ABSTRACT

Screening for Adverse Childhood Experiences (ACEs) at the Family Health Center

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The relationship between societal conditions and health is longstanding. A growing body of research suggests that adverse childhood experiences (ACEs) negatively affect health-risk behavior and disease in adulthood. While most of the literature surrounding ACEs focuses on population-level data and youth, fewer studies center around screening adults for ACEs in the primary care setting. The purpose of this research is twofold: first, to identify existing research related to this topic to inform screening at the Family Health Center (FHC); and second, to analyze and interpret ACEs screening data from FHC patients to inform its Medical-Legal Partnership (MLP) with Greater Waco Legal Services (GWLS).

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SCREENING FOR ADVERSE CHILDHOOD EXPERIENCES (ACES) AT THE FAMILY HEALTH CENTER

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CHAPTER ONE

ACEs as a Social Determinant of Health

Social Determinants of Health

The relationship between health and socioeconomic status (SES) is longstanding. Defined broadly, SES is the social standing or economic status of an individual or group that is often measured as a combination of income, education, and occupation (Baker, 2014). In the 19th and 20th centuries, scientists Rudolf Virchow and René Dubos found a relationship between tuberculosis and poverty (Krech, 2012; DuBos et al., 1987). In 1967, Michael Marmot began one of the earliest and most influential studies examining social status and health. Through two longitudinal studies, he examined the relationship between employment grade and health in British civil servants. His findings suggested a significant inverse relationship between employment grade as well as mortality and various diseases and health-risk behaviors (Marmot et al., 1984; Marmot et al., 1991).

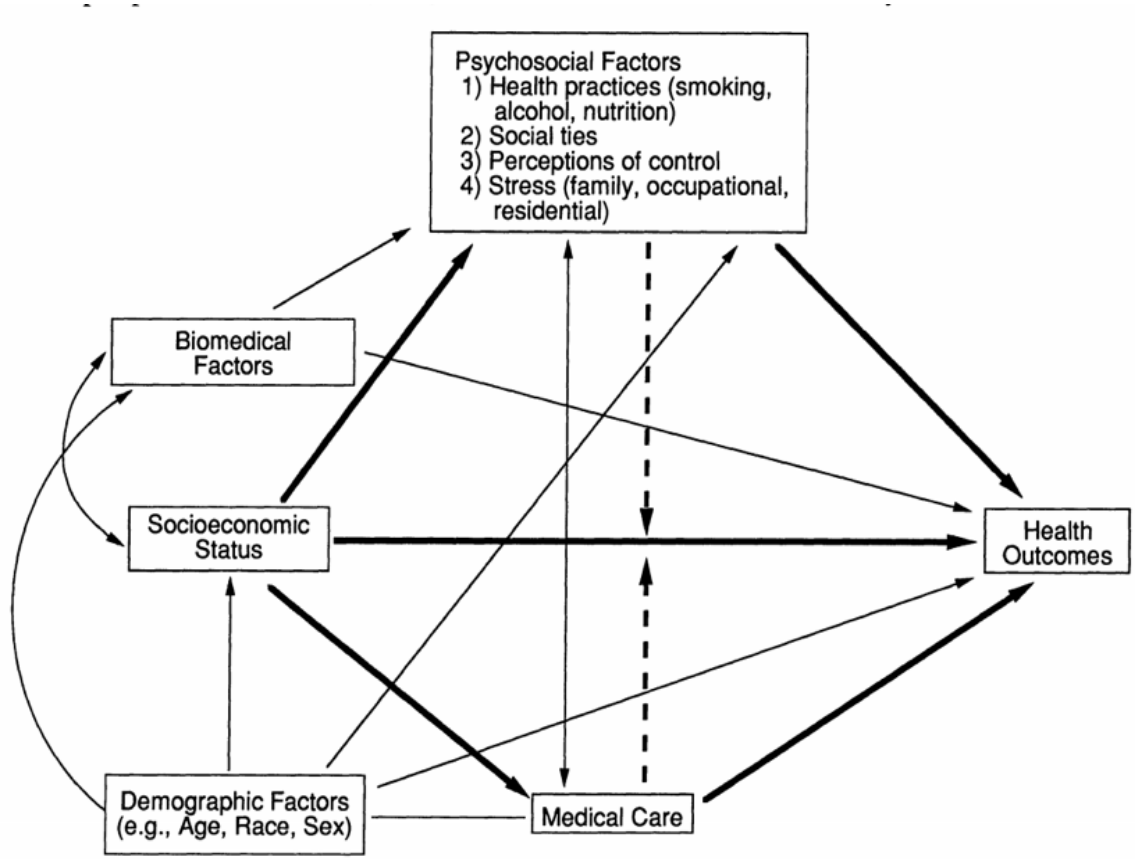
In more recent years, the relationship between social factors and health has become known as the social determinants of health (SDOH). SDOH widely refer to the specific features of and pathways by which societal conditions affect health that can be changed by informed action (Hosseini Shokouh et al., 2017; Krieger, 2001). Such societal conditions include housing, economic and social relationships, health care, education, transportation, food supply, and other social factors that affect quality of life and longevity. While low SES is a SDOH because of its relationship to health outcomes, SES is but one factor that falls under the larger umbrella term of SDOH. The SDOH

acknowledge the ways in which societal conditions, as well as the distribution of resources and the systems and policies that control them, affect health by "getting under the skin" (National Academies of Sciences et al., 2017; Palmer, 2019). SDOH affect a wide range of health issues, functioning, and quality-of-life risks and outcomes (Cole & Fielding, 2007).

Several models of understanding SDOH have been proposed in the literature. One of the oldest is Williams' Conceptual Framework (1990) that focuses on the effects of SES on health with psychosocial factors and medical care as the mediators of this relationship. The model also recognizes the impact of biomedical and demographic factors on health (Williams, 1990). (See Figure 1).

Figure 1

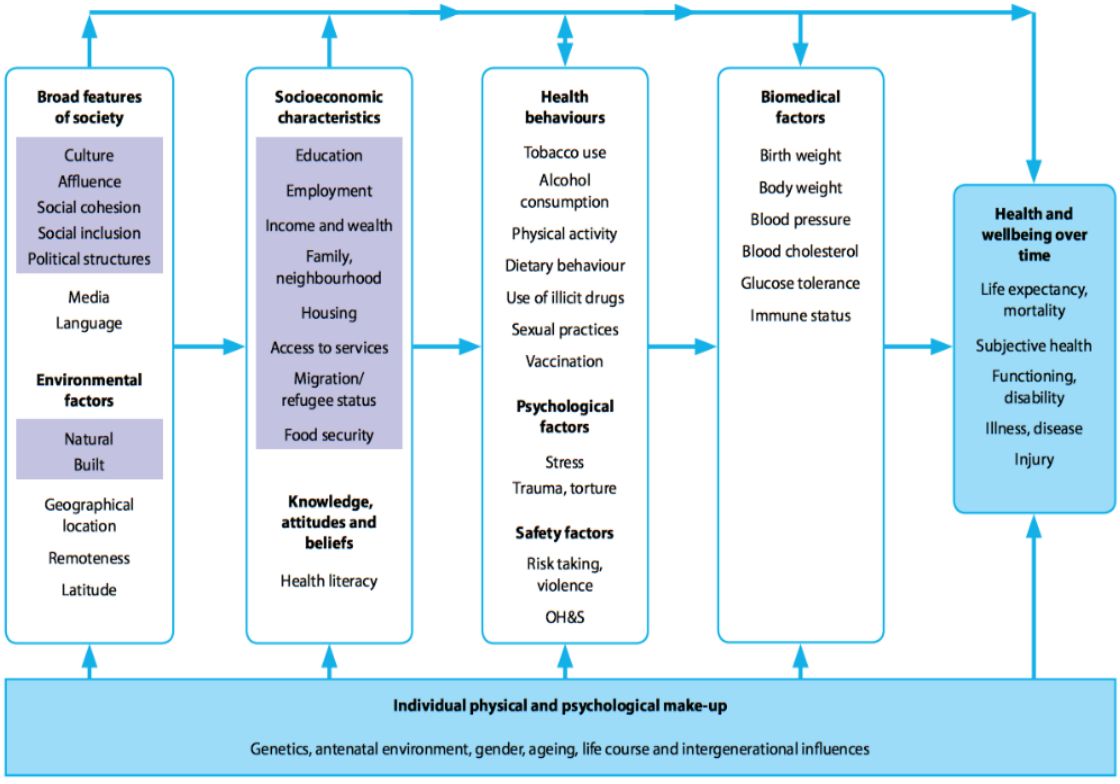
Williams' Conceptual Framework of SDOH (1990)



One of the newer models by the Australian Institute of Health and Welfare (AIHW) views health and well-being as a complex interplay between factors that can be placed into four groups: environmental factors and broad features of society; socioeconomic characteristics, attitudes, health beliefs, and awareness; health behaviors, psychological factors, and safety factors; and biological factors (see Figure 2). The factors of each group both directly and indirectly affect health and wellbeing – directly by impacting health without intermediaries as shown in Figure 2, and indirectly by influencing the factors in the subsequent category to effect health. Additionally, all factors are impacted by the physical and psychological make-up of an individual (Australian Institute of Health and Welfare, 2014). This demonstrates the complex nature between an individual, SDOH, and health and wellbeing.

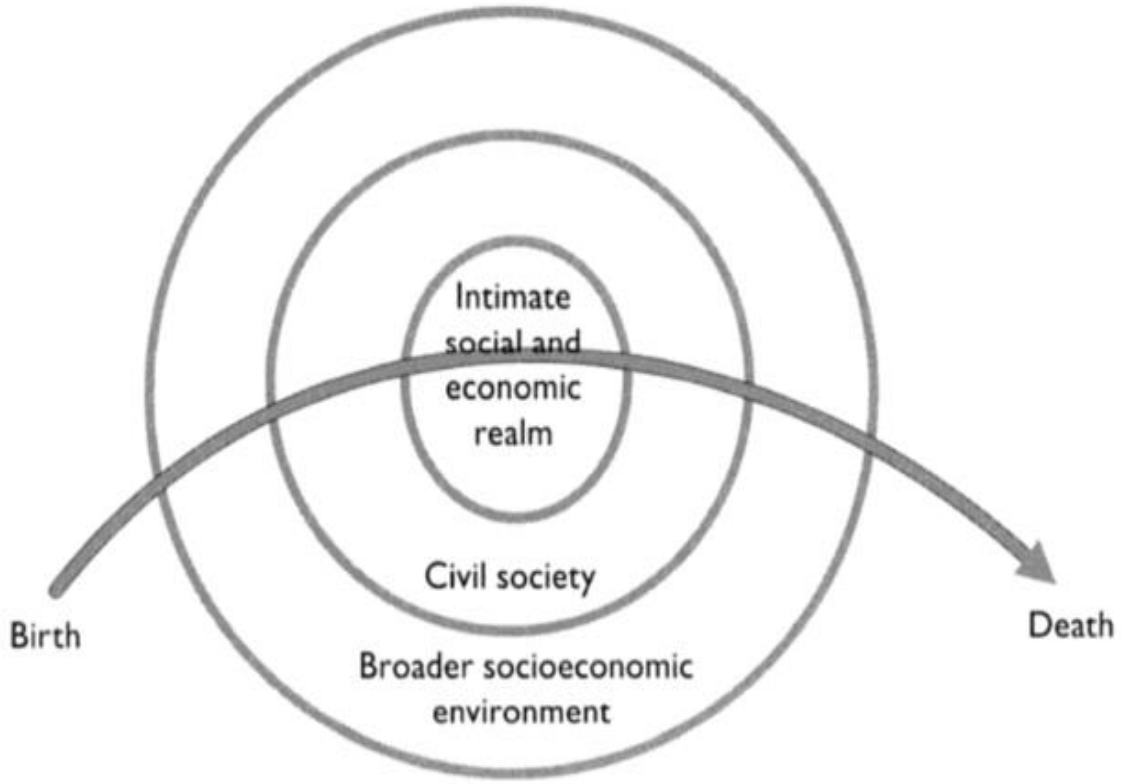
Figure 2

Australian Institute of Health and Welfare Framework for SDOH (2014)



One of the most widely used models of SDOH is the Bullseye model (See Figure 3). It has three concentric circles relating the psychological and socioeconomic factors of an intimate social and economic realm, civil society, and broader socioeconomic environment to one another. Additionally, the model acknowledges that individuals develop over the lifespan and that social realities will affect growth from birth until death. This temporal aspect of the model is represented by the arrow that crosses the bullseye (Babones, 2009).

Figure 3
Bullseye Model of SDOH (2009)



Childhood as a Sensitive Period and The Life Course Perspective

During childhood, many organs and biological systems experience rapid growth and development. In this sensitive period, the evolving architecture of the brain is highly receptive to a wide range of environmental cues and signals, including stress (Shonkoff et al., 2012; Fox et al., 2010). Chronic stress during childhood can negatively impact the development of the neurological, hormonal, and immunological systems in children (Teicher et al., 2016; Bellis et al., 2018). Elevated cortisol levels due to chronic stress and the resultant pro-inflammatory effects can wreak havoc on the physical health of a child that may have lasting effects into adulthood (Kalmakis et al, 2015; Nusslock & Miller, 2015; Bethell et al., 2014; Heard-Garris et al., 2020). However, a range of factors may moderate the impacts of chronic stress on children by providing resilience to developmental harms. Resilience broadly describes the ability of an individual to successfully adapt to disturbances that threaten positive development or the ability to return to positive development following periods of adversity (Bellis et al., 2018). Such factors include cultural engagement, community support, and a relationship with a trusted adult (Bellis et al., 2018).

The tenet that one phase of life, such as childhood, can have profound effects on another is central to the life course perspective on health. This perspective focuses on the effects of past experiences on later health and the ways that specific periods of life influence the overall health of an individual (Burton-Jeangros et al., 2015). This framework views health behaviors as cumulative responses to conditions imposed by the social structure that are situated within economic, historical, cultural, familial, and political contexts (Burton-Jeangros et al., 2015).3

Brief Overview of ACEs Research

The life course perspective informs the study of adverse childhood experiences (ACEs), as research shows that ACEs during childhood negatively affect adult health outcomes. The Original ACEs Study (Felitti et al., 1998) was among the first to focus on this relationship. In this study, a questionnaire was mailed to 13,494 adults with Kaiser Permanente Health insurance. ACEs were defined by the following seven categories: "psychological, physical, or sexual abuse; violence against mother; or living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned" (Felitti et al., 1998, p. 1). Felitti et al. (1998) found a graded relationship between the number of ACEs an individual experienced and each of the adult risk behaviors and diseases studied, including alcoholism, drug abuse, depression, suicide attempt, smoking, sexually transmitted disease, severe obesity, ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease. Additionally, the results of the study suggested that those who were exposed to one category of ACEs were also often exposed to at least one another (Felitti et al., 1998).

Prevalence of ACEs

Multiple studies have demonstrated that the prevalence of ACEs in the United States is high. Data from the Original ACEs study (Felitti et al., 1998) indicated that approximately half of the sample reported no ACEs and approximately half of the sample experienced at least one ACE. The ACEs categories with the highest prevalence in this study were related to living with a drug or alcohol user (25.6%) and sexual abuse (22.0%) (Felitti et al., 1998). Demographic data showed that most participants in this study were Anglo, above the age of 55, and had at least some college education – people who may be

expected to have had more stable childhood environments than low-income minority adults who are often considered at risk for toxic stress and ACEs (Leitch, 2017). This suggests that the data of the Original ACEs Study cannot be extrapolated to most other populations, especially those that are comprised of are ethnically diverse individuals and those with limited education.

Studies that replicated and expanded on the Original ACEs Study used data from the Behavioral Risk Factor Surveillance System (BRFSS). Sample participants had more diversity in age and education than those of the Original ACEs Study. This data, collected and analyzed from 2011 to 2014, suggested that 61.6% of the adult sample had at least one ACE – which is a greater amount than the Original ACEs Study. The most prevalent ACEs were emotional abuse (34.4%) and parental separation (27.6%) (Merrick et al., 2018). An analysis of ACEs data from the 2016 National Survey of Children's Health (NSCH) that studied an ethnically diverse sample of children suggested that 46.3% had experienced at least one ACE, and another analysis found that the most prevalent ACEs included economic hardship (22.5%) and parent/guardian separation (21.9%) (Stumbo et al., 2017; Crouch et al., 2019). While there was more diversity in the participants of the BRFSS and NSCH surveys compared to the Original ACEs Study, an opportunity exists to examine ACEs in ethnically diverse and low-income populations.

