Routine Visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>12 (21.1%)</td>
<td>1 (1.8%)</td>
</tr>
<tr>
<td>1-3</td>
<td>31 (54.4%)</td>
<td>45 (78.9%)</td>
</tr>
<tr>
<td>4+</td>
<td>14 (24.6%)</td>
<td>11 (19.3%)</td>
</tr>
<tr>
<td>Total # of Initiated Doctor’s Visits</td>
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<td></td>
</tr>
<tr>
<td>0</td>
<td>20 (35.7%)</td>
<td>19 (33.3%)</td>
</tr>
<tr>
<td>1-3</td>
<td>25 (44.6%)</td>
<td>31 (54.4%)</td>
</tr>
<tr>
<td>4+</td>
<td>11 (19.6%)</td>
<td>7 (12.3%)</td>
</tr>
<tr>
<td>Total # Urgent Care Visits</td>
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<td></td>
</tr>
<tr>
<td>0</td>
<td>32 (57.1%)</td>
<td>42 (73.7%)</td>
</tr>
<tr>
<td>1-3</td>
<td>22 (39.3%)</td>
<td>13 (22.8%)</td>
</tr>
<tr>
<td>4+</td>
<td>2 (3.6%)</td>
<td>2 (3.5%)</td>
</tr>
<tr>
<td>Total # Emergency Care Visits</td>
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</tr>
<tr>
<td>0</td>
<td>41 (71.9%)</td>
<td>45 (78.9%)</td>
</tr>
<tr>
<td>1-3</td>
<td>16 (28.1%)</td>
<td>11 (19.3%)</td>
</tr>
<tr>
<td>4+</td>
<td>-</td>
<td>1 (1.8%)</td>
</tr>
<tr>
<td>Total # Hospitalized Visits</td>
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</tr>
<tr>
<td>0</td>
<td>50 (87.7%)</td>
<td>53 (93.0%)</td>
</tr>
<tr>
<td>1-3</td>
<td>7 (12.3%)</td>
<td>4 (7.0%)</td>
</tr>
<tr>
<td>4+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Contacted Provider</td>
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<td></td>
</tr>
<tr>
<td>0</td>
<td>23 (40.4%)</td>
<td>21 (37.5%)</td>
</tr>
<tr>
<td>One or More Times</td>
<td>34 (59.6%)</td>
<td>35 (62.5%)</td>
</tr>
<tr>
<td>Type of Provider</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Care Provider</td>
<td>36 (62.1%)</td>
<td>48 (82.8%)</td>
</tr>
<tr>
<td>Physical or Occupational Therapist</td>
<td>9 (15.5%)</td>
<td>9 (15.5%)</td>
</tr>
<tr>
<td>Specialist</td>
<td>33 (56.9%)</td>
<td>17 (29.3%)</td>
</tr>
<tr>
<td>ER/Clinic/Urgent Care</td>
<td>15 (25.9%)</td>
<td>8 (13.8%)</td>
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### Table 3 Continued

