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Adverse Childhood Experiences, Homeless Chronicity, and Age at Onset of Homelessness

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Adverse Childhood Experiences, Homeless Chronicity, and Age at Onset of Homelessness

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by

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ABSTRACT

Adverse Childhood Experiences, Homeless Chronicity, and Age at Onset of Homelessness

by

Joseph T. Tucciarone Jr.

Childhood adversity is associated with numerous negative outcomes across multiple domains, including mental and physical health, interpersonal relationships, and social functioning. Notably, research suggests that childhood adversity has a dose-response relationship with these outcomes; that is, greater numbers of adverse experiences in childhood are associated with worse outcomes. These outcomes overlap with many risk factors of homelessness. This study sought to address two questions: 1) Does a dose-response relationship exist between childhood adversity and chronic homelessness? 2) Does childhood adversity negatively predict the age at which homelessness first occurs? Adults experiencing homeless who are accessing homeless services in the Tri-Cities area of Northeast Tennessee responded to a brief instrument that includes measures of homeless chronicity, Adverse Childhood Experiences (ACEs), and age of onset of homelessness. Although relationships were not observed for ACEs and measures of homeless chronicity, a relationship did emerge between number of ACEs and lower age at initial onset of homelessness.

DEDICATION

I dedicate my thesis to:

Jessie and Millie for being my home, and for graciously, patiently, lovingly enduring this experience. Your smiles are my sunshine, your laughter the sweetest melodies I've known. You two give me the strength I need to face each day. I luff yoop wiff all my heart.

And to Mark Graybill, because you'd be my homie for life whether I write a thesis or make pizza until my arms fall off. I love you, brother.

And to Billy Tresky, who taught me that achievement is way more punk than nihilism. You believed in me when I couldn't imagine believing in myself, and I'll never forget it. I love you, brother.

And to Wayne "Pops" Miesen, who, inexplicably, never gave up on me, even though I practically begged for it. I love you, Pops.

And to my sister, Carolyn Miesen, for being waaaaaay better at life than I'll ever be. I cannot even begin to tell you how proud I am of you. I love you, kiddo.

And to Chris Dula, because you're the only reason I'm even dedicating a thesis to anyone in the first place. You're my friend, mentor, and hero, now and forever, and I give you my solemn word that I will do my best to honor the endlessly inspiring example you have set. I love you, brother, and I miss you every day.

And, finally, to the memories of my parents, Joseph Thomas Tucciarone, Senior and Allison Miesen. Thank you for this life, strange as it has been. Look at your son, doing something! Wherever you are, I love you both.

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CHAPTER 1

INTRODUCTION

It is a regrettable fact that homelessness continues to impact the lives of virtually millions of people in the U.S. each year. It is also lamentable that many children in the U.S. face adversity throughout their most delicate developmental stages. Extended, the adversity and related developmental disruption faced by these children may have far-reaching implications for the trajectory of their lives, rendering them vulnerable to the very contingencies contributing to homelessness. For some families, multigenerational cycles of household dysfunction and child maltreatment create holding patterns of socioeconomic disparity, poor physical and mental health, marginalization, criminality, violence, and in extreme cases, homelessness—wherein creeps a litany of further insults to well-being (Anda et al., 2006; Dube et al., 2001; Iacono, Malone, & McGuire, 2008; Moffitt, 2005; Neppl, Senia, & Donnellan, 2016). Both homelessness and childhood adversity have received ample attention from researchers, and to a smaller—but still respectable extent—the association between the two has been recognized (Caton et al., 2005; Chamberlain & Johnson, 2013; Cutuli, Montgomery, Evans-Chase, & Culhane, 2014; Larkin & Park, 2012). However, the extent to which this association may be investigated has by no means been exhausted. This present study further explores the relationship between childhood adversity and homelessness; specifically, it explores the dose-response relationship between childhood adversity and homeless chronicity as well as the relationship between childhood adversity and the age of onset of homelessness.

Statement of the Problem

Housing instability takes many forms, the most extreme of which is chronic homelessness. The literature review that follows attempts to identify myriad risk factors for homelessness, and to explicate a connection between adverse childhood experiences (ACEs) and

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an elevated risk for homelessness. Additionally, the literature review attempts to make the case for an overlap between health, behavioral, and social problems associated with ACEs and risk factors likely contributing to the onset and maintenance of homelessness (Cutuli et al., 2014; Herman, Susser, Struening, & Link, 1997; Sacks et al., 2014). Given such overlap, and given the apparent dose-response relationship between ACEs and numerous poor health outcomes (Dube et al., 2003; Felitti et al., 1998), it seems plausible that a dose-response relationship might exist for ACEs and homelessness chronicity as measured in number and length of homeless episodes. It likewise seems plausible that an inverse relationship may exist between the number of ACEs and age of first homeless episode. In recognition of the correspondence between outcomes associated with ACEs and the risk factors for homelessness, the purpose of this current study is to contribute to the research addressing the dose-response relationship between ACEs and homelessness, and, specifically, to explore the questions of whether a similar dose-response relationship exists between ACEs and homeless chronicity in a population of homeless adults in Northeast Tennessee. A further question explored will be whether higher numbers of ACEs predict lower ages at the onset of the first episode of homelessness.

Significance

This study has important implications in numerous areas, including public health, primary care, psychotherapy, social work, education, law enforcement, rehabilitation, and public policy. In the context of child development, ACEs may predict myriad problems across several domains in adulthood and likely contribute to the risk of homelessness, which itself is associated with numerous poor outcomes. Understanding the influences of ACEs and their outcomes is of great value to the professionals who will encounter those impacted by ACEs. Concerted, collaborative, integrated, and early intervention involving trauma informed care may help to

improve health and social outcomes for those impacted by ACEs, as well as reduce

homelessness, improve crime rates, reduce incarceration, reduce physical and mental health

spending, decrease burdens on service providers, save tax dollars, and potentially halt the

intergenerational transmission of socioeconomic disparities and subsequent ACEs.

Specific Aims

There are two specific aims for this study:

Aim # 1 Test whether a dose-response relationship exists between ACEs and adult

     homeless chronicity among service utilizers in northeast Tennessee

Aim # 2 Test whether a higher number of ACEs predicts a lower age at onset of

     homelessness among service utilizers in northeast Tennessee

CHAPTER 2

LITERATURE REVIEW

Homelessness

Definitions of Homelessness

Multiple definitions of homelessness exist. The McKinny-Vento Homeless Assistance Act of 2009 declares homeless any individual or family: (a) who lacks a regular and adequate nighttime residence; (b) whose primary nighttime residence is public or private place unfit for human habitation or not typically designated as a place to sleep (e.g., campsite, vehicle, park, abandoned building, public transit station, or beneath bridges and overpasses); (c) who is temporarily spending nights in a publicly or privately owned shelter, including transitional housing or a hotel and motel subsidized by government programs or charitable entities; (d) who is exiting an institution back into a "shelter or place not meant for human habitation" (p. 1) following a temporary stay of fewer than 90 days; (e) who by court order is facing imminent (i.e., within 14 days) eviction from their current housing without identifying a subsequent housing option; (f) is an unaccompanied youth or a family with children or youths who have consistently demonstrated housing instability along with contingencies amounting to significant barriers against achieving housing stability; or (g) is "fleeing or attempting to flee" (p. 2) dangerous or life-threatening situations, such as stalking, sexual assault, or domestic or dating violence.

Chronic homelessness definition. Chronic homelessness is defined as a single episode of homelessness lasting at least 12 consecutive months or at least four episodes of homeless—marked by periods between episodes lasting at least seven days during which the criteria for homelessness are not met—occurring within the last three years and with a combined total length of at least 12 months; in addition, an individual or head of household meeting these criteria must

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have a diagnosable disabling condition, including a substance use disorder, serious mental illness, cognitive impairment, chronic physical illness, or a chronic physical disability (Homeless emergency assistance and rapid transition to housing: Defining "Chronically Homeless," 2015).

Homeless service providers funded by HUD use these definitions when deciding eligibility requirements for homeless assistance programs. Presumably, this is to prioritize resources for those presently facing the greatest severity of need; hence, regardless of duration, a service provider would not deem as chronically homeless an individual whose most recent episode was more than three years ago, or who, in the last three years, has had four episodes of homelessness with a cumulative duration of less than 12 months.

Doubling up. Notably, the definitions above fail to account for individuals or families who, lacking stable housing of their own, stay temporarily with friends or family members, an act known as "doubling up" ("Homeless emergency assistance," 2015; National Alliance to End Homelessness [NAEH], 2016; National Health Care for the Homeless Council, Inc., 2016). When this population is taken into consideration, the number of homeless people in the U.S. increases dramatically. The NAEH (2016) notes that as many as 7 million people were doubled up with friends or family in 2014; in the same report, doubling up is described as an unstable living condition that is the most common precursor to loss of shelter. Fittingly, the U.S. Department of Health and Human Services (HHS; 2013) defines homelessness as lacking "housing (without regard to whether the individual is a member of a family), including an individual whose primary residence during the night is a supervised public or private facility that provides temporary living accommodations, and an individual who is a resident in transitional housing" (p. 159). This more inclusive definition covers all who are without a fixed nighttime residence, including those who are doubling up. Moreover, the HHS definition of homelessness

acknowledges the reduced visibility of a significant proportion of homeless people (Hwang &

Henderson, 2010) who are subjected to many of the same vulnerabilities of homelessness as

defined by HUD, but who do not qualify for assistance from HUD-funded programs.

Housing instability. Definitions of housing instability vary, but common elements

include difficulty with paying rent, housing costs exceeding half of total income, frequent moves

within a short span of time, overcrowded living conditions, doubling up with friends or family

members, substandard housing, impoverished neighborhoods, homelessness, and lacking

subsequent housing options in the event of an eviction (Cutts et al., 2011; HUD, 2014; Kushel,

Gupta, Gee, & Haas, 2006). For current purposes, the term *housing instability* will denote a state

in which any of these factors are present.

Prevalence Rates

Per the U.S. Department of Housing and Urban Development (HUD) (2016), the most

recently published national estimate of homelessness in the United States found that 549,928

persons were homeless on a given night in January of 2016. Of these persons, 68 percent were

sheltered (i.e., sleeping in a location designated for homeless individuals or families), whereas

the remaining 32 percent were unsheltered (i.e., sleeping in an encampment, vehicle, or other

outdoor location). These latter two figures represent a one percent shift from sheltered to

unsheltered homeless persons from the previous year (HUD, 2015, 2016). In addition, 194,716

(35 percent) of homeless individuals belonged to families with children; 120,819 (22 percent) of

all homeless persons were children; and 39,471 (about 7.2 percent) were veterans (HUD, 2016).

These numbers were derived from the 2016 Point-In Time (PIT) count. PIT counts are annual

events during which local Continuums of Care (CoCs) across the nation survey their respective

service areas during a single night during the last week of January to obtain estimates of sheltered and unsheltered homeless people (HUD, 2015; NAEH, 2016).

Risk Factors

      Pathways into adult homelessness. Using a large administrative database (N=3,941), Chamberlain and Johnson (2013) identified five "ideal typical pathways into adult homelessness" which are discussed below and include Housing Crisis, Family Breakdown, Substance Abuse, Mental Health, and Youth to Adult (p. 61). These pathways are not causal models, per se; rather, they identify "structural or cultural factors" detrimental to access to a full range of opportunities that may mitigate vulnerability to homelessness (p. 74). Chamberlain and Johnson examined casefiles of clients utilizing homeless services with attention to housing history and other biographical information in order to code for pathways into homelessness. They used the Australian Bureau of Statistics definition of homelessness, which includes "sleeping rough," (i.e., sleeping outside), doubling up, using emergency shelters, and residing in boarding homes. In addition to recording number of instances and duration of homeless episodes, they conducted 65 interviews with people who had been or were presently homeless. The Housing Crisis pathway accounted for 19 percent of their sample. Though this pathway can manifest in different ways, the general theme was being in a poor financial position and becoming increasingly overwhelmed by living expenses until housing is ultimately lost. For those on the Family Breakdown pathway (11 percent), two patterns emerged: fleeing domestic violence and the departure of a household member who had provided significant material or financial support. The authors concede that women fleeing domestic violence were underrepresented, and that this category would probably be higher in the overall population. Those on the Substance Abuse pathway accounted for 17 percent of the sample; the general trend

was substance use beginning early and becoming increasingly problematic until resulting in homelessness. Those on the Mental Health pathway (16 percent) separated into two general categories: whereas those who became homeless at 24-years-old or younger typically had frayed relationships with other members of their family, those who were 25 or older tended to become homeless following the deaths of any remaining supportive family members. The pathway boasting the largest portion of their sample was Youth to Adult (35 percent). Those on this pathway became homeless at age 18 or younger; 42 percent of these youths had been in wards of the state following "traumatic family experiences" such as physical and sexual abuse and exposure to violence and drug addiction within their families (p. 66). Those who had transitioned from youth to adult homelessness without having spent time in the state care and protection system left home for more diverse reasons, such as conflict with parents or stepparents in addition to violence or abuse. The remaining 2 percent of the sample fell into the "other" category, in which no clear pathway was identified. Contrary to a popular myth perpetuated by media narratives, Chamberlain and Johnson's data do not suggest drugs and mental health as the predominant pathways to homelessness. However, their data do suggest that pathways influence the duration of homelessness. Two temporal patterns emerged. Combined, about 75 percent of those on the Substance Abuse, Mental Health, and Youth to Adult pathways were in the long-term (i.e., 12 months or more) population. Only about 33 percent of those on the Housing Crisis and Family Breakdown pathways were homeless long-term. This difference may be due to differing patterns of socialization. Developing friendships with other homeless persons is an adaptive practice by which some individuals learn vital survival strategies as well as experience a sense of belonging that may have been previously lacking. However, those on the Housing Crisis pathway are less likely to make friends; they tend to expect a shorter duration of homelessness

and do not readily identify with other homeless persons. Likewise, those on the Family

Breakdown pathway are less likely to identify with other homeless persons; individuals on both

pathways hold stigmatizing attitudes about homelessness. In contrast, homeless persons on the

Substance Abuse and Youth to Adult pathways are relatively more likely to identify and

socialize with other homeless persons. In short, they may become more encultured, endorse

fewer stigmatizing attitudes, and engage in behaviors that complicate their exit from

homelessness and the maintenance of subsequent housing stability. Persons on the Mental Health

pathway also tend to experience long-term duration of homelessness, but form few if any social

networks. Often mistreated by other homeless people, they may withdraw and try to minimize

social contact, resulting in further alienation and isolation, reduced quality of life, and poor

mental health outcomes. In addition to the pathway by which an individual becomes homeless,

other factors affecting duration include the availability and preparedness of services and the

quality of labor and housing markets (Chamberlain & Johnson, 2013).

