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**IMPACT OF RACE ON THE RELATIONSHIP BETWEEN ADVERSE
CHILDHOOD EXPERIENCE AND MENTAL HEALTH IN THE
MINNESOTA HOMELESS POPULATION**

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IMPACT OF RACE ON THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD
EXPERIENCE AND MENTAL HEALTH IN THE MINNESOTA HOMELESS POPULATION

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A Clinical Research Project submitted to the Faculty of Augsburg University in partial fulfillment of the requirements for the degree of Doctor of Psychology in Clinical Psychology

Minneapolis, Minnesota

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IMPACT OF RACE ON THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD
EXPERIENCE AND MENTAL HEALTH IN THE MINNESOTA HOMELESS POPULATION

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Dedication

For my Mom, Debra Keckeisen. For always believing in me.

Strong women.

May we know them.

May we be them.

May we raise them.

Acknowledgements

As my graduate school tenure comes to a close, I have been mulling over the same question: How do I say thank you? How do I adequately put into words the overwhelming gratitude for the people who have helped me to achieve this dream? Lo and behold, that is what an acknowledgements section is for.

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Abstract

It is well established that the homeless population endorses more adverse childhood experiences (ACEs) than the general population and is also more susceptible to mental health and substance use disorders. Of note, individuals who identify as Black, Indigenous, and People of Color (BIPOC) are disproportionately affected by homelessness compared to their White counterparts. Little is known about the relationships *between* ACEs, mental health, and substance use in the homeless community. The present study examined the relationship between ACEs and a number of psychosocial outcomes, including mental health diagnoses, current substance use, and long-term substance use in an adult homeless population ($N = 412$) located in Minnesota. The impact of participant race and ethnicity as a moderator on the relationship between ACEs and various psychosocial outcomes was also explored. The study utilized archival data from the Minnesota Homeless Study (Wilder Research, 2018), which focuses on capturing the experience of the homeless population in Minnesota. Results showed that as the number of ACEs increased among the sample, so did the likelihood of a mental health disorder. Additionally, the number of ACEs reported was significantly associated with long-term substance use, indicating that as the number of ACEs increased, so did the likelihood of long-term substance use. ACEs were not associated with current substance. However, when the homeless population was considered as a whole. When separated by racial/ethnic identity, only White participants were more likely to endorse current substance use as ACEs increased. Directions for future research (short versus long-term substance use) and clinical implications, such as ACE-specific interventions, are discussed.

Introduction

Problem Background

Homelessness

On any given night in the United States, over half a million people experience homelessness (National Alliance to End Homelessness, 2002; The State of Homelessness in America, 2019). Minnesota is ranked 15th in the country for homeless individuals per capita (*Minnesota Homelessness Statistics*, 2020) and in Minnesota alone, an estimated 8,000 individuals experience homelessness each day (Wilder Research, 2018). Of those nearly 8,000 individuals, 2,000 are considered to be chronically homeless (Annual Homeless Assessment Report (AHAR), 2020). Although homelessness decreased between 2012-2013 (Minnesota Interagency Council on Homelessness, 2022), thousands of Minnesota residents continue to lack permanent housing, and overall homelessness has increased according to the most recent data collected (Wilder Research, 2018).

The absence of permanent housing puts homeless persons at physical and emotional risk (Wilder Research, 2018). A shift from reactive care to preventative care is necessary in order to achieve the long-term well-being of marginalized populations (Karatekin et al., 2022). Reacting to the physical and emotional consequences of homelessness (e.g., those who are experiencing homelessness being arrested while having a physical or mental crisis) rather than implementing preventative measures, such as creating workshops for homeless persons to learn and implement coping skills into their daily habits, adds to the many barriers that are already present for these individuals (e.g. poverty, racism, health care) (Beech et al., 2021).

Increased emotional risk puts those who are homeless as more susceptible to mental health and substance misuse problems (Jurewicz et al., 2021; Wong & Piliavin, 2001).

Individuals experiencing homelessness have a greater likelihood of being diagnosed with a severe mental illness (Folsom et al., 2005); further, research suggests the homeless population misuses substances at a far higher rate than the homed population (Doran et al., 2018).

Additionally, the use of substances to help mitigate mental health symptoms among the homeless population is becoming more common (Narendorf, 2017). The link between homelessness, mental illness, and substance misuse is also closely linked with childhood trauma (Herman et al., 1997; Montgomery et al., 2013).

ACEs

Previous studies have shown that a history of traumatic experiences in childhood can increase the likelihood of physical health problems (e.g. heart disease), mental health problems (e.g. depression and substance misuse), and cause an increased strain on the current healthcare system in adulthood (Beech et al., 2021; Felitti et al., 1998). In 1998, a large quantitative study ($N = 13494$, age: 19+, 47% White) examined the link between childhood traumatic experiences and negative health outcomes in adulthood, showing childhood trauma to be linked to a vast number of physical and mental health problems (Felitti et al., 1998). This study significantly influenced future research regarding the impact of childhood trauma on physical health, mental health, and healthcare utilization.

Though the original ACE study was not published until 1998 (Felitti et al., 1998), research looking at risk factors associated with health outcomes can be dated back to almost a hundred years earlier (Plimmer, 1899). The original ACE study, however, analyzed the impact of psychosocial factors on physical *and* mental disorders (Felitti et al., 1998). The study focused on finding the major contributing factors of disease and death for those in the United States. Since the original study, multiple meta-analyses and systematic reviews have been published

verifying the impact of childhood trauma on physical and mental health (Karatekin et al., 2022; Petruccelli et al., 2019).