*Frequencies for Healthcare Utilization for Self and Child Variables*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total Sample (N = 58) n (%)</th>
<th>Total Sample (N = 58) n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent</td>
<td>Child</td>
</tr>
<tr>
<td>No Visits For Health Concern</td>
<td>7 (12.1%)</td>
<td>4 (6.9%)</td>
</tr>
<tr>
<td>Other</td>
<td>8 (13.3%)</td>
<td>3 (5.0%)</td>
</tr>
<tr>
<td><strong>Nature of Visit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine Physical Exam/Preventive Visit</td>
<td>34 (58.6%)</td>
<td>47 (81.0%)</td>
</tr>
<tr>
<td>Injury and/or Accident</td>
<td>8 (13.8%)</td>
<td>5 (8.6%)</td>
</tr>
<tr>
<td>Illness</td>
<td>23 (39.7%)</td>
<td>20 (34.5%)</td>
</tr>
<tr>
<td>Lab Work</td>
<td>21 (36.2%)</td>
<td>9 (15.5%)</td>
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<tr>
<td>Vaccination(s)</td>
<td>12 (20.7%)</td>
<td>23 (39.7%)</td>
</tr>
<tr>
<td>Other</td>
<td>14 (19.4%)</td>
<td>6 (10.3%)</td>
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<tr>
<td><strong>Healthcare Provider Asked About Trauma</strong></td>
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</tr>
<tr>
<td>Never</td>
<td>50 (89.3%)</td>
<td></td>
</tr>
<tr>
<td>Rarely</td>
<td>2 (3.6%)</td>
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</tr>
<tr>
<td>Occasionally</td>
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<td></td>
</tr>
<tr>
<td>Frequently</td>
<td>1 (1.8%)</td>
<td></td>
</tr>
<tr>
<td><strong>Healthcare Provider Patient-Focused Response to Trauma Disclosure</strong></td>
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<tr>
<td>Never</td>
<td>13 (23.2%)</td>
<td></td>
</tr>
<tr>
<td>Occasionally</td>
<td>3 (5.4%)</td>
<td></td>
</tr>
<tr>
<td>Frequently</td>
<td>1 (1.8%)</td>
<td></td>
</tr>
<tr>
<td>Almost Always</td>
<td>4 (7.1%)</td>
<td></td>
</tr>
<tr>
<td>N/A Did Not Disclose</td>
<td>35 (62.5%)</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency of Researching Child’s Health Concern(s)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>7 (12.5%)</td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>7 (12.5%)</td>
<td></td>
</tr>
<tr>
<td>More Than Once</td>
<td>26 (46.4%)</td>
<td></td>
</tr>
<tr>
<td>N/A There Are No Health Concerns</td>
<td>16 (28.6%)</td>
<td></td>
</tr>
<tr>
<td><strong>COVID-19</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efforts to Seek Healthcare Affected</td>
<td>10 (18.5%)</td>
<td></td>
</tr>
<tr>
<td>Healthcare Visits Harder to Access</td>
<td>19 (35.2%)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Percentages may not add up to 100.0 due to participants endorsing more than one item.
Table 4

**Summary of Multiple Regression Analysis for Healthcare Utilization**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Unstandardized</th>
<th>Standardized</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s Health Status</td>
<td>-1.474</td>
<td>-0.390</td>
<td>-2.93</td>
<td>0.005*</td>
</tr>
<tr>
<td>Adult Health Anxiety</td>
<td>-0.048</td>
<td>-0.215</td>
<td>-1.58</td>
<td>0.120</td>
</tr>
<tr>
<td>Child Health Anxiety</td>
<td>0.073</td>
<td>0.366</td>
<td>2.81</td>
<td>0.007*</td>
</tr>
<tr>
<td>ACEs</td>
<td>-0.019</td>
<td>-0.026</td>
<td>-0.20</td>
<td>0.842</td>
</tr>
<tr>
<td>Child’s Age</td>
<td>-0.029</td>
<td>-0.099</td>
<td>-0.79</td>
<td>0.436</td>
</tr>
</tbody>
</table>

*Note* *p < .01; R² = 0.268*, Adjusted R² = 0.197, Std Error of Estimate = 1.50, ΔR² = 0.268, F Change = 3.74, *p = .006*
Table 5
Between-Subjects Two-Way ANOVA Results of ACEs and Barriers to Treatment on Healthcare Utilization

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>1819.39</td>
<td>1</td>
<td>1819.39</td>
<td>711.15</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>ACE</td>
<td>3.26</td>
<td>1</td>
<td>3.26</td>
<td>1.27</td>
<td>.265</td>
</tr>
<tr>
<td>Barriers</td>
<td>0.09</td>
<td>1</td>
<td>0.09</td>
<td>0.03</td>
<td>.854</td>
</tr>
<tr>
<td>ACE * Barriers</td>
<td>3.73</td>
<td>1</td>
<td>3.73</td>
<td>1.46</td>
<td>.233</td>
</tr>
<tr>
<td>Within</td>
<td>122.80</td>
<td>48</td>
<td>2.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2460.00</td>
<td>52</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A: Letter of Information and Informed Consent

Primary Investigator:
Krishna Patel, M.S.
Department of Psychology, Florida Institute of Technology
(Email): patelk2020@my.fit.edu

Co-Investigator:
Vida L. Tyc, Ph.D.
Department of Psychology, Florida Institute of Technology
(Email): vtyc@fit.edu

Please read this consent document carefully before deciding to participate in this study.

Purpose of the Study
This study is being conducted to learn more about the factors that influence parents, who have experienced trauma, in seeking healthcare services for their child. Additionally, this study will examine several factors associated with health-seeking behaviors including adverse childhood experiences (ACEs), health anxiety, demographic, and trauma related factors. Finally, this study will also examine the relationship between ACEs and barriers to accessing healthcare, and healthcare utilization.