Though Chamberlain and Johnson's (2013) study was conducted in Melbourne,

Australia, their findings may at least partially generalize to American populations. Consistent

with the pathways they identified, housing crisis and economic insecurity (Alexander-Eitzman,

Pollio, & North, 2012; Belcher & DeForge, 2012; Grenier et al., 2016; HUD, 2015; Hudson,

2015; Hwang & Henderson, 2010; Martone, 2014; Mulroy, 1992; NAEH, 2016), family

breakdown and domestic violence (Baker, Billhardt, Warren, Rollins, & Glass, 2010;

Chanmugam, Kemter, & Goodwin, 2015; Edidin, Ganim, Hunter, & Karnik, 2011; Hamilton,

Poza, & Washington, 2011; Mallet, Rosenthal, & Keys, 2005; Malos & Hague, 1997), substance

abuse (Alexander-Eitzman et al., 2012; Belcher & DeForge, 2012; Childress et al., 2015; Mallet

et al., 2005; NAEH, 2016; Rayburn, 2013; Tompsett, Domoff, & Toro, 2013; Zerger et al.,

2014), mental health (Castellow, Kloos, & Townley, 2015; Childress et al., 2015; Edidin et al., 2011; Gattis & Larson, 2016; Hwang & Henderson, 2010; Petrovich & Cronley, 2015; NAEH, 2016; Zerger et al., 2014), and youth homelessness (Childress et al., 2015; Edidin et al., 2011; Gattis & Larson, 2016; Heerde, Scholes-Balog, & Hemphill, 2014; Holtschneider, 2016; Hudson, 2015; Kidd, 2006; Maria, Narendorf, Ha, & Bezette-Flores, 2015; NAEH, 2016; Shelton, 2015) are recurring and overlapping themes throughout the literature on homelessness.

Involvement in the criminal justice system. Arrest history and discharge from correctional facilities are associated with homelessness. Greenberg and Rosenheck (2008) found people who had recently been homeless to be overrepresented among inmates in state and federal prisons. Research indicates that this relationship is bidirectional; not only do the contingencies of homelessness contribute to entanglements with the criminal justice system (Covin, 2012), but the consequences of having a criminal record present enduring barriers to exiting homelessness and achieving housing stability (Belcher & DeForge, 2012; Caton et al., 2005; Dolan, Carr, Ehreneich, Torres, & Mira, 2015; Greenberg & Rosenheck, 2008; Petrovich & Cronley 2015), particularly for individuals living with mental illness (Metraux, Roman, & Cho, 2007). Taken together, these circumstances complicate reentry into society, and contribute to recidivism.

Metraux et al. (2007) note parallel dramatic increases in U.S. jail and prison populations and homeless populations over the last quarter century. Two assumptions follow: (1) in addition to higher vulnerability to incarceration among homeless individuals, a person is at higher risk of experiencing an episode of homelessness upon release from jail or prison; and (2) the provision of housing and the supports and resources needed to maintain housing stability are central to preventing future homelessness and incarceration. Structures supporting the successful transition from incarceration to reentry are lacking. Corrections systems disengage from inmates upon

release, leaving them to rely on homeless services for which they may not be eligible (Metraux et al., 2007). Effectively, individuals find themselves trapped with literally nowhere to go and no one to turn to. In a growing number of U.S. cities, the very state of being homeless is criminalized; a person with all the physical and biological needs of any other human being may have no private, safe place to rest, sleep, eat, bathe, store belongings, or "perform necessary human functions" without the threat of citation or arrest (Dolan et al., 2015, p. 23). Moreover, prisons are often located in areas remote to urban centers, which presents tactical difficulties for released inmates who need to connect with housing and other services. Furthermore, inmates attempting to reenter society encounter significant barriers to finding work and earning sufficient incomes to meet housing costs. Lack of job skills and education, low literacy, and having a criminal record all limit job opportunities (Dolan et al., 2015; Greenberg & Rosenheck, 2008; Metraux et al., 2007; Petrovich & Cronley 2015). A criminal background can also hinder access to beneficial support programs and subsidized housing, thereby leaving individuals with few options in a cost-prohibitive housing market (Dolan et al., 2015; Metraux et al., 2007). Together, a lack of gainful employment and affordable housing opportunities constitutes a substantial barrier to housing stability (Alexander-Eitzman, et al., 2013).

Veteran status. Finally, veterans comprise a significant subpopulation of homeless persons (NAEH, 2016). Recall that the latest PIT count totaled 549,928 homeless persons in the U.S. on a single night in January of 2015; of these, 39,471 were veterans (HUD, 2016). As of 2014, there were 19.38 million veterans in the U.S., whereas the civilian population over the age of 17 was 231.98 million (U.S. Department of Veterans Affairs [VA], 2016). Thus, veterans account for about 7.71 percent of Americans over the age of 17. Veterans represent roughly 7.2 percent of the homeless population who participated in the 2016 PIT. The actual proportion of

veterans in the homeless population may be even higher; the PIT count gathers much of its data in facilities offering services to the homeless (HUD 2015), including VA hospitals and domiciliaries; though a coordinated effort is made to sweep outdoor areas and potential campsites for additional homeless persons (civilians and veterans alike), it is likely that many homeless persons are uncounted. This is especially true if the more inclusive HHS definition of homelessness is used. Given that the PIT counts occur during one of the coldest periods of winter, it is reasonable to hypothesize that more people experiencing housing instability—whether civilians or veterans—are doubling up with friends or extended family.

Recall that Chamberlain and Johnson (2013) did not identify substance abuse or mental illness as primary pathways into homelessness among the general population. In contrast, a recent systematic review of research concerning homelessness among veterans indicates that "the strongest and most consistent risk factors were substance use disorders and mental illness, followed by low income and other income-related factors" (Tsai & Rosenheck, 2015, p. 13-14). Interestingly, though posttraumatic stress disorder has a higher prevalence rate among veterans relative to civilians, it was not a significantly important risk factor for homelessness compared to other mental disorders such as schizophrenia. Other factors evidenced to place veterans at higher risk for homelessness were consistent with general risk factors for homelessness and included social isolation (Shelton, Taylor, Bonner, & Bree, 2009; Tsai & Rosenheck, 2015), and criminal history (Dolan, et al., 2015; Metraux et al., 2007; Petrovich & Cronley 2015). Although most homeless veterans are male (HUD, 2015; Perl, 2015), increasing attention is paid to women veterans, whose "numbers are increasing" and who may face unique risk factors for homelessness, including increased likelihood of having experienced sexual trauma compared to

civilian women, and increased likelihood of being single parents; furthermore, "the domestic violence provision of the McKinney-Vento *does not* apply to VA programs" (Perl, 2015, p. 11).

Summary of risk factors. In summary, homelessness is a persisting issue potentially affecting millions of Americans each year. Although different definitions of homelessness exist, they coalesce around the central idea of not having a fixed, adequate nighttime residence fit for human habitation. There are several overlapping and interacting pathways to homelessness that constitute prominent and recurring themes throughout published literature. They include—but by no means are limited to—poverty resulting in the loss of or inability to obtain stable housing; breakdowns in the family due to the dissolution of relationships, domestic violence, or death; problematic substance use that precludes obtaining or maintaining housing stability; sufficiently disabling mental illness; childhood adversity resulting in youth or adult homelessness; incarceration and subsequent complications; and veteran status.

Challenges Faced by the Homeless Population

Stigma. Although homelessness is not a new phenomenon in the United States, its salience is relatively fresh, having increased in the 1970s and 1980s as both the homeless population and its visibility grew (Kingree & Daves, 1997; Perl, 2015). Multiple changes contributed to the increase in homelessness, including the razing of boarding houses, a waning affordable housing market, fewer seasonal unskilled labor opportunities, less willingness among relatives to provide space for homeless family members, declining public benefits, and the deinstitutionalization of mental hospitals (Metraux et al., 2007; Perl, 2015). Subsequent increased visibility, partially due to the "decriminalization of actions such as public drunkenness, loitering, and vagrancy" (Perl, 2015, p. 8) is arguably a source of one of the most significant challenges faced by homeless people, namely, stigma. With the increasing visibility of homeless

individuals during the 1980s came a rise in public "backlash" directed toward them, "with public sentiment shifting from sympathy to resentment" as some conservative spokespersons such as Ronald Reagan, former Attorney General Edwin Meese III, and New York City Mayor Edward Koch publicly promoted stigmatizing generalizations (Guzewicz & Takooshian, 1992, p. 68-69).

Such generalizations characterize homeless people in a negative light but fail to address how or why homelessness occurs. Broadly, the causes of homelessness can be considered in terms of individual (e.g., substance use; physical and mental illness) and structural (e.g., housing affordability; availability of support services) factors (Koegel, Melamid, & Burnam, 1995). Like the interplay of nature and environment, individual and structural factors are necessary counterparts, and taking both domains into consideration is vital to understanding homelessness. Structural factors, such as lack of affordable housing, insufficient wages, lack of jobs, cutbacks to government support, racial discrimination, and the unaffordability of health insurance and medical care interact with individual factors, such as addiction, mental and physical illness, experiencing domestic violence, and the reverberations of childhood adversity (discussed below), resulting in significant housing instability and homelessness (Hwang & Henderson, 2010). However, emphasis placed on individual factors may lead to victim blaming and stigma.

Taking a structural stance (i.e., focusing on social forces and structures rather than personal attributes), Belcher and DeForge (2012) examined the association between capitalism and the stigmatization of homeless people. They argued that uneven distribution of wealth and resources is a natural consequence of capitalism that promotes inequality in important areas such as health, housing, education, nutrition, and employment. The "inequitable" economy of the United States "creates winners and losers," the biggest "losers" of all being homeless individuals, who are treated as the "underclass" (p. 930). Individuals experiencing homelessness

must navigate a bewildering labyrinth of poorly funded service providers who do not

communicate or coordinate with each other, and who at best offer subsistence without offering

much by way of feasible solutions. Belcher and DeForge note that approximately 1/3 of the

homeless population live with varying combinations of severe illness and/or substance addiction,

whereas the remaining 2/3 become homeless due to a combination of socioeconomic disparities

and a discriminatory housing market. They argue that society blames the victim while ignoring

societal conditions precipitating poor outcomes for vulnerable citizens. Guzewicz and

Takooshian (1992) also note that blaming the victim misdirects attention from the "basic causes"

and fails to address social injustice (p. 69). Society, Belcher and DeForge claim, sees

homelessness as a problem but nevertheless endorses stigmatizing stereotypes about homeless

people, portraying them as dangerous, unproductive, deviant, and ultimately guilty for their own

conditions. This stigma arises in part from the perception of threats to the status quo; by

disqualifying certain people from social acceptance, attention is thus drawn away from societal

causes and the failures of the capitalist system. Homeless people are thus dehumanized and

objectified (Gervais, Bernard, Klein, & Allen, 2013), and implicitly presumed guilty of negative

traits attributed to them (Belcher & DeForge. 2012, Guzewicz & Takooshian, 1992). Belcher and

DeForge (2012) reported that the vulnerability and powerlessness of individuals experiencing

homelessness make them easy to victimize and that such victimization facilitates for perpetrators

a sense of control and relieves anxiety by passing it on to the victim. Stigmatizing homeless

people may serve self-interest by allowing people to assert their place within the "in-group"

while marginalizing those who are homeless as belonging to the "out-group." Salient examples

of deviancies within the homeless population are exaggerated and selected as justification for

their marginalization; by portraying homeless people as typically mentally ill and addicted to

drugs and alcohol, the media help to promote this narrative to the effect that people raised in a capitalist culture are socialized to regard homeless persons as outsiders. As outsiders, they are disenfranchised. Furthermore, they are aware of the stigmatization; internalized blame translates to self-stigma and a sense of hopelessness (Belcher & DeForge, 2012).

Stigma may be especially damaging to homeless youths (i.e., aged 24 years or younger), who grapple with the typical stressors of homelessness while being at increased risk of victimization (Gattis & Larson, 2016; Heerde et al., 2014; Kidd, 2006). Among homeless youths, higher perception of stigma resulting from homelessness and the duration thereof, non-heterosexual sexual orientation, panhandling, and prostitution are associated with self-esteem deficits, loneliness, feeling "trapped," and suicidality (Kidd, 2006). Minority status is an additional consideration. Minority stress theory (Meyer, 2003) posits that people belonging to disadvantaged social statuses, such as stigmatized groups, are exposed to social stress and reduced access to essential resources related to their status, and these social factors combined determine the impact of social status on mental health. Specifically, social stress is thought to mediate the relationship between social status and mental health and physical health outcomes. Minority stress theory differentiates between distal and proximal stressors. Distal stressors include both overt and subtle manifestations of discrimination, stigma, bias, prejudice, bigotry, and victimization in one's environment, based on minority status. Proximal stressors, on the other hand, are thought to follow distal stressors, and are internal experiences such as shame, guilt, anxiety and vigilance, rumination, suicide ideation, conscious expectation of rejection, internalized homophobia or transphobia, and urge to conceal one's orientation or gender identity—psychological distress, in short. Minority stress theory therefore proposes that the stress of living in heterosexist and transphobic social environments—stress often incurred

beginning in early, formative years—may explain physical and mental health disparities among

sexual and gender minorities (Meyer, 2003; Rood et al., 2016; Scandurra, Amodeo, Valerio,

Bochicchio, & Frost, 2017).

Homeless racial and sexual minority youths juggle multiple stigmatized statuses during a

sensitive stage of development (Gattis & Larson, 2016, Heerde et al., 2014) and other

circumstances such as homelessness may have additive effects. Group-based discrimination can

effectively shut individuals off from the broader social world, isolating them and contributing to

poor health outcomes (Johnstone, Jetten, Dingle, Parsell, & Walter, 2015). Homeless youths

show increased risk for many mental health disorders, including "substantially higher rates of

depressive symptoms and suicidality" compared to non-homeless peers (Gattis & Larson, 2016,

p. 80; see also Hwang & Henderson, 2010).