ACEs research has become increasingly popular on both a national and international level (Karatekin et al., 2022). As researchers collect more data regarding the impact of childhood trauma on mortality and morbidity, the realization and recognition of the superfluous influence ACEs have on those from a lower socioeconomic status, or marginalized race/ethnicity has become increasingly evident (Karatekin et al., 2022). These influences impact the societal hierarchies that keep those with marginalized identities at a higher risk for ACEs and other traumatic experiences (Karatekin et al., 2022). The original ACE study, and the research that has since followed suggests childhood trauma is a clear risk factor for negative health outcomes, and is impacting the long-term well-being of those experiencing its effects (Felitti et al., 1998; Karatekin et al., 2022; Petruccelli et al., 2019).

Negative mental health outcomes as a result of childhood trauma are well documented (Karatekin et al., 2022). Research suggests the number of ACEs experienced by an individual may be associated with the type of mental health disorder diagnosed later in life (Chang et al., 2019). Specifically, having four or more ACEs has been found to be common among adults who have a comorbid mental health and substance misuse disorder (Anda et al., 2006; Philogene-Khalid et al., 2020). Further, as the number of ACEs increases, the prevalence of substance use disorders has been found to increase in parallel (Leza et al., 2021).

Homelessness, ACEs, and Structural Racism

While literature suggests homeless persons are more likely to have experienced adverse childhood events and to accrue higher healthcare costs in the context of mental illness, less is known about the link between Adverse Childhood Experiences (ACEs) and mental health of

homeless persons with race as a moderating factor. Similarly, race as a moderating factor in the connection between ACEs, homelessness, and severity of substance misuse has few literature datapoints. This is particularly important given that racially marginalized groups are significantly overrepresented in the homeless population (Wilder Research, 2018; The State of Homelessness in America, 2019). A recent 2021 article discussing the ramifications of racism, poverty, and the health care system suggests structural racism fuels poverty levels in communities of color (Beech et al., 2021). As communities of color are disproportionately affected by poverty, racism in structures such as health care put people of color at a far higher risk for undertreatment, or even denial of treatment. It is important to note that the present study utilizes data from 2018 and therefore does not take into consideration the global influence of the COVID-19 pandemic. COVID-19 undeniably had and has an impact on factors influencing homelessness, but as the variables of the current study are not impacted by COVID-19 further review of such literature is beyond the scope of this paper. For further information, please reference Corey et al., (2022) and Nouri et al. (2022).

Race and ethnicity have often been overlooked in both research and clinical practice. Prior to the American Psychological Association's (APA) 2002 multicultural guidelines (APA, 2002), little guidance was given around working with those from diverse backgrounds. More recent psychological research literature asserts that studies which incorporate diverse populations ought to include diversity of thought, culture, and measures (APA, 2017). Multiple modes of accommodation regarding data collection and analysis have been suggested in order to ethically work with diverse populations in both research and practice. There is a stark and disproportionate number of people of color who are homeless when compared to their White counterparts in the MN Homeless Study (Wilder Research, 2018). Bearing in mind the systemic

issues, barriers, and oppression faced by these participants, one must approach the present research with these factors in mind.

The Present Study

To better establish and understand the relationship between ACEs and its effect on mental health conditions and substance use disorders in Minnesota's homeless population, the following research questions were considered: Similar to previous literature findings on homeless persons, does the number of ACEs correspond with increased substance use or an increased likelihood of reporting a concurrent mental health disorder? Does racial or ethnic identity impact the relationships between ACEs and substance use severity in a homeless population? Does racial or ethnic identity impact the relationship between ACEs and the likelihood of mental health difficulties? The Minnesota Homeless Study (Wilder Research, 2018) dataset was utilized to explore these questions. Last conducted in October of 2018, the Minnesota Homeless study collects data on homeless persons residing in Minnesota every three years.

A multitude of reasons necessitate the study of the link between childhood trauma and adult mental health and substance use difficulties in the homeless population. By understanding the relationships between ACEs and mental health difficulties in the homeless population, and the impact of race on this relationship, clinicians can start to implement more robust preventative measures for their clients and advocate for preventative care on a systemic level. Finding a connection between ACEs and mental health difficulties would suggest further preventative measures to be enacted in intake measures. Understanding how these variables differ across racial groups would allow for providers to advocate for equitable access to healthcare, regardless of one's diversity factors, including race and socioeconomic status (Skosireva et al., 2014).

Increased health professional involvement from a young age may help the parents of a child who endorses high ACEs to implement preventative measures at home; the influence of health care may potentially disrupt the cycle of generational homelessness, mental health diagnosis, and substance misuse. Increased information on ACEs, mental health diagnosis, and substance misuse severity may help those who specialize in co-morbid disorders to create specialized interventions for those who are homeless or coping with housing insecurity.

Finally, understanding the relationship between the aforementioned variables and race has the potential to shed light on ongoing disparities, barriers, and underlying racism in the homes and health care systems of the United States. Homeless persons in Minnesota who are people of color make up more than half of those who are homeless, despite being less than twenty percent of Minnesota's population (Wilder Research, 2018). Information from this research has the potential to directly support the need for reform and special attention towards homeless persons, childhood trauma, and the already marginalized people of color who make up much of this population.