Inclusion Criteria
In order to participate, you must be 18 years of age or older, experienced at least one traumatic event in your lifetime, have at least one child younger than 18 years old living in the home, and be able to read and write in English fluently. Only one parent/caregiver per household will be eligible to participate; you may only submit one survey response per household. If you have multiple children living in the home, the survey should be completed in reference to the child in the family about whom you have the greatest health concerns.

Procedures of the Study
If you are eligible to participate in the study, you will be asked to complete an online survey. The survey will consist of questions regarding your past experiences of trauma, any barriers you might experience when seeking healthcare, and healthcare behaviors for you and your child. You will be able to change any of your responses by selecting the “Back” button to return to the previous page. We estimate that the questionnaire will take approximately 20-30 minutes to complete.

Potential Risks and Benefits
The risks of participating in this study are minimal. However, you will be asked about your past experiences of trauma and healthcare, which you may find stressful. You may choose not to respond to any question that makes you uncomfortable and are free to discontinue participation at any point during the study. While unlikely, there is a risk of loss of privacy. We will keep your study information private and confidential, and all data will be de-identified and kept in a database that only researchers have access to. There will be no direct benefits to you by taking
part in this study. However, the information obtained from this study may be used to better understand the factors that affect parents’ healthcare seeking behaviors for their child.

Compensation
There will be no compensation for participating in this study.

Discontinuation of the Study.
Participation in this study is voluntary. You are under no obligation to participate in the study, and you are free to withdraw from the study at any time without consequences to you. There is no penalty for not participating. You may refuse to answer any questions that we ask you. If you decide to withdraw from the study, the information provided by you will not be retained.

Confidentiality
All responses obtained from you will be kept confidential in accordance with the American Psychological Association Ethical Principle 4.01, Maintenance of Confidentiality (APA, 2017). All data collected will be entered into a HIPAA-compliant database and stored on a password-protected server located in the Department of Psychology at Florida Institute of Technology. Only authorized researchers will have access to this information.

Information about Participating as a Study Project
All questions about study participation may be directed to Krishna Patel (Principal Investigator) via email (patelk2020@my.fit.edu).

This study has been reviewed and approved by the Institutional Review Board. If you have any ethical questions or concerns about the study, these may be directed to:
Dr. Jignya Patel, Chair for the Institutional Review Board
Institutional Review Board Office, School of Psychology
150 W University Blvd
Melbourne, Florida, 32901
(P): 321-674-7347
(E): FIT_IRB@fit.edu

Consent
In order to keep your information confidential, your name or signature is not required. Please indicate your choice below. Should you choose to continue, you will be directed automatically to the survey.

- I have read the information presented above about a study being conducted by Krishna Patel (Principal Investigator) of the School of Psychology at Florida Institute of Technology. I am 18 years or older, and I understand that I may withdraw from the study at any time. I agree to participate in this study.

- I have read the information presented about this study and I do not wish to participate.
Appendix B: Survey

Variable Overview:

Questions 1-3: Eligibility
Question 4-16: Demographics (used for general demographics)
Questions 17-19: Health Status of Child (IV)
Questions 20-29: Adverse Childhood Experiences (IV)
Questions 30-65: Health Anxiety (IV)
Questions 66-92: Healthcare Utilization (DV)
Question 94-95: Quality of Care (DV)
Question 96-97: Comfort with Knowledge of Health Concern (IV)
Questions 98: Barriers to Treatment (IV)
Questions 99-100: COVID-19 (IV)

1. Are you 18 years of age and older? [choose one only]
   a. Yes [will be routed to end of survey]
   b. No

2. Are you a parent/guardian of at least one child less than 18 years old living in the home? [choose one only]
   a. Yes
   b. No [will be routed to end of survey]

3. Has any family member related to your child already taken this survey? [choose one only]
   a. Yes [will be routed to end of survey]
   b. No

Demographics:

• When considering the following context, please do so in the reference of you as the parent:

4. Age (18-24; 25-34; 35-44; 45-64; 65+)
5. **Gender Identity** (Male; Female; Transgender; Non-binary/Non-conforming)

6. **Race** (Black/African American; White; American Indian or Alaska Native; Asian/Asian American; Native Hawaiian/Pacific Islander)

7. **Ethnicity** (Hispanic; non-Hispanic)

8. **Employment Status** (Employed – Full Time; Employed – Part Time; Student; Unemployed; Retired)