Health. Given that homeless persons are particularly vulnerable to a range of health

problems, it is worth noting that they face substantial barriers to accessing health care. Hwang

and Henderson (2010) issued an extensive report on health care utilization among homeless

people, noting that just one-third of homeless people have Medicaid, and over half have no

insurance. Referencing a national survey of homeless adults in the U.S., Hwang and Henderson

reported that "39 percent had current health problems, 50 percent had current alcohol and/or drug

problems, and 23 percent had concurrent mental health and substance use problems" (p. 14);

notably, these findings are inconsistent with those of other studies (e.g., Belcher & DeForge,

2012; Chamberlain & Johnson, 2013) in which substance misuse and mental illness are reported

to be over-assumed in homeless populations. Hwang and Henderson cite major depression,

PTSD, bipolar disorder, and schizophrenia as prevalent mental disorders among homeless

people; disproportionately prevalent infectious illnesses include tuberculosis, HIV, and hepatitis

B and C. In addition, homeless adults are especially vulnerable to a range of potentially life-threatening chronic diseases that remain underdiagnosed and undertreated. Heart disease and cancer are highly prevalent among homeless people, as are injuries and physical and sexual assault. Extended, many homeless people experience foot problems ranging from "mild blisters and fungal infections to debilitating chronic stasis ulcers, cellulitis, diabetic foot infections, and frostbite" (p. 14). Untreated skin and dental problems are also common. Overall, mortality rates among homeless people are very high. Frequent causes of death for homeless persons under the age of 45 include accidental injuries, overdoses, AIDS, suicide, and homicide; for those 45 and older, death often results from cancer and heart disease (Hwang & Henderson, 2010). Further, health risks associated with homelessness do not necessarily abate upon exiting homelessness. Oppenheimer, Nurius, and Green (2016) found that socioeconomic disparities, poor social relations, and chronic stress associated with having a history of homelessness or housing instability precipitates persisting implications for physical and mental health. Specifically, a history of homelessness strongly predicts a lasting trajectory of poor health behaviors, economic insecurity, and poor physical and behavioral health status compared to individuals who have never experienced homelessness. Importantly, Oppenheimer et al. (2016) note that adult homelessness may exist along a lifelong pattern of disadvantage originating in early in development.

Access to health care. As discussed, homeless people encounter frequent barriers to accessing health care, with financial constraints, the cost-prohibitive nature of health care, and being uninsured or underinsured ranking among the most prevalent (Hwang & Henderson, 2010; Nickasch & Marnocha, 2009). Beyond financial barriers, health care systems can be difficult to navigate and therefore require a considerable investment of time and energy that homeless

people may not be willing or able to allocate away from the more immediate priorities of daily survival (Buck et al., 2005; Hwang & Henderson, 2010). They might therefore avoid seeking medical attention until they are experiencing a crisis (Martins, 2008). One important barrier to accessing health care among homeless people is their distrust of medical professionals and the health system. Homeless people have frequently reported feeling "unwelcome" (Wen, Hudak, & Hwrang, 2007, p. 1011), being labeled and stigmatized, disrespected, and feeling "invisible" (Buck et al., 2005, 2009; Martins, 2008, p. 425) in medical settings. Experiencing discrimination when attempting to access medical care causes distress and has a deleterious effect on the willingness for homeless people to seek care in the future (Buck et al., 2005; Buck & King, 2009; Hwang & Henderson. 2010) and may contribute to higher rates of "emergency department (ED) use, inpatient hospitalization, and longer hospital stays" (Kushel et al., 2005, p. 71) among people experiencing housing insecurity.

Summary of challenges faced by the homeless population. To summarize, individual and structural factors contribute to homelessness, but it seems that structural (to wit: social, environmental, and institutional) exacerbate the risk of homelessness for those who are already vulnerable. As homelessness and the visibility thereof increased over the latter decades of the 20th century, numerous myths and stereotypes emerged and were endorsed by some people who had a national audience. Fueled by negative media portrayals emphasizing personal attributes of homeless people, public opinion turned against the homeless population, which has subsequently faced consistent marginalization. They continue to face social and institutional discrimination and stigma. Many homeless people, including youths, belong to racial and sexual minority groups, and therefore face additional vulnerabilities and stigma relative to their non-minority counterparts. Homelessness is associated with greater mental and physical health problems, but

perceived discrimination, stigma, and negative experiences with the health care delivery system—among other factors—pose significant barriers to accessing health care, thereby contributing to the litany of factors contributing both to the onset and maintenance of homelessness and housing instability.

The negative outcomes of homelessness are abundant. Individuals entering homelessness face myriad challenges and the potential for lasting adversity. Accordingly, it may be beneficial to identify predictors of homelessness, particularly predictors that can be addressed via targeted intervention to reduce the incidence of homelessness. One such arena of predictors is that of adverse childhood experiences.

Adverse Childhood Experiences

The Adverse Childhood Experiences Study

History. The original Adverse Childhood Experiences (ACEs) study was a largescale epidemiological study conducted from 1995-1997 at Kaiser Permanente, a managed care organization in southern California (CDC, 2016; Dube et al., 2003; Felitti et al., 1998; Murphy et al., 2014). In two waves of data collection, over 17,000 members were administered an early form of the ACE questionnaire, which contained 17 items; this initial version would later be shortened to the current, 10-item instrument. In a seminal report, Felitti et al. (1998) frame ACEs in terms of exposure to emotional, physical, and contact sexual abuse, as well as exposure to four categories of household dysfunction during childhood, including substance abuse, mental illness, domestic violence toward one's mother or stepmother, and criminal behavior. Additional categories of ACEs have been identified, including physical neglect, emotional neglect, and parental divorce/separation (Anda et al., 2006; Dube et al., 2001; Dube, Felitti, Dong, Giles, & Anda, 2003; Mersky, Janczewski, & Topitzes, 2016). Over the past two decades, the ACE study

has yielded a wealth of findings tying ACEs to a spectrum of poor health outcomes. As of 2016, the CDC has continued to track the original participants, periodically collecting additional morbidity and mortality data (CDC, 2016).

Definitions

Many items on the ACE questionnaire were derived from existing instruments (Felitti et al., 1998). The categories included in the ACE questionnaire, and how they are measured are described below.

Emotional abuse. Exposure to emotional abuse was defined by affirmative responses to two questions from the Conflict Tactics Scale (CTS): "While you were growing up, that is, in your first 18 years of life, how often did a parent, stepparent, or adult living in your home (1) swear at you, insult you, or put you down? (2) act in a way that made you afraid that you might be physically hurt?" (Felitti et al., 1998; Murphy et al., 2014; Straus, 1979/2005).

Physical abuse. Affirmative responses to two additional questions from the CTS assessed physical abuse: "While you were growing up, that is during your first 18 years of life, how often did a parent, step-parent or other adult in your home actually (1) push, grab, slap, or throw something at you? (2) hit you so hard that you had marks or were injured?" (Felitti et al., 1998; Murphy et al., 2014; Straus, 1979/2005).

Sexual abuse. Felitti and colleagues defined sexual abuse by affirmative responses to four questions from Wyatt (1985, as cited in Murphy et al., 2014): "Some people, while they are growing up in their first 18 years of life, had a sexual experience with an adult or someone at least 5 years older than themselves. These experiences may have involved a relative, family friend, or stranger. During your first 18 years of life, did an adult, relative, family friend, or stranger ever (1) touch or fondle your body in a sexual way, (2) have you touch their body in a

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sexual way, (3) attempt to have any type of sexual intercourse with you (oral, anal, or vaginal), or (4) actually have any type of sexual intercourse with you (oral, anal, or vaginal)?"

Neglect. Four questions from Bernstein et al. (1994, as cited in Murphy, 2014) were adapted to define physical neglect variables: "While you were growing up, how true were each of the following statements? (1) You did not have enough to eat, (2) You had to wear dirty clothes, (3) There was no one to take you to the doctor if you needed it, and (4) Your parents were too drunk or high to take care of the family" (Murphy et al., 2014). Questions from Bernstein et al (1994, as cited in Dube et al, 2003) were likewise adapted to define emotional neglect: "(1) There was someone in my family who helped me feel important or special." (2) "I felt loved." (3) "People in my family looked out for each other." (4) "People in my family felt close to each other." (5) "My family was a source of strength and support." These questions, which were reversed scored on the Childhood Trauma Questionnaire, were combined to form a single item on the ACE Questionnaire: "Did you _often_ feel that no one in your family loved you or thought you were important or special or was your family not close to each other (didn't look out for each other or support each other)?"

Household dysfunction. Four additional items from the CTS (Straus, 1979/2005) were adapted to define household dysfunction (i.e., exposure to domestic violence against the mother or stepmother): "Sometimes physical blows occur between parents. How often did your father (or stepfather) or mother's boyfriend do any of these things to your mother (or stepmother) (1) Push, grab, slap, or throw something at her, (2) kick, bite, hit her with a fist, or hit her with something hard, (3) repeatedly hit her for over at least a few minutes, or (4) threaten her with a knife or gun, or use a knife or gun to hurt her?" (Murphy et al., 2014).

Substance abuse. Exposure to substance abuse was defined by affirmative responses to two questions from the 1988 National Health Interview Survey: "During your first 18 years of life did you ever live with anyone who was a problem drinker or alcoholic?" or "used street drugs?" (Felitti et al., 1998; Murphy et al, 2014; Schoenborn, 1991).

Remaining categories. The remaining categories on the ACE assessment were measured by responses to straightforward questions about exposure. Affirmative responses to the question, "Were your parents ever separated or divorced?" measured parental separation or divorce. For exposure to mental illness, the questions were, (1) "Was anyone in your household mentally ill or depressed?" and (2) "Did anyone attempt to commit suicide?" Finally, for exposure to criminal activity, the question was "Did anyone in your household go to prison?" (Dube et al., 2003, Felitti et al., 1998; Murphy et al., 2014).

Prevalence

Using data from a nationally representative, nonclinical sample (participants in the 2011/12 National Survey of Children's Health, in which parents responded on behalf of their children), researchers for Child Trends, a nonprofit, nonpartisan research center, compiled national and state prevalence for eight specific ACEs in the United States (Sacks et al., 2014). They found that 46 percent of children in the U.S., from birth through age 17, have experienced at least one ACE, and in 16 states, ACE prevalence slightly exceeds 50 percent. Nationally, 35 percent of children have experienced one or two ACEs, and 11 percent have experienced three or more ACEs. Economic hardship is the most common ACE reported, with a national prevalence of 26 percent, followed by parental divorce or separation (20 percent) and exposure to problematic substance use (11 percent). Exposure to violence (nondomestic) and mental illness tied at nine percent for the fourth most common ACEs reported.

Additionally, Sacks et al. (2014) also noted an increase in prevalence by age group for each ACE other than economic hardship, which was consistently 25-26 percent across all ages. From birth through age five, 10 percent of children have experienced parental divorce or separation; this prevalence increases to 22 percent among children aged six through 11, and to 28 percent among children aged 12 through 17. Six percent of children from birth through age five have been exposed in their households to someone with problematic drug or alcohol use; this prevalence increases to 12 percent among children aged six through 11, and to 15 percent among children aged 12 through 17. Among these three age groups (0-5 years, six-11 years, and 12-17 years), six, eight, and 12 percent (respectively) have lived with someone who was mentally ill; three, eight, and 14 percent have been a victim or witness to neighborhood violence; four, eight, and 10 percent witnessed domestic violence; five, eight, and eight percent have lived with a parent or guardian who has been incarcerated; and one, three, and five percent have lived with a parent or guardian who has died (Sacks et al., 2014).

Sacks and colleagues did not report on childhood maltreatment, but a 2015 report from the U.S. Administration for Children and Families (USACF), a division of HHS, estimates that 683,000 children were abused or neglected in 2015. Eighty-six percent of reported victims experienced a single type of maltreatment, while the remaining 14 percent experienced multiple types of maltreatment. Neglect was the most common form of maltreatment (reported by 75.3 percent of victims), followed by physical abuse (17.2 percent), sexual abuse (8.4 percent), and psychological abuse (6.9 percent). HHS (2015) also reports that the highest rate of victimization occurs among children in their first year of life (24.2 per 1,000). Furthermore, the Children's Defense Fund (2017) reported that in 2015, children under the age of 6 accounted for approximately half of all child maltreatment cases. Thus, while children tend to experience most

ACEs at greater rates as they age, younger children are more vulnerable to abuse and neglect. In most cases (78.1 percent), the perpetrator was a parent of the victim; 6.3 percent of perpetrators were other relatives (HHS, 2015).

The CDC (2010) analyzed data collected from administering the ACE module of the Behavioral Risk Factor Surveillance System (BRFSS) to 26,229 randomly chosen adults in five states. Altogether, 59.4 percent of respondents reported at least one ACE, and 8.7 percent reported at least five or more ACEs. In this sample, 29.1 percent reported exposure to substance abuse; 26.6 percent reported parental divorce or separation; 25.9 percent reported verbal abuse; 19.4 percent living with someone who was mentally ill; 16.3 percent reported witnessing domestic violence; 14.8 percent reported physical abuse; 12.2 percent reported sexual abuse; and 7.2 percent reported a household member going to prison. Gender differences emerged for prevalence of sexual abuse (women = 17.2 percent; men = 6.7 percent [$p < 0.05$]); mental illness in the household (women = 22.0 percent; men = 16.7 percent [$p < 0.05$]); and household substance abuse (women = 30.6 percent; men = 27.5 percent [$p < 0.05$]). Otherwise, men and women did not differ substantially in the prevalence of specific ACEs, although women were more likely to report five or more ACEs (women = 10.3 percent; men = 6.9). Non-Hispanic blacks reported higher prevalence of incarcerated family members (12.9 percent [$p < 0.05$]) and parental separation or divorce (37.9 percent [$p < 0.05$]) compared to other racial/ethnic groups; in all other ACE categories, they reported the lowest prevalence. Compared to non-Hispanic whites, Hispanic respondents reported higher prevalence of physical abuse (19.8 percent [$p < 0.05$]); witnessing domestic violence (21.7 percent [$p < 0.05$]); and incarcerated family members (9.5 percent [$p < 0.05$]). Non-Hispanic whites were more likely to report five or more ACEs (8.9) than non-Hispanic black respondents (4.9 percent), but Hispanics (9.1 percent) and other non-

Hispanics (11.7 percent) were more likely to report five or more ACEs. Finally, compared to those with a high school education, respondents who did not complete high school reported greater prevalence of physical abuse, incarcerated family members, household substance abuse, and parental separation or divorce (p<0.05); extended, respondents with lower educational attainment were also more likely to report five or more ACEs (CDC, 2010).