This widespread prevalence of ACEs suggests that a large portion of the American population is at risk for the adverse outcomes associated with ACEs. Since the 1990s when the Original ACEs study was published, research has continued to suggest that ACEs negatively affect adult health. In addition to the adverse health outcomes studied in the Original ACEs Study, ACEs have been shown to have an adverse effect on

health outcomes including autoimmune disease; myocardial infarction, coronary heart disease, and stroke; pulmonary disease; and asthma and diabetes – all of which can be impacted by inflammation from chronic stress (Dube et al., 2009; Campbell et al., 2016; Cunningham et al., 2014; Hughes et al., 2017; Gilbert et al., 2015). ACEs have also been correlated with poor mental health including depression, anxiety, and post-traumatic stress disorder (Karatekin & Ahluwalia, 2020; Campbell et al., 2016; Hughes et al., 2017; Poole et al., 2017; Chang et al., 2019). Additionally, ACEs have been shown to have a negative impact on health-risk behaviors such as alcohol misuse; smoking and risky HIV behavior; illicit drug use; and physical inactivity and violence (Crouch et al., 2018; Campbell et al., 2016; Su et al., 2015; Hughes et al., 2017). Evidence also suggests that life prospects including education, employment, poverty, and economic well-being are affected by ACEs (Metzler et al., 2017; Crouch et al., 2019).

A personal history of ACEs not only has direct consequences for individuals, but also for society at large. A study aimed at estimating the 2013 adult health burden and costs associated with ACEs in California found that $10.5 billion in excess personal healthcare spending (in 2017 dollars) was associated with ACEs. Furthermore, ACEs were associated with $589 of personal healthcare expenses and $5,769 in health burden per exposed adult in 2013 (Miller et al., 2020). A study analyzing 2017 data found that ACEs among Tennessee adults led to approximately $5.2 billion in direct medical costs and lost productivity from employees missing work ("The Economic Cost of Adverse Childhood Experiences in Tennessee," 2019). Further, the CDC reports that of the nation's 3.3 trillion dollars in annual health expenditures, 90% are for those with chronic and mental health conditions, which are associated with ACEs (National Center for

Chronic Disease Prevention and Health Promotion, 2019). The evidence suggests that ACEs have economic costs for society in addition to individual costs related to health and quality of life.

Potential Pathways Connecting ACEs and Health

While there is not a singular, widely recognized pathway explaining the association between ACEs and poor adult health and health-risk behaviors, the literature on this topic has offered many potential mediators including allostasis, biological embedding, coping behaviors, and intergenerational effects of ACEs (Barboza Solis et al., 2015; Berens et al., 2017; Felitti et al., 1998; Dong et al., 2003; Nurius et al., 2016; Amnie, 2018; Hughes et al., 2017; McDonnell & Valentino, 2016). Allostasis names the chronic "wear and tear" of stress response systems including the endocrine, nervous, and immune systems that results from enduring stress (Ganzel et al., 2010; McEwen, 2005; Danese & McEwen, 2012). These systems are activated during stress and maintain physiological stability in a changing or stressful situation (Ganzel et al., 2010). However, with repeated or prolonged exposure to psychosocial stressors such as ACEs, these systems are frequently activated and overworked – leading to allostatic load or allostatic overload (Ganzel et al., 2010). Allostatic load and overload refer to the cumulative results of an allostatic state on the body and can have severe short- and long-term negative effects on the body (McEwen, 2005; Danese & McEwen, 2012). For example, malfunctioning stress response systems can negatively affect current growth and development to make an individual more susceptible to chronic disease later in life.

Another mechanism by which ACEs may influence health is through the epigenetic mechanisms underlying biological embedding (Aristizabal et al., 2019; Lang

et al., 2019; Shonkoff et al., 2012; Fox et al., 2010; Berens et al., 2017). Adverse experiences during sensitive periods such as childhood can result in dysfunctions in bodily systems that endure physiologically through mechanisms including attachment of chemical residues such as methyl groups to DNA (Berens et al., 2017; Lang et al., 2019). This could happen if, for example, a stressful event in childhood changed the regulation of a gene that affects brain and body development. This change could be permanent and therefore negatively influence the developing stress response system in the short-term and lead to disease in the long-term (Berens et al., 2017).

The Original Aces Study suggests that the mechanisms linking ACEs and adult diseases and risk behaviors include coping behaviors that have immediate pharmacological or psychological benefits in the face of stressful psychosocial circumstances (Felitti et al., 1998). Such coping behaviors include smoking, alcohol or drug abuse, overeating, and risky sexual behaviors. These behaviors may help regulate the mood of an individual or provide short-term relief in the face of stress due to an adverse experience but may lead to chronic use that negatively impacts long-term health (Felitti et al., 1998). A large body of literature agrees that coping mechanisms may mediate the relationship between ACEs and poor adult health (Dong et al., 2003; Nurius et al., 2016; Amnie, 2018).

Another mechanism through which ACEs may affect health relates to the intergenerational aspects of ACEs (Hughes et al., 2017; McDonnell & Valentino, 2016). Ample evidence suggests that the health and experiences of a generation due to ACEs affect those of the following generation (Hughes et al., 2017; McDonnell & Valentino, 2016). For example, findings suggest that maternal ACEs are associated with increased

maternal anxiety and depression during both the prenatal and postnatal periods, and that maternal depression and anxiety may operate together to affect the growing fetus through both biological and social mechanisms (Letourneau et al., 2019). A biological mechanism could include the passing of genes from one generation to another, and more specifically, genes that relate to physiological functioning and biochemistry in the body (Anda et al., 2002). Social mechanisms include social factors such as decreased confidence, a lack of social skills, and limited education in parents that inevitably affect the development of their children (Montalvo-Liendo et al., 2015).

The potential pathways between ACEs and poor adult health and health-risk behaviors presented here are by no means exhaustive. Several other mediators presented in the literature may play a role as well, such as socioeconomic status, age-dependent physiological pathways, subsequent stress exposures, and limited opportunities to develop human capital and social relationships (Lynch et al., 1997; Monnat & Chandler, 2015; Nurius et al., 2019). While there are many potential pathways connecting ACEs and poor adult health and health-risk behaviors, it is not clear which is dominant or how these pathways act alone or in tandem with one another.

Limited Focus on ACEs in Adults in the Primary Care Setting

Limited Focus on ACEs in Adults

Much of the literature surrounding ACEs focuses on youth. Many studies center around protecting children from the effects of ACEs, examining associations between ACEs and characteristics of youth, and identifying biomarkers of ACEs in young people

(Traub & Boynton-Jarrett, 2017; Bellis et al., 2018; Heard-Garris et al., 2020; Kalmakis et al., 2014; Bethell et al., 2014). However, less research has focused on ACEs in adults.

A focus on ACEs in adults is beneficial in ways that a focus on ACEs in children is not. A focus on ACEs in adults has the potential to identify adversity missed by a childhood ACEs screening. This could occur if a child suffered an ACE after a childhood screening, or if an incident was later identified as an ACE by an adult who as a child, thought the incident was a part of normal life and found no reason to report it (Waite et al., 2010). Additionally, while screening for ACEs during childhood has the potential to interrupt pathways that lead to poor adult health, it cannot treat diseases that manifest in adulthood as ACEs interventions in adulthood can (Miller et al., 2020; Waite et al., 2010).

While ACEs are usually evaluated in a pediatric setting, there is an opportunity to examine ACEs in adult settings. Even though a connection between ACEs and adult health has been firmly established, ACEs are not typically discussed in adult health care interactions (Maunder et al., 2020; Esden, 2018; Machtinger et al., 2015). Furthermore, despite national calls to action, there is a lack of guidance concerning how to address ACEs in adults in the primary care setting in order to more effectively treat common health problems (Machtinger et al., 2015; Machtinger et al., 2019). Examining ACEs in adults is important, although there is not much work focused on this area. There is an opportunity to explore ACEs in health care for adults, and there are clear calls in the literature to incorporate ACEs into adult health care settings (Maunder et al., 2020; Esden, 2018; Machtinger et al., 2015, Machtinger et al., 2019)

Primary Care as the Ideal Setting to Address ACEs

The ideal setting in which to address ACEs is the health care setting. "Address" here and throughout this paper refers to bringing attention to the ACEs history of an individual in order to mitigate the effects of ACEs on health. Unlike many other settings, the health care setting can focus on all three levels of prevention of ACEs: tertiary by treating adverse health effects originating in ACEs; secondary by intervening in negative pathways connecting ACEs and health in order to minimize the future negative health effects of ACEs; and primary by taking efforts to prevent intergenerational ACEs (Pandva, 2014). The health care setting can also uniquely address both the physiology and symptoms of poor health due to ACEs. Additionally, health care professionals are uniquely equipped to refer patients to other professionals and services that may assist them with social, mental, and familial effects of ACEs.

Within health care, ACEs should be addressed in the primary care setting. According to the American Academy of Family Physicians (AAFP), primary care "serves as the patient's first point of entry into the healthcare system" and provides care for individuals who may not have any diagnosed signs or symptoms, but have health concerns of biological, behavioral, social, or other origins (Primary Care, 2020, p. 2). As primary care is usually a patient's first contact point with the medical system, it reaches a significant portion of individuals utilizing health care, and therefore can address ACEs— which are prevalent throughout the American population — in many people (Primary Care, 2020). Addressing ACEs in this setting seems logical because of the role of primary care professionals in health promotion, disease prevention, and patient education. Adults with ACEs may be unaware of how their childhood experiences impact their adult health,

and a primary care physician could take this opportunity to educate the patient. Family medicine physicians, one type of primary care provider, can treat entire families and individuals across the life span, creating opportunities to mitigate the onset of ACEs in later generations while ameliorating the impact of those in the older generations within the same family. Primary care is an ideal environment for asking about the sensitive topics of ACEs and how it affects current and future health, as it tends to examine health from a more holistic perspective than other specialties in medicine.

Screening for ACEs

ACEs screening can allow for the identification of ACEs. According to the World Health Organization (WHO), screening is the "presumptive identification of unrecognized disease in an apparently healthy, asymptomatic population by means of tests, examinations or other procedures that can be applied rapidly and easily to the target population" (World Health Organization, n.d. a, p.1). Although it is uncommon, screening adults for ACEs in the primary care setting is important because it allows for the identification of an ACEs history in an individual (Glowa et al., 2016). Given the relationship between ACEs and poor health outcomes, this identification can signal to providers to further investigate the causes of poor health that may be rooted in ACEs. In this way, screening for ACEs can lead to interventions that target the sources of poor health as opposed to merely treating the symptoms of it (Hughes et al., 2017). For example, a positive ACEs screening can signal to a provider that this SDOH may be affecting health. This may lead the provider to further investigate the nature of ACEs. Upon learning that the patient experienced constant physical abuse as a child and turned

to smoking as a coping behavior, the provider may be able to better treat the persistent cough of the patient than the provider would have been able to without this information.

The purpose of this paper is to identify existing work related to screening adults for ACEs in the primary care setting and relate this literature to a primary care practice in Central Texas. *Chapter One: ACES as a Social Determinant of Health* has provided an overview of ACEs as a SDOH and identified primary care as the ideal setting to address ACEs. *Chapter Two: Literature Review of ACEs Screening in the Primary Care Setting* will include a review of the literature related to screening for ACEs in adults in the primary care setting and elucidate themes among the literature. *Chapter Three: Screening at the Waco Family Health Center* will describe how ACEs screening was implemented at the Waco Family Health Center (FHC) as well as the strengths and limitations of this process. *Chapter Four: Recommendations for the Primary Care Setting* will set forth recommendations for primary care settings, including the FHC, to consider.

CHAPTER TWO

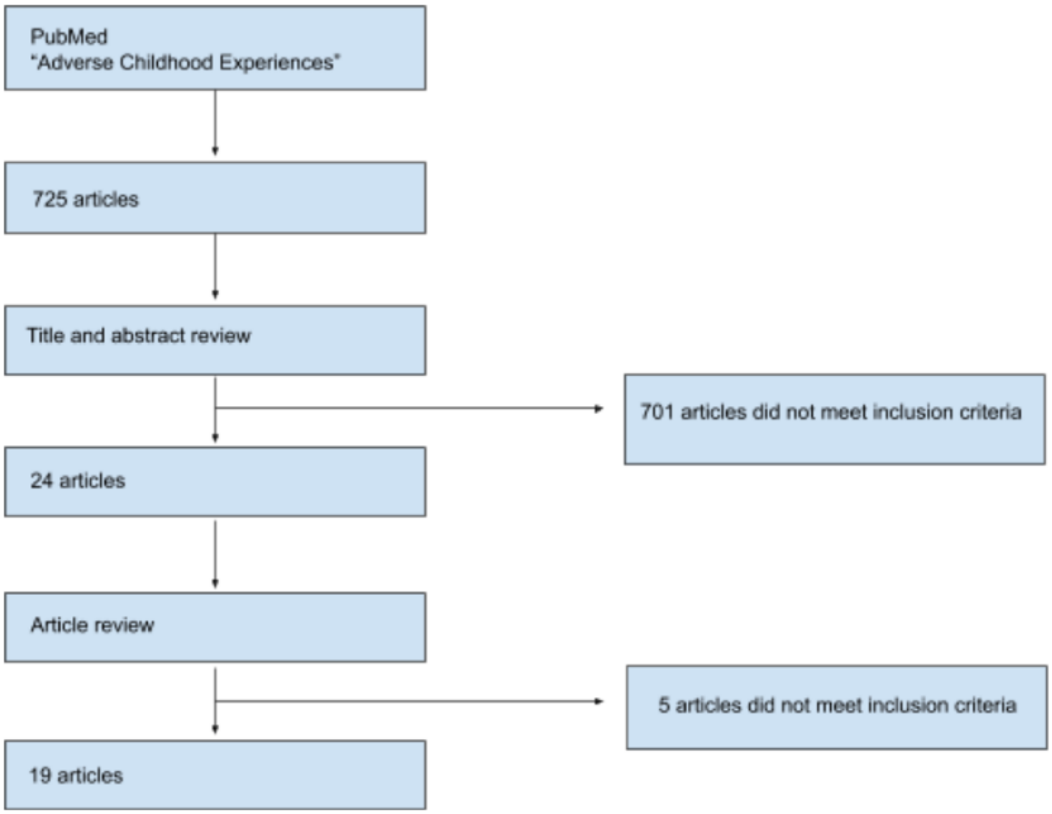
Literature Review of ACEs Screening in the Primary Care Setting

Purpose Statement

The relationship between ACEs and adverse health outcomes in adulthood has been established in the literature. However, less research has focused on ACEs screening and interventions that assess and mitigate the effects of ACEs. The purpose of this literature review is to identify existing work related to screening adults for ACEs in the primary care setting.

The term "adverse childhood experience" was searched in the PubMed database. Articles were included according to the following criteria: published within the last 10 years, written in English, studying human subjects, conducted in the United States, focused on adults in the primary care setting, and related to screening for ACEs in adults. Publications that focused on inpatients or specific specialties within medicine were excluded. The PRISMA Chart (see Figure 4) outlines the process that led to the 19 articles included in this review.

Figure 4
PRISMA Chart



Literature Review

Baglole, K., & Workman, S. (2011, October 18). Every physician a psychoanalyst? Implications of the adverse childhood experiences study. *CMAJ: Canadian Medical Association Journal,* 183(15), 1804. Retrieved from Academic OneFile.

This article offered an overview of the Original ACEs Study (Felitti et al., 1998) that studied the ACEs histories of 9,508 adults and found a relationship between ACEs and health as well as behavior. According to Baglole and Workman (2011), traumatic childhood experiences are more common than most people think, as more than half of the sample of the Original ACEs Study (Felitti et al., 1998) had a history of at least one ACE.

The authors suggested that ACEs have both financial and human costs and recommended ACEs intervention in children to address preventable disease.

Baglole and Workman (2011) noted that the study sample of the Original ACEs Study (Felitti et al., 1998) was neither impoverished nor uneducated but instead represented average Americans in income and education. This highlighted the significant presence of ACEs in the general population. Additionally, through the anecdotal elements of this paper, the authors humanized ACEs, decreased stigma around them, and evoked compassion in the reader. This is evidenced by the final sentence of the article: "I once asked a suicidal patient why she was suicidal. After she told me about her life and childhood, I thought I'd probably be suicidal too" (Baglole & Workman, 2011, p.1).