Review of Literature

Homelessness

In order to meet the United States department of Housing and Urban Development's (HUD) criteria for homelessness, several things must be true of an individual (United States Department of Housing and Urban Development, 2019): First, the individual must not have a fixed, adequate nighttime residence. This could mean that the individual is currently sleeping somewhere that is not meant for human habitation, is living in a shelter (whether private or public) or is living a place where they lived for less than 90 days and were living in a shelter or a place not meant for human habitation prior. As of January of 2020, over half a million people in the United States fell under the "homeless" category (National Alliance to End Homelessness, 2020), with approximately 8,000 homeless individuals residing in Minnesota (Minnesota Interagency Council on Homelessness, 2022).

Although outside the scope of this study, it is important to recognize that approximately half of those experiencing homelessness in Minnesota are individuals, where the other half are those whose family is also homeless (Wilder Research, 2018). Since 2015, the number of families experiencing homelessness decreased, while the number of individuals experiencing homelessness increased in 2018, 10% more than 2015 (Wilder Research, 2018). Of note, it appears the ability for individuals and families alike to obtain placement in a formal shelter decreased considerably.

Research highlights several risk factors associated with long-term homelessness, defined as being homeless for over two consecutive years (Aubry et al., 2016; Caton et al., 2005). A longitudinal study conducted in 2005, looking at 445 men and women who were staying in a homeless shelter in New York City (65% Black), found that age (>44) and arrest history were the

most significant factors associated with long-term homelessness (Caton et al., 2005). Similarly, a 2017 qualitative study found lack of social relationships and authority trouble (ex. theft, burglary, criminal charges and convictions) to be prominent risk factors among the homeless population among a sample of 26 men and women (men 84%, race and ethnicity not mentioned) in the UK (Mabhala et al., 2017). A recent longitudinal study, utilizing data from the Panel Study on Homelessness in Ontario (race and ethnicity not mentioned), suggests that a substance misuse disorder was a prominent risk factor associated with homelessness (Aubry et al., 2016).

The cause of homelessness has been linked to multiple factors. A recent meta-analysis analyzed 80 articles on homelessness published between 1970-2017 (Giano et al., 2020). Throughout 40 years of research, a few factors predicting homelessness in an individual have remained consistent: unemployment and poverty, mental health, and substance misuse. Although family instability was once one of the leading causes of homelessness from 1980-2009, in the most recent decade, it has been displaced by unemployment and poverty, mental health, and substance misuse based on the increase in published studies with these risk factors mentioned. As time has gone on, both the number of homeless persons has increased, as well as homeless population participants in these studies and the types of risk factors have diversified based on the increased number of factors identified in the literature.

The Minnesota Interagency Council on Homelessness (2022) offered five main reasons Minnesotans experience homelessness: unaffordable housing; unemployment; chronic conditions influencing the ability to have a residence; domestic violence; and systemic inequality such as racism, sexism, and ageism. The Minnesota Interagency Council (2022) draws conclusions from three major studies, HUD's Annual Point in Time Study (Housing and Urban Development, n.d.a.) the MN Homeless Study (Wilder Research, 2018), and Minnesota's Homeless

Management Information System (Homeless Management Information System, n.d.b). They suggest systemic inequalities among the homeless population primarily result from the housing crisis, racism, and access to healthcare. Focusing on their three-phase justice-oriented strategic plan will allow Minnesota to confront the primary inequalities at a statewide level. In doing so, the hope is that the injustices caused by lack of housing, racism, and healthcare will dissipate. Given that racism and systemic inequality contribute to the large number of homeless persons in Minnesota, there is a need for change in the policy and practice of treating homeless individuals with mental health and substance use issues in communities of color.

Homelessness and Mental Health

Mental health concerns are widespread among the homeless population (Wong & Piliavin, 2001). Severe mental illness is highly associated with individuals experiencing homelessness (Folsom et al., 2005). A large, quantitative study on the homeless population in San Diego, CA ($N = 10,340,1,569$ homeless, 68% White, 15% Black) found high prevalence rates of mental health diagnoses among homeless individuals, including schizophrenia (20%), bipolar disorder (17%), and depression (9%) (Folsom et al., 2005).

A more recent 2022 study utilizing data from the Michigan Recession and Recovery Study with working aged adults in the Michigan metropolitan area conducted from 2009-2010 ($N=255$, age: 18+, 51% Black) found mental health status to be significantly impacted by housing instability (Kim & Burgard, 2022). Those who had lack of housing stability were more likely to endorse symptoms of depression and anxiety at both their baselines and follow-up. Additionally, participants were found to be more likely to experience an adverse experience such as partner loss or housing quality. Although Kim & Burgard (2022) looked at the aftermath of

the Great Recession of 2008, similar findings may be generalizable to current data after the COVID-19 pandemic.

Although there is an association between homelessness and mental health, financial stability (Elbogen et al., 2021), as well as tangible and perceived support, may help to mitigate the negative effects of homelessness on mental health (Wong & Piliavin, 2001). A recently published longitudinal study utilizing data from the National Epidemiologic Survey on Alcohol and Related Conditions collected in two waves (2001-2002, 2004-2005, $N = 34,653$, 57% White) found financial strain to mediate the relationship between severe mental illness and risk of homelessness (Elbogen et al., 2021). This research showed that those who have a severe mental illness paired with significant financial strain are more likely to experience homelessness. These findings suggest that both the homeless population and those with severe mental illness may benefit from ongoing financial support and social services as a preventative measure.