Outcomes Associated with Adverse Childhood Experiences

The relationship between ACEs and poor life and health outcomes is well documented (Sacks et al., 2014). For example, Brown and colleagues (2009) found that, relative to participants with no ACEs, participants with six or more ACES died an average of nearly 20 years earlier (60.6 years vs 79.1 years). Felitti et al. (1998) found a strong positive relationship between the number of ACEs and the number of health risk factors for the leading causes of adult deaths. They outline a lifespan trajectory in which ACEs lead to impairments in social, emotional, and cognitive domains, followed by the adoption of health risk behaviors, leading to disease, disability, and social problems, and finally to early death. In their study, 56 percent of participants with no ACEs had none of the risk factors, whereas seven percent of participants with four or more ACEs had four or more risk factors. In other words, they found a strong dose-response relationship ($p < 0.001$) between the number of ACEs reported and the number of reported risk factors for the leading causes of death in adults. Like other researchers, they found a similar dose-response relationship ($p < 0.05$) between the number of ACEs reported and numerous life- and health-related problems (Felitti et al., 1998). A retrospective study of four birth cohorts dating back to 1900 suggests that this dose-response relationship is consistent and immune to social or secular changes; for each birth cohort, the same dose-response relationship was observed, and no significant differences emerged between cohorts (Dube et al., 2003).

Psychological and behavioral. Edwards, Holden, Felitti, and Anda (2003) found that

respondents reporting higher numbers of abuse categories rated lower in measures of mental

health. Anda and colleagues (2006) found evidence in a sample of 17,337 members of Kaiser

Health Plan in San Diego County (54 percent women, mean age = 56; 46 percent men, mean age

= 58) that ACE scores had a strong, graded relationship to the adjusted odds ratios (OR; i.e., the

prevalence and risk) of mental health problems ($p < 0.001$). Compared to those with no ACEs,

participants with four or more ACEs were 2.5 times more at risk for panic reactions; 3.6 times

more at risk for depressed affect; 2.4 more at risk for anxiety; and 2.7 times more at risk for

hallucinations. Compared to those with no ACEs, participants with four or more ACEs were also

6.6 times more at risk for early intercourse; 3.6 times more at risk for promiscuity; and 2.0 times

more at risk for sexual dissatisfaction. For the same condition, risk for impaired childhood

memory was increased 4.4-fold (Anda et al., 2006). Felitti and colleagues (1998) found that,

compared to those with no ACEs, participants with four or more ACEs were 1.3 times more at

risk for having no leisure time physical activity; 4.6 times more at risk for an episode of major

depression over the past year; 12.2 times more at risk for having attempted suicide; 3.2 times

more at risk for having 50 or more sexual partners; and 2.5 times more at risk for ever having a

sexually transmitted disease. Dube et al. (2001) also found a strong graded relationship ($p <$

0.001) between the number of reported ACEs and the risk of attempted suicide during

childhood/adolescence and adulthood in the same sample of Kaiser Health Plan members ($n =$

17,337). ACEs in any category increased the lifetime prevalence of at least one suicide attempt

2- to 5-fold from 3.8 percent. For persons with seven or more ACEs, the adjusted OR for having

ever attempted suicide was 31.1, compared with those with no ACEs, for whom the lifetime

prevalence of attempted suicide was 1.1 percent. The strength of the relationship between the

number of ACEs and the number of suicides was dampened by adjustment for known suicide

risk factors (i.e., illicit drug use, depressed affect, and self-reported alcoholism), suggesting that

these factors may partially mediate this relationship. Population-attributable risk factors for one

or more ACEs were 67 percent, 64 percent, and 80 percent for lifetime, adult, and

childhood/adolescent suicide attempts, respectively. Further, Dube and colleagues (2001)

suggested that approximately 67 percent of lifetime suicide attempts are "attributable to" ACEs

(p. 3095).

Substance use. Anda et al. (2006) found a graded relationship of ACE scores to the

adjusted OR of substance use and abuse. For participants with four or more ACEs, the risk of

smoking was 1.8-fold; the risk of alcoholism was 7.2-fold; the risk of illicit drug use was 4.5-

fold; and the risk of injection drug use was 11.1-fold, compared to participants with no ACEs.

Felitti and colleagues (1998) found elevated risks of smoking (2.2-fold); self-reported alcoholism

(7.4-fold); illicit drug use (4.7-fold); and injection drug use (10.3-fold) for participants with four

or more ACEs, compared to those with no ACEs.

Legal. Criminal activity has been identified as an outcome predicted by ACEs. The

National Institute of Justice indicates that experiencing child abuse or neglect resulted in a 59

percent increase in the likelihood of being arrested as a juvenile; experiencing child abuse or

neglect also increased the likelihood of adult criminal behavior and violent crime by 28 and 30

percent, respectively (Widom & Maxfield, 2001). A study compared the incidence of ACEs in a

normative sample of males and four different groups of male offenders (nonsexual child abusers,

domestic violence offenders, sexual offenders, and stalkers) referred to an outpatient clinic in

San Diego, CA for treatment prior to conviction (Reavis, Looman, Franco, and Rojas, 2013).

Comparisons were also made between the offender groups. Overall, the offenders (N = 151)

reported substantially higher rates of ACEs relative to the normative sample (N = 7,970), with four times as many offenders reporting four or more ACEs; extended, all but two ACE categories (emotional and physical neglect) were significantly more prevalent among the offender group. Among the different offender groups, sexual offenders were more likely to report four or more ACEs than child abusers, and domestic violence offenders reported no ACE with higher frequency than did sexual offenders. Regarding the prevalence of specific ACE categories among the groups of offenders, the only significant difference was incidence of sexual abuse; sexual offenders and nonsexual child abusers reported higher rates of sexual abuse relative to domestic violence offenders and stalkers. Interestingly, no sexual abuse was reported by the 10 stalkers in the sample (Reavis et al., 2013). More recently, Milaniak, and Widom (2015) found that individuals who experienced child abuse and/or neglect were significantly more likely as adults to perpetrate poly-violence in three domains (criminal violence, child abuse, and IPV).

Physiological. Anda et al. (2006) found a graded relationship of ACE scores to the OR of somatic problems ($p < 0.001$). Compared to those with no ACEs, participants with four or more ACEs were 2.1 times more at risk for sleep disturbances; 1.9 times more at risk for severe obesity; and 2.7 times more at risk for multiple somatic symptoms (Anda et al., 2006). Felitti and colleagues (1998) found that, compared to those with no ACEs, participants with four or more ACEs were 2.2 times more at risk for ischemic heart disease; 1.9 times more at risk for any cancer; 2.4 times more at risk for stroke; 3.9 times more at risk for chronic bronchitis or emphysema; 2.4 times more at risk for ever having hepatitis or jaundice; and 2.2 times more at risk for fair or poor self-rated health.

Interpersonal relationships. Anda et al. (2006) found that for participants with four or more ACEs, the risk of high perceived stress was increased 2.2-fold; for difficulty controlling

anger, the risk was increased 4.0-fold; and for perpetrating IPV, the risk was increased 5.5-fold. For men with four or more ACEs, the adjusted OR for the relationship between difficulty controlling anger and the risk of perpetrating IPV was 6.3 ($p < 0.001$, 95% CI = 4.4—9.0); for women, the adjusted OR was 7.6 ($p < 0.001$, 95% CI = 5.3—11.1). The adjusted OR for the relationship between high perceived stress and the risk of perpetrating IPV for participants with four or more ACEs was 1.8 ($P < 0.001$, 95% CI = 1.4—2.3) for both men and women (Anda et al., 2006).

Housing instability. ACEs are associated with persisting disruption in several domains of functioning, including relationships, substance abuse, mental and physical health, criminality, and employment; these effects may be amplified when they occur in conjunction with poverty (Iacono et al., 2008; Moffitt, 2005; Shaw & Shelleby, 2014; Weinreb et al., 1998; Weinreb et al., 2007). Dysfunction in any one of these domains is associated with increased risk for homelessness (Caton et al., 2005; Chamberlain & Johnson, 2013; Childress et al., 2015; Covin, 2012; Heerde et al., 2014). Comparing a nationally representative group of 92 household members with a history of homelessness to a comparison group of 395 individuals with no history of homelessness, Herman and colleagues (1997) found that neglect and physical abuse during childhood significantly increased the likelihood of future homelessness (OR = 13 and 16, respectively) compared to individuals who were neither neglected nor abused. Experiencing both neglect and physical or sexual abuse during childhood substantially increased the risk of subsequent homelessness (OR = 26) compared to individuals who were neither neglected nor abused (Herman et al., 1997). In another study, each one-point increase in ACE score increased the risk of having experienced a single episode of homelessness by 56.7 percent and increased the risk of having experienced multiple homelessness episodes by 51 percent relative to

participants who had never experienced homelessness (Cutuli et al., 2014). Larkin and Park

(2012) found that 87 percent of a convenience sample of homeless individuals reported at least

one ACE, and 53.2 percent reported four or more ACEs.

Current Study

The current study employed a survey assessing the number of ACEs experienced,

homeless chronicity in terms of lifetime incidence and cumulative duration, and the age at first

homeless episode in individuals in Northeast Tennessee who were utilizing homeless services.

CHAPTER 3

METHODS

Hypotheses

Based on the literature reviewed in Chapter 2, I hypothesized the following:

1. Higher ACE scores will have a significant positive relationship with measures of

    homeless chronicity (i.e., lifetime incidence of homeless episodes; cumulative duration of

    homelessness)

2. Higher ACE scores will have a significant negative relationship with the age of onset of

    the initial episode of homelessness

Human Subjects Approval

Human subject approval for this study was obtained from the Institutional Review Board

at East Tennessee State University in Johnson City, Tennessee. This study was classified as

an exempt study by the IRB. The consent was read by the participant or read to the participant,

and by continuing to the survey, they indicated their consent to participate.

Power Analysis

This study sought to determine the strength of the dose-response relationship between

ACEs and homelessness chronicity among persons experiencing homelessness and accessing

services in Northeast Tennessee. Conservatively proceeding from an anticipated effect size (f^2)

of .30 ($\alpha = .05$), and with ACE questionnaire score as the singular predictor variable, the minimal

sample size to achieve statistical power of .80 was 28. However, if the number of predictors was

increased to two, the minimal sample size to reach statistical power of .80 increased to 35.

Study Sample

The inclusion criteria for this study specified that participants (a) were either homeless or

imminently homeless (i.e., facing court-ordered eviction within 14 days of initial contact) at the

time of data collection, and (b) utilizing homeless services in Northeast Tennessee (NETN).

On a strictly voluntary basis, and with permission from agency leadership, participants were

interviewed on-site at two settings in Johnson City, TN (i.e., the Johnson City Downtown Day

Center and Appalachian Regional Coalition on Homelessness) where they were receiving

services. Participants were selected based on their eligibility to receive services at these agencies,

which was commensurate with this study's inclusion criteria. The Johnson City Downtown Day

Center (JCDDC) is a facility situated in downtown Johnson City where adults experiencing

homelessness can access a variety of essential services during daytime hours (i.e., from 7:00 am

– 3:30 pm) Monday through Friday. A satellite clinic of the Johnson City Community Health

Center overseen by East Tennessee State University College of Nursing (ETSU CoM), the

JCDDC provides showers, laundry services, a clothing closet, medical and mental health

services, social work case management, and trauma and substance abuse groups. JCDDC staff

assist homeless individuals with obtaining housing, employment, state identification and birth

certificates, and applying for social security and disability insurance. Appalachian Regional

Coalition on Homeless (ARCH) is the U.S. Department of Housing and Urban Development's

(HUD's) Continuum of Care (CoC) for homeless services in Northeast Tennessee. As such,

ARCH serves as a hub, or primary point of access, for homeless services in the counties of

Northeast Tennessee (i.e., Carter, Greene, Hawkins, Johnson, Sullivan, Unicoi, and Washington

Counties). Funded by a variety of state and federal grants, ARCH provides outreach, intake, and

assessment services to identify service and housing needs as well as the severity thereof, case management, and coordination of services.

Data were collected from mid-July 2018 through September 2018. The sample included 45 adult participants, of which two were ultimately excluded from analysis; one was an outlier who reported 380 months of homelessness and the other had incomplete data. The final sample thus included 43 adult participants (19 women and 24 men) ranging in age from 22 to 58 ($M = 40.00$; $SD = 9.83$) and describing themselves as White (83.7%), Black (9.3%), Native American (4.7%), and Hispanic (2.3%). Participation in this study was voluntary and no compensation was provided for participants. At the JCDDC and ARCH, adults experiencing homelessness were given the option to complete an instrument comprising this study's measures in the routine course of service provision. The cover sheet of the survey contained written information about the study, text indicating that the participation was voluntary, and contact information for inquiries. At the JCDDC, participants were presented with the survey, a clipboard, and a black ink pen upon signing in for the day or requesting other services at the facility's front desk, at which point researchers orally reviewed the contents of the cover sheet Participants were given the option to complete the survey and asked by the researcher if they prefer completing the survey independently or to have the survey questions read to them by the researcher. Upon completion, surveys were placed in a 9" x 12" clasp closure envelope and stored in a secure, locked cabinet until retrieved by a member of the research team. Data were collected at ARCH by the same member of the research team as well as an ARCH employee. Individuals seeking services were given the option to complete the survey upon completing the ARCH intake process. As at the JCDDC, participants were given the option to complete the survey individually or to have the questions read to them. Those agreeing to participate at ARCH were given consent

forms by researchers, and signed consent forms were placed in their ARCH case files. As at the

JCDDC, to navigate issues associated with literacy and vision impairment, participants were

given the option to complete the survey questions on their own, or to have the survey items read

to them. Surveys completed at ARCH were stored separately from case files in a locked filing

cabinet until retrieved by the same member of the research team. In both locations, clients were

advised that their participation was voluntary and anonymous. No personal identification

information was recorded on any part of the survey.

Study Variables

A summary of the variables used in this study are presented in Table 1.

Table 1

Study Variables

Outcome variable	Predictor variables	Demographic covariates
Homeless chronicity	Number of ACEs reported	Gender
Age at onset of first homeless episode	Number of ACEs reported	Gender

Measures

General Demographic Information

In this study, general demographic information was obtained with the following

questions:

"How old are you?"

"What is your race?"

"What is your gender?"

"What state do you live in?"

"What county do you live in?"