Bethell, C. D., Carle, A., Hudziak, J., Gombojav, N., Powers, K., Wade, R., & Braveman, P. (2017). Methods to assess adverse childhood experiences of children and families: Toward approaches to promote child well-being in policy and practice. *Academic Pediatrics*, 17(7, Supplement), S51–S69. https://doi.org/10.1016/j.acap.2017.04.161

The purpose of this study was threefold: first, to identify and compare 14 methods to assess ACEs; second, to evaluate the acceptability and validity of the ACEs measure included in the National Survey of Children's Health (NSCH-ACEs); and third, to identify implications for assessing ACEs in practice and research. The ACEs measures reviewed mainly differed in the number of survey items, ACEs topics addressed, settings of administration, target populations, and scoring methods. The NSCH-ACEs measure showed evidence of internal and external predictive validity. Bethell et al. (2017) recommended that in assessing ACEs, providers introduce and frame ACEs questions,

follow up with individuals through post-assessments, and receive training on how to assess ACEs.

Bethell et al. (2017) noted that "no studies were found that specifically document methods and outcomes for clinical (versus research) purposes for assessing ACEs among children, youth, or families" (p. 14) — pointing to a gap in the literature on assessing ACEs in a clinical setting. While the authors of this article did not define ACEs, Bethell et al. (2017) noted that it is necessary to have conceptual clarity on ACEs, the purpose of measuring ACEs, and measurement specifications before screening for ACEs. The authors acknowledged that providers may be hesitant to screen for ACEs for fear that doing so might trigger traumatic reactions in patients. However, the authors noted that 1) this reaction has not been confirmed to occur or to pose a clinical problem; 2) the literature on ACEs suggests that adult patients do not object to assessing ACEs but instead find dialogue concerning ACEs empowering; and 3) not asking patients about ACEs can be harmful. While the authors highlighted the dose-response relationship between ACEs and health outcomes, they did not discuss any health outcomes related to ACEs.

Chung, E. K., Nurmohamed, L., Mathew, L., Elo, I. T., Coyne, J. C., & Culhane, J. F. (2010). Risky health behaviors among mothers-to-be: The impact of adverse childhood Experiences. *Academic Pediatrics,* 10(4), 245–251. https://doi.org/10.1016/j.acap.2010.04.003

The purpose of this study was to assess the impact of ACEs on health-risk behaviors among low-income, expectant mothers and determine whether a dose-response relationship existed between ACEs and health-risk behaviors. The four health-risk

behaviors measured in this study were smoking, alcohol use, marijuana use, and other drug use during pregnancy. ACEs were measured through 7 variables (physical abuse, sexual abuse, verbal hostility, domestic violence, having witnessed a shooting, having a guardian in trouble with the law or in jail, and having a guardian with substance use) that occurred before the age of 16. The study sample (n=1476) consisted of mostly low-income, young, African American, single women. Findings about behaviors during pregnancy revealed that 23% of the sample reporting smoking, 7% reported alcohol use, and 7% reported illicit drug use. Additionally, 72% of the sample had a history of one or more ACEs. There was a higher prevalence of each health-risk behavior among those exposed to each ACE than among those unexposed, with the exception of alcohol use. The authors noted a dose-response relationship for each health-risk behavior. The authors concluded that ACEs were associated with health-risk behaviors reported by expectant mothers. The authors recommended that more efforts target the prevention of ACEs in mothers to lower the prevalence of health-risk behaviors that have significant consequences for both mothers and their children.

This article suggested that one possible pathway between ACEs and health-risk behaviors was an effort to cope with past and current effects of ACEs that can lead to health-risk behaviors such as smoking and alcohol use. Some limitations of the Original ACEs Study (Felitti et al., 1998) noted by the authors were that it was retrospective, used a self-administered survey, and did not study a diverse sample of participants as 46% were above 60 years old, 75% were non-Hispanic White, more than 75% had completed some college education, and all were insured by Kaiser Permanente.

Corbin, T. J., Purtle, J., Rich, L. J., Rich, J. A., Adams, E. J., Yee, G., & Bloom, S. L. (2013). The prevalence of trauma and childhood adversity in an urban, hospital-based violence intervention program. *Journal of Health Care for the Poor and Underserved;* Baltimore, 24(3), 1021–1030. https://doi.org/http://dx.doi.org/10.1353/hpu.2013.0120urban

The purpose of this cross-sectional study was to determine the prevalence of ACEs and post-traumatic stress disorder (PTSD) among victims of interpersonal violence in an urban hospital-based violence intervention program (HVIP). A 10-question ACEs measure was used to assess ACEs and the PTSD Symptom Scale-Self-Report (PSS-SR) was used to measure PTSD. The prevalence of both ACEs and PTSD were high in this study population. Of the 32 program participants who completed a PTSD screening, 75% met full diagnostic criteria for PTSD. Of the 32 program participants who completed the ACEs screening, all reported at least one ACE, and 26 (81%) reported two or more ACEs, 16 (50%) reported four or more ACEs, seven (21%) reported six or more ACEs, and two (6%) reported eight or more ACEs.

This article included several recommendations for HVIPs that may also extend to the primary care setting. First, screening is only the first step in mitigating the effects of trauma and should be coupled with intervention. Screening without accompanying interventions has the potential to do harm. Second, health care providers should be trained on the principles of trauma-informed care (TIC), the biopsychosocial effects of trauma, and the complex needs and characteristics of patients. Third and last, health care systems and practices should consider instituting policies that promote screening for trauma while providing resources and education that can mitigate its effects. This study

also showed that trauma screening tools can be administered by trained staff (for example, a social worker or community intervention specialist), and do not necessarily need to be administered by physicians.

Finkelhor, D., Shattuck, A., Turner, H., & Hamby, S. (2013). Improving the Adverse Childhood Experiences study scale. *JAMA Pediatrics*, 167(1), 70–75. https://doi.org/10.1001/jamapediatrics.2013.420

The purpose of this article was to test and improve the list of ACEs in the Original ACEs Study (Felitti et al., 1998) by examining the ability of a broader range of childhood experiences to correlate with mental health symptoms. This study analyzed a subsample (n=2030) of the 4549 children and adolescents who completed the National Survey of Children's Exposure to Violence (Nat SCEV). The researchers interviewed study participants via telephone with a tool based on the Juvenile Victimization Questionnaire and asked additional questions about experiences that are associated with health and well-being outcomes. The findings of this study showed an association between the ACEs items of the Original ACEs Study (Felitti et al., 1998) and mental health symptoms. However, this association was significantly improved by removing some items from the Original ACEs Study and adding others such as community violence exposure, peer victimization, SES, and school performance. The authors concluded that there are additional domains of childhood adversity not included in the Original ACEs Study that negatively impact health, and that the ACEs questionnaire in the Original ACEs Study might better predict health outcomes if certain ACEs items were removed and others added.

Finkelhor et al. (2013) recommended conducting ACEs screening during childhood. The authors noted that assessing ACEs later in life makes it difficult to determine whether the ACEs measured predicted health outcomes or if unmeasured covariates were more significant predictors of health. Additionally, the authors noted, poor adult health outcomes and negative adult life situations could lead to recall bias when screening for ACEs in adults. Screening for ACEs in childhood, on the other hand, allows for an untangling of the relationships between adversities which could inform understandings of causal sequences of disease.

Finkelhor, D., Shattuck, A., Turner, H., & Hamby, S. (2015). A revised inventory of Adverse Childhood Experiences. *Child Abuse & Neglect*, 48, 13–21. https://doi.org/10.1016/j.chiabu.2015.07.011

The purpose of this study was to determine whether the list of items measuring ACEs in Original ACEs Study (Felitti et al., 1998) could be improved to enhance its ability to predict health outcomes. Finkelhor et al. (2015) hypothesized that adding widely recognized childhood adversities such as peer victimization, peer isolation/rejection, exposure to community violence, and SES to the ACEs questionnaire would add to its ability to predict health outcomes. This study analyzed data from the 2014 National Survey of Children's Exposure to Violence 2014 (n=1,949) and found that each of the four hypothesized adversities added significantly to the prediction of mental health symptoms. In contrast, five items from the Original ACEs Study did not make significant contributions to the multivariate models predicting distress. The authors concluded that incorporating additional adversities into the category of ACEs could improve the ability of ACEs screeners to predict negative health outcomes. The authors

proposed a revised version of the ACEs questionnaire of the Original ACEs Study that included all items from the Original ACEs Study plus questions concerning peer victimization, peer isolation/rejection, community violence exposure, and SES.

This article highlighted a gap in the literature concerning the ability of certain adversities to predict negative health outcomes. It also raised questions concerning the role of screening for trauma versus screening for ACEs. The authors highlighted the ambiguity concerning the relationship between ACEs and trauma and questioned whether there are advantages to screening for one over the other and if so, which should be screened for, when, and in what setting. This points to a lack of clarity concerning the conceptual difference between childhood trauma and ACEs that Kalmakis et al. (2014) suggested in their research as well. The finding that peer isolation/rejection contributed to predictions of health outcomes did not appear elsewhere in the literature and may be a unique contribution by Finkelhor et al. (2015).

Forstadt, L., Cooper, S., & Andrews, S. M. (2015). Changing medicine and building community: Maine's Adverse Childhood Experiences momentum. *The Permanente Journal*, 19(2), 92–95. https://doi.org/10.7812/TPP/14-169

Forstadt et al. (2015) described how education about adversity and resilience can positively influence the practice of medicine and related fields. Resilience was defined as "the ability to respond to experiences" that is "fostered by the providers, teachers, friends, family, and community in one's life" (Forstadt et al., 2015, p. 92). The authors focused on the variety of resources and relationships in an individual's life that can contribute to resilience, with a specific focus on those in health care. The authors promoted the use of a common language around ACEs which they suggested is crucial to spreading awareness,

promoting education, and facilitating referrals related to ACEs. Forstadt et al. (2015) advocated TIC and recommended that providers ask their patients, "what happened to you" instead of "what's wrong with you" (p. 93) Additionally, the authors suggested that providers help identify the strengths of their patients, work with a team of other professionals to address health, and provide patients with referrals when necessary. Last, the authors highlighted the work of the Maine Resilience Building Network (MRBN) which has contributed significantly to the focus on ACEs among physicians in Maine by supporting efforts aimed at education, awareness, and innovation in projects concerning ACEs.

Glowa, P. T., Olson, A. L., & Johnson, D. J. (2016). Screening for Adverse Childhood Experiences in a family medicine setting: A feasibility study. *Journal of the American Board of Family Medicine: JABFM,* 29(3), 303–307. https://doi.org/10.3122/jabfm.2016.03.150310

The purpose of this study was to explore the feasibility of screening for ACEs in adults during routine family medicine appointments. A 10-question ACEs screening tool was given to 111 consecutive patients at three rural clinics before appointments with seven different health care providers. After seeing the patients, providers filled out surveys about the effect of screening on appointments and how the results of the screening tools were incorporated into the appointments. Results demonstrated that all providers felt that screening for ACEs did not interfere with the appointments but offered providers new information relevant to patient care. Additionally, no patients refused to be screened for ACEs nor expressed distress in responding to the questions on the screening tool. As one of the first peer-reviewed publications to examine the use of ACEs screening

tools in primary care, this study concluded that the incorporation of ACEs screening during routine care is feasible and merits further study.

Glowa et al. (2016) suggested that screening for ACEs is acceptable to patients and has minimal negative effects on care from the perspective of health care providers. This serves as evidence against concerns that appointments including ACEs screening will be significantly prolonged or uncomfortable. The authors recommended screening patients with an ACEs history for health-risk behaviors that are strongly associated with ACEs. This could lead to targeted interventions for health-risk behaviors that have the potential to reduce compounding effects on the biological stress systems that are already overactive due to ACEs. The authors also noted that one way to improve their study was to allow health care providers to flag ACEs information as a key aspect of a patient's history within an electronic health record, which the authors said was an important step in incorporating the ACEs screening results in future appointments.

Kalmakis, K. A., & Chandler, G. E. (2014). Adverse Childhood Experiences: Towards a clear conceptual meaning. *Journal of Advanced Nursing*, 70(7), 1489–1501. https://doi.org/10.1111/jan.12329

The purpose of this systematic literature review was to report an analysis of the concept of adverse childhood experiences using C.M. Norris's five steps of concept clarification (Norris, 1982). Kalmakis et al. (2014) found that while the literature provided various examples of ACEs, there was no agreed definition of ACEs; and although many articles used the term "adverse childhood experiences," none defined them. Kalmakis et al. (2014) proposed and discussed five characteristics that described ACEs based on the literature: harmful, chronic, distressing, cumulative, and varying in

severity. Kalmakis et al. (2014) proposed this operational definition for ACEs based on their research and practice knowledge, and in order to acknowledge the diverse nature and shared characteristics of ACEs: "childhood events, varying in severity and often chronic, occurring in a child's family or social environment that cause harm or distress, thereby disrupting the child's physical or psychological health and development" (p. 1495). According to the authors, this definition has the potential to give more legitimacy to the study of ACEs because it provides conceptual clarity on ACEs.

Kalmakis, K. A., & Chandler, G. E. (2015). Health consequences of Adverse Childhood Experiences: A systematic review. *Journal of the American Association of Nurse Practitioners,* 27(8), 457–465. https://doi.org/10.1002/2327-6924.12215

Kalmakis & Chandler's (2015) systematic literature review of 42 articles focused on associations between ACEs and health outcomes to inform nurse practitioners in primary care. Findings revealed that ACEs have been associated with physical conditions including cardiovascular disease, chronic lung disease, headaches, autoimmune disease, sleep disturbances, obesity, smoking, and general poor health; psychological conditions including depression, PTSD, substance abuse, and suicidal ideation/attempts; risk behaviors including smoking, binge drinking, abusing substances, and risky behavior during adolescence and pregnancy; factors that disrupt development including homelessness, increased abortions, and adult relationship violence; and increased healthcare utilization including more prescription medications, high health care utilization, and an increased risk of having been prescribed multiple classes of pharmaceuticals. This research supported the existing literature on the cumulative and dose-response effects of ACEs on health. Kalmakis & Chandler (2015) found that the

ACEs instrument used in the Original ACEs Study (Felitti et al., 1998) was the most commonly used tool to assess ACEs (used in 20 of the 41 studies), followed by the Conflict Tactics Scale (used in three studies); and other self-report measures. The authors encouraged nurse practitioners to assess the childhood histories of patients in routine primary care and consider the evidence that supports a relationship between health and ACEs.

Based on their research, Kalmakis & Chandler (2015) recommended several practices for nurse practitioners who address ACEs in the primary care setting. First, patients who engage in risky behavior or have health conditions associated with ACEs should be screened for ACEs. Second, ACEs should be discussed in a safe, relational environment where ACEs are normalized and patients feel comfortable discussing ACEs. Third, screening should facilitate a conversation about the relationship between ACEs and health, an individual's past experiences, and current health. This dialogue can be therapeutic to patients and influence adherence to health treatments. Additionally, Kalmakis and Chandler (2015) suggested that it is unethical for nurses to not ask about ACEs given the profound negative effects of ACEs on health. Failing to screen for ACEs overlooks an important risk factor for various health problems and bypasses an opportunity to interrupt the progression of disease.

Kalmakis, K. A., Shafer, M. B., Chandler, G. E., Aponte, E. V., & Roberts, S. J. (2018). Screening for childhood adversity among adult primary care patients. *Journal of the American Association of Nurse Practitioners*, 30(4), 193–200. https://doi.org/10.1097/JXX.0000000000000033

The purpose of this study was twofold: first, to test the feasibility and effectiveness of an ACEs screening interview; and second, to confirm the prevalence of ACEs among patients with chronic health conditions, specifically PTSD, depression, chronic pain, diabetes, obesity, cardiovascular issues, and arthritis. Study participants (n=71) were adult patients at a rural Massachusetts primary care practice. After being screened for ACEs by an interviewer, each participant completed a demographic intake questionnaire and a 19-item ACEs questionnaire derived from that of the Original ACEs Study (Felitti et al., 1998). Those who screened positive for ACEs were provided with referrals. The interviewers were given a post-intervention questionnaire that measured comfort in screening, confidence in ability to screen, screening duration, and plan for follow-up care. Study results showed that 82% of study participants reported a history of at least one ACE, 53% reported a history of more than four ACEs, and the number of reported ACEs was higher among individuals with chronic health conditions than among those without. Interviewers reported feeling very comfortable during interviews and confident in their ability to screen for ACEs after two interviews. The average screening interview lasted 8.5 minutes, with the shortest and longest lasting 3 and 20 minutes, respectfully. The findings of this study supported the use of a brief, trauma-informed, and effective interview to screen for ACEs among patients in primary care.