9. **Marital Status** (Single; Married; Divorced; Widowed; Married But Separated; Other)

10. **Socioeconomic Status - Individual** (Less than $10,000; $10,000-$19,999; $20,000-$29,999; $30,000-$39,999; $40,000-$49,999; $50,000-$59,999; $60,000-$69,999; $70,000-$79,999; $80,000-$89,999; $90,000-$99,999; $100,000-$149,999; More than $150,000)

11. **Socioeconomic Status - Household** (Less than $10,000; $10,000-$19,999; $20,000-$29,999; $30,000-$39,999; $40,000-$49,999; $50,000-$59,999; $60,000-$69,999; $70,000-$79,999; $80,000-$89,999; $90,000-$99,999; $100,000-$149,999; More than $150,000)

12. **Education Level** (Less than High School; High School Graduate; Some College; 2-year degree; 4-year degree; Professional Degree; Doctorate)

13. **Region of Residency** (Northeast, South, Midwest, West)

14. **How many children aged 17 or younger currently live in your household?** (1-10)

- When considering the following context, please do so in the reference of your child:

15. **Child’s age** (sliding scale from less than one years old to 17 years old)

16. **Child’s Insurance Status** (Private; Public/Medicare; Military; Uninsured)

**Your Child’s Health Status (Rider et al., 2018) – descriptive:**

Please complete the following questions in reference to your child:

17. **In general, how would you rate your child’s health?** (Poor; Fair; Good; Very Good; Excellent)
18. Does your child have any physical disabilities, or long-term health problems (such as asthma, cancer, diabetes, epilepsy, or something else)? Long-term means lasting 6 months or more? yes, no

19. Does your child have any long-term mental health, behavioral, or emotional problems? Long-term means lasting 6 months or more? yes, no

**Adverse Childhood Experiences (ACE) – possible 10 points:**
This Questionnaire will be asking you some questions about events that happened during your childhood; specifically, the first 18 years of your life. The information you provide by answering these questions will allow us to better understand problems that may have occurred early in your life and allow us to explore how those problems may be impacting the challenges you are experiencing today.

20. While you were growing up, during your first 18 years of life: Did a parent or other adult in the household often: Swear at you, insult you, put you down, or humiliate you? Or act in a way that made you afraid that you might be physically hurt? Yes (1) No (0)

21. Did a parent or other adult in the household often: push, grab, slap, or throw something at you? Or Ever hit you so hard that you had marks or were injured? Yes (1) No (0)

22. Did an adult or person at least 5 years older than you are ever: touch or fondle you or have you touch their body in a sexual way? Or attempt or actually have oral, anal, or vaginal intercourse with you? Yes (1) No (0)

23. Did you often feel that: no one in your family loved you or thought you were important or special? Or your family didn’t look out for each other, feel close to each other, or support each other? Yes (1) No (0)

24. Did you often feel that: you didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you? Or your parents were too drunk or high to take care of you or take you to the doctor if you needed it? Yes (1) No (0)

25. Were your parents ever separated or divorced? Yes (1) No (0)
26. Were any of your parents or other adult caregivers: often pushed, grabbed, slapped, or had something thrown at them? Or sometimes or often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife? Yes (1) No (0)

27. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs? Yes (1) No (0)

28. Was a household member depressed or mentally ill, or did a household member attempt suicide? Yes (1) No (0)

29. Did a household member go to prison? Yes (1) No (0)

**Short Health Anxiety Inventory (SHAI) – possible 54 points:**
Each question in this section consists of a group of four statements. Please read each group of statements carefully and then select the one which best describes your feelings, over the past 12 months. If more than one statement applies, please select any that are applicable. [0-3 scores]

30.
(a) I do not worry about my health.
(b) I occasionally worry about my health.
(c) I spend much of my time worrying about my health.
(d) I spend most of my time worrying about my health.

31.
(a) I notice aches pains less than most other people (of my age).
(b) I notice aches pains as much as most other people (of my age).
(c) I notice aches pains more than most other people (of my age).
(d) I am aware of aches pains in my body all the time.

32.
(a) As a rule, I am not aware of bodily sensations or changes.
(b) Sometimes I am aware of bodily sensations or changes.
(c) I am often aware of bodily sensations or changes.
(d) I am constantly aware of bodily sensations or changes.