Research also suggests that tangible support from friends and family, as well as perceived support, minimizes the likelihood that distress will result in a mental health crisis among the homeless population (Wong & Piliavin, 2001). A mixed-methods study looking at young adults who used emergency psychiatric services in an urban area in the southwest US ($N = 54$; 28% Black, 26% White, 20% Bi-Racial) found that the lack of a support network was a contributing factor to ongoing homelessness (Narendorf, 2017). The benefits of support are emphasized by another longitudinal study looking at risk factors in homeless adults in New York City ($N = 377$, 65% Black) which identified family support as a resilience factor found in those with shorter durations of homelessness (Caton et al., 2005). Further, in a Canadian longitudinal study of 329 individuals (race and ethnicity data not mentioned) investigating housing stability predictors over a two year period, the quality of one's community and interpersonal resources were predictive of

housing stability (Aubry et al., 2016). Taken together, these study findings highlight the importance of social support and preventative resources for the homeless population. Even in our understanding of potential protective factors, homeless persons continue to lack financial stability, and tangible and perceived support, which negatively impact their mental health and ability to cope with continued stressors (Elbogen et al., 2021; Wong & Piliavin, 2001).

Homelessness and Substance Use

Research suggests that there is a complicated relationship between homelessness and substance misuse (Eyrich-Garg et al., 2008; Jurewicz et al., 2021). In a 2021 qualitative study investigating the connections between homelessness and substance use in homeless persons utilizing emergency services ($N = 25$, age: 20-66, 40% Hispanic, 30% White, 28% Black), four themes emerged as to why substance use was connected to participants' lack of stable housing (Jurewicz et al., 2021). First, interpersonal strains that often resulted from substance misuse contributed to lack of housing. The participants of the present study identified that these strains can come from lack of communication due to previous conflict about the participants substance misuse, or self-isolation due to the stigma and judgment that can come from the loved ones of those who misuse substances. Substance use is often characterized as maladaptive behavior, and maladaptive behaviors have been known to contribute to the collapse of significant relationships, which research has identified as the final breakdown prior to becoming homeless (Mabhala et al., 2017).

This collapse of significant relationships is the second reason as to why lack of housing and substance misuse were connected (Jurewicz et al., 2021). Researchers found that social support and relationships are ready and willing to help until they are not – until some sort of collapse happens within the relationship. Lack of help can be attributed to a “fall out” of some

kind, or death/lack of proximity. Both resulted in participants being more likely to use substances.

Third, the researchers found that social settings often created situations where it was tempting to misuse substances (Jurewicz et al., 2021). Qualitative analysis suggested some participants were lacking social support because they were attempting to avoid social triggers (exposure, relationship stress, avoidance of peers). For those who were triggered, they then turned to substances to cope, leading to feelings of continued grief and shame. Participants also described how having substance misuse be modeled for them by their caretakers made them have early exposure to the effects of substances. In contrast, other research has shown that support persons modeling restraint, encouragement, and accountability were particularly effective for helping one to abstain from substance misuse (Patten et al., 2008; Tops et al., 2014).

Lastly, participants identified their use of alcohol as a replacement for social support (Jurewicz et al., 2021). As participants isolated, they turned to the positive and negative consequences of substance misuse for comfort and care and as a means to keep themselves company when they felt as if they had lost everything. A longitudinal study looking at former homeless persons with mental illness ($N = 39$, age: 23-62, 41% African American, 41% Caucasian, 15% Hispanic) paralleled these views, as participants in this study suggested that they experienced a push-pull in relationships (Hawkins & Abrams, 2007). At times, participants suggested that they initiated separation from relationships to induce isolation, noting in the research that the act of isolating does not judge, where those in relationship may.

Substances are frequently used by homeless persons as a way to self-medicate mental health symptoms by the homeless population (Narendorf, 2017). Participants reported being unable to afford mental health medications while homeless, and therefore turned to substances,

often resulting in misuse. This mixed-methods study on substance misuse and mental health in homeless individuals found that, in their racially diverse sample ($N = 54$, 27% African-American, 20% multiracial, 25% White, 20% Hispanic), drinking alcohol was especially prevalent—46% of its 56 participants had a drinking binge within the last two days (Narendorf, 2017). Homeless women have been found to use substances far more than the general public, with tobacco, alcohol, and sedatives being used most often (Guillén et al., 2020). Research suggests alcohol is more commonly misused by the homeless population as compared to drug use (e.g. heroin, stimulants), likely due to its overall accessibility (Eyrich-Garg et al., 2008).

Similarly, in a 2018 racially diverse random sample of participants from an urban hospital emergency department ($N = 2,309$; age: 18+; 55 % Hispanic, 23% Black, 12% White), found that those who were homeless had reported higher rates of alcohol misuse, heroin use, prescription use, opioid overdose over the lifespan, or any drug use at far higher rates (at least 12%) than the housed participants (Doran et al., 2018). Additionally, homeless participants of the same study were more likely to report substance use as their primary problem during their ED visit. Further, comorbid disorders of substance misuse and a mental health diagnosis were reported in a significant number of the homeless participants.

Taken together, homeless persons are at a far greater risk for substance misuse than the housed population (Narendorf, 2017). Accessibility of substances plays an important role in whether or not one will use (Eyrich-Garg et al., 2008), as does perceived and actual social support (Jurewicz et al., 2021). Substance misuse by the homeless population is complicated in its etiology. Regardless, homelessness and substance misuse are difficult to disentangle.