Kalmakis et al. (2018) highlighted the importance of TIC and recommended this approach for primary care practices due to the pervasiveness of ACEs in the general population and the relationship between adult health and ACEs. The authors highlighted the ability of students to screen for ACEs, as the interviewers in this study were nurse practitioner students. The authors suggested that when trained, individuals other than primary care provider can screen for ACEs, and neither a provider-patient relationship nor experience as a provider are necessary to screen for ACEs.

Korotana, L. M., Dobson, K. S., Pusch, D., & Josephson, T. (2016). A review of primary care interventions to improve health outcomes in adult survivors of adverse childhood experiences. *Clinical Psychology Review*, 46, 59–90. https://doi.org/10.1016/j.cpr.2016.04.007

This systematic literature review of 99 studies aimed to examine the evidence base of psychosocial interventions for adults with a history of ACEs, with a focus on those that can be implemented in primary care. Cognitive Behavioral Therapies (CBT) had the most evidence of improving health in adults with a history of ACEs. Expressive Writing (EW) and Mindfulness-Based (MB) therapies also showed promise. The authors noted that a therapy with a combination of EW and MB has the potential to address the social, cognitive, and emotional outcomes of adults with ACEs, as well as neurological and physical health and behavior outcomes. The authors concluded that more research on CBT, EW, MB, and other interventions for adults with a history of ACEs is necessary.

Korotana et al. (2016) recommended incorporating integrated care programs into primary care, especially for patients with mental health issues and addictions which present so frequently in primary care. Additionally, the authors acknowledged that while

the limited amount of time and resources available in the primary care setting may necessitate brief interventions concerning ACEs, evidence suggests that abbreviated, brief, or self-help versions of various interventions have benefited adults with a history of ACEs in the primary care setting.

McCall-Hosenfeld, J., Winter, M., Heeren, T., & Liebschutz, J. M. (2014). The association of interpersonal trauma with somatic symptom severity in a primary care population with chronic pain: Exploring the role of gender and the mental health sequelae of trauma. *Journal of Psychosomatic Research*, 77(3), 196–204. https://doi.org/10.1016/j.jpsychores.2014.07.011

The purpose of this research was to examine the association between somatic symptom severity and three interpersonal trauma types: sexual trauma (ST), intimate partner violence (IPV), and childhood trauma history (defined as having experienced three or more ACEs). The authors proposed a model in which PTSD, depression, and substance abuse were evaluated as potential mediators between somatic symptom severity and trauma exposure, with special attention on the role of gender in this pathway. The participants (n=597) in this study were recruited from a primary care practice in an urban, academic medical center. Results showed that although somatic symptoms were more prevalent among survivors of all interpersonal trauma, women reported significantly more somatic symptoms than men. The authors found that the strength of the pathways between interpersonal trauma and somatic symptom severity were different for men and women, as they were stronger in men for all three potential mediators. The direct pathway between somatic symptoms and trauma exposure that was found in women but not in men suggested that there may be an unmeasured intermediary between

somatic symptoms and trauma exposure that could more accurately describe trauma sequelae in women but not men. The data suggested that the increased prevalence of overall trauma among women in the sample, rather than stronger associations between variables in the models, likely accounted for the greater somatic symptom severity among female compared to male trauma survivors.

The authors of this article suggested that substance abuse may be elevated among trauma survivors who may self-medicate in order to treat or cope with trauma-related stress symptoms. One significant finding of this study was the evidence for different pathways between adverse experiences and adverse health outcomes. The authors suggested that once more research is conducted on the pathways between ACEs and adverse health outcomes, interventions targeting the variables in these pathways might help mitigate the effects of ACEs on health. The authors acknowledged that exposure to trauma may not only have costs related to the health of an individual, but also the healthcare system and society as a whole.

McLennan, J. D., & MacMillan, H. L. (2016). Routine primary care screening for Intimate Partner Violence and other adverse psychosocial exposures: What's the evidence? *BMC Family Practice*, 17(1). https://doi.org/10.1186/s12875-016-0500-5

McLennan and MacMillan (2016) provided cautions to routine screening for IPV and ACEs in primary care. The authors noted that while primary care providers should prioritize how to best support and provide interventions to patients who have experienced IPV and ACEs, providers should not operate under the premise that a routine use of screeners results in better health without evidence for such. The authors noted that

associations between an exposure and negative health outcomes do not necessarily suggest that such exposures should be routinely screened. Instead, widespread screening should be based on conclusions from rigorous debate and empirical evidence, like recommendations for screening for physical health conditions (e.g., prostate and breast cancer). Otherwise, screening is problematic because of the finite resources available to address the diverse demands in primary care, the opportunity cost of resources, and the risks for direct harm in screening. McLennan and MacMillan (2016) stated that better mechanisms and regulations are needed for proposed screenings before dissemination in order to ensure that minimal standards are achieved and critical evaluations are performed. The authors noted that screening is valuable only when relationships exist with local services that can help address the identified concerns in an effective way.

Montalvo-Liendo, N., Fredland, N., McFarlane, J., Lui, F., Koci, A. F., & Nava, A. (2015). The intersection of partner violence and Adverse Childhood Experiences: Implications for research and clinical practice. *Issues in Mental Health Nursing, 36*(12), 989–1006.

The purpose of this review was to summarize the studies examining the relationship between both ACEs and IPV and adverse health outcomes and unhealthy behaviors. The review also aimed to identify the specific types of ACEs reported by women with a history of IPV. Findings suggested that a history of ACEs (in particular, sexual and physical abuse) in women was associated with low self-esteem and poor mental health as well as a higher risk for IPV and chronic conditions. Outcomes associated with the combination of ACEs and IPV included health-risk behaviors, STIs, suicidal ideations, and incarceration.

A theme emphasized in this article was the intergenerational effect of ACEs. Findings suggested that past and current experiences of a mother affect her treatment of her child and ability to provide for her child, as well as the development and function of the child. Therefore, the authors recommended screening mothers for ACEs and providing interventions soon after conception or birth. This has the potential to improve maternal health and functioning and interrupt the transmission of violence from abused women to their children. This article suggested that women who have a history of ACEs and engage in unhealthy behaviors may benefit from an increased awareness of the poor health outcomes resulting from these behaviors.

Murphy, A., Steele, H., Bate, J., Nikitiades, A., Allman, B., Bonuck, K., … Steele, M. (2015). Group Attachment-Based Intervention: Trauma-informed care for families with Adverse Childhood Experiences. *Family & Community Health,* 38, 268–279. https://doi.org/10.1097/FCH.0000000000000074

This study described an innovative trauma-informed intervention called Group Attachment-Based Intervention (GABI) that was influenced by the literature on ACEs and attachment theory. GABI aims to subvert the intergenerational cycles of abuse and trauma by helping parents make sense of their previous traumatic experiences in order to promote positive child development in their children. This randomized control trial studied the effectiveness of GABI in a sample of 60 families (mothers and children under 3 years old) in the Bronx, NY, in addition to gathering data on trauma-related characteristics of participants. The assessments given to each family included a 25-item ACEs Questionnaire, a Tanita Body Composition Analyzer to measure BMI, and a ZERO TO THREE Psychosocial and Environmental Stressor Checklist. The ACEs of both

mothers and their children were assessed. Results revealed that the mothers experienced extreme adversity in their childhood, with 77% reporting four or more ACEs and 93% reporting feeling challenged by two or more ZERO TO THREE stressors including poverty, obesity, domestic and community violence, and homelessness. Additionally, over 90% of the mothers in this study were overweight or obese. Although children had markedly reduced levels of ACEs compared to their mothers, nearly 33% had experienced emotional abuse, 25% physical neglect, and 25% witnessed domestic violence. The authors noted that GABI is responsive to the needs of clients.

This study had a significant emphasis on trauma-informed care and the ways that this empowers parents. It also recognized that a limited amount of time with patients can serve as a barrier to screening for trauma. Additionally, it focused on intergenerational ACEs and the importance of addressing adult trauma not only for the sake of an adult, but also her child.

Waite, R., Gerrity, P., & Arango, R. (2010). Assessment for and response to Adverse Childhood Experiences. *Journal of Psychosocial Nursing and Mental Health Services,* 48(12), 51–61. https://doi.org/10.3928/02793695-20100930-03

This article provided a brief overview of the Original ACEs Study (Felitti et al., 1998), explored the roles and ethical responsibilities of nurses in evaluating ACEs, identified research on ACEs screening, and investigated the role of nurses in preventing and addressing mental health due to ACEs. Waite et al. (2010) identified several instruments commonly used to screen for trauma, including the Stressful Life Events Screening Questionnaire, Primary Care PTSD Screen, and Childhood Trauma Questionnaire-Short Form. The authors noted that ACEs are related to several health

outcomes including psychiatric difficulties in adults, eating disorders, depression, suicidal behavior, anxiety, alcoholism, posttraumatic stress disorder (PTSD), and lasting neuronal and hormonal changes that shape brain structures and functioning. The authors suggested that nurses are in a unique position to address ACEs, readily assess and understand the diverse array of risk factors that may affect mental health, and incorporate screening and assessment strategies into their practices; and that moreover, they have an ethical imperative to do so.

This article highlighted the importance of asking about ACEs and the way in which this is done. As abuse survivors generally do not discuss their abuse histories spontaneously, health care providers may assume that abuse survivors do not want to discuss their experiences. However, research suggests that such individuals may be waiting for indications that they will receive a supportive response and that negative responses can be more harmful to an individual than disclosure by itself. Additionally, studies have found that framing questions in terms of general abuse is not as effective in identifying abuse as questions about specific behavior, as many patients may not use the language of "abuse" to refer to their experiences. Therefore, Waite et al. (2010) suggested that inquiry about abuse should ask about examples of specific events instead of asking about abuse in general. For example, the authors recommended that health care providers ask about how discipline was managed in a patient's family as opposed to asking if the patient was physically abused as a child.

The authors stated that it is necessary to understand and mitigate the effects of ACEs to truly tackle the root of many adverse health problems. However, Waite et al. (2010) noted that Western models of health tend to emphasize a "reductionistic

biogenetic paradigm relegating psychosocial causes of mental health problems to the periphery" (p. 3). Biopsychosocial manifestations of health are often seen through an exclusively biological lens, where simple, one-dimensional physiological explanations are used to describe complex health problems. The effects of ACEs on health may not be evident until much later in life, leading providers to prescribe medications to treat health conditions without knowledge of their original source — ACEs and their effects on neurodevelopment. Therefore, the authors suggested that health care providers and researchers consider more complex explanations for diseases and ask about abuse to gain a clearer understanding of the potential origins of illness and effective treatments that could address them.

This article included several recommendations for health care practice. First, the process of assessing ACEs and providing referrals should be contextualized to the specific setting and skill set of health care professionals. The authors recommended the use of screening instruments with cross-cultural validity, the implementation ACEs screening as a part of clinical procedure, and a focus on the comorbidities of patients. Additionally, the authors recommended that providers prepare patients for ACEs screenings, perhaps by providing information about an ACEs screening tool. Second, providers should be aware that ACEs are interrelated and rarely occur alone. Therefore, the presence of once ACE could signal to a provider that other ACEs have likely occurred. In response, providers should assess ACEs in a timely manner and quickly begin intervention to mitigate the effects of ACEs. Third, a well-coordinated treatment approach should be used to acknowledge the relationship between ACEs and adverse health outcomes instead of treating each disorder or health outcome separately. Fourth,

and finally, referrals and other resources should be in place before screening individuals for ACEs.

Waite, R., & Shewokis, P. A. (2012). Childhood trauma and adult self-reported depression. *ABNF Journal*; Lisle, 23(1), 8–13.

This study focused on the relationship between self-reported depression and ACEs as a part of a larger study that replicated the Original ACEs Study (Felitti et al., 1998) among low-income minority populations in an urban setting. This article described the demographics of the sample (n=796), identified the types of ACEs that individuals were exposed to, and examined the relationship between ACEs and self-reported depression. A clear relationship emerged between ACEs and risk for a mental health problem as each ACE item, except for physical neglect and living with a criminal, was correlated with self-reported depression.

Waite and Shewokis (2012) recommended that primary care providers educate patients on depression and provide resources to help patients identify, mitigate the effects of, and treat depression — and do so in a culturally and contextually appropriate way. This is because depression is a common symptom of untreated ACEs, more than 50% of patients with mental health concerns receive care in the primary care setting, and depression is strongly related to suicidal ideation. The authors recommended that primary care providers who screen for ACEs consider a "treatment cascade" which would place patients into different treatment plans based on overall impairment and disease severity (p. 12). Targeting treatment in this way would allow practitioners to more effectively help patients and minimize the costs of doing so.

Wen, F. K., Miller-Cribbs, J. E., Coon, K. A., Jelley, M. J., & Foulks-Rodriguez, K. A. (2017). A simulation and video-based training program to address Adverse Childhood Experiences. *The International Journal of Psychiatry in Medicine*, 52(3), 255–264. https://doi.org/DOI: 10.1177/0091217417730289

Despite the high prevalence of ACEs among primary care patients, ACEs-informed training is not widely implemented during residency or medical school, resulting in limited screening and interventions for ACEs in the primary care setting. Wen et al. (2017) acknowledged that a possible barrier to addressing ACEs is a fear of opening "Pandora's Box;" that is, a source of complicated problems which providers are not sufficiently prepared to address (p. 256). Therefore, the authors concluded, residents should be trained in how to engage in trauma-focused conversations within the limited scope of a clinical setting. To address this need, a 4-hour simulation and video-based training program called the Professional ACEs-Informed Training for Health (PATH) was created to teach primary care residents to conduct brief interventions connecting ACEs histories of patients to current health concerns. PATH was piloted in the 2014-2015 Family Medicine and Internal Medicine residency program at the OU-TU School of Community Medicine (n=59). A majority of residents reported an intention to incorporate the skills they learned through the simulation into their clinical practice and agreed that the PATH training enhanced understanding of ACEs and reflected realistic encounters.

Wen et al. (2017) recommended ways to address the lack of screening for ACEs in the primary care setting. First, providers should be willing to address ACEs through a variety of encounter types, such as group visits for tobacco cessation and e-visits for support. Second, an interdisciplinary approach to assessing ACEs should be used to

support providers who address ACEs. Additionally, the authors mentioned that the fear of opening "Pandora's Box" may not be warranted based on previous studies showing that adult patients do not object to assessing ACEs but find dialogue about them empowering; and that the PATH training is feasible to implement in primary care settings which incorporate data-driven practices, team-based care, and patient-team partnerships into their practice. The authors hypothesized that as clinical practices increasingly move toward holistic models of care, systems will be in place that require ACEs-informed training such as PATH. Wen et al. (2017) indicated that vulnerable populations should be targeted for ACEs screening and intervention, as the greatest burden of mortality and morbidity is experienced by those with high ACEs scores who often experience significant health disparities.

Themes

Theme: Measuring ACEs

Inconsistency of ACEs Definitions. Few articles in this review contained definitions of ACEs. Those that did, included the following definitions: "stressful and/or traumatic experiences endured in childhood that are typically associated with inadequate and/or inappropriate quality of care" (Korotana et al., 2016, p. 60; Anda et al., 2006); "10 categories of childhood abuse (psychological, physical, and sexual), neglect (emotional and physical), and household dysfunction (substance abuse, mental illness, parental separation or divorce, mother treated violently, and incarcerated household member)" (Wen et al., 2017, p. 256; Felitti et al., 1998); "childhood abuse (emotional, physical, and sexual), neglect (emotional and physical), growing up in a seriously dysfunctional

household (witnessing a mother abused; substance abuse or mental illness in the home; parental separation or divorce; or having incarcerated household members" (Montalvo et al., 2015, p. 990; Anda et al., 2006); and "childhood events, varying in severity and often chronic, occurring in a child's family or social environment that cause harm or distress, thereby disrupting the child's physical or psychological health and development" (Kalmakis et al. 2014, p. 1495). Kalmakis et al. (2014) suggested that while the literature provided various examples of ACEs, there was no agreed definition for ACEs as demonstrated by these varying definitions of ACEs (Kalmakis et al., 2014). The findings of this literature review were consistent with those of Kalmakis et al. (2014), as no agreed definition of ACEs was identified.