Homeless Chronicity

In this study, homelessness was defined as sleeping in a place not meant for human habitation (e.g., in a car; beneath a bridge; in an abandoned building), in a public or private emergency shelter, in transitional housing, or in the home of a friend or family member as a temporary living arrangement (HHS, 2013). This study analyzed two separate variables associated with homeless chronicity using measures adapted from Castro et al. (2014) and Chamberlain and Johnson (2011). The first variable was lifetime incidence, measured by one question: "How many episodes of homelessness have you experienced?" (Castro et al., 2014). The second outcome variable was cumulative duration of homelessness, measured by two questions: "How long, in months, did each episode of homelessness last?" (Chamberlain & Johnson, 2011) and "How many months have you currently been without a home?" (Castro et al., 2014). Chamberlain and Johnson (2011) previously attempted to "calculate cumulative duration of homelessness" by inquiring about prior incidence and length of homeless episodes but abandoned this calculation due to "incomplete information" during coding (p. 67). This may reflect potential weaknesses in these measures, but little specification was offered regarding the nature of the incomplete information other than a concern that they had underestimated some participants' cumulative duration of homelessness. To my knowledge, psychometric data for these measures has not been published. This is not surprising, given the relative scarcity of studies assessing individuals' lifetime incidence and cumulative duration of homelessness. Nevertheless, it was expected that these measures would constitute reliable and valid measures of

participants' experience of homelessness. Potential weaknesses included the fact that these measures relied on self-report and thus provided little guarantee of accurate responses. However, a potential strength of these measures was thought to lie in their simplicity; these measures asked participants to recall details about presumably salient biographical events. Further, these questions were ostensibly appropriate for the population of interest, namely, adults experiencing homelessness and utilizing services. Their utilization of services was thought to increase the likelihood that they had recently responded to similar questions, which in turn would facilitate the accuracy of their responses to these measures. Each of these items' responses was scored as a continuous variable.

Age at Onset of First Homeless Episode

In this study, the age at which an individual first became homeless was measured with one question indicating age in years at the onset of the first episode of homelessness: "How many years old were you the first time you became homeless?" This measure was adapted from Maria et al. (2018). In that study, in which a younger age of onset was associated with increased HIV risk behaviors, the age at the onset of the first homelessness episode was dichotomized as either younger than 25 years and 25 or more years; this is consistent with much of the literature on homeless youth (Childress et al., 2015; Maria et al., 2018). One probable reason for this is this is that HUD defines homeless individuals below the age of 25 who are not with their legal guardians as unaccompanied youth (HUD, 2014). Dichotomizing age in this way facilitates distinguishing between unaccompanied youth and older homeless individuals. In a broader sense, and commensurate with this study's aims, dichotomizing age in this way conceptually delineates between early-onset homelessness and homelessness occurring later in adulthood. In the interest

of maintaining statistical power, however, the present study collected the age at which participants experienced their first episodes of homelessness as a continuous variable.

Adverse Childhood Experiences

In this study, adverse childhood experiences (ACEs) were measured using a 14-item version of the ACE questionnaire (Felitti et al., 1998) indicating the number of unique categories of adversity (e.g., household dysfunction; maltreatment) experienced by participants before turning 18 years old:

1. "Did your mother, father, or other adult in your home often swear at you (curse at you), insult you, put you down, or purposefully try to make you feel bad?" OR "Did your mother, father, or other adult in your home ever act in a way that made you afraid that you might be physically hurt?"

2. "Did your mother, father, or other adult in your home push, grab, slap, or throw something at you often?" OR "Did your mother, father, or other adult in your home ever hit you so hard that you had marks or were injured?"

3. "Did an adult or person at least 5 years older than you ever touch or fondle you or have you touch their body in a sexual way or attempt or actually have oral, anal, or vaginal intercourse (sex) with you?"

4. "Did you often feel that no one in your family loved you or thought you were important or special or was your family not close to each other (didn't look out for each other or support each other)?"

5. "Did you often feel that you didn't have enough to eat, or had to wear dirty clothes, or had no one to protect you or were your parents too drunk or high to take care of you or take you to the doctor if you needed it?"

6. "Were your parents ever separated or divorced?"

7. "Was your mother or stepmother often pushed, grabbed, slapped, or had something thrown at her?" OR "Was she sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?" OR "Was she ever repeatedly hit for at least a few minutes or threatened with a gun or knife?"

8. "Did you live with anyone who was a problem drinker or alcoholic or who used street drugs or abused prescription drugs?"

9. "Was someone who lived with you depressed or mentally ill or did someone who lived with you attempt suicide?"

10. "Did anyone who lived with you go to prison?"

11. "Did you experience _repeated_ bullying as a child?"

12. "Did people _often_ treat you badly because of your race, ethnic group, religion, skin color, or because you were gay, lesbian, bisexual or transgender?"

13. Did you ever live in a neighborhood that experienced gang violence?"

14. Did you _ever_ live in a foster home or group home or were you ever taken from your home by child protection workers, even temporarily?

Each of these items had a binary response: 'Yes' and 'No.' These items were coded as 0 = No occurrence and 1 = Yes. All 'Yes' responses totaled, and the ACE score were derived from this total.

A test-retest reliability analysis performed among 644 individuals who completed the ACE questionnaire twice during two waves of data collection resulted in kappa coefficients ranging from .46 to .86 (Dube, Williamson, Thompson, Felitti, & Anda, 2004). Murphy and colleagues (2014) determined the ACE questionnaire to have good internal consistency

(Cronbach's α = .88) and to have convergent validity with the Adult Attachment Interview (Murphy et al., 2014; Murphy et al., 2016). Finally, Ford et al. (2014) examined the factorial structure of the items on the ACE. Exploratory factor analysis suggested a three-factor model consisting of *Household Dysfunction*, *Physical/Emotional Abuse*, and *Sexual Abuse*. Inter-factor correlations ranging from .40 to .56 were replicated in confirmatory factor analysis, suggesting the existence of a higher-order ACE factor. Ford and colleagues (2014) then derived composite scores for each ACE scale and created an *Overall ACE* score. Alphas for each scale; alphas for each scale ranged from .61 (*Household Dysfunction*) to .80 (*Sexual Abuse*); the alpha for *Overall ACE* was .78. Further analysis indicated that the factor structure of ACE questionnaire is similar across genders and multiple age groups (Ford et al., 2014).

Taken together, the results of these analyses suggest that the ACE questionnaire has sufficient psychometric properties for use in the current study. However, the ACE questionnaire is not without its weaknesses. For example, responses rely on retrospective reporting of events from childhood, the accuracy of which may be compromised by numerous factors. Potential factors compromising retrospective recall of childhood events include, but are not limited to, faulty reconstruction of past events, a wish to protect guardians, poor physical or mental health, and current mood (Widom, Raphael, & DuMont, 2004). Further, while the ACE questionnaire address a wide swath of potentially traumatizing experiences, it is not an exhaustive cataloging of every conceivable adverse experience possible during childhood (Metzler, Merrick, Klevens, Ports, & Ford, 2017). However, the ACE questionnaire has the advantages of being brief and easy to administer. Further, as Bethell et al. (2017) note, published studies in which the ACE questionnaire is used consistently report dose-response relationships between ACEs and outcomes of interest, suggesting its utility in the context of this study. In addition, the analysis by

Ford et al. (2014) supports the use of the ACE questionnaire among the target population of this study.

In Table 2 is a summary description of the variables. The full list of variables, their description and coding can be found in Appendix A.

Table 2

Summary Description of Variables Used

Scales	Number of Items	Item Examples and Response Options
General Information	5	What is your age? What is your gender? (0 = female, 1 = male, 2 = non-binary)
Lifetime incidence of homelessness	1	How many episodes of homelessness have you experienced? In your life, how many total months have you been homeless?
Cumulative Duration of Homelessness	2	How long, in months, did each episode of homelessness last? How many months have you currently been without a home?
Age at Onset of First Homeless Episode	1	How many years old were you the first time you became homeless?
Adverse Childhood Experiences	14	Did your mother, father, or other adult in your home often swear at you (curse at you), insult you, put you down, or purposefully try to make you feel bad? OR Did your mother, father, or other adult in your home ever act in a way that made you afraid that you might be physically hurt? (0 = no, 1 = yes)

Statistical Analyses

Statistical analyses were conducted with IBM SPSS Statistics for Windows, version 23.0 software (IBM Corporation, Armonk, NY). Analyses are summarized in Table 3. *P*-values less than or equal to .05 were considered significant. Pearson product-moment correlation

coefficients were computed to assess relationships between total scores on the ACE

questionnaire and cumulative lifetime homelessness measured in months, and between ACE

scores and age at first homeless episode. A Poisson regression coefficient was computed to

predict the relationship between ACE scores number of homelessness episodes. Finally,

independent samples *t*-tests were used to assess gender differences in means of ACE scores,

measures of homeless chronicity, and age of onset.

Table 3

Models Used to Address Study Aims and Hypotheses

Model	Aim	Measures	Hypotheses	Analysis
1	Test for gender differences in ACE scores, homeless chronicity, and age of homelessness onset	Gender; ACE Test Scores; lifetime number of homeless episodes; cumulative duration of homelessness; age at first episode of homelessness	N/A	Independent samples *T*-tests - Gender and ACE Test scores - Gender and number of months homeless - Gender and number of events of homelessness - Gender and age of onset of first episode of homelessness

2	Test whether a dose-response relationship exists between ACE scores and adult homeless chronicity among service utilizers in northeast Tennessee	ACE Test scores, lifetime number of homeless episodes; cumulative duration of homelessness	Higher ACE scores will have a significant positive relationship with measures of homeless chronicity (i.e., lifetime number of homeless episodes; cumulative duration of homelessness)	Pearson correlations between: - ACE score and months homeless Poisson Regression - ACE score and number of events of homelessness
3	Test whether a higher number of ACEs predict lower ages at onset of homelessness among service utilizers in northeast Tennessee	ACE Test scores, age at first episode of homelessness	Higher ACE scores will have a significant negative relationship with the age of onset of the initial episode of homelessness	Pearson correlations between: - ACE score and age of onset of first episode of homelessness

CHAPTER 4

RESULTS

Univariate Statistics

Data from a total of 43 adults currently experiencing homelessness in NETN were analyzed in this study. Participants completed a 14-item ACE questionnaire with a mean score of 6.70 (SD = 3.94) and a mode of six (14.0%). In this sample, 79.06% ($n = 34$) of participants had ACE scores of four or more (Figure 1). Twenty-two scores (51.16%) clustered between four and nine, with 32—or nearly three-quarters—of participants (74.41%) scoring between four and twelve.
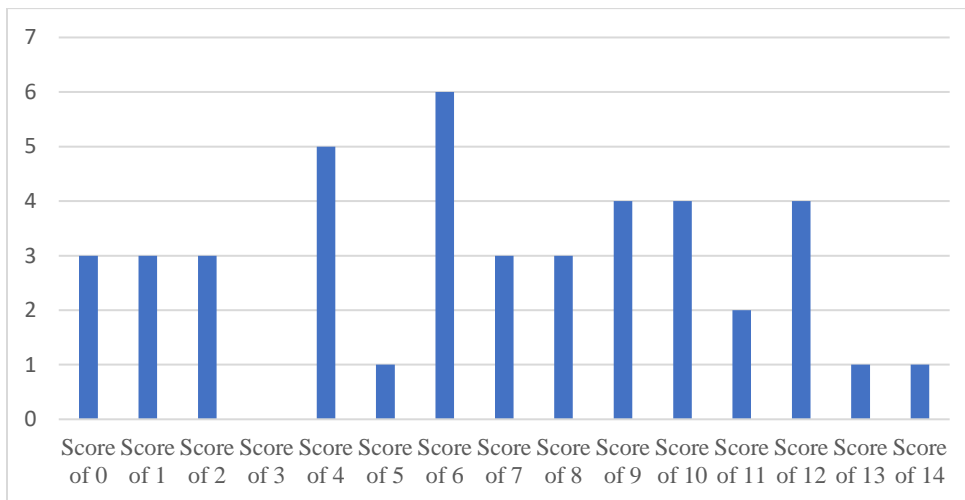
Figure 1. Distribution of scores on 14-Item ACE questionnaire.

Whereas this study employed a 14-item version of the ACE questionnaire, most professionals using the ACE questionnaire are probably familiar with the conventional 10-item version. For perspective, participants' total scores for the first 10 items on the ACE questionnaire used in this study were calculated. Among these, the mean score was 5.47 (SD = 3.07) with a mode of seven (14.0%). In this analysis, 69.77% ($n = 30$) of participants had scores of 4 or higher (Figure 2). Twenty-two scores (51.16%) clustered between four and eight, with 27—or

close to two-thirds—of participants (62.79%) scoring between four and nine on the first 10 items of the ACE questionnaire used in this study.
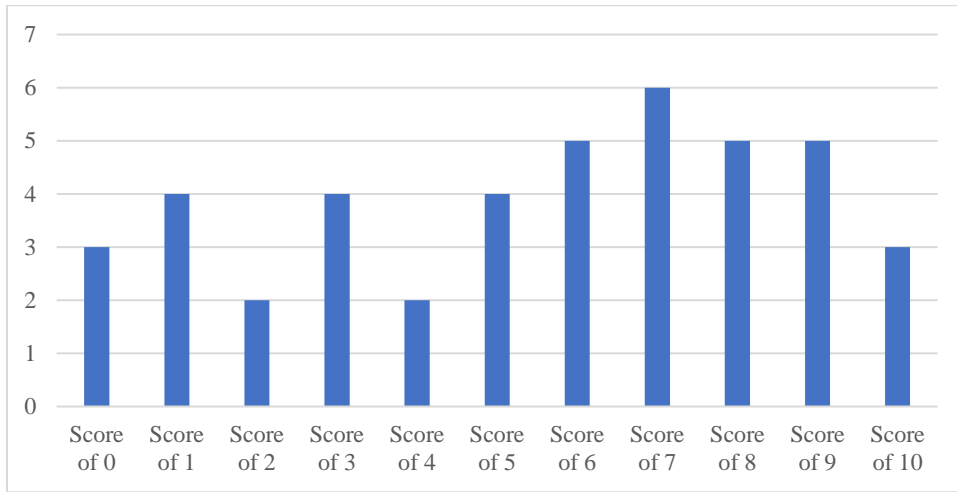
Figure 2. Distribution of scores for first 10 items of ACE questionnaire.