Homelessness and Race

Given the nature of the present study, utilizing participants from multiple marginalized identities – individuals identifying as both homeless and racially or ethnically diverse – an understanding of how to work with and for those with intersecting identities in a meaningful way is essential. Specifically, in Minnesota, despite making up only 5% of the state’s adult population, those who identified as African American in the MN Homeless Study (Wilder Research, 2018) make up 37% of the homeless population. Those who identify as Hispanic make up 4% of the state population, but 8% of the homeless population. Similarly, those who identify as multiracial make up only 1% of Minnesota’s population but 7% of the homeless population. Finally, despite making up only 1% of Minnesota’s population, those who identified as American Indian made up 12% of the state’s homeless population. There is a stark and disproportionate number of people of color who are homeless when compared to their White counterparts in the MN Homeless Study (Wilder Research, 2018). Bearing in mind the systemic issues, barriers, and oppression faced by these participants, approaching this important research requires centering the American Psychological Association (APA) multicultural guidelines at every stage of the process.

According to the National Alliance to End Homelessness (2020), those who are of a race or ethnicity other than White are overrepresented in the homeless population. Specifically, Pacific Islanders/Native Hawaiians, Native/Indigenous, and those who identify as Black are substantially overrepresented in the homeless population when compared to the general population. In Minnesota, the amount of homeless African Americans and American Indians when compared to the general population count is staggering (Wilder Research, 2018). As mentioned previously, although African Americans make up 5% of the general population in

Minnesota, they make up 37% of the homeless population in the state. Similarly, American Indians make up 1% of Minnesota's general population, but make up 12% of the state's homeless population. The race and ethnicity discrepancy of those in the general community versus the homeless population is cause for concern.

A recent quantitative study conducted at a large, public, university ($N = 195$; 48% White, 52% NonWhite) investigated the link between race, homelessness, and stigma (Markowitz & Syverson, 2021). The study found that Black men are overrepresented among the homeless population, and their lack of housing stability may be due, in part, to the stigma projected onto them. Specifically, the research focused on blame, perceived dangerousness, and social distancing and how these three factors contributed to less social support for Black men. A similar quantitative study looking at 138 homeless persons in a large city in Washington, US (age: 18-70; 41% White, 27% Black, 13% Native American, 13% Bi-Racial) noted that being of a race other than White and being homeless created a sort of "double stigma," resulting in increased stigma for both statuses (Weisz & Quinn, 2017). The same study noted that the more an individual perceives stigma, the poorer the overall mental and physical health outcomes for that individual.

Structural racism and social barriers likely contribute to the disproportionate number of people of color experiencing homelessness (Rosenheck et al., 1998). A 2016 literature review looking at peer-reviewed publications regarding race and homelessness from 1985-2015 (Jones, 2016), found that only .08% of articles during their search were truly focused on race and homelessness. Jones (2016) found that participants who identified as Black and homeless were often younger, and if female, more likely to be a mother. Further, the studies reviewed showed that those who were White were experiencing problems due to internal stressors (ex. Family

history, psychopathology), where non-White participants experienced problems due to external stressors, specifically low socioeconomic status (SES) paired with discrimination on the basis of race.

Black persons are at a higher risk for homelessness due to low SES and structural racism (Carter, 2011; Jones, 2016). A two-part study done in 2011 looking at data 1990 and 2000 Decennial Census and the 1997 American Housing Survey (descriptive statistics vary based on sample) found that poverty, the growing gap of income discrepancy between Whites and Blacks, and housing discrimination force Black people to become homeless at a disproportionate rate. These discrepancies can be seen at both a national (National Alliance to End Homelessness; 2020) and state level (Wilder Research, 2018; Minnesota Interagency Council, 2020).

Adverse Childhood Experiences (ACEs)

Childhood trauma also increases the likelihood of mental health diagnosis and substance misuse in adulthood (Felitti et al., 1998; Karatekin et al., 2022). Given that an increased number of ACEs puts one at risk for mental illness, addiction, and numerous medical diseases, a public health burden is upon us as a result of the consequences of childhood trauma (Zarse et al., 2019). It has been over twenty years since the original ACEs study was published (Felitti et al., 1998). Felitti and colleagues created a measure to examine the link between early adversity and trauma and the influence of these experiences on overall health and well-being as an adult. Over 9,500 participants responded to the original ten-item ACEs survey. The ten experiences on the original ACEs survey included the following: psychological, physical, or sexual abuse; emotional or physical neglect; divorce; violence against mother; and living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned. Critical information was

recovered from the introduction of this measure on the influence of ACEs on health and well-being, as described below.

Felitti and colleagues (1998) noted that more than half of participants reported at least one ACE, with a quarter of participants endorsing two or more ACEs. The results suggested that, when compared to individuals who had zero ACEs, individuals with four or more were four to twelve times more likely to be at an increased risk for poor mental health, substance misuse, and attempting suicide. Since the original ACE study, the ACE measure has been used in a plethora of research studies and has confirmed that as the number of ACEs rise, so too do one's chances of poor mental health and substance misuse (Bellis et al., 2017).