Lack of Distinction Between ACEs and Other Terms. Several articles in this review either implicitly or explicitly highlighted the lack of distinction between the terms "ACEs" and "childhood trauma," "childhood maltreatment," and "childhood abuse." The authors McLennan and MacMillan (2016), Murphy et al. (2015), Waite and Shewonkis (2012), Montalvo et al. (2015), Corbin et al. (2013), and Waite et al. (2010) all used these terms interchangeably and therefore suggested that these terms have similar meanings. Waite et al. (2010) pointed to a potential distinction between such terms by suggesting that ACEs might fall under the larger category of trauma. Nevertheless, Kalmakis et al. (2014) called for clarity concerning how these terms are similar and different in order to develop a theory about ACEs.

ACEs Assessments Differed in their Measurements of ACEs. Of the 19 articles in this literature review, seven suggested there is not consensus on the adverse experiences

that fall into the category of "ACEs." Bethell et al. (2017) found that at least 14 different experiences were measured throughout the literature, including parental incarceration, domestic violence, household mental illness/suicide, household substance abuse (measured in all 14 assessments); physical abuse, sexual abuse, emotional abuse (measured in 12 assessments); parental separation/divorce (measured in 11 assessments); physical neglect (measured in 10 assessments); emotional neglect (measured in nine assessments); witnessing neighborhood violence (measured in six assessments); and bullying, discrimination, and parental death (measured in four assessments). Several other forms of ACEs exist beyond these, such as exposure to community violence, discrimination, and poverty (Baglole & Workman, 2011; Corbin et al., 2013). Furthermore, Finkelhor et al. (2013) recognized that there are additional domains of childhood adversity that negatively impact health besides those included in the Original ACEs Study, including community violence exposure, peer victimization, socioeconomic status, school performance, peer and property victimization, constant arguing among parents, and a lack of good friends. Kalmakis et al. (2014) recommended inquiring about a child's social environment, perception of an experience, and culture when asking about adverse experiences during childhood. Last, Chung et al. (2010) included witnessing a shooting in their measurement of ACEs. Therefore, there was no consensus on which experiences belonged in the category of "ACEs." Furthermore, there were inconsistencies in the age range in focus for ACEs as well as the number of ACEs related to multiple negative health outcomes – for example, some studies found greater risk for health outcomes in individuals with over three ACEs, while others focused on more than four

ACEs. These inconsistencies pointed to the need for conceptual clarity on ACEs and more research to inform which childhood experiences to assess when measuring ACEs.

Limitations of the Original ACEs Study Questionnaire. Several articles highlighted limitations of the questionnaire used in the Original ACEs Study (Felitti et al., 1998). Finkelhor et al. (2013) noted that the ACEs measures concerning parental separation and incarceration of a household member did not predict health and distress as strongly as other measures including peer victimization, peer isolation/rejection, community violence exposure, and SES, yet were included in the Original ACEs Study. Chung et al. (2010) suggested that measurements of emotional and physical neglect should not have been included in the Original ACEs Study as these experiences were present in less than 50% of the sample. Corbin et al. (2013) noted that the ACEs questionnaire in the Original ACEs Study gave equal weight to high-level stressors and lower level stressors in scoring (even though the magnitude of their impacts is likely different), suggesting that weighting various questions may add to their predictive value. Similarly, Forstadt et al. (2015) noted that a one-time traumatic experience could result in a score of 1 while multiple occurrences of the same experience also resulted in a score of 1. This is problematic insofar as the frequency of ACEs likely had different effects on health, as would the timing in a child's life during which an ACE occurs. Additionally, the questionnaire from the Original ACEs study did not examine stressors such as discrimination, poverty, and exposure to community violence which are common in urban settings. Kalmakis et al. (2018) identified multi-barreled questions as a major limitation of this questionnaire. For example, the question "Did you often or very often feel that you didn't have enough to eat, had to wear dirty clothes, or had no one to protect

you, and your parents were too drunk or high to take care of you or take you to the doctor if you needed it?" included experiences of neglect, poverty, and parental substance abuse in one question (Kalmakis et al., 2018, p. 196). The limitations of this Original Study questionnaire that is still commonly used to assess ACEs are problematic insofar as they limit the ability to predict health outcomes and identify adverse experiences during childhood.

Theme: ACEs and Health Outcomes

ACEs Predict Health Outcomes. In the literature, ACEs were associated with various negative health outcomes. The health outcomes noted in the systematic review by Kalmakis and Chandler (2015) included physical conditions (such as cardiovascular disease, chronic lung disease, headaches, autoimmune disease, sleep disturbances, obesity, smoking, and general poor health), psychological conditions (such as depression, PTSD, substance abuse, and suicidality), risk behaviors (such as smoking, binge drinking, abusing substances, and risky behavior during adolescence and pregnancy), and factors that disrupt development (such as homelessness, increased abortions, and adult relationship violence). Additional health outcomes noted by Finkelhor et al. (2015) and Finkelhor et al. (2013) is psychological distress; and by Korotana et al. (2016), negative emotional, cognitive, and social outcomes, neurobiological functioning, and physical health.

Many articles in this literature review emphasized the relationship between ACEs and health-risk behavior. Kalmakis et al. (2015) noted the association between ACEs and smoking, binge drinking, abusing substances, and risky behavior during adolescence and

pregnancy. Baglole and Workman (2011) noted the association between ACEs and the use of tobacco, alcohol, and drugs; overeating; and engaging in high-risk sexual behavior. Corbin et al. (2013), Hosenfeld et al. (2014), Korotana et al. (2016) and Forstadt et al. (2015) also noted the relationship between these health-risk behaviors and ACEs in their respective articles. The study by Chung et al. (2010) focused on the health-risk behaviors of smoking, marijuana use, illegal drug use, and alcohol use during pregnancy, and noted the higher prevalence of the first three among individuals exposed to ACEs in their study sample compared to those unexposed. Additionally, Chung et al. (2010) identified a dose-response relationship for each health-risk behavior, and those who had an ACEs score of 3 or greater were more than 2.5 times as likely to have engaged in a health-risk behavior compared to those with an ACEs score of less than 3. Interestingly, the prevalence of each health-risk behavior was highest among those who had a history of childhood sexual abuse, which suggests that childhood sexual abuse is an especially strong predictor of health-risk behaviors. According to Forstadt et al. (2015), adverse health outcomes in adults with a history of ACEs could be directly due to ACEs and also indirectly through health-risk behaviors. Several authors posited that the associations between health-risk behaviors and ACEs might be related to coping or self-treatment efforts (Felitti et al., 1998; Baglole & Workman, 2011; Corbin et al., 2013; Forstadt et al., 2015; Chung et al., 2010; and Hosenfeld et al., 2014).

Several studies in this literature review focused on the association between ACEs and health and specifically on the ability of ACEs assessments to predict health outcomes. Finkelhor et al. (2015) suggested that measures of peer victimization, peer isolation/rejection, and community violence exposure added to the ability of the

questionnaire in the Original ACEs Study to predict mental health, while a measure of low socioeconomic status (SES) added to the prediction of physical health problems. Finkelhor et al. (2013) found an association between the items of the Original ACEs Study and mental health symptoms among 2,030 surveyed youth, but the association was significantly improved by removing some of the items from the Original ACEs Study and adding others such as community violence exposure, peer victimization, socioeconomic status, and school performance.

Theme: ACEs and the Primary Care Setting

Screening Involved Questionnaires. In most empirical studies in the literature, questionnaires were used to screen for ACEs (Chung et al., 2010; Corbin et al., 2013; Murphy et al., 2015; Glowa et al., 2016). Although in some cases the ACEs questionnaires were coupled with discussions or other questionnaires, they more commonly served as a stand-alone screening tool. However, Waite and Shewonkis (2012) recommended coupling screening questionnaires with discussions between patients and providers, noting that questionnaires alone should not be used to screen for sensitive aspects of a patient's life.

The methods of empirical studies largely omitted details on how ACEs screening was conducted. For example, it was unclear whether the patients were alone while completing screening questionnaires or accompanied by an administrator and whether the questionnaires were administered orally or through self-report. In spite of this, it is clear that the studies used standardized questionnaires as opposed to a non-standardized variant of an ACEs screening tool.

Recommendations That ACEs Measurements Facilitate Dialogue. Several articles in this literature review recommended that ACEs screening lead to a dialogue with patients about the relationship between ACEs and health. Bethell et al. (2017) noted that ACEs assessments are not recommended to be diagnostic but to serve as a tool in promoting conversation in a relationship-centered context and identifying individuals who might benefit from further evaluation. According to Kalmakis et al. (2015), this dialogue should include a conversation about a patient's past experiences, current health, and the relationship between ACEs and health. Additionally, Wen et al. (2017) recommended that providers engage in shared decision-making concerning the patient's health plan through this dialogue. Korotana et al. (2016) suggested that this dialogue could address resistance in patients to ACEs interventions by educating them about the relationship between ACEs and health. In addition to being a first step in improving health outcomes, this dialogue can also be therapeutic and empowering to patients (Kalmakis et al., 2015; Waite & Shewonkis, 2012).

Potential Barriers to Addressing ACEs. Several authors described potential barriers in screening for ACEs in the primary care setting. One of the most commonly described barriers was the limited amount of time and resources that may make ACEs screening and follow up difficult (Kalmakis et al., 2018; Korotana et al., 2016; Murphy et al., 2015; McLennan & MacMillan, 2016; Bethell et al., 2017; Kalmakis et al., 2015). Glowa et al. (2016) pointed to the potential for ACEs screening to interfere with the length of an appointment and be unacceptable to patients. Glowa et al. (2016) also noted that it is important for a provider to learn new information when screening for ACEs. Bethell et al. (2017) and Kalmakis et al. (2018) highlighted potential provider discomfort

in screening for ACEs and a worry that assessing ACEs might trigger traumatic reactions in patients. Wen et al. (2017) and Forstadt et al. (2015) acknowledged physicians' fear about opening "Pandora's Box" that prevents ACEs screening. Forstadt et al. (2015) noted the lack of common language among those who address ACEs that makes doing so more difficult. Waite and Shewonkis (2012) mentioned that a misinterpretation of the silence of patients concerning issues of past abuse can lead to provider hesitancy to discuss ACEs. Waite and Shewonkis (2012) also acknowledged that focus on health as a biological instead of biopsychosocial phenomenon is barrier to seeing the importance of ACEs and the willingness of providers to screen for them. Last, McLennan and MacMillan (2016) pointed to the lack of evidence that routine use of ACEs assessments results in better health outcomes and suggested that this is necessary before routine screening is implemented. McLennan and MacMillan (2016) also noted the lack of regulations in place for ACEs screenings.

Trauma-Focused Practices. Several authors in this literature review focused on the importance of screening for ACEs with a TIC approach that is oriented toward the care of individuals with a trauma history and promotes awareness of the effects of trauma on health and health-risk behaviors (Kalmakis et al., 2018; Harris & Fallot, 2001). Murphy et al. (2015) recommended that TIC be integrated into all aspects of patient care and practiced at every point of contact with patients. Similarly, Kalmakis et al. (2018) recommended that all primary care physicians use a TIC orientation, and Corbin et al. (2013) recommended that health care providers whose clients have a history of trauma be trained in TIC. These recommendations were influenced by the prevalence of ACEs in the general population, the relationship between ACEs and adult health, and the

importance of a TIC approach when caring for patients (Kalmakis et al., 2018). Murphy et al. (2015) and Forstadt et al. (2015) focused on the trauma-informed dialogue between patients and providers and the ways that providers can respond empathetically to patients, identify their strengths, provide them with referrals, and work with a team of professionals to address health. Last, Wen et al. (2017) incorporated into their study a training on how to engage in trauma-focused conversations within the limited scope of the clinical setting.

The Role of Nurses in Assessing ACEs. Several articles in this review focused on the role of nurses in assessing ACEs. Waite and Shewonkis (2012) suggested that nurses are in a unique position to address ACEs, readily assess and understand the diverse array of risk factors that may affect mental health, and incorporate screening and assessment strategies into their practices; and that moreover, they have an ethical imperative to do so. Kalmakis et al. (2014) recommended that nurses be educated on ACEs and appropriate interventions addressing them and play a crucial role in challenging the medical paradigm that tends to separate mental and physical health care. The study by Kalmakis et al. (2018) showed that trained nurse practitioner students conducting ACEs screenings felt comfortable, confident, and knowledgeable in screening for ACEs and suggested that individuals other than providers can screen for ACEs. Last, Kalmakis et al. (2015) encouraged nurse practitioners to assess childhood histories in routine primary care.

CHAPTER THREE

Screening at the Waco Family Health Center

FHC Setting

The vision of Waco Family Health Center (FHC), located in McLennan County, TX is to "enhance the health of the community by improving access to excellent primary and preventive healthcare services [for] the vulnerable and underserved residents of the Heart of Texas and by educating tomorrow's Family Physicians and other healthcare professionals" (Waco Family Health Center, 2018, p. 1). Created in 1969 to address a shortage of doctors, lack of primary care access for less fortunate and vulnerable populations, and economic development issues, the FHC provides primary, dental, behavioral, mental, and other types of care to patients. As a Community Centered Health Home (CCHH), the FHC also offers after hours care, same day appointments, and a wellness center where its patients can exercise and learn how to cook ("Family Health Center Home," n.d.). The FHC seeks to promote equity in all of its functions and respond to the evolving needs of the patients and communities it serves.

McLennan County has a population of more than 250,000 people (U.S. Census Bureau, 2019). Of these, over 96,000 live at or below 200% of the federal poverty line (Hinojosa, 2018). According to the 2018-2019 Waco-McLennan County Community Health Needs Assessment, McLennan County has a median household income of $46,262, which is approximately 19% less than the state average of $57,051 (Baylor Center for Community Research and Development, n.d.). Not only are McLennan County

residents financially disadvantaged, but they also have relatively poor health. McLennan County residents have a premature death rate (death before age 75) that is higher than the state of Texas rate by 15% and higher than the top performing counties of the nation by 47% (Baylor Center for Community Research and Development, n.d.). McLennan County pregnancy and childbirth-related measures indicate that women face particular health and healthcare challenges and that women of color may be especially vulnerable (Baylor Center for Community Research and Development, n.d.). This is in part due to the disparities in health and access to resources along racial and economic lines that leave women of color, who are mainly Hispanic and African American, with poorer health outcomes than their Anglo counterparts in McLennan County (Baylor Center for Community Research and Development, n.d.).

The FHC serves the most disadvantaged individuals of McLennan County as a Federally Qualified Health Center (FQHC). Among the patients who have disclosed their income information to the FHC, over 36% live at or below 100% of Federal Poverty Guidelines (Waco Family Health Center, 2018). With 14 operational sites and over 500 staff, the FHC provides health care to approximately 58,000 patients annually. In 2017, 57,894 individual patients (one out of every five county residents) accounted for 230,725 medical, dental, and behavioral appointments; 1,307 deliveries; and more than 1,300 children and adult hospitalizations. Additionally, the FHC provided 181,164 primary medical care encounters to 53,045 patients. Of these, 17,783 (31%) were uninsured and received care largely through a discounted fee program (Good Health Card) – resulting in over 64,000 discounted patient encounters for the year 2017. Approximately one quarter (23.9%) of FHC patients are Black/African American, 42.1% are Hispanic/Latino, 28.0%

are White, and 6.0% fall into another racial category. In 2017, 9,299 patients indicated they were homeless and 8,946 lived in Public Housing (Waco Family Health Center, 2018).

In September of 2017, the FHC began a Medical-Legal Partnership (MLP) with Greater Waco Legal Services (GWLS). Medical-legal partnerships first developed at the Boston Medical Center in 1993 and are collaborative arrangements in which legal and health care professionals work to address unmet legal and social needs of health care patients (Zuckerman et al., 2008; Williamson et al., 2018). MLPs recognize that many social and legal problems are linked to a patient's well-being and illness and that such issues can be addressed in a multidisciplinary manner to improve health. Given the limited amount of resources of health care professionals serving low SES patients, providers may be hesitant to screen for social and legal needs (McCabe & Kinney, 2010). Thus, MLPs combine the skill sets of medical professionals and lawyers to address legal problems before they require litigation (Cohen et al., 2010).