33.
(a) Resisting thoughts of illness is never a problem.
(b) Most of the time I can resist thoughts of illness.
(c) I try to resist thoughts of illness but am often unable to do so.
(d) Thoughts of illness are so strong that I no longer even try to resist them.

34.
(a) As a rule, I am not afraid that I have a serious illness.
(b) I am sometimes afraid that I have a serious illness.
(c) I am often afraid that I have a serious illness.
(d) I am always afraid that I have a serious illness.

35.
(a) I do not have images (mental pictures) of myself being ill.
(b) I occasionally have images of myself being ill.
(c) I frequently have images of myself being ill.
(d) I constantly have images of myself being ill.

36.
(a) I do not have any difficulty taking my mind off thoughts about my health.
(b) I sometimes have difficulty taking my mind off thoughts about my health.
(c) I often have difficulty in taking my mind off thoughts about my health.
(d) Nothing can take my mind off thoughts about my health.

37.
(a) I am lastingly relieved if my doctor tells me there is nothing wrong.
(b) I am initially relieved, but the worries sometimes return later.
(c) I am initially relieved, but the worries always return later.
(d) I am not relieved if my doctor tells me there is nothing wrong.
38.  
(a) If I hear about an illness I never think I have it myself.  
(b) If I hear about an illness I sometimes think I have it myself.  
(c) If I hear about an illness I often think I have it myself.  
(d) If I hear about an illness I always think I have it myself.  

39.  
(a) If I have a bodily sensation or change I rarely wonder what it means.  
(b) If I have a bodily sensation or change I often wonder what it means.  
(c) If I have a bodily sensation or change I always wonder what it means.  
(d) If I have a bodily sensation or change I must know what it means.  

40.  
(a) I usually feel at very low risk for developing a serious illness.  
(b) I usually feel at fairly low risk for developing a serious illness.  
(c) I usually feel at moderate risk for developing a serious illness.  
(d) I usually feel at high risk for developing a serious illness.  

41.  
(a) I never think I have a serious illness.  
(b) I sometimes think I have a serious illness.  
(c) I often think I have a serious illness.  
(d) I usually think that I am seriously ill.  

42.  
(a) If I notice an unexplained bodily sensation I don't find it difficult to think about other things.  
(b) If I notice an unexplained bodily sensation I sometimes find it difficult to think about other things.  
(c) If I notice an unexplained bodily sensation I often find it difficult to think about other things.
(d) If I notice an unexplained bodily sensation I always find it difficult to think about other things.

43.
(a) My family/friends would say I do not worry enough about my health.
(b) My family/friends would say I have a normal attitude to my health.
(c) My family/friends would say I worry too much about my health.
(d) My family/friends would say I am a hypochondriac.

For the following questions, please think about what it might be like if you had a serious illness of a type which particularly concerns you (such as heart disease, cancer, multiple sclerosis and so on). Obviously you cannot know for definite what it would be like; please give your best estimate of what you think might happen, basing your estimate on what you know about yourself and serious illness in general.

44.
(a) If I had a serious illness I would still be able to enjoy things in my life quite a lot.
(b) If I had a serious illness I would still be able to enjoy things in my life a little.
(c) If I had a serious illness I would be almost completely unable to enjoy things in my life.
(d) If I had a serious illness I would be completely unable to enjoy life at all.

45.
(a) If I developed a serious illness there is a good chance that modern medicine would be able to cure me.
(b) If I developed a serious illness there is a moderate chance that modern medicine would be able to cure me.
(c) If I developed a serious illness there is a very small chance that modern medicine would be able to cure me.
(d) If I developed a serious illness there is no chance that modern medicine would be able to cure me.
46.
(a) A serious illness would ruin some aspects of my life.
(b) A serious illness would ruin many aspects of my life.
(c) A serious illness would ruin almost every aspect of my life.
(d) A serious illness would ruin every aspect of my life.

47.
(a) If I had a serious illness I would not feel that I had lost my dignity.
(b) If I had a serious illness I would feel that I had lost a little of my dignity.
(c) If I had a serious illness I would feel that I had lost quite a lot of my dignity.
(d) If I had a serious illness I would feel that I had totally lost my dignity.

**Short Health Anxiety Inventory (SHAI) – possible 54 points:**
Each question in this section consists of a group of four statements. Please read each group of statements carefully and then select the one which best describes your feelings FOR YOUR CHILD, over the past 12 months. If more than one statement applies, please select all that apply [0-3 scores]

48.
(a) I do not worry about my child’s health.
(b) I occasionally worry about my child’s health.
(c) I spend much of my time worrying about my child’s health.
(d) I spend most of my time worrying about my child’s health.