The number reported episodes of homelessness ranged from 1-20 ($M = 3.91$, $SD = 3.64$) with 31 (72.09%) of participants reporting one-to-three homeless episodes over the lifespan (Figure 3). Cumulative months of homelessness ranged from 1-184 ($M = 46.53$, $SD = 37.20$) with just over half (51.6%) of all responses clustering between 1-37 months (Figure 4). Finally, the age at which participants first experienced homelessness ranged from 16-54 ($M = 29.84$, $SD = 11.08$), with a modal age of 18 years ($n = 6$) and just over half (51.62%) of all responses falling between 16-22 years (Figure 5).
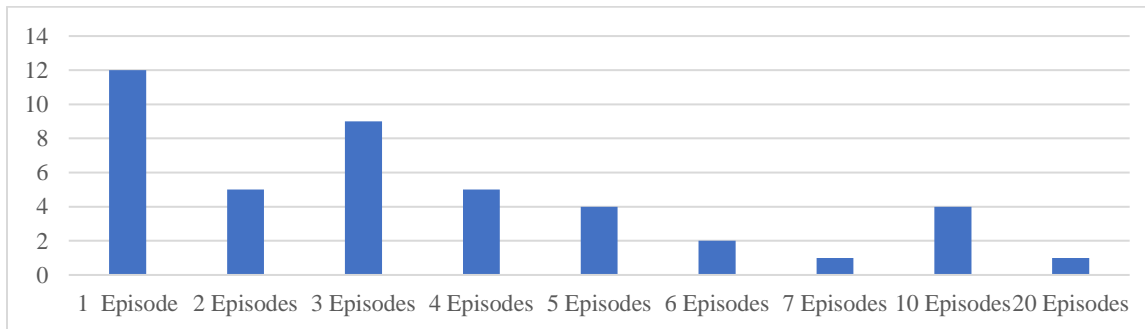
Figure 3. Distribution of reported episodes of homelessness.
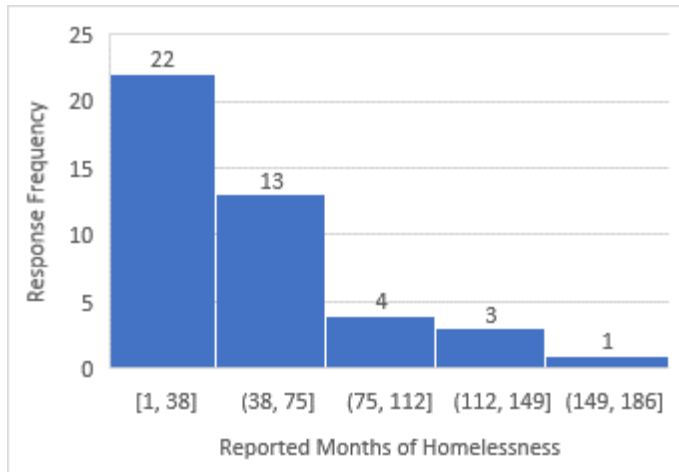
Figure 4. Distribution of reported lifetime months of homelessness.
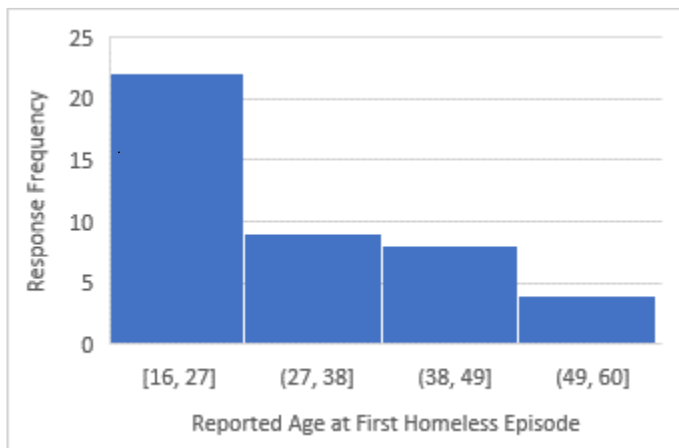
Figure 5. Distribution of Ages of Onset of Homelessness.

Independent Samples *t*-Tests

In this sample, participants reported the number of episodes of homelessness they have experienced, the total number of months during which they have been homeless, and the age at which they first experienced homelessness. For each of these variables, independent samples t-tests were used to assess for gender-based differences.

ACE scores. Mean ACE scores were similar between women and men (7.00 and 6.46, respectively) and did not significantly differ (t = .443, p > .05). The average ACE score for women was only .54 higher than the average ACE score for men.

Homeless episodes. The mean number of homeless episodes were similar between women and men (4.26 and 3.63, respectively) and did not significantly differ (t = .523, p > .05). The average number of homeless episodes for women was only .63 higher than the average number of homeless episodes for men.

Months homeless. Whereas on average, men experienced homelessness for 11.04 more months compared to women, the mean number of months of homelessness did not differ significantly between women and men (40.37 and 51.42, respectively) in this study (t = -.966, p > .05).

Age at first homeless episode. Whereas on average, men first experienced homelessness 3.59 years earlier compared to women, the mean age at first homeless episode did not differ significantly between women and men (31.84 and 28.25, respectively) in this study (t = 1.037, p > .05).

In sum, independent samples *t*-tests did not reveal gender differences among participants in terms of ACE scores, number of homeless episodes, the total number of months during which they have been homeless, or the age at which they first experienced homelessness.

Hypotheses Testing

Pearson correlations and a Poisson regression were used to address the study hypotheses. Results are presented in Tables 4-6. Tables 4 and 5 address Hypothesis 1; Table 6 addresses Hypothesis 2.

Hypothesis 1

Cumulative months of homelessness. Findings for cumulative months of homelessness are summarized in Table 4. A Pearson product-moment correlation coefficient was computed to assess the hypothesized positive relationship between total scores on the ACE questionnaire and

cumulative lifetime homelessness measured in months. ACE scores and months of homelessness were not significantly correlated, r = .124, n = 43, p = .213. Extended, no significant relationship was observed when controlling for gender (r = 1.37, n = 43, p = .194) or race (r = .124, n = 43, p = .217). However, item-by-item analysis revealed a weak positive correlation between cumulative lifetime months of homelessness and affirmative responses for ACE item #12 (i.e., "Did people often treat you badly because of your race, ethnic group, religion, skin color, or because you were gay, lesbian, bisexual or transgender?"), r = .263, n = 43, p =.044.

Table 4

Correlations for ACE Scores, Months Homeless, and ACE Items

	Correlation	Sig.
ACE and MH	.124	.213
ACE and MH CG	.137	.194
ACE and MH CR	.124	.217

Notes: ACE = Total ACE score. MH = Months homeless. CG = Controlling for gender. CR = Controlling for race. ACE12 = ACE questionnaire item #12.

*p < .05.

Number of homeless episodes. A Poisson regression coefficient was used to assess the relationship between ACE scores and number of homeless episodes. In the Poisson model, summarized in Table 5, ACE scores served as the independent variable, and number of homeless episodes was the dependent variable. An omnibus test assessed whether the independent variable (i.e., ACE scores) improved the model over an intercept-only model; the resulting *p*-value of .001 indicated that the model was statistically significant overall. A test of model effects yielded a *p*-value of .003, indicating that the overall effect of ACE scores on number of homeless

episodes in this population was not statistically significant. However, the values of the coefficients for each consecutive increase in ACE scores (1-14) followed no discernable pattern. Given the statistical significance for this regression model indicated by the test of model effects, it should have followed that with each one-unit increase in ACE scores there would be a corresponding increase in number of homeless episodes. This missing pattern prompted a closer look at the distribution of the data, which in turn revealed overdispersion in the data. Specifically, an assumption of the Poisson distribution is that the mean of the outcome variable (i.e., homeless episodes) is equal to its variance. This assumption was not met; the mean number of homeless episodes was 3.91, with a variance of 13.35.Put another way, the ratio of the mean of homeless episodes to the variance was 1:3.41. The overdispersion of a count variable can result in overestimation of significance (Coxe, West, & Aiken, 2009), which appears to have happened in this analysis.

To address the issue of overdispersion, a second analysis was performed, this time using a negative binomial model. The negative binomial regression model is a variation of the Poisson model that assumes unexplained variability between individuals, leading to larger variance (Coxe et al., 2009). An omnibus test assessed whether the independent variable (i.e., ACE scores) improved the model over an intercept-only model; the resulting *p*-value of .874 indicated that the model was not statistically significant overall. Likewise, the test of model effects yielded a *p*-value of .876, indicating that the overall effect of ACE scores on number of homeless episodes in this population was not statistically significant.

Table 5

Poisson Regression Predicting Number of Homeless Episodes Based on ACE Scores

Parameter	*B*	Std. Error	95% Wald CI	Wald Chi-Square	df	Sig.	Exp(B)	95% Wald CI for Exp(B)
(Intercept)	1.386	.500	.406-2.366	7.687	1	.006	4.000	1.501-10.658
ACETOT=0	-.875	.670	-2.190-.439	1.703	1	.192	.417	.112-1.552
ACETOT=1	-.693	.645	-1.958-.572	1.153	1	.283	.500	.141-1.772
ACETOT=2	-.087	.583	-1.231-1.057	.022	1	.882	.917	.292-2.879
ACETOT=4	.140	.541	-.922-1.202	.067	1	.796	1.150	.398-3.325
ACETOT=5	-1.386	1.118	-3.578-.805	1.537	1	.215	.250	.028-2.237
ACETOT=6	-.182	.547	-1.256-.891	.111	1	.739	.833	.285-2.438
ACETOT=7	.288	.559	-.808-1.383	.265	1	.607	1.333	.446-3.988
ACETOT=8	.080	.571	-1.041-1.201	.020	1	.889	1.083	.353-3.322
ACETOT=9	-.693	.612	-1.893-.507	1.281	1	.258	.500	.151-1.660
ACETOT=10	.595	.533	-.451-1.640	1.243	1	.265	1.813	.637-5.156
ACETOT=11	-.470	.670	-1.785-.845	.491	1	.484	.625	.168-2.327
ACETOT=12	.446	.538	-.609-1.502	.687	1	.407	1.563	.544-4.490
ACETOT=13	-.693	.866	-2.391-1.004	.641	1	.423	.500	.092-2.730
ACETOT=14	0[a]						1.00	

Notes. [a] Set to 0 because this parameter is redundant.

Hypothesis 2

Findings for age at first homeless episode are summarized in Table 6. A Pearson product-moment correlation coefficient was computed to assess the hypothesized negative relationship between total scores on the ACE questionnaire and the age at initial onset of homelessness. ACE scores and age at initial onset of homelessness were moderately and negatively correlated, $r = -.319$, $n = 43$, $p = .018$. This relationship was similar when controlling for race ($r = -.318$, $n = 43$, $p = .020$) and strengthened somewhat when controlling for gender ($r = -.336$, $n = 43$, $p = .015$). Point-biserial correlations were calculated for each item of the ACE questionnaire and revealed statistically significant negative correlations between age at first homeless episode and ACE items #1 ("Did your mother, father, or other adult in your home often swear at you (curse at you), insult you, put you down, or purposefully try to make you feel bad?" OR "Did your mother, father, or other adult in your home ever act in a way that made you afraid that you might be physically hurt?") ($r = .-3.74$, $n = 43$, $p = .007$); #5 ("Did you often feel that you didn't have enough to eat, or had to wear dirty clothes, or had no one to protect you or were your parents too drunk or high to take care of you or take you to the doctor if you needed it?") ($r = -.256$, $n = 43$, $p = .049$); #6 ("Were your parents ever separated or divorced?") ($r = -.274$, $n = 43$, $p = .037$); and #14 ("Did you _ever_ live in a foster home or group home or were you ever taken from your home by child protection workers, even temporarily?") ($r = -.323$, $n = 43$, $p = .017$).

Table 6

Correlations for ACE Scores, Age at First Homeless Episode, and ACE Items

	Correlation	Sig.
ACE and AFH	-.319	.018
ACE and AFH CG	-.336	.015
ACE and AFH CR	-.318	.020
AFH and ACE01	-.374	.007
AFH and ACE05	-.256	.049
AFH and ACE06	-.274	.037
AFH and ACE14	-.323	.017

Notes: ACE = Total ACE score. AFH = Age at first episode of homelessness. CG = Controlling for gender. CR = Controlling for race. ACE01 = ACE questionnaire item #1. ACE05 = ACE questionnaire item #5. ACE06 = ACE questionnaire item #6. ACE14 = ACE questionnaire item #14.

CHAPTER 5

DISCUSSION

Homelessness is a dynamic and complex issue. There are likely many pathways into homelessness. Some pathways are related to ACEs, but others may not be. However, given the many known childhood adversity outcomes that predict homelessness (e.g., substance use, legal problems, intimate partner violence), this study has focused particularly on ACEs. Specifically, this study investigated whether a dose-response relationship exists between ACEs and adult homeless chronicity among service utilizers in Northeast Tennessee (NETN) and whether a higher number of ACEs predicts a lower age at onset of homelessness among service utilizers in NETN. Analysis of data from a total of 43 qualifying participants who answered basic demographic questions, questions about adverse childhood experiences (ACEs), and questions about their experiences with homelessness addressed two hypotheses: (a) higher ACE scores will have a significant positive relationship with measures of homeless chronicity (i.e., lifetime incidence of homeless episodes; cumulative duration of homelessness); and (b) higher ACE scores will have a significant negative relationship with the age of onset of the initial episode of homelessness. ACE scores, number of homeless episodes, cumulative length of homelessness in months, and age at first homeless episode did not differ by gender.

Hypotheses Testing

Hypothesis 1: ACE Sscores and Homeless Chronicity

Results from this study did not offer support for the hypothesized relationship between ACE scores and measures of homeless chronicity. ACE scores did not correlate with cumulative length of homelessness measured in months. To my knowledge, this is a rarely used measure in homelessness research that has frustrated other researchers' attempts to capture lifetime duration of homeless (Chamberlain & Johnson, 2011). Among the survey items, those assessing for

months of homelessness were consistently challenging for participants, particularly those with more extensive histories of homelessness. Indeed, many participants initially reported their homeless history in terms of years, requiring, in addition to converting years to months, immediate follow-up questions to elucidate the approximate month in which specific episodes began. Thus, in at least some, if not many, cases, self-reports of total homeless months may have represented participants' best estimates in the moment.