As the FHC implemented the MLP with GWLS to identify and address health-harming legal needs that affect its patients, the FHC began screening for such needs (Prosper Waco, n.d.). An ACEs screening was incorporated into patient visits, as health-harming legal needs often result from adverse experiences and are related to SDOH. ACEs data could inform FHC leaders and partners about the incidence and type of needs of patients in addition to targeting patients for additional screening and shaping policy initiatives.

Procedures

Summary of Procedures

Adult patients in the waiting room at the Madison Cooper Community Clinic of the FHC were approached by Baylor University undergraduate students trained in survey administration and invited to complete a screening survey to determine MLP interests and needs. The paper screener was a one-page double-sided survey. On the front was the MLP screener with ten questions concerning legal needs (Appendix A), and the back side contained an ACEs screening with questions from the Adapted BRFSS (Appendix B) (The Institute for Safe Families, 2013). Positive patient screening results and MLP interests were communicated to health care providers who made referrals to GWLS.

Training for Survey Administrators

Select Baylor undergraduate students affiliated with the Baylor Honors Residential College (HRC), with whom the MLP developed a partnership, were recruited and trained to administer the screening tools. The goal was for students to learn about SDOH and gain experience with survey administration and data entry while also providing practical assistance to the FHC. Students worked with FHC staff to ensure compliance with FHC volunteer researcher protocol by clearing background checks and completing HIPPA and child abuse trainings. Students also attended a training led by the HRC Faculty Steward, Dr. Jonathan Tran, who was the main HRC contact with the MLP. This training informed students about the FHC, the creation and purpose of the MLP, and how to administer the screening tools. The administration of the screening tools began in January of 2018 and continued until the summer of 2018. This thesis project includes

results from the 2019 secondary analysis of a deidentified data set housed on site at the FHC.

Survey Delivery Over Five Months

A script was created for the students to follow in administering the screenings. Students were to approach adults (≥18 years) in the FHC waiting room and ask if they were new patients. New patients were excluded from this screening initiative due to the large amount of paperwork that new patients complete upon arrival to the waiting room. If the adult responded that he or she was not a new patient, the students would introduce themselves as Baylor students volunteering with the FHC. Then, the students would inform the patient about the efforts of the FHC to investigate the social and legal factors affecting the health of their patients. If the patient indicated interest, then he or she was invited to complete a screener.

One of the main purposes of screening was to identify patients who might benefit from low-cost legal services. The students explained that completing the screeners was optional and would not affect the quality of care provided to the patient; that all information would be kept confidential; that it would take about 5-10 minutes to complete the screener. Additionally, students offered to read the questions on the screener aloud to the patient, if the patient preferred. If a patient was not interested in completing the screener, then the student would thank them for their time and walk away. For patients who opted in to the screening, the student would hand them a pen and clipboard with the screening surveys. The student might introduce the MLP and screeners to another patient, and after a few minutes, return to collect the completed screening survey

once the patient had finished. The survey delivery and referral processes are outlined in Appendix C.

Referral Process

The screening surveys of patients who responded "Yes" to the last question on the MLP screener, "Would you like to talk to a lawyer about these situations or something else?" were given to nurses who would inform the patients' health care provider of this interest. When seeing the patient, the provider would make a formal MLP referral in the FHC electronic medical record. The referrals were then printed at the FHC and faxed by the front desk clerk to GWLS. GWLS would then call the patient to schedule an intake appointment.

Data Entry

Screening survey data were entered into a Microsoft Excel spreadsheet on a secure FHC computer by Baylor students and FHC staff. Data entry instructions and a code book were created so that those who entered the data could easily follow the procedure and enter data in a uniform manner. Names and date of birth were also included on the paper surveys and recorded in the electronic data set. The data set was stored on a non-networked computer at FHC and all information remained confidential. After data entry, the completed paper surveys were secured in a filing folder in a locked office at the FHC.

Data Analysis

Statistical analyses were performed using SAS v9.4 (SAS Institute Inc., Cary, NC). First, descriptive statistics, including frequencies, means, and proportions, were

generated for all study variables in the total sample. Summary statistics were used to sum and count the number of ACEs reported by each patient. Chi-square tests and Fischer's Exact Tests were used to compare ACEs between patients with and without legal needs.

Results

The ACEs screening survey was completed by 86 FHC patients. The mean age of patients was 41.7 years (±17.4) and ranged from 18-76 years. Table 1 shows the patient responses to each ACEs question. The data presented here were organized by coding for the response options "choose not to answer," "don't know," "no," "yes," "once," and "more than once." Frequency and proportion are reported for each ACEs question.

The most common ACE endorsed by the participants was Question #4 on the screener that inquired about parental separation or divorce (37.7% of respondents). Other frequent ACEs included living with a mentally ill relative (Question 1, 20.9%), verbal abuse (Question 7, 20.1%), institutionalization of a household member (Question 3, 14.1%), and physical abuse between parents (Question 5, 13.0%). The least common ACE was being coerced to touch someone sexually or have sex with them, as evidenced the few affirmative responses to Questions #9 and #10.

Table 1
Patient Responses to ACEs Questions

ACEs Question Number	ACEs Questions	Yes n (%)	No n (%)	Choose Not to Answer n (%)	Don't Know n (%)	N/A n (%)
1	Member of Household with Poor Mental Health	18 (20.9)	64 (74.4)	2 (2.3)	2 (2.3)	0 (0.0)
2	Member of Household with Drug Abuse	7 (8.1)	78 (90.7)	1 (1.2)	0 (0.0)	0 (0.0)
3	Member of Household with History of Incarceration	12 (14.1)	70 (82.4)	3 (3.5)	0 (0.0)	0 (0.0)
4	Parental Separation/Divorce	32 (37.7)	37 (43.5)	4 (4.7)	0 (0.0)	12 (14.1)
5	Physical Abuse Among Parents	11 (13.0)	63 (75.0)	8 (9.5)	2 (2.4)	0 (0.0)
6	Physical Abuse	7 (8.3)	66 (77.7)	9 (10.6)	3 (3.5)	0 (0.0)
7	Verbal Abuse	17 (20.1)	58 (68.2)	2 (2.4)	8 (9.4)	0 (0.0)
8	Sexual Abuse– Forced Sexual Touching	4 (4.7)	74 (87.1)	6 (7.1)	1 (1.2)	0 (0.0)
9	Sexual Abuse– Victim of Sexual Touching	3 (3.5)	75 (88.2)	5 (5.9)	2 (2.4)	0 (0.0)
10	Rape	3 (3.5)	76 (89.4)	5 (5.9)	1 (1.2)	0 (0.0)

Figure 5 shows the individual totals of ACEs for FHC patients. Response options were dichotomized, such that "no," "don't know," and "choose not to answer" were coded as "no," and responses of "yes," "once," and "more than once" were coded as yes. Approximately half the sample (45.4%) reported no ACEs and approximately half (54.7%) of the sample reported at least one ACE. Of those who experienced one or more ACE, 76.7% experienced only one or two ACEs. Among patients who reported only one ACE, 12 out of 19 (63.2%) reported parents' divorce or separation. The mean number of ACEs experienced by this sample was 1.3. The number of people who experienced 0, 1, 2, 3, 4, and 5 ACEs was 39, 19, 14, 4, 3, and 2, respectively. Four patients had an ACEs

score of 6 and one patient reported 9 ACEs. The total number of ACEs experienced by all 86 patients combined was 114.

Figure 5
Individual Totals of ACEs for FHC Patients

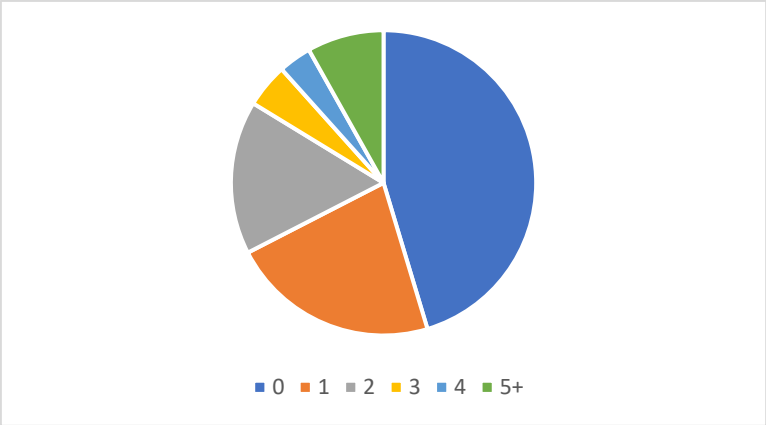


Table 2 shows the relationship between MLP Question #3 (“Are you having trouble getting a job, finding housing, or with something else because of your criminal history?”) and ACEs Questions. Patients who reported having trouble securing employment, housing, or something else because of a criminal history were more likely to have lived with someone with a history of drug abuse (28.6% vs. 6.4%; p=0.04), have lived with someone during childhood who had been incarcerated (42.9% vs. 11.7%; p=0.02), and report a history of physical abuse (28.6% vs. 6.5%; p=0.04). Statistical significance was two-sided and defined at the α= .05 level.

Table 2
Relationship Between MLP Question #3 and ACEs Questions

ACEs Question Number	Yes to ACEs Questions	Yes to MLP #3 n=7 n (%)	No to MLP #3 n=78 n (%)	p value*
1	Member of Household with Poor Mental Health	2 (28.6)	16 (20.5)	.62
2	Member of Household with Drug Abuse	2 (28.6)	5 (6.4)	.04
3	Member of Household with History of Incarceration	3 (42.9)	9 (11.7)	.02
4	Parental Separation/Divorce	5 (71.4)	27 (35.1)	.06
5	Physical Abuse Among Parents	2 (28.6)	8 (10.5)	.16
6	Physical Abuse	2 (28.6)	5 (6.5)	.04
7	Verbal Abuse	1 (14.3)	15 (19.5)	.74
8	Sexual Abuse– Forced Sexual Touching	1 (14.3)	3 (3.9)	.22
9	Sexual Abuse– Victim of Sexual Touching	1 (14.3)	2 (2.6)	.11
10	Rape	1 (14.3)	2 (2.6)	.11

Note *p-value generated from a Fischer's Exact Test

Table 3 shows the relationship between MLP Question #11 ("Would you like to talk to a lawyer about these situations or something else?") and ACEs Questions. Patients who wanted to talk to a lawyer were more likely to have lived with someone during childhood who had been incarcerated (50.0% vs. 11.7%; p=0.04) and report a history of physical abuse among parents (50.0% vs. 9.1%; p=0.02).

Table 3
Relationship Between MLP Question #11 and ACEs Questions

ACEs Question Number	Yes to ACEs Questions	Yes to MLP #11 n = 6 n (%)	No to MLP #11 n = 78 n (%)	p value*
1	Member of Household with Poor Mental Health	3 (50.0)	15 (19.2)	0.11
2	Member of Household with Drug Abuse	1 (16.7)	6 (7.7)	0.42
3	Member of Household with History of Incarceration	3 (50.0)	9 (11.7)	0.04
4	Parental Separation/Divorce	3 (50.0)	29 (37.7)	0.67
5	Physical Abuse Among Parents	3 (50.0)	7 (9.1)	0.02
6	Physical Abuse	1 (16.7)	6 (7.8)	0.42
7	Verbal Abuse	2 (33.3)	14 (18.2)	0.33
8	Sexual Abuse– Forced Sexual Touching	0 (0.0)	4 (5.2)	0.99
9	Sexual Abuse– Victim of Sexual Touching	0 (0.0)	3 (3.9)	0.99
10	Rape	0 (0.0)	3 (3.9)	0.99

Note. *p-value generated from a Fischer's Exact Test

Discussion

Results should be interpreted with caution due to the small sample size of patient participants. Many of the "choose not to answer" responses were given to questions related to physical abuse and sexual abuse. The ACE items that received the most "choose not to answer" responses were physical abuse between parents (Question 5, 9.5%) and physical abuse directed toward the patient (Question 6, 10.6%), followed by forced sexual touching (Question 8, 7.1%), victim of sexual touching (Question 9, 5.9%), and rape (Question 10, 5.9%). A patient's response of "choose not to answer" as opposed to "no," when given the option for both, may suggest the presence of an ACE that was not disclosed. This should be considered when screening for ACEs in the primary care setting, as questions about physical or sexual abuse may cause patients to decline the

screening or respond untruthfully, allowing for intense childhood trauma to be overlooked.

Little research has focused on how the personal nature of survey questions influences screening results in the health care setting. More research has been conducted on sensitive questions in surveys more generally. (The meaning of sensitivity here should not be confused with the sensitivity of tests that measures the ability to correctly identify individuals with a disease). According to Tourangeau et al. (2000), there are three different meanings of "sensitivity" in the survey literature. The first is synonymous with intrusive, meaning that the content of the question is personal in nature and the question is seen as an invasion of privacy. Second, the threat of disclosure where responders are concerned with the possible consequences of answering a question truthfully, especially if the information is shared with an outside party. Third, the extent to which the answer to a question is socially acceptable or desirable (Tourangeau et al., 2000). Additionally, according to Tourangeau and Yan (2007), there are three main survey outcomes affected by sensitive questions. First, overall response rates, or the number of sample participants who choose to complete the survey. Second, item nonresponse rates, or the number of responders that decline to respond to a particular question. Third, the response accuracy, or the number of responders who respond truthfully to the sensitive questions (Tourangeau & Yan, 2007).

The "sensitive" nature of the ACEs questionnaire administered at the FHC is most closely associated with the first meaning of the word – namely, that its questions were very personal in nature. The threat of disclosure may have influenced responses as well, especially among undocumented FHC patients who may have feared that their personal

information could be shared with outside parties. Additionally, it is possible that a desire to give a socially acceptable response influenced FHC patient responses to the ACEs screener.

All of the three main survey outcomes affected by sensitive questions according to Tourangeau and Yan (2007) were likely affected by the sensitive nature of the ACEs screening tool. According to anecdotal reports by students administering the screening tools, several patients initially agreed to participate in the screening but then declined after briefly examining the screening questions, suggesting that the overall response rates to the screening tools were likely impacted by the sensitive nature of the questions.

The "choose not to answer" responses to questions related to physical and sexual abuse are evidence of high nonresponse rates in these questions compared to others. As these were the questions with some of the most personal topics on the screening tool, the sensitive nature of these questions could have led respondents to decline to answer these questions. Alternatively, as suggested previously, the response of "choose not to answer" as opposed to "no" could suggest the presence of an ACE that was not disclosed. This could suggest that response accuracy was affected by the personal nature of the ACEs screening questions.

It is worth noting that more respondents chose not to answer questions about physical abuse compared to sexual abuse (8 and 9 patients versus 6, 5, and 5). If a nonresponse suggests a history of that ACE, then these numbers could reflect a higher prevalence of physical abuse compared to sexual abuse in FHC patients, as the affirmative responses to these ACEs suggest; or, suggest patients might be more hesitant to report physical abuse than sexual abuse; or, reflect the physical nature of sexual abuse

that can be categorized as physical abuse (but not necessarily vice-versa), which may be reported more often as it includes incidents of sexual abuse in addition to other kinds of physical abuse.

The FHC data on the prevalence of ACEs were similar to the national prevalence data on ACEs. Analyses of data from the Original ACEs Study, BRFSS, and 2016 NSCH show a history of at least one ACE in approximately half of each sample (52%, 62%, and 46%, respectively) (Felitti et al., 1998; Merrick et al., 2018; Stumbo et al., 2017). Similarly, the FHC results showed that approximately half (55%) of the sample of FHC patients reported at least one ACE.

The FHC data on the most common ACEs were also similar to the national prevalence data. Parental divorce or separation, the most common ACE at the FHC (38%), was among the two most common ACEs in both the BRFSS (28%) and the 2016 NSCH (22%) (Merrick et al., 2018; Stumbo et al., 2017). However, this ACE was more common in the FHC patient sample than the national samples by 10-16%. Other common ACEs in the national prevalence data include sexual abuse (22% in the Original ACEs Study), emotional abuse (34% in the BRFSS), and economic hardship (23% in the 2016 NSCH) (Felitti et al., 1998; Merrick et al., 2018; Stumbo et al., 2017). However, these categories of ACEs were not included in the FHC ACEs screening tool and therefore data on these categories do not exist for comparison to the national prevalence data. Other common ACEs in the FHC population, including living with a mentally ill relative (30%) and verbal abuse (20%), were not among the most common ACEs experienced in the national prevalence data.