49.
(a) I notice aches & pains less than most other people (of my child’s age).
(b) I notice aches & pains as much as most other people (of my child’s age).
(c) I notice aches & pains more than most other people (of my child’s age).
(d) I am aware of aches & pains in my child’s body all the time.
50. (a) As a rule, I am not aware of bodily sensations or changes in my child. 
(b) Sometimes I am aware of bodily sensations or changes in my child. 
(c) I am often aware of bodily sensations or changes in my child. 
(d) I am constantly aware of bodily sensations or changes in my child. 

51. (a) Resisting thoughts of illness about my child is never a problem for me. 
(b) Most of the time I can resist thoughts of illness about my child. 
(c) I try to resist thoughts of illness about my child but am often unable to do so. 
(d) Thoughts of illness about my child are so strong that I no longer even try to resist them. 

52. (a) As a rule, I am not afraid that my child has a serious illness. 
(b) I am sometimes afraid that my child has a serious illness. 
(c) I am often afraid that my child has a serious illness. 
(d) I am always afraid that my child has a serious illness. 

53. (a) I do not have images (mental pictures) of my child being ill. 
(b) I occasionally have images of my child being ill. 
(c) I frequently have images of my child being ill. 
(d) I constantly have images of my child being ill. 

54. (a) I do not have any difficulty taking my mind off thoughts about my child’s health. 
(b) I sometimes have difficulty taking my mind off thoughts about my child’s health. 
(c) I often have difficulty in taking my mind off thoughts about my child’s health. 
(d) Nothing can take my mind off thoughts about my child’s health. 

55. (a) I am lastingly relieved if the doctor tells me there is nothing wrong with my child.
(b) I am initially relieved, but the worries sometimes return later.
(c) I am initially relieved, but the worries always return later.
(d) I am not relieved if the doctor tells me there is nothing wrong with my child.

56.
(a) If I hear about an illness, I never think my child has it.
(b) If I hear about an illness, I sometimes think my child has it.
(c) If I hear about an illness, I often think my child has it.
(d) If I hear about an illness, I always think my child has it.

57.
(a) If my child has a bodily sensation or change I rarely wonder what it means.
(b) If my child has a bodily sensation or change I often wonder what it means.
(c) If my child has a bodily sensation or change I always wonder what it means.
(d) If my child has a bodily sensation or change I must know what it means.

58.
(a) I usually feel at very low risk that my child will develop a serious illness.
(b) I usually feel at fairly low risk that my child will develop a serious illness.
(c) I usually feel at moderate risk that my child will develop a serious illness.
(d) I usually feel at high risk that my child will develop a serious illness.

59.
(a) I never think my child has a serious illness.
(b) I sometimes think my child has a serious illness.
(c) I often think my child has a serious illness.
(d) I usually think my child is seriously ill.

60.
(a) If my child notices an unexplained bodily sensation, I do not find it difficult to think about other things.
(b) If my child notices an unexplained bodily sensation I sometimes find it difficult to think about other things.
(c) If my child notices an unexplained bodily sensation I often find it difficult to think about other things.
(d) If my child notices an unexplained bodily sensation I always find it difficult to think about other things.

61.
(a) My family/friends would say I do not worry enough about my child’s health.
(b) My family/friends would say I have a normal attitude to my child’s health.
(c) My family/friends would say I worry too much about my child’s health.
(d) My family/friends would say I am a hypochondriac about my child's health.

For the following questions, please think about what it might be like FOR YOUR CHILD if they had a serious illness of a type which particularly concerns them (such as heart disease, cancer, multiple sclerosis and so on). Obviously you cannot know for definite what it would be like in your child’s shoes; please give your best estimate of what your child thinks might happen, basing your estimate on what he/she knows about him/herself and serious illness in general.

62.
(a) If my child had a serious illness they would still be able to enjoy things in their life quite a lot.
(b) If my child had a serious illness they would still be able to enjoy things in their life a little.
(c) If my child had a serious illness they would be almost completely unable to enjoy things in their life.
(d) If my child had a serious illness they would be completely unable to enjoy life at all.
63.  
(a) If my child developed a serious illness there is a good chance that modern medicine would be able to cure them.  
(b) If my child developed a serious illness there is a moderate chance that modern medicine would be able to cure them.  
(c) If my child developed a serious illness there is a very small chance that modern medicine would be able to cure them.  
(d) If my child developed a serious illness there is no chance that modern medicine would be able to cure them.  