The total number of episodes was, in most cases, an easier figure for participants to provide. However, after correcting for overdispersion, follow up analyses did not indicate the linear relationship between ACE scores and number of homeless episodes that has been observed in previous findings (Cutuli et al., 2014; Herman et al., 1997; Larkin & Park, 2012). This could be explained by differences in measurement. In testing for a predictive relationship between ACE scores and homeless episodes, Cutuli et al. (2014) treated homeless episodes as a nominal variable (i.e., no episodes, a single episode, or multiple episodes) in a multinomial logistic regression model. Consistent with the more commonly used measures of duration cited above, Cutuli and colleagues' approach may have been more robust, but at the cost of nuance; categorizing homeless episodes in this fashion treats a count of two as functionally equivalent to a count of 10 or more and would not have been congruent with the aims of this study.

Moreover, ACE scores reported by this sample were exceptionally high in comparison to other samples. In 2010, the CDC reported a prevalence of 8.7% ($N = 26,299$) for ACE scores of five or more. Hughes et al. (2017), in a meta-analysis of 37 articles and a total of 253,719 participants, reported that 57% of 252,467 participants across the studies reported at least one ACE, with 13% ($N = 31,795$) of 244,979 reporting four or more ACEs. In that meta-analysis, the prevalence of four or more ACEs ranged from 1% to 38%. In contrast, of the participants in the

current study, nearly 80% reported four or more ACEs on a 14-item version of the ACE questionnaire; analysis limited to the most common ten items of the questionnaire yielded somewhat lower—yet nevertheless remarkable—results, with nearly 70% of participants reporting four or more ACEs. It is possible, but untested in this study, that if the ACEs reported by this sample followed a more typical distribution, statistically significant and linear relationships would have emerged for these measures of homeless chronicity.

It is also possible that the trend toward high ACE scores means that many participants surpassed a threshold at which ACE scores cease to have linear predictive ability, a scenario which has been posited in previous studies (Bielas et al., 2016; Cabrera, Hoge, Bliese, Castro, & Messer, 2007; Thompson et al., 2012). Bruffaerts et al. (2010), for example, noted that despite a significant dose-response relationship between childhood adversities and lifetime suicide attempts, there was a steady reduction in the OR between the number of childhood adversities and attempt and ideation, suggesting less predictive power as number of adversities increased. This would imply the potential presence of a ceiling effect, whereby ACE scores, beyond a certain level, may predict outcomes with reduced precision. Although this was neither hypothesized nor tested in this study, it is possible that such a ceiling effect may have at least partially attenuated a linear relationship between ACE scores and measures of homeless chronicity and should be considered in future studies.

Hypothesis 2: ACE Scores and Age of Onset

The hypothesis that higher ACE scores are associated with lower ages at first homeless episodes was supported. To my knowledge, this is the first study to include age at first homeless episode as a continuous variable as opposed to dichotomizing age (i.e., younger than 25 years vs. 25 years or older). Granted, the correlation between ACE scores and age at homelessness onset

was moderate at best, owing perhaps to the small sample size or owing to the same threshold issues noted in the discussion above. The precise mechanisms by which ACEs may contribute to early-onset homelessness are not yet known. Nevertheless, these findings contribute to the body of evidence that ACEs are associated with long-reaching, deleterious psychosocial consequences, including homelessness, and that these consequences may be realized earlier than later in proportion to the frequency of ACEs to which one has been exposed. Extended, multiple ACE items, including measures of emotional or mental maltreatment, neglect, household dysfunction, and involvement with foster care or separation from familiar caregivers, were associated with experiencing homelessness at earlier ages. These correlations recall Chamberlain and Johnson's (2013) identification of five ideal pathways into homelessness serving as "structural or cultural factors" (p. 74) that may preclude access to a full range of opportunities attenuating vulnerability to homelessness.

Exposure to one form of childhood adversity may predict exposure to multiple ACEs. Using multivariate linear regression models, Dong et al. (2004) found strong evidence in support of interrelatedness between ACEs. That is, ACEs may not occur independently; in a sample of 8,629, participants reporting one ACE were 2 to 18 times more likely to report another. Therefore, ACEs may frequently occur in configurations according to individuals' unique circumstances. This introduces the possibility that certain ACE configurations may be especially conducive to early homeless onset.

How this might occur merits some consideration. The cumulative chronic and acute stress of ACEs can overwhelm individuals' capacity for coping and nullify the protective effects of existing resources (Nurius, Green, Logan-Greene, & Borja, 2015). Further, these early adverse experiences may be catalysts for subsequent adversity over the life course, rendering individuals

perennially vulnerable to stress, social and behavioral difficulties, psychopathology, lack of access to social and personal resources, relationship problems, disability, legal trouble, and housing instability, potentially resulting in amplified risk of homelessness (Nurius et al., 2015). That is, ACEs may confer vulnerability for early homeless onset by systematically exerting deficits on multiple functional domains beginning relatively early in life. For example, memory is the cognitive domain in which the influence of emotion is best understood. Events of value stand out in memory and permit predictions regarding biologically important occurrences upon future encounters with similar events, producing an "inflexible, universally expressed form of emotional memory (Dolan, 2002, p. 1192). Thus, emotional memory, such as that associated with exposure to emotional abuse, intimidation, emotional or material neglect, parental hostility preceding or following separation, or being separated from caregivers may suggest a possible mechanism by which early trauma contributes to poor coping and decision making, interpersonal problems, deficits in emotion regulation and adaptive adjustment, and pathologies. Extended, environmental factors have been linked to differential development of executive function (Jurado & Rosselli, 2006). Obradovic (2016) reported that executive functioning in children is important for regulating emotional and physiological reactivity, optimally providing for enough vigilance to respond to and cope with environmental threats while also facilitating recovery by enabling attentional shifts from distressing stimuli, inhibiting negative affect, or utilizing strategies to regulate emotions. Nikulina and Spatz-Widom (2013) found that certain kinds of childhood trauma (i.e., maltreatment and neglect) predicted deficits in executive functioning lasting into middle age. Although the evidence base is small and more studies are needed to draw meaningful conclusions, the role of executive function has become an increasingly important focus in research on adult and youth homelessness over the past two decades (Masten et al., 2012; Monn,

Narayan, Kalstabakken, Schubert, & Masten, 2017; Pluck et al., 2011; Raphael-Greenfield, 2012; Spence, Stevens, & Park, 2004).

Moreover, greater flexibility in both enhancing and suppressing emotional expression has been found to predict successful adjustment and less distress over time (Bonanno et al., 2004). However, childhood traumas, in the absence of protective factors, such as secure attachments, may attenuate emotional flexibility (van der Kolk, 2003); this may be particularly relevant to individuals who have experienced such ACEs as divorce or placement in foster care. Deficits in emotion regulation or executive function arising from childhood adversity may exhibit as traits that elicit negative social feedback, and those with such traits may be subject to reduced social support, which in turn may be a protective factor against homelessness. Social contexts and relationships shape coping beginning with early attachments, which can either facilitate or attenuate adaptive stress reactivity (Skinner & Zimmer-Gembeck, 2007). Moreover, the character of early attachments shapes the experience of negative emotions and may have lasting effects on interpersonal relationships (Smetana et al., 2007). Emotional support and social resources remain critical throughout development (Schaie, 2005), but deprivation of these resources is associated with negative outcomes. Adversity and deprivation early in life seems to have a dose-dependent relationship with cognitive problems later in life, with impairments or delays to certain foundational systems precluding optimal adjustment or development (Marshall & Kenny, 2009). Significantly higher ACE scores among ever-homeless adults suggest childhood exposures to broad arrays of stressors combined with fewer protective factors. Homeless is thus associated with life experiences sharing a cascading relationship ultimately undermining security and health (Oppenheimer et al., 2016), and by impairing the normative development of systems and processes foundational to executive function, attention, and

emotional and behavioral regulation, childhood trauma may set the stage for pathology and dysfunction, early in life, potentially contributing to earlier homeless onset.

Summary of Findings

Altogether, the results of this study did not provide evidence that greater numbers of ACEs predict higher numbers of homeless episodes or greater cumulative duration of homelessness. However, the results of this study indicate that greater numbers of ACEs are associated with entering homelessness at earlier ages. Finally, ACEs in the form of verbal maltreatment (and intimidation), physical neglect, dissolution of the family unit, and separation from primary caregivers were associated with younger ages of initial homelessness.

<div align="center">

Implications

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This study's findings add to the growing body of literature recognizing the link between childhood adversity and homelessness (Caton et al., 2005; Chamberlain & Johnson, 2013; Cutuli, Montgomery, Evans-Chase, & Culhane, 2014; Larkin & Park, 2012). As been observed in numerous previous studies, ACEs and homelessness share much in terms of risk factors, vulnerabilities, and outcomes (Cutuli et al., 2014; Herman, Susser, Struening, & Link, 1997; Sacks et al., 2014). Perhaps the most important findings of this study include those related to Hypothesis 2: the overall negative association between ACE scores and age of homeless onset, and the specific kinds of ACEs correlating with age at homeless onset. In particular, the fact that each association was moderate-at-best raises two critical considerations. First, there are likely few, if any, direct pathways into chronic homelessness, and not all pathways necessarily include childhood adversity. Rather, chronic homelessness is an outcome negotiated by myriad overlapping, interactive, additive factors, which may explain why homelessness is such a perennial challenge. Attention is rightfully afforded to broad social ills, such as crime, substance

use, mental illness, and lack of affordable housing, but any one of these factors may ultimately be a single symptom of a more complex syndrome. Understood this way, homelessness—particularly, chronic homelessness—is a highly salient outcome of multiple systemic breakdowns, each one compounding the rest and reinforcing a pattern of instability from which escape becomes increasingly difficult. ACEs may help set the stage for future homelessness, but evidence has yet to indicate that childhood adversity is either a necessary or sufficient condition for subsequent homelessness. Thus, the correlation observed in this study between ACEs and early-onset homelessness may be necessarily moderate at best due to the effects of a litany of unobserved mediating or moderating factors.

The second consideration proceeds directly from the first: not everyone exposed to ACEs experiences homelessness, and that, not everyone exposed to ACEs is equally vulnerable to a developmental trajectory into enduring housing instability. This, of course, raises important questions concerning differential outcomes for people with ACE histories and, by extension, trauma histories in general. For example, are there general factors which serve to mitigate negative trajectories stemming from ACEs? What promotes such factors? An interesting consideration here is that ACEs have likely always occurred, or at any rate, are not novel phenomena. However, the rapid swelling of the homeless population beginning in the 1970s and 1980s (Kingree & Daves, 1997; Perl, 2015) suggests that something has changed. An array of structural factors have been reported to have placed at risk some of the most vulnerable people in the U.S., including the deinstitutionalization of mental hospitals, the decline of affordable housing and job opportunities, the unraveling of the social safety net (Metraux et al., 2007; Perl, 2015), and the Reagan administration's general inaction and disinterest in meaningfully addressing the precipitous spike in homelessness during the first half of the 1980s (Jones, 2015).

Recall that findings from Dube et al.'s (2003) retrospective study of birth cohorts dating back to 1900 indicated that the dose-response relationship between ACE scores and outcomes was consistent and immune to social or secular changes; for each birth cohort, the same dose-response relationship was observed, and no significant differences emerged between cohorts (Dube et al., 2003). Did a rapid rise in ACEs accompany the surge of homelessness in the latter half of the 20th century? Or, more likely, did a series of structural factors change to weaken the ability of vulnerable people with trauma histories to avoid homelessness?

Perhaps the most important of these questions drills right down to the heart of the matter: How do professionals and policymakers identify those with the greatest vulnerabilities, and what elements are most central to the development and implementation of effective targeted preventive interventions? Addressing these questions has profound implications in several domains, including public health, primary care, psychotherapy, social work, education, law enforcement, faith leaders, rehabilitation, and public policy.

Often overlooked in the public discourse are the stakeholders arguably with the most to lose and the least political power, namely, children experiencing adversity. Relative deficits of opportunity, capacity, and access across the lifespan contribute to multigenerational cycles of disparity and marginalization. Poverty comes with increased risk for chronic exposure to domestic and neighborhood violence, substance abuse, housing instability, neglect, derelict living conditions, and other disadvantages during critical developmental stages. If, as Shaw and Shelleby (2014) report, the culture of poverty is particularly conducive to the manifestation of conduct disorders, then it may follow that the culture of poverty is particularly conducive to certain types of criminality. Support for this idea comes from the research implicating the interplay of adverse childhood experiences and specific genotypes as predictive of a variety of

poor mental health and behavioral outcomes, as well as early-onset substance addiction (Iacono, Malone, & McGuire, 2008; Moffitt, 2005; Shaw & Shelleby, 2014). Therefore, an argument can be made for a distinction between individual causal factors in homelessness arising out of choice and those arising out of circumstances beyond an individual's control. Extended, Nickasch and Marnocha (2009) report that people experiencing homelessness typically have an external locus of control. In many cases, it seems likely that environmental effects potentially negate the role of individual choice. Many people experiencing homelessness do not perceive that they have much control over what happens in their lives. It is therefore important to examine these phenomena pragmatically. It is not helpful to call for them to simply make better decisions. Whether causal factors in any given case are individual, structural, or both, structural factors seem to play a great role in the prognosis of homelessness. In other words, while individual factors such as mental illness or substance use may contribute to homelessness, the influence and response of structural factors seem to play more deterministic roles in the prevalence, severity, and duration of homelessness and should be considered in future studies.

Consideration of what elements are responsive to intervention should be driven by pragmatism and perhaps balanced with at least some degree of faith that change is possible. Moving forward, it will be essential to distinguish between factors that can be impacted by interventions and those that cannot—and in the latter case, what can then be done to reduce or minimize harm. A comprehensive discussion in this vein is beyond the scope of this thesis, but there are at least a few areas worth considering here.

As noted above, public hostility toward the homeless population has increased considerably over the past five decades, driven in large part by growth in both the size and visibility of homelessness as well as unwarranted vilification via mass media. As Belcher and

DeForge (2012) reported, despite a consensus that homelessness is a serious problem, society nevertheless endorses negative stereotypes about the homeless population and is seemingly disinvested in addressing the root causes of homelessness. Swaying the tide of public opinion would require concerted and sustained effort to arouse public support to the degree needed to compel policymakers to take broader and more meaningful actions. At present, the most impactful policies pertaining to the homeless population are locally enacted laws and ordinances that target the visibility of homeless people in public spaces (Donley & Jackson, 2014), which, by effectively criminalizing public homelessness, impose additional barriers against exiting homelessness. If public perception of homelessness continues to be informed by stigma and negative stereotypes, then it does not seem likely that many of the structural factors contributing to and reinforcing homelessness will be easily impacted by change efforts, and criminalizing homelessness without addressing it will remain an acceptable policy to local constituents. Although compassion may be easily evoked for children exposed to trauma, this compassion— on the national level, at least—seems to expire for those whose trauma exposures place them on a pathway into homelessness, where upon arrival they join a highly stigmatized population. It may be possible that increasing public awareness of the far-reaching outcomes of ACEs— including or even emphasizing early onset homelessness—can evoke the public support needed for meaningful preventive and secondary interventions, but raising and sustaining that awareness, though not impossible, will also constitute a significant challenge.

Poverty is another factor resistant to intervention. Although poverty is not required for childhood adversity or trauma, the literature overwhelmingly indicates that poverty is associated with conditions conducive for ACEs, is frequently transferred intergenerationally, and is a primary contributor to homelessness. Belcher and DeForge (2012) argued that poverty is

inevitable within a capitalist economic system, in which there will always be an especially vulnerable "underclass" (p. 930). If this is true, it is not clear how to intervene to make capitalism more egalitarian while staying well clear of the political fray. However, intergenerational poverty may be more amenable to change. A potentially viable starting point may include interventions that focus holistically on households' ability to cope adaptively with the stressful realities of poverty. Importantly, these interventions may intrinsically address intergenerational ACEs by specifically targeting a range of associated outcomes, balancing secondary care for parents while working preventively to end the cycle for children. One such intervention comprises evidence-based home visiting (EBHV) programs, which vary in design but generally focus on strengthening attachments between parents and their young children, teaching parents positive parenting skills while remaining sensitive to parents' trauma histories (Phillips, McDonald, & Kishbaugh, 2017).

These are but a few of the likely explanations for the connection between ACEs and homelessness. It is clear that, due to the interrelationship among ACEs and among factors leading to homelessness that there are multiple inroads to future study, and little promise for identifying the magic bullet.

Strengths and Limitations

The primary strength of this study was the simplicity of its design. In planning this study, it was acknowledged that collecting data from individuals experiencing homelessness can be challenging, even in a service provision setting. Every effort was made to employ simple, brief measures out of respect for participants' time and energy. Another strength included the experience held by members of the research team, which included professional and volunteer histories of interacting with individuals experiencing homelessness. This is a sensitive,

vulnerable population in which many members have extensive histories and ongoing experiences of discrimination, stigma, trauma, mental illness, and other stressors. Given the delicate nature of some of the items on the survey, it was important that anyone distributing or administering the survey have interviewing skills appropriately calibrated for this population.

This study was able to negotiate several challenges native to homelessness research. First, northeast Tennessee is largely a rural area, requiring homelessness researchers to identify local pockets of adequately dense target populations. This study drew its sample from Johnson City, which features a high concentration of individuals experiencing homelessness relative to surrounding communities. Second, homeless populations are not evenly distributed throughout a locality, but tend to congregate in proximity to resources such as shelters, kitchens, and supportive services. To address the problem of geographical concentration, this study sampling was based in the downtown area of Johnson City, not just in the neighborhoods where homeless services are clustered, but within two of the most heavily frequented sites accessed by service utilizers. Third, identifying individuals experiencing homelessness is a challenge when collecting self-report data in naturalistic settings. Because homelessness is not readily apparent, researchers may approach potential study participants in naturalistic settings to ask them directly if they are experiencing homelessness. Regardless of the degree of tact with which researchers broach the subject, it may be preferable to avoid this approach when possible. This study navigated this problem by collecting data in locations at which participants identified themselves as experiencing homelessness. Finally, attrition is understandably a significant hazard in longitudinal studies of homeless populations. Because of the cross-sectional design of this study, data were collected just once from each participant without the necessity of future contact, although it was expected that participants would continue to access services at the sites.

These strengths notwithstanding, this study had several limitations. First, the sample size was too small and demographically homogenous to draw broad generalizations given the considerable variability of the homeless population. The sample was one of convenience, limited to service utilizers presenting on certain days of the week at two locations in Johnson City, TN. Further, its primary findings were correlational and thus inherently preclude causal inferences. Future research should emphasize a larger, more demographically heterogeneous sample as well as research designs that are more capable of meaningfully investigating potential causal mechanisms.

Perhaps this study's most notable limitations were its measures of homeless chronicity. In previous studies, researchers seem generally to have avoided measuring duration of homelessness. When they have included it, they have limited their inquiries to the duration of current or recent episodes (e.g., Cobb-Clark, Herault, Scutella, & Tseng, 2014; Loh et al., 2016), have treated homeless duration as an ordinal variable, with participants choosing between multiple levels of duration (e.g., Link et al., 1994; Sandel, 2018), or have eschewed duration altogether and dichotomized homelessness history (Herman et al., 1997). While these approaches may come at the cost of some nuance or precision, they rely less on precise recall of specific dates, leaving less room for error and perhaps comprise a more robust toolkit for empirically investigating homeless duration. The lack of support for association between ACE scores and homeless chronicity in this sample may be attributable to numerous factors, one of which appears to be an attribute native to the typology of homelessness assumed by the measurements of homeless chronicity. Kuhn and Culhane (1998) developed a typology of homelessness that categorized homelessness along two dimensions (i.e., frequency and duration) and produced three distinct types of homelessness based on temporal patterns of shelter use, namely transient

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(i.e., low frequency, short duration), episodic (i.e., high frequency, short duration), and chronic (i.e., low frequency, long duration). In critiquing the theoretical shortcomings of this typology, McAllister, Lennon, and Kuang (2011) observed that the dimensions used in Kuhn and Culhane's typology implied without acknowledgement an interaction effect giving rise to a fourth category defined by high frequency and long duration. In effect, because this high frequency, long duration category eluded detection, theorization, or analysis, the episodic category is essentially rendered a residual category accounting for all cases not represented in either low frequency classification. Theoretically, a residual category introduces a confounding degree of heterogeneity-driven variation within a given typology (McAllister et al., 2011). Although Kuhn and Culhane's (1998) typology may be broadly useful for the short-term purposes of policymakers and service providers, McAllister et al. (2011) argued that it does not serve the same utility with respect to an empirical understanding of homelessness and the experience thereof.

These issues associated with a two-dimensional typology of homelessness may have been exemplified in this present study, in which homeless chronicity was measured along the same dimensions, as those utilized by Kuhn and Culhane (1998). If, as McAllister et al. (2011) cautioned, such a typology was an inherent catalyst for excessive variation, then its very design may account, at least in part, for the overdispersion observed in the Poisson regression model used to test for a linear relationship between ACEs and homelessness. Coxe et al. (2009) explained two "primary" (p. 131) underlying causes of overdispersion, both of which may be informative with respect to the present study. First, the regression model may not have addressed individual differences and, accordingly omitted and left unexplained key predictor variables, thereby failing both to control for within-group heterogeneity and to explain excessive variance

in the outcome. Second, and importantly, where the Poisson model assumes independence of observations, it is plausible that the counts in this study (i.e., number of homeless episodes) violated that assumption and were, to some degree, related. In making a case for a multidimensional conceptual model for episodic homelessness, Anucha (2005) describes a complex interplay of individual and structural factors that implicate the occurrence of homelessness as a potential predictor of subsequent episodes, a relationship that has been supported elsewhere in homelessness literature (Byrne, Treglia, Culhane, Kuhn, & Kane, 2015; Fleming & Burns, 2015) and that speaks to a broader theme in homelessness research: homelessness is not reduceable to a single cause or pathway, but is rather the outcome of multiple interacting factors and circumstances. Furthermore, the litany of risk factors contributing to the onset of homelessness are not necessarily alleviated by the *occurrence* of homelessness but are instead diversified and are frequently exacerbated during homelessness. Two or more episodes of homelessness are therefore unlikely to be independent but are probably symptomatic of a larger syndrome in which a single episode of homelessness potentially amplifies vulnerability for the subsequent episode. For example, Castro et al. (2014) found that both the number of lifetime of homeless episodes and episode duration were negatively correlated age of onset of the first episode. As one of many examples of possible corresponding pathways, a single episode of homelessness places individuals at increased risk for entanglement in the criminal justice system (Covin, 2012), at times for basic survival behavior (Dolan et al., 2015). This in turn adds substantial and persisting barriers to exiting homelessness (Belcher & DeForge, 2012; Caton et al., 2005; Dolan, Carr et al., 2015; Greenberg & Rosenheck, 2008; Petrovich & Cronley 2015), pushing the vulnerable into ever more profound states of desperation while continually renewing the risk for additional homelessness. This is but one greatly

simplified example of the apparent capacity of homelessness to perpetuate itself, fueled, so to speak, by versatile risk factors that are potentially causative, maintaining, and conducive to recidivism. Therefore, the assumption of independence of observations underlying the attempt to establish a linear relationship between childhood adversity and homeless episodes, while not illogical considering the evidence in support of such a relationship (Cutuli et al., 2014; Herman et al., 1997; Larkin & Park, 2012), was potentially undermined in this study by the typology implied in its measurement of homeless chronicity, which, by introducing a residual category of homelessness, simultaneously introduced excessive variance in the form of within-group heterogeneity

This study may have benefitted from a time-patterned typology of homelessness similar to the one proposed by McAllister, Kuang, and Lennon (2010), which is based on a time-patterned approach that analyzes when homeless episodes occur, in what sequence homeless and non-homeless events occur, and the duration of homeless episodes. This approach, by expanding the observed temporal dimensions of the experience of homelessness, yields a refined, more nuanced typology from which may be derived a richer understanding of homelessness and avoids assumptions of homogeneity between different pathways into and patterns of homelessness. By adding additional subgroups, this approach should also reduce problematic levels of heterogeneity within temporally defined categories of individuals experiencing homelessness (i.e., transient, episodic, and chronic) and permit more meaningful analysis (McAllister et al., 2010).

Future Research Directions

To expand on previous statements, merely establishing associations between ACEs and homeless chronicity does not enable one to address either issue. I propose that two overarching

goals should guide research in these overlapping areas: elucidation of (1) factors contributing to vulnerability in terms of risk factors for ACEs and their sequelae; and (2) protective factors that may mitigate negative life trajectories set in motion by early trauma. Both goals should correspond to the greater end of designing and implementing targeted interventions for those at greatest risk. There are manifold paths to pursue, with possible future research directions including economic hardship as a prevailing risk factor for ACEs and resilience as a protective factor.

Conclusion

The results of this study did not find evidence that adverse childhood experiences are associated with chronic homelessness as measured in cumulative duration and number of lifetime episodes in a sample of adults currently experiencing homelessness and seeking services in NE TN. However, results did indicate a relationship between ACE scores and lower age of homeless onset. Additionally, ACEs in the form of verbal maltreatment (and intimidation), physical neglect, dissolution of the family unit, and separation from primary caregivers were associated with younger ages of initial homelessness. Altogether, this study does support efforts to better identify vulnerable populations (i.e., families experiencing chronic economic hardship, particularly those with intergenerational trauma or ACE histories), to understand the factors both attenuating and promoting resilience, and, accordingly, to develop and implement targeted, preventive interventions.

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Appendix A

Full List of Variables Used Including Questionnaires and Coding

General Information

How old are you? _____

What is your race? _____

What is your gender? _____

What state do you live in? _____

What county do you live in? _____

ACE Test for Patients/Clients/Students

The next few questions are called the ACE Test. They ask about bad, scary, or stressful things that may have happened before you turned 18 years old. Did any of the following happen to you before you turned 18 years old? If so, circle Yes.

1. Did your mother, father, or other adult in your home *often* swear at you (curse at you), insult you, put you down, or purposefully try to make you feel bad?
    OR
Did your mother, father, or other adult in your home *ever* act in a way that made you
    afraid that you might be physically hurt?
	Yes No

2. Did your mother, father, or other adult in your home push, grab, slap, or throw something at you *often*? **OR** Did your mother, father, or other adult in your home *ever* hit you so hard that you had marks or were injured?	Yes No
3. Did an adult or person at least 5 years older than you *ever* touch or fondle you or have you touch their body in a sexual way or attempt or actually have oral, anal, or vaginal intercourse (sex) with you?	Yes No
4. Did you *often* feel that no one in your family loved you or thought you were important or special or was your family not close to each other (didn't look out for each other or support each other)?	Yes No
5. Did you *often* feel that you didn't have enough to eat, or had to wear dirty clothes, or had no one to protect you or were your parents too drunk or high to take care of you or take you to the doctor if you needed it?	Yes No
6. Were your parents *ever* separated or divorced?	Yes No

7. Was your mother or stepmother _often_ pushed, grabbed, slapped, or had something thrown at her?
     OR
 Was she _sometimes_, _often_, or _very often_ kicked, bitten, hit with a fist, or hit with something hard?
     OR
 Was she _ever_ repeatedly hit for at least a few minutes or threatened with a gun or knife?
	Yes	No

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs or abused prescription drugs?	Yes	No
9. Was someone who lived with you depressed or mentally ill or did someone who lived with you attempt suicide?	Yes	No
10. Did anyone who lived with you go to prison?	Yes	No

Homeless Chronicity

Homelessness is defined as sleeping in a place not meant for human habitation (e.g., in a car; beneath a bridge; in an abandoned building), in a public or private emergency shelter, in transitional housing, or in the home of a friend or family member as a temporary living arrangement.

In your lifetime, how many episodes of homelessness have you experienced?

_____

In your life, how many total months have you been homeless?

_____

When did you experience your first episode of homelessness?

_____

Notes:

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Posters and Presentations:	Lead Author, "*Make a Gong": What's So Special About Target Action #4?* International Conference on Infant Studies, Minneapolis, Minnesota, 2012 Co-author, *Should Ink Affect the Way You Think? Examining the Relationship Between Stigma Against Tattoos and Religion*.

Poster, Appalachian Student Research Forum, Johnson City, Tennessee, 2017

Co-author, *Are Childhood Victims More Artistic? The Relationship Between Childhood Maltreatment and Creative Behavior*. Poster, Appalachian Student Research Forum, Johnson City, Tennessee, 2017

Co-author, *Examining the Correlations Between Childhood Trauma and Adult Substance Abuse*. Poster, Appalachian Student Research Forum, Johnson City, Tennessee, 2017

Honors and Awards: Roger Bailey Outstanding Senior in Psychology Award, East Tennessee State University, 2010