Process and Data Challenges

Several issues surfaced while screening for ACEs at the FHC. First, several surrogates completed screening surveys. This was problematic because they were outside of the FHC patient population. Therefore, the surrogates could not benefit from the resources and benefits offered by the MLP to FHC patients; and their data could not be included in the data analysis. The surrogates who most frequently completed screening surveys included parents of child patients who were not patients themselves as well as FHC patients who saw providers at sites other than the Madison Cooper Community Clinic, the only location where ACEs screenings and MLP referrals occurred. Second, the screening tools were conducted and facilitated in English, thereby excluding a significant population of FHC patients who did not speak English from completing the screeners. This was problematic insofar as this prohibited these individuals from receiving services offered by the MLP, did not allow data to be collected on the FHC non-English speaking patient population, and prevented the ACEs data from being representative of FHC patients at the Madison Cooper Community Clinic. Third, there could have been more follow up with patients who completed the MLP screener and ACEs screening survey. Unless the patient requested legal counsel, the patient and provider did not directly discuss SDOH or resources and interventions that might have been available to the patient. Fourth, there was room for improvement concerning the MLP partnership between the FHC and GWLS. Although patients were referred to GWLS, there was limited care coordination and communication between the FHC and GWLS. Fifth, as previously mentioned, several patients, once seeing the personal nature of the questions on the screening tools, refused to complete the rest of the screener.

Nevertheless, there were multiple strengths of this screening process. First, it was significant that the FHC asked patients about SDOH and screened for ACEs in order to identify upstream drivers of poor health outcomes for patients. This is evidence of the ongoing and comprehensive care that the FHC provides in order to best meet the needs of its vulnerable patient population. Similarly, the FHC-MLP initiative itself was a strength of this process as it addressed both legal and health needs of patients and provided organization, collaboration, and direction for ACEs screening. Third, local university students were incorporated into the screening process. Although this may not have been ideal for screenings that ask personal questions to vulnerable patients, it taught students about health care, the importance of SDOH, and data entry. In this way, the FHC leveraged an academic partnership to provide invaluable experiences to students while also giving the FHC additional resources. Fourth, the screening process collected ACEs and MLP data that informed the FHC about patients and has the potential to be used in other initiatives. Fifth, the FHC is working to refine the MLP screener and use more targeted screening tools in order to gather data in a more efficient manner. Sixth, and last, the FHC is currently in the process of establishing a permanent co-location for the GWLS-MLP staff to work in. This is significant given the limited resources in primary care settings and shows the dedication of the FHC in addressing SDOH of its patients.

The FHC suspended all SDOH screening in the summer of 2018 after revisiting the ACEs screening process and the open nature of the clinic waiting area where screenings were administered. This decision also considered the unacceptability of the screening surveys to patients and the Baylor students' discomfort with screening administration. The administration of the MLP screening tool was not suspended as it

continues to be used at the FHC. The FHC is currently evaluating the feasibility of resuming SDOH screening efforts. If deemed feasible, the FHC has said that it may resume screening efforts only after it evaluates its goals and objectives in screening, identifies a context for screening that maximizes patient privacy, decides what steps to take with the collected data, and prioritizes risk stratification and appropriate responses to information revealed on the screening tools.

CHAPTER FOUR

Recommendations for the Primary Care Setting

There is a large body of literature linking SDOH, including ACEs, to poor adult health outcomes. However, there is no gold-standard method of screening for ACEs nor guidelines that direct how and under what conditions to administer ACEs screenings among adults in the primary care setting. While national organizations such as the American Heart Association (AHA) have made statements supporting universal screening for ACEs and the AAFP encourages physicians to learn about ACEs, no national organization has made a recommendation or policy concerning screening for ACEs in adults in the primary care setting (*Screening for Adverse Childhood Experiences…,* n.d.; American Academy of Family Physicians, n.d.). This is problematic for health centers that recognize the impact of ACEs on adult health and want to address this in their practices.

The recommendations put forth in this chapter are informed by the ACEs literature and primarily focus on the methods and processes of screening for and addressing ACEs that primary care health care providers, including the FHC, could consider implementing in their practices. These recommendations are five-fold and concern ACEs and TIC trainings, who to screen for ACEs, ACEs screening administration, follow up and intervention, and infrastructure at the FHC. Following discussion around these recommendations, this chapter includes potential pitfalls of

screening for ACEs in primary care settings. Finally, it will conclude with the ways in which effectively screening for ACEs relates to the goals and mission of the FHC-MLP.

Recommendations

Training

Primary care practices that screen for ACEs could consider implementing ACEs trainings for providers and staff, especially those involved in ACEs screening and follow up. ACEs training has the potential to provide education on ACEs and their relationship to health, inform decisions about interventions for patients, and mitigate barriers to screening for ACEs that include provider discomfort with the topic, lack of provider confidence in screening, and lack of training on how to assess ACEs (Bethell et al., 2017; Waite & Shewonkis, 2012; Kalmakis et al., 2018). ACEs trainings could include explanations of what ACEs are, the research findings of the Original ACEs, and the impact of ACEs on adult health. Trainings could also include a focus on health as a biopsychosocial phenomenon and involve opportunities for providers and staff to practice what they learned – for example, administering ACEs screenings surveys (Waite & Shewonkis 2012; Waite et al., 2010). ACEs trainings could describe the importance of screening for ACEs in the primary care setting and outline a practice's specific goals and reasons for screening and follow up. Individuals involved in screening for ACEs should be trained on ACEs (Chung et al., 2010; Corbin et al., 2013; Murphy et al., 2015; Kalmakis et al., 2018; Glowa et al., 2016). There are several ACEs resources and trainings that provide education on ACEs and their relationship to health.

- First, the Original ACEs Study that demonstrated a direct relationship between the number of ACEs in an adult's history and various risk behaviors and diseases and can be used as an introduction to ACEs research and the impact of ACEs on health (Felitti et al., 1998). (https://www.ajpmonline.org/article/S0749-3797(98)00017-8/fulltext)
- Second, the TEDTalk by Nadine Burke Harris, MD, entitled "How Childhood Trauma Affects Health Across a Lifetime" that has brought national attention to ACEs and could serve as an introduction to ACEs in health care (Harris, 2014). (https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en)
- Third and last, the resources available on the Center for Disease Control and Prevention (CDC) website that include Fast Facts, ACEs Presentation Graphics, and research on ACEs published after the Original ACEs Study that can present visuals and information on national ACEs data (Felitti et al., 1998; CDC, 2020). (www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/index.html)

In addition to ACEs, primary care practices could consider training providers and staff in TIC so that a TIC approach can be utilized in all aspects of patient care and at every point of patient contact (Murphy et al., 2015). A TIC approach is important given the prevalence of ACEs in the general population that is served in primary care and the connection between adult health and ACEs that would likely lead individuals with an ACEs history to present in the primary care setting (Kalmakis et al., 2018). The evidence that highlights the potential harm of negative responses to a disclosure of trauma, such as ACEs, underscores the importance of a TIC approach to ACEs screening (Becker-Blease

& Freyd, 2006). A TIC training at a practice that screens for ACEs could emphasize the importance of an empathetic dialogue around ACEs and the words that providers use when interacting with patients. For example, providers could ask patients, "what happened to you?" as an open-ended question that creates an empathetic listening environment that empowers patients to discuss a history of ACEs (Forstadt et al., 2015). There are several TIC trainings that can be used in the primary care setting. Primary care practices could consider the following resources to educate providers and personnel on TIC.

- First, the Substance Abuse and Mental Health Services Administration and U.S. Department of Health and Human Services (SAMHSA-HRSA) has free online webinars on this topic with presentations, audio recordings, and other resources (SAMSHA-HRSA, n.d.). (https://www.integration.samhsa.gov/clinical-practice/trauma-informed)
- Second, the AAFP has an online resource available that includes scenarios that providers may encounter and examples of practical trauma-informed actions that providers can take in caring for patients (Ravi & Little, 2015). (https://www.aafp.org/afp/2017/0515/p655.html)
- Third, a journal article by Raja et al. focuses on applying TIC to daily health care practice and introduces a TIC pyramid as a framework to help providers translate the principles of TIC into interactions with patients (Raja et al., 2015). (https://www.ncbi.nlm.nih.gov/pubmed/26017000)

In summary, primary care practices that screen for ACEs could consider implementing ACEs and TIC trainings for providers and staff, especially those involved

in ACEs screening and follow up. Primary care practices could consider increasing the number of staff trained in ACEs and TIC and the frequency of ACEs and TIC trainings. Based on the specific context of a practice, it could consider having at least 75% of providers and staff trained on ACEs and TIC as well as providing ACEs and TIC trainings at least once a year, for example.

Who to Screen

Primary care practices that screen for ACEs could consider implementing either universal or targeted ACEs screening (the latter would be based on the existence of certain diseases or health-risk behaviors, for example, that are associated with ACEs). Benefits of universal screening include equity and access to screening for every patient and a higher likelihood of identifying all patients with an ACEs history. Additionally, it is an ethical imperative to ask primary care patients about ACEs given that it is a risk factor for many health problems, and universal screening could ensure that every patient is asked about ACEs (Waite et al., 2010; Kalmakis et al., 2015). Screening for ACEs generates a measure of adversity-related risk, and therefore may be especially beneficial for primary practices that seek to understand general information about childhood adversity (Bethell et al., 2017). However, the major limitation of universal screening is the amount of resources that are required to screen all patients for ACEs and address ACEs effectively. Conversely, the main benefit of targeted ACEs screening is its allocation of limited resources towards patients who are likely to have an ACEs history. ACEs screening in those with chronic disease and other health outcomes associated with ACEs can lead to a disclosure of information that may help a provider better understand the health issues for which a patient presents (Sonu et al., 2019; Waite et al., 2010).

Targeted screening may be especially helpful in patients with health outcomes associated with ACEs.

The American Academy of Pediatrics (AAP) has not made specific recommendations on ACEs screening but has published recommendations on related topics. For example, the AAP recommends that pediatricians incorporate surveillance for SDOH risk factors in *all* patient encounters (American Academy of Pediatrics, n.d.). Universal screening in children is important because it can identify and undermine SDOH and sources of toxic stress, support child and family resiliency, and treat the effects of toxic stress on the body (Garner et al., 2012). While screening for ACEs in children is different from screening for ACEs in adults – because of the sensitive period of childhood, for example – the logic behind universal screening for SDOH and toxic stress in the pediatric setting could apply to screening for ACEs in the adult primary care setting as well. Universal screening for ACEs in adults can identify SDOH and toxic stressors to facilitate referrals to interventions; and by way of educating adults on ACEs and their effects on health, universal screening can indirectly undermine SDOH and sources of toxic stress while supporting child and family resiliency. Therefore, universal ACEs screening in adults can satisfy the three main reasons for universal screening for SDOH and toxic stress in children.

Primary care practices should carefully identify their reasons for screening for ACEs and allow this to inform the chosen method of screening – whether universal or targeted. Universal screening may be most useful in understanding the general burden of childhood adversity while targeted screening may be an appropriate response to patients with health outcomes associated with ACEs.

ACEs Screening Administration

The purpose of screening for ACEs could also inform the ACEs items that are inquired about in ACEs screenings. Given the lack of conceptual clarity on which events constitute "ACEs," primary care practices could consider which childhood adversities to inquire about as each patient population has its own characteristics, needs, and complexities (Corbin et al., 2013). Along these lines, more research is needed on whether certain ACEs have more profound negative effects on different populations based on ethnicity and geographic location, for example, and whether certain ACEs not included in the Original ACEs Study are common among different populations.

Three models of ACEs screening administration that primary care practices could consider include using standardized questionnaires, electronic screening, and structured interviews. The use of standardized questionnaires is common in facilitating ACEs (Chung et al., 2010; Corbin et al., 2013; Murphy et al., 2015; Glowa et al., 2016). Questionnaires can be self-report tools that give patients privacy when completing the tool; or, conversely, can be administrated orally with an administrator who confidentially records the answers of a patient. Primary care practices considering this model should consider implementing questionnaires that are standardized as such tools allow for data comparison between populations and have evidence in support of their validity and reliability. Examples of such tools include the questionnaire used in the Original ACEs Study (Felitti et al., 1998), the WHO ACE-International Questionnaire (World Health Organization, n.d. b), and the Yale-Vermont Adversity in Childhood Scale (Y-VACS) (Hudziak, 2014).

Primary care practices that observe patient discomfort in ACEs screenings or anticipate limited truthful reporting of ACEs could consider electronic screenings. Computerized surveys are more likely to elicit truthful responses to socially undesirable behaviors than surveys on paper (Gnambs & Kaspar, 2015). Additionally, evidence suggests that computerized surveys significantly reduce nonresponse rates and social desirability biases in respondents, and that removing an interviewer from the survey process increases self-disclosure of sensitive behaviors (Rosenfeld et al., 2016; Gnambs & Kaspar, 2015; Chang & Krosnick, 2009; Chang & Krosnick, 2010). Primary care practices could consider conducting ACEs screenings on an iPad, portable laptop, or stationary laptop in a waiting room or private room in attempt to mitigate the effects of patient discomfort on the outcomes of ACEs screenings.

A structured-interview approach is recommended when screening for sensitive aspects of a vulnerable patient's life (Kalmakis et al., 2018). This could be done by first providing patients with information about the purpose behind screening for ACEs; second, asking about childhood adversity using an ACEs questionnaire; and third, responding to disclosure with compassion (Kalmakis et al., 2018). Structured questionnaires may be useful in guiding the interview (Waite & Shewonkis, 2012). A structured interview approach to screening for ACEs has shown to be effective and feasible and may improve follow up care and communication between the patient and provider (Kalmakis et al., 2018). While primary care practices could consider the benefits and drawbacks of each model to determine which would fit well within its context, they could strongly consider the structured-interview approach. Although this model may require more personal time with providers or staff compared to the standardized

questionnaire model, it aligns more closely with a TIC approach which is of utmost importance when screening for ACEs in the primary care setting.

Effective ACEs screenings include introductions to the topic of ACEs, the screening tools being used, and the connection between ACEs and health (Waite et al., 2010). Before beginning a structured interview, the screening administrator should explain that he or she will be asking questions about a patient's history of ACEs. For example, the administrator could state "I will ask some questions about unpleasant things that happen to some people during childhood" prior to asking questions about ACEs (Waite et al., 2010, p. 56; Ravi & Little, 2015). This can prepare the patient for personal and potentially uncomfortable questions.

ACEs screening should maximize patient privacy. Primary care practices may find it feasible to conduct ACEs screenings in a waiting room, but this may be unacceptable to patients given the open nature of most waiting rooms and the personal nature of the questions asked in ACEs screenings. Therefore, primary care practices could consider conducting ACEs administrations in a private room. This private room could be an examination room, or it could be an administrative room dedicated to ACEs screening.

Individuals serving in various roles can administer ACEs screenings. Many efforts focus on physician screening for ACEs and others on the unique role of nurses and nurse practitioners that makes them well-situated to screen for ACEs (Waite & Shewonkis, 2012; Waite et al., 2010). Additionally, trained staff and students can administer screenings, as evidence suggests that neither a provider-patient relationship nor clinical experience is necessary to administer screenings (Corbin et al., 2013;

Kalmakis et al, 2018). Primary care practices could consider identifying who within their context is best suited to screen for ACEs.

Follow Up and Intervention

Primary care practices could consider developing a follow up process in which providers discuss screening results with patients immediately after completion of the ACEs screening (Bethell et al., 2017; Waite et al., 2010). In particular, primary care practices could include a dialogue around ACEs as a main component of this follow up process. As screening tools, ACEs assessments have not been recommended to be diagnostic, but rather as a starting place to begin a dialogue. In addition to discussing the results of ACEs screenings, this dialogue could emphasize the relationship between health and ACEs, lead to intervention, and promote prevention of and healing from ACEs (Bethell et al., 2017).