64.  
(a) My child’s serious illness would ruin some aspects of their life.  
(b) My child’s serious illness would ruin many aspects of their life.  
(c) My child’s serious illness would ruin almost every aspect of their life.  
(d) My child’s serious illness would ruin every aspect of their life.  

65.  
(a) If my child had a serious illness I would not feel that my child had lost their dignity.  
(b) If my child had a serious illness I would feel that my child had lost a little of their dignity.  
(c) If my child had a serious illness I would feel that my child had lost quite a lot of their dignity.  
(d) If my child had a serious illness I would feel that my child had totally lost their dignity.  

Healthcare Utilization Survey (HCU) – possible 13 points; items 68, 69, 72, 73, 74, 75, 76, 78:  
Please answer the following questions as they relate to you  
66. Do you have any health issues? [descriptive]  
   No       Yes
67. Please indicate your health concern(s). Examples include frequent constipation, asthma, frequent colds, allergies, seizures, pain, heart problems, diabetes. If there is no health concern(s), please indicate as such. [descriptive]

Write in

68. Do you have a primary provider or physician? [possible 1 point]

Yes(1)   No(0)

69. Have you consulted healthcare services, other than your primary provider or physician, in the past 12 months? [possible 1 point]

Yes (1)  No (0)

70. In the past 12 months, what types of health providers have you visited in relation to a health concern(s)? Please check all that apply. [descriptive]

- Specialist (e.g., endocrinologist, neurologist, cardiologist, dentist, oral surgeon, ophthalmologist, gynecologist, pulmonologist, cardiologist, etc.)
- Physical therapist or occupational therapist, psychologist or psychiatrist
- Primary Care Provider/Pediatrician
- ER/ Clinic
- Other: please specify ______
- I have not visited a health provider for a health concern.

71. What was the nature of your healthcare visit? Please check all that apply. [descriptive]

- Illness
- Injury and/or accident
- Routine physical exam/Preventive healthcare visit
- Vaccinations(s)
- Lab work (e.g., blood work)
- Other: please specify ______
- I have not visited a health provider for a health concern.
72. How many routine healthcare visits (e.g., annual check-ups, shots, vaccinations) virtually or in-person have you attended in the past 12 months? [Possible 2 points]

None (0)  1-3 visits (1)  4 or more visits (2)

73. How many doctor’s visits have been initiated/scheduled by you, outside of routine visits in the past 12 months? [Possible 2 points]

None (0)  1-3 visits (1)  4 or more visits (2)

74. How many urgent care visits have you had in the past 12 months for a health concern(s)? [Possible 2 points]

None (0)  1-3 visits (1)  4 or more visits (2)

75. How many emergency room visits have you had in the past 12 months for a health concern(s)? [Possible 2 points]

None (0)  1-3 visits (1)  4 or more visits (2)

76. How often have you been hospitalized in the past 12 months for a health concern(s)? [Possible 2 points]

None (0)  1-3 visits (1)  4 or more visits (2)

77. If yes, how many days were you hospitalized, receiving inpatient services, or in residential care for a health concern(s)? Include total number across hospitalizations if you were there for multiple admissions. [descriptive, not in total]

1  0-24 hours
2  One week or less
3  One month or less
4  Six months or less
5  2 years or less
11  More than 2 years

78. In the past 12 months, how many times did you contact your provider for consultation about your health? [Possible 1 point]

None (0)  One or more times (1)
79. Are you receiving medication prescribed by your doctor for a health concern(s) [descriptive, not in total score]
   a. Yes    b. No    c. N/A there are no health concerns.