ACEs and Mental Health

ACEs and mental health are closely associated (Felitti et al., 1998). A 2010 analysis of the World Health Organizations (WHO) world mental health surveys looked at the link between ACEs and mental health from over 51,000 participants and 21 countries (Kessler et al., 2010). Analyses showed that of the ten ACEs presented, having a parent with a mental health disorder, experiencing physical neglect, and experiencing physical or sexual abuse were most highly associated with a future mental health diagnosis. They further found that ACEs were expected to predict almost 30% of worldwide mental health disorders. Their research suggested that both the number of ACEs and the type of ACE likely influence the type of mental functioning one has in adulthood.

Specific mental health disorders and presentations may be associated with certain items on the ACE questionnaire (Kessler et al., 2010; Westermair et al., 2018). For example, a quantitative study looking at 396 inpatient psychiatric patients between 2005-2007 in Germany (no race/ethnicity demographic listed), found that disorders such as borderline personality

disorder (BPD), posttraumatic stress disorder (PTSD), and suicidal behavior were most highly associated with experiencing both maltreatment and sexual abuse (Westermair et al., 2018). Maltreatment alone, however, was most closely related to psychiatric disorders such as social phobia, panic disorder, anxiety, and depression. Another study's findings in a sample of 8,667 community participants from a metropolitan health maintenance organization (73% White) suggested that the number of maltreatment experiences in childhood is closely associated with the severity of mental health symptoms (Edwards et al., 2003). A 2017 quantitative study, using data from the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions ($N = 14,738$, age 50+, 70% White), found that all but one ACE (parental divorce) were associated with some type of mental health disorder or substance use (Choi et al., 2017). More specifically, one of the most predictive factors of depression and stress has been found to be childhood trauma (Mackelprang et al., 2014).

Further, the number of ACEs one endorses may be a risk factor in the type of mental health disorder an individual acquires later in life (Chang et al., 2019). Chang et al.'s (2019) findings, while looking at ACE prevalence of residents in China ($N = 1501$, age: 18-59), suggested that as the number of ACEs increase, one's likelihood to develop chronic depression or PTSD increased as well. In a 2020 quantitative study that looked at the mental health and substance use histories of those on an inpatient psychiatric unit in Philadelphia ($N = 79$, 67% Black), results found that 63% of participants with a comorbid mental health and substance use disorder had four or more ACEs (Philogene-Khalid et al., 2020). Furthermore, a 2006 quantitative study, using original ACE study data ($N = 17337$) found that as ACEs increase, comorbidities among patients triple (Anda et al., 2006).

Taken together, these findings show that the number of ACEs one experiences influences the likelihood of developing a mental health disorder in adulthood (Chang et al., 2019).

Additionally, the type of ACE experienced may influence mental functioning in adulthood (Kessler et al., 2010). Research suggests that the number and type of ACEs may influence both diagnosis and severity (Edwards et al., 2003; Kessler et al., 2010; Westermair et al., 2018).

Further, comorbid disorders are more likely as ACE numbers increase (Anda et al., 2006).

ACEs and Substance Use

ACEs are common among those with SUDs (Leza et al., 2021). Similar to Chang et al.'s (2019) finding about the relationship between cumulative ACEs and mental health vulnerability, these researchers also found that as ACE scores increase, SUDs become more frequent.

Additionally, a review analyzing 12 cross-sectional ACE studies found that having any ACE has been shown to make one more likely to be diagnosed with a SUD in adulthood, compared to individuals with no identified ACEs (Leza et al., 2021). A plethora of outcomes related to substance use have been correlated with ACEs; some of these outcomes include alcohol misuse, illicit drug use, and poor quality of life overall (Wu et al., 2010).

Alcohol misuse has been found to be connected to ACEs. A study conducted in Los Angeles, CA looking at participants in publicly funded treatment programs ($N = 402$; age: 18+; 44% White, 35% Black, 13% Latino) found ACEs to be highly correlated with substance misuse (Wu et al., 2010). A quantitative study ($N = 396$, no race demographics mentioned) found household dysfunction (violence against the attachment figure, substance abuse or incarceration of a household member, etc.) to be strongly associated with alcohol and nicotine misuse (Westermair et al., 2018). A secondary analysis of the Canadian Community Health Survey-Mental Health ($N = 21,554$, 77.5% White) also suggests that witnessing domestic violence

against a caretaker will increase the likelihood of alcohol dependence (Fuller-Thomson et al., 2016). Research suggests bearing witness to violence makes individuals more susceptible to alcohol-specific misuse in adulthood (Fuller-Thomson et al., 2016; Westermair et al., 2018). Abuse of the physical or sexual nature is also highly associated with participants' likelihood to have a substance use disorder linked to illicit drugs (Choi et al., 2017; Fuller-Thomson et al., 2016). Sexual abuse, specifically, is highly connected to the use of illicit substances for males (Choi et al., 2017).

A scoping review looking at 1,361 articles published from 1998-2018 regarding the method and measures of the ACE questionnaire offered a few criticisms for consideration on the body of ACE research (Karatekin et al., 2022). Most pertinent to the present study, research goals with clear aims associated with the prevention of ACEs are rare, making the screening tools in both research and practice based in theory, not practice. Additionally, recommendations made by researchers are generally vague, making formulating actionable steps quite difficult. Further, focus on mitigation rather than prevention has likely been harmful to the youth who are experiencing ACEs.

ACEs, Race, and Ethnicity

A criticism of the reviewed ACEs research is that demographic information on participant race and ethnicity across reviewed studies on ACEs and mental health are either heavily skewed with far more White participants, or race and ethnicity are not mentioned. Attention to the race and ethnicity of research participants experiencing childhood trauma is needed in future studies, as current findings are not based on incorporating race as a factor influencing the findings. As such, the results may not apply to marginalized groups due to their underrepresentation of race and ethnicity as a factor.

Current literature may lead one to think that race and ethnicity are the same. “Race” is often defined as the outward characteristics attributed to a group (ex. skin color, facial features), where “ethnicity” is the connection of one to a nation or culture (Flanagin et al., 2021). Despite the clear difference in definition, race and ethnicity are not often separated in the literature, but instead clustered into one category often called “race/ethnicity.” Due to this unfortunate lack of delineation, previous literature on the relationship between race/ethnicity and ACEs was reviewed as a single construct for the sake of this review. Additionally, it is important to note that race and ethnicity are often not mentioned in the literature, or only separated to “White” and “nonWhite.” This lack of specificity highlights the need for race- and ethnicity-specific research in order to better tailor policy, practice, and interventions to meet the needs of those experiencing marginalization and oppression in addition to the ACEs.

Differences have been found in the number of ACEs reported between racial/ethnic groups (Chang et al., 2019). A 2020 study investigated the prevalence of ACEs among a national, comprehensive, and diverse sample of over 200,000 participants (79% White) (Giano et al., 2020). The results showed that those who identified as multi-race had a higher ACE mean (2.39) than any other race participating. White participants had the lowest average (1.53), with Black and Hispanic individuals scoring 1.66 and 1.63 respectively.

A similar 2018 quantitative study looked at differences in both the number and type of ACEs reported between races (Mersky & Janczewski, 2018) in a sample of women ($N = 1523$, age: 16-50, 36.1% non-Hispanic White, 27.7% non-Hispanic Black, 22.1% were Hispanic, 7.4% non-Hispanic American Indian, and 6.7% other race) participating in the Family Foundations Home Visiting (FFHV) program in Wisconsin. The research found that mean scores for all races were in the 2-4 range, with American Indians having the highest mean score of 3.92. Other

scores include 2.72 for those who identified as Hispanic, 3.25 for those whose race they self-identified as “Other,” 2.8 for those who self-identified as Black, and 3.8 for those who identified as White. The same study identified that there may have been underreporting by participants of color as it has been shown that people of color are less likely to report instances of abuse or neglect when compared to their White counterparts (Mersky & Janczewski, 2018). Though Mersky & Janczewski (2018) showed higher ACE scores overall among its participants when compared to Giano et al. (2020), it is important to note that Mersky & Janczewski (2018) looked only at low-income individuals, where Giano et al. (2020) looked at individuals of multiple socioeconomic status’. Results from Giano et al. (2020) also showed that low-income individuals reported higher ACE scores than their high-income counterparts.

Other literature has documented similarities across racial groups in terms of experienced ACEs. For example, in a 2007 study that looked at ACEs and their impact on those who identified as Black, Hispanic, and White ($N = 1093$; 49% White, 21% Black, 11% Hispanic), the rate of ACEs experienced were similar across racial/ethnic groups (Schilling et al., 2007). Especially alike between races were the percentages of those who endorsed parent separation, being sent away from home, physical abuse, and neglect. A 2017 study ($N = 60,598$; age: 18-99; 83% White) found that the most prevalent ACE reported by each racial group, emotional abuse, was not significantly different (Lee & Chen, 2017). However, this same study found that household challenges were significantly different based on race. ACEs to be considered “household challenges” included drug abuse, mental illness, parental separation/divorce, incarceration history, and attachment figure intimate partner violence. These challenges were reported more often by those who identified as Hispanic and Black, where physical and alcohol abuse in an attachment figure were more highly endorsed in those who identified as White.

Additionally, those participants who identified as Black were far less likely to report child abuse than their White counterparts.

Taken together, it is important to acknowledge that race and ethnicity are not the same (Flanagin et al., 2021). Research has shown that overwhelmingly, communities of color report a higher number of ACEs than their White counterparts (Giano et al., 2020). In instances where White participants had high ACE scores similar to participants of color, cultural considerations were still acknowledged when analyzing data in order to counteract the underreporting that occurs occasionally from non-White demographics, such as when participants of color were less likely to endorse instance of abuse or neglect in the home (Mersky & Janczewski, 2018). A separate study found that participants of color are far more likely to report household challenges than abuse and neglect (Lee & Chen, 2017). This finding suggests the racial and ethnic background of participants should be taken into consideration when investigating ACEs in clinical samples.

Homelessness and ACEs

ACEs are a clear and empirically-supported risk factor for adult homelessness (Herman et al., 1997; Montgomery et al., 2013). Both ACEs and homelessness have risen to epidemic proportions, and should both be considered public health crises (Moss et al., 2020; Zarse et al., 2019). Numerous research studies suggest homelessness and ACEs are tightly linked. One archival study, using data from the 2001-2002 and 2004-2005 National Epidemiologic Survey of Alcohol and Related Conditions ($N = 34,653$, age: 20+, 56% White), identified that as childhood traumatic events increase, so does the likelihood one will become chronically homeless (Roos et al., 2013). Similarly, a qualitative study looking at men in Canada who had experienced long-term homelessness and complex trauma ($N = 24$, age: 24-63, race and ethnicity not mentioned)

found early childhood adversity to be a powerful predictor of whether one will become and remain homeless (Woodhall-Melnik et al., 2018).

Whether an individual experiences homelessness only as a child or as an adult appears to have an impact on the types of ACEs experienced (Mar et al., 2014; Radcliff et al., 2019). A cross-sectional study looking at abuse and neglect as it related to experiences of homelessness in British Columbia, Canada ($N = 500$, age: 19-66, 56% White), reported that experiencing homelessness as a child not only made the individual more likely to report four or more ACEs, but also more likely to have increased exposure to all types of ACEs (Mar et al., 2014). Mar et al. (2014) also found that experiencing physical abuse, emotional abuse, or emotional neglect made individuals more likely to report a younger age of first homeless experience. Similarly, a 2019 descriptive cross-sectional, utilizing an earlier South Carolina Behavioral Risk Factor surveillance system ($N = 7490$; age: 18-79; 67% White) found that homelessness in childhood made one far more likely to report four or more ACEs (Radcliff et al., 2019). Most frequently reported ACEs from the aforementioned study included divorce, emotional abuse, and living with a problem drinker (Radcliff et al., 2019). The presence of abuse or neglect, in general, correlated with an earlier primary onset of homelessness, likely to be experienced in childhood (Mar et al., 2014; Radcliff et al., 2019). Adulthood consequences of homelessness and ACEs include reduced participation in the workforce and lessened service utilization (Tam et al., 2003a), both of which fuel the cycles that homelessness and ACEs perpetuate (ex. housing instability and increased healthcare costs) (Giano et al., 2020).

Homelessness, ACEs, and Mental Health

Research suggests high ACE scores are associated with more mental health difficulties in the homeless population (Lee & Chen, 2017; Liu et al., 2020). A study of homeless persons in

the United Kingdom ($N = 150,000$, 76% White British) found that four or more ACEs resulted in low satisfaction of life and mental health challenges (Bellis et al., 2017). These findings are in line with the original ACE study that suggests four as a cutoff for ACEs where once one hits four, their likelihood for a multitude of issues, including mental health, increases (Felitti et al., 1998).

Depression has been shown to be common among those with high ACE numbers in the homeless population (Lee et al., 2017; Liu et al., 2020). A previously mentioned 2007 study that looked at ACEs and their impact on those who identified as Black, Hispanic, and White ($N = 1093$; 49% White, 21% Black, 11% Hispanic) suggested that a diagnosis of depression is especially likely if one endorses 8/10 ACEs (Schilling et al., 2007). A more recent quantitative study looking at homeless persons in Oakland, CA ($N = 350$, age: 50+, 79% African American), suggested that having even one ACE in their history increased the likelihood a lifetime occurrence of moderate to severe depression (Lee et al., 2017). The same study found that not only do ACEs increase the likelihood of depression, but that having one ACE increased the odds (up to a 45-fold increase) that the homeless individual would have a history of suicide attempt(s) over their lifetime. Additionally, the need for and usage of inpatient psychiatric care for homeless individuals has been linked to four or more ACEs (Lee et al., 2017).

Severe mental illness has been substantively linked to endorsing four or more ACEs within the homeless population, as determined by descriptive statistics utilizing the data of 595 homeless individuals who were participating in the Housing First Intervention from 2009-2013 in Toronto, Canada (age: 18-80, 35% Black, 35% White) (Liu et al., 2020). Liu et al. (2020) additionally concluded that homeless participants were reporting, on average, four of the ten ACEs regardless of mental health status. The same study found that higher ACE scores were

positively associated with more severe psychopathology in their participants (Liu et al., 2020). Further, co-occurring disorders were found to be more common among the homeless participants with a high ACE score (four or more).

Homelessness, ACEs, Mental Health, and Race. The link between homelessness and ACEs can further be explored through race (Graf et al., 2022; Smith et al., 2021). A recent qualitative study found that among 39 female African American participants, ACEs were the leading cause of homelessness in adulthood (Graf et al., 2022). Graf et al. (2022) further stated that the intersectionality of homelessness, childhood trauma, mental health, and race are a result of systematic inequality and a lack of societal resources and support for these communities.

An increase in the number of ACEs reported is not specific to African American homeless individuals alone; Indigenous persons who experience homelessness have a higher number of ACEs when compared to their White counterparts as well (Smith et al., 2021). In a 2021 study looking at the link between Indigenous identity and homelessness, the self-reported data ($N = 91$, age: 16+) showed that those who came from Indigenous backgrounds were likely to experience more childhood adversity (Smith et al., 2021). The same study found that the number of ACEs that participants reported directly influenced the severity of their mental health. Specifically, the number of ACEs reported put those who identify as Indigenous and homeless at a disadvantage when it comes to their mental health, as they are more likely to experience adversity in childhood when compared to their White counterparts (Smith et al., 2021). The number of ACEs reported was associated with increased likelihood of comorbidity as well.

Taken together, higher ACE scores in the homeless population lead to an increased report of mental health difficulties (Liu et al., 2020). Homeless persons with childhood trauma are far more likely to not only report depression, but also to report at least one suicide attempt in their

lifetime (Lee et al., 2017). While having even one ACE increases the likelihood of a mental health diagnosis, homeless persons consistently report four or more ACEs (Lee et al., 2017; Liu et al., 2020). Despite a growing body of research on ACEs and their effects, generalizability of studies continues to be a concern among the literature. Specifically, limited studies have shown whether marginalized racial groups show the same relationship between ACEs and mental health compared to the general population. Although some research has been done to show the disproportionate number of ACEs associated with people of color, specific recommendations for those who are homeless, have childhood trauma, are a marginalized race or ethnicity, and experiencing mental