Primary care providers could consider having this dialogue with patients in a relationship-centered context, which can be done by placing a patient and provider together in a private space and allowing for undivided attention between them, for example (Bethell et al., 2017). A relationship-centered context allows for the development of trust between the patient and provider and can lead to education on ACEs, honest reflection about an ACEs history, and patient questions about the relationship between ACEs and health (Bethell et al., 2017; Korotana et al., 2016; Finkelhor et al., 2017; Kalmakis et al., 2015). Dialogue in this setting can be therapeutic to patients who may be disclosing sensitive information for the first time (Kalmakis et al., 2015). A relationship-centered context also allows the provider to help the patient identify past abuse and minimize the effect of shame often associated with ACEs.

Primary care practices could consider the dialogue in a relationship-centered context as an opportunity to recommend further screening. Discussing the results of ACEs screenings and the relationship between ACEs and health may help providers identify health-risk behaviors and diseases in a patient (Bethell et al., 2017). A provider may recommend additional screening and evaluation for these factors in order to target interventions toward them (Glowa et al., 2016; McCall-Hosenfeld et al., 2014).

A dialogue around ACEs can naturally lead to a discussion about available interventions and treatments for a patient (Bethell et al., 2017). A shared decision-making process is recommended when developing a treatment plan for a patient (Wen et al., 2017). Instead of treating various patient health outcomes separately, primary care practices could consider implementing a well-coordinated treatment approach that acknowledges the relationship between SDOH and health outcomes (Waite et al., 2010). Primary care practices can consider placing patients into a "treatment cascade" that would inform treatment plans based on overall impairment and disease severity (Waite & Shewonkis, 2012). At the same time, the ACEs history of a patient as a whole should inform intervention, as should the available resources and particular needs of a patient (Korotana et al., 2016; Waite & Shewonkis, 2012).

Primary care practices could consider referring patients to both internal and external services that can address ACEs-related health outcomes. This would require a primary care practice to investigate the resources and programs that are available and affordable to its patients. External resources and interventions can facilitate patient support without using the resources of a primary health care practice. Additionally, referral of patients to local services can create stronger bonds between the primary care

practice and other organizations. Examples of services that primary care practices could refer patients to include CBT, expressive writing, and mindfulness therapies which have some evidence in improving health in adults with ACEs (Korotana et al., 2016). Internal resources may include on-site social workers or an integrated behavioral health team that would allow all treatment to be given under one organization. On-site resources would facilitate convenience for the patient receiving treatment and also for the primary care practice in monitoring the health and progress of a patient. This kind of integrated care is recommended for patients with a history of ACEs (Korotana et al., 2016; Forstadt et al., 2015).

Screening criteria suggests that screening should only be done when interventions are in place for patients with positive screening results (Ruf & Morgan, 2010; Corbin et al., 2013; Forstadt et al., 2015; McLennan & MacMillan, 2016; Kalmakis et al, 2018). Therefore, primary care practices should strongly consider implementing follow up for all patients who screen positive for ACEs. Additionally, given the educational nature of dialogue around ACEs that could be implemented into follow up and the ability of this dialogue to identify risk factors and diseases, primary care practices could consider follow up for *all* patients who complete ACEs screenings.

A model for ACEs screening that primary care practices could consider involves screening a patient in an examination room while the patient waits for the provider. During this time, the ACEs screening administrator could conduct a structured-interview on ACEs and record patient responses. Upon completion of the screening, the administrator could give the results to the provider outside of the examination room so that the provider has sufficient time to review the results. Alternatively, the patient could

give his or her results directly to the provider when the provider enters the examination room, which could empower and give agency to the patient. During the appointment, the provider could discuss the patient's ACEs screening results, facilitate a dialogue about ACEs, develop a plan for treatment, and make any necessary referrals. At the conclusion of the appointment, the provider could give the screening results to data personnel to enter into an electronic database, if necessary. One benefit of this model is that it maximizes patient privacy, as the ACEs screening would be conducted in a private examination room. Additionally, it allows for a quick follow up after the ACEs screening, as recommended; facilitates dialogue about ACEs; and addresses ACEs in a relationship-centered context (Waite et al, 2010). This is a model that primary care practices could consider implementing in their practices.

Infrastructure

The following paragraphs outline recommendations related to ACEs screening infrastructure that the FHC could consider. The first is to flag ACEs information as a key aspect of a patient's health history within an electronic record (Glowa et al., 2016). This would allow ACEs information to be kept in the same location as other health records and enable the incorporation of ACEs screening results into future appointments. For example, in appointments following the ACEs screening, providers could continue the dialogue around ACEs for informational purposes, ask patients what they thought of the ACEs conversation from the last visit, and follow up with patients concerning referrals that were given to them. The FHC could consider including ACEs screening results in their electronic health record system. Additionally, the FHC could develop a procedure

that outlines how ACEs screening results and information related to intervention should be updated within the electronic record.

The second recommendation that the FHC could consider is emphasizing the confidentiality of patient responses to ACEs screenings. This could be done through clear and succinct statements about confidentiality that is communicated to patients prior to the screening. This could reassure patients that the information disclosed through the ACEs screening and ensuing follow up would be confidential and would not be shared with unnecessary personnel. An emphasis on confidentiality could be especially helpful for patients who are reluctant to disclose personal information and may be inclined to refuse the screening.

The third recommendation is for the FHC to strengthen its programmatic ties with GWLS as a part of its MLP. This could result in a system that allows the FHC and GWLS to track progress in addressing the health and legal needs of a patient, a method of data collection that records the number of FHC patients who are referred to GWLS and utilize its services, or a way of scheduling appointments that allows FHC patients to meet with GWLS directly after a health care appointment, for example. This strengthened partnership and the processes that result could ensure that the SDOH impacting an individual are addressed from multiple perspectives and in a coordinated way.

Potential Pitfalls of Screening for ACEs

Primary care practices should be aware of potential pitfalls of screening for ACEs. First, a lack of resources may make it difficult to provide thorough and consistent ACEs screening and follow up (Kalmakis et al., 2018; Korotana et al., 2016; Murphy et al., 2015; McLennan & MacMillan, 2016; Bethell et al., 2017; Kalmakis et al., 2018;

Kalmakis et al., 2015). This is especially relevant to practices at which the opportunity cost of resources used to screen for ACEs becomes unbearable. Second, discomfort with ACEs screening may persist in providers and patients alike despite efforts taken to decrease uneasiness. Third, ACEs screening may not improve health outcomes as the ACEs literature lacks rigorous empirical evidence and debate on this topic and there is little evidence that routine ACEs screening results in better health outcomes among adults with a history of ACEs (McLennan & MacMillan, 2016).

ACEs Screening Related to Other FHC Goals

Having an effective and standardized method of screening for ACEs aligns with the goals of the FHC and MLP. These goals include targeting individual patients for additional screening, designing or identifying specific interventions for patients with a history of ACEs, understanding prevalent and specific SDOH in its patient population, and using this information to shape policy initiatives. First, ACEs screening results and dialogue in follow up can help providers identify various societal and environmental conditions and diseases in a patient and lead to additional screening. Second, standardizing a process for ACEs screening and follow up requires the FHC to identify treatments and interventions available to its patients, both within its practice and outside of it. Information on available resources, along with FHC data gained through ACEs screening, can inform whether effective interventions are available for adults with a history of ACEs history. If not, the FHC could use its data and resources to design interventions for this population. Third, an effective and standardized method of ACEs screening can help the FHC collect accurate and relevant data to inform an understanding of the SDOH in its patient population. Fourth and finally, effective ACEs screening can

lead to a replication of FHC screening procedures in similar settings, and FHC data can inform policy related to ACEs, health care, and MLPs. The work of the FHC has the potential to mitigate the effects of ACEs (and SDOH more generally) in its local community, state, and nation; and ultimately, have positive impacts on the health of low-income populations and primary care practices that provide care for them.

Conclusion

This paper was aimed at identifying existing work related to screening for ACEs in adults in the primary care setting and relating it to the work of the FHC. *Chapter One: ACES as Social Determinants of Health* introduced SDOH and the effect of ACEs on health in addition to identifying primary care as the ideal setting in which to address ACEs in adults. *Chapter Two: Literature Review of ACEs Screening in the Primary Care Setting* provided an overview of the literature concerning screening for ACEs in adults in the primary care setting and identified themes within the literature. *Chapter Three: Screening at the Waco Family Health Center* described how ACEs screening was implemented at the FHC, along with challenges and strengths of this process. Finally, *Chapter Four: Recommendations for the Primary Care Setting* recommended practices for primary care providers, including the FHC, to consider.

ACEs can negatively affect health and are associated with poor health outcomes in adulthood. In this way, ACEs are SDOH that inform understandings of how experiences during childhood can "get under the skin" to affect a wide range of health outcomes, functioning, and quality-of-life risks. The focus on ACEs is important insofar as it relates to the broader conversation about health and societal conditions as well as the ways that the resulting negative effects can be mitigated and prevented.

APPENDICES

APPENDIX A

FHC-MLP Questionnaire

Greater Waco Legal Services

Date:_____ Name:_____

Site: MC3_____ Date of Birth:_____

Family Health Center is working with Greater Waco Legal Services to help our patients get **low-cost legal services** for needs that harm health. **Answering this form is completely optional**. If you decide not to complete this form, it will not change the care we provide you in the clinic. This form tells us which of our patients might benefit from a referral to Greater Waco Legal Services. Like all of your healthcare information, the information on this form is kept private and confidential. Please ask an FHC staff member if you have additional questions or would like these questions read to you.

1. Have you filled out this form in the past 3 months?

   ◯ NO ◯ YES — No need to complete the following questions unless you have new legal needs.

2. Do you have unpaid traffic tickets, a suspended license or issues with your ID?

   ◯ NO ◯ YES

3. Are you having trouble getting a job, finding housing, or with something else because of your criminal history?

   ◯ NO ◯ YES

4. Are you or someone close to you facing possible or pending criminal charges?

   ◯ NO ◯ YES

5. Would you like to speak to someone about seeking a divorce or getting or changing court orders for custody of your children?

   ◯ NO ◯ YES

6. Are you caring for a child that is not your own, and would like to speak with someone about your rights?

   ◯ NO ◯ YES

7. If you have a landlord, have you had any disputes with him/her in the last year?

   ◯ NO ◯ YES

8. If you own (or think you might own) a house or land, are you interested in knowing more about how to make sure it stays in the family?

   ◯ NO ◯ YES

9. Do you have concerns about the immigration status of someone you know?

   ◯ NO ◯ YES

10. Are you interested in receiving resources about immigration concerns?

    ◯ NO ◯ YES

11. Would you like to talk to a lawyer about these situations or something else?

    ◯ NO ◯ YES — Briefly describe: _____

APPENDIX B

FHC ACEs Screening Questionnaire

Your answers to these questions will also be confidential. You are not required to complete these questions in order to receive care from us.

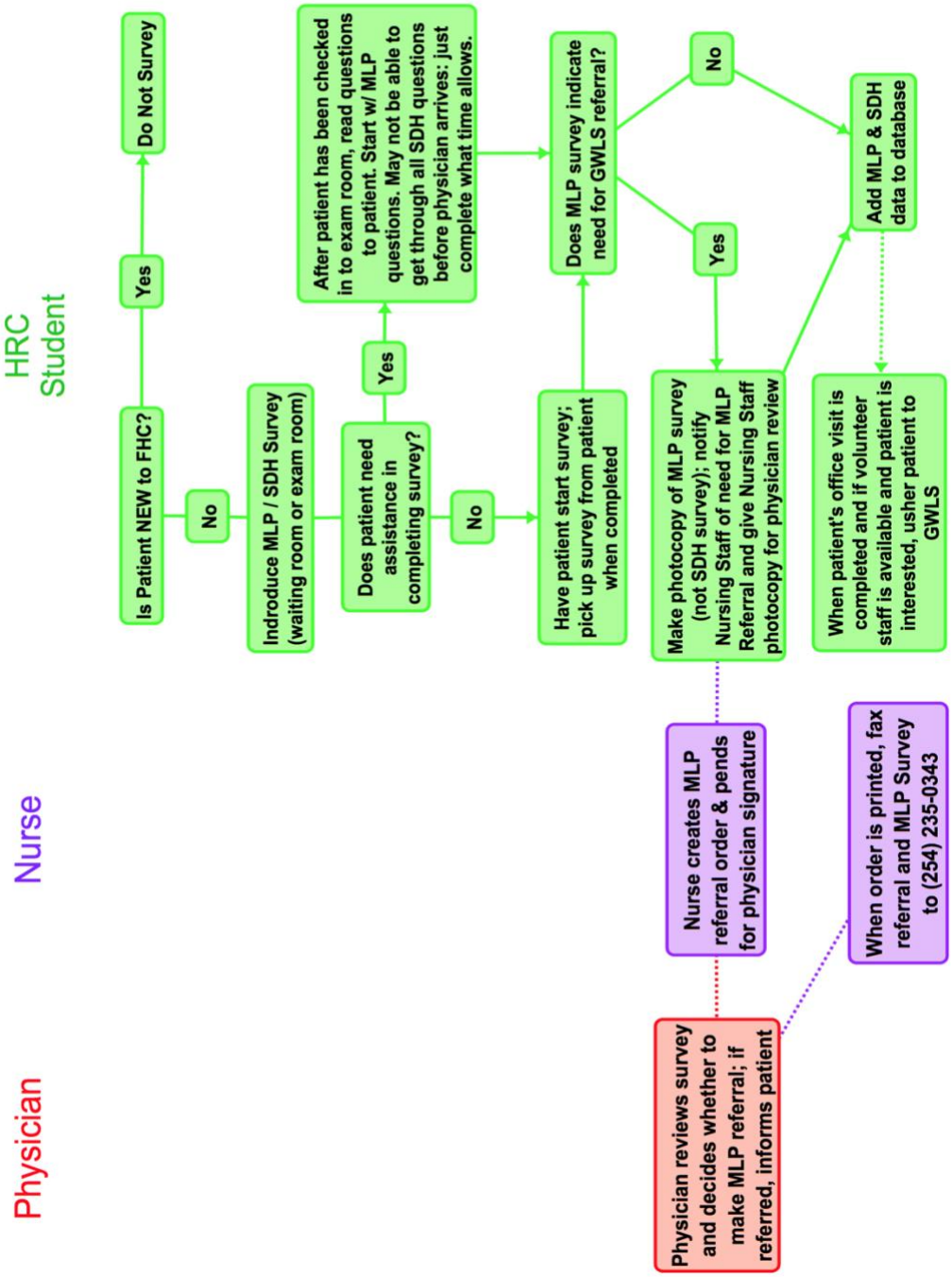
I'd like to ask you some questions about **events that happened during your childhood**. This information will allow us to better understand problems that may occur early in life, and may help others in the future. This is a sensitive topic and some people may feel uncomfortable with these questions. Please keep in mind that you can skip any question you do not want to answer. All questions refer to the time period before you were 18 years of age. Now, looking back **before you were 18 years of age...**

1. Did you live with anyone who was depressed, mentally ill, or suicidal?
   ◯ YES ◯ NO ◯ I don't know ◯ I choose not to answer
2. Did you live with anyone who used illegal street drugs or who abused prescription medications?
   ◯ YES ◯ NO ◯ I don't know ◯ I choose not to answer
3. Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?
   ◯ YES ◯ NO ◯ I don't know ◯ I choose not to answer
4. Were your parents separated or divorced?
   ◯ YES ◯ NO ◯ My parents weren't married ◯ I choose not to answer
5. How often did your parents or adults in your home ever slap, hit, kick, punch or beat each other up?
   ◯ Never ◯ Once ◯ More than once ◯ Don't know ◯ I choose not to answer
6. Before age 18, how often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way? Do not include spanking.
   ◯ Never ◯ Once ◯ More than once ◯ Don't know ◯ I choose not to answer
7. How often did a parent or adult in your home ever swear at you, insult you, or put you down?
   ◯ Never ◯ Once ◯ More than once ◯ Don't know ◯ I choose not to answer
8. How often did anyone at least 5 years older than you or an adult, touch you sexually?
   ◯ Never ◯ Once ◯ More than once ◯ Don't know ◯ I choose not to answer
9. How often did anyone at least 5 years older than you or an adult, try to make you touch them sexually?
   ◯ Never ◯ Once ◯ More than once ◯ Don't know ◯ I choose not to answer
10. How often did anyone at least 5 years older than you or an adult, force you to have sex?
    ◯ Never ◯ Once ◯ More than once ◯ Don't know ◯ I choose not to answer

That's it! Thank you so much for being willing to contribute to our ability to help.

APPENDIX C

FHC Screening Administration Process



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