**Healthcare Utilization Survey (HCU) – possible 13 points; items 82, 83, 86, 87, 88, 89, 90, 92:**

*Please answer the questions as they pertain to your child:*

80. Does your child have any health issues? [descriptive]  
   No    Yes

81. If yes, please indicate your child’s health concern(s). Examples include frequent constipation, asthma, frequent colds, allergies, seizures, pain, heart problems, diabetes. If there is no health concern(s), please indicate as such. [descriptive]
   Write in there are no health concerns

82. Does your child have a primary pediatric provider or pediatrician? [possible 1 point]  
   Yes(1)   No(0)

83. Have you consulted healthcare services, other than your child’s pediatrician, for your child in the past 12 months? [possible 1 point]  
   Yes (1)   No (0)

84. In the past 12 months, what types of health providers have you visited in relation to your child’s health concern(s)? Please check all that apply. [descriptive]
   o Specialist (e.g., endocrinologist, neurologist, cardiologist, dentist, oral surgeon, ophthalmologist, gynecologist, pulmonologist, cardiologist, etc.)
   o Physical therapist or occupational therapist, psychologist or psychiatrist
   o Primary Care Provider/Pediatrician
   o ER/ Clinic
   o Other: please specify ______
   o I have not visited a health provider for my child’s health concern.

85. What was the nature of your child’s healthcare visit? [descriptive]
   o Illness
Injury and/or accident

Routine physical exam/Preventive healthcare visit

Vaccinations(s)

Lab work (e.g., blood work)

Other: please specify _______

I have not visited a health provider for my child’s health concern.

86. How many routine healthcare visits (e.g., annual check-ups, shots, vaccinations) virtually or in-person has your child attended in the past 12 months? [Possible 2 points]

None (0) 1-3 visits (1) 4 or more visits (2)

87. How many doctor’s visits have been initiated/scheduled by you (the parent), outside of routine visits in the past 12 months for your child? [Possible 2 points]

None (0) 1-3 visits (1) 4 or more visits (2)

88. How many urgent care visits has your child had in the past 12 months for a health concern(s)? [Possible 2 points]

None (0) 1-3 visits (1) 4 or more visits (2)

89. How many emergency room visits has your child had in the past 12 months for a health concern(s)? [Possible 2 points]

None (0) 1-3 visits (1) 4 or more visits (2)

90. How often has your child been hospitalized in the past 12 months for a health concern(s)? [Possible 2 points]

None (0) 1-3 visits (1) 4 or more visits (2)

91. If yes, how many days was your child hospitalized, receiving inpatient services, or in residential care for a health concern(s)? Include total number across hospitalizations if they were there for multiple admissions. [descriptive, not in total]

1 0-24 hours

2 One week or less

3 One month or less
4  Six months or less
5  2 years or less
11  More than 2 years

92. In the past year, how many times did you contact your provider for consultation about your child’s health? [Possible 1 point]

   None (0)  One or more times (1)

93. Is your child receiving medication prescribed by their doctor for a health concern(s)
[descriptive, not in total score]

   a. Yes  b. No  c. N/A there are no health concerns.

**Experience with YOUR CHILD’s Primary Care Physician – descriptive**

94. Your child's medical provider asked about your adverse (stressful) childhood experiences and past emotional trauma.

   o  Never
   o  Rarely
   o  Occasionally
   o  Frequently
   o  Almost always

95. Responded in a patient-focused (respectful, responsive) manner if you were to disclose your past trauma.

   o  Never
   o  Rarely
   o  Occasionally
   o  Frequently
   o  Almost always
Comfort with Knowledge of Health Concern – *descriptive*:

96. How well informed are you about your child’s health concern(s)?
   
a. not at all informed  
b. slightly informed  
c. moderately informed  
d. very well informed;  
N/A. There are no health concerns.

97. Have you researched your child’s health concern(s) in the past 12 months?
   
   Never  
   Once  
   More than once  
   N/A there are no health concerns.

**Barriers to Treatment Index – possible 80 points:**

98. Please rate the likelihood of each presented item being a barrier to obtaining medical healthcare for your CHILD. (1 = not at all, 3 = somewhat, and 5 = very much.)
   
   Couldn’t get through on the phone
   Couldn’t get an appointment soon enough
   Once there, had to wait too long to see the doctor
   The clinic/doctor’s office wasn’t open when you could get there
   Didn’t have transportation
   Couldn’t afford it
   Couldn’t find care for your other children
   Child did not have health insurance
   Child’s health insurance limits access to mental health/counseling services
   Child refused to go
   Worried about friends or family finding out
   Worried about child’s teacher/school finding out
   Would reflect poorly on your abilities as a parent
   Worried that child would be teased by peers
   Worried that you would feel too embarrassed
   The clinic/doctor’s office was too far away
COVID-19 (Please answer in reference to your child) – possible 2 points:

99. Have your efforts to seek healthcare been affected by COVID-19? No (0) Yes (1)
100. Are services harder to access post-COVID-19? No (0) Yes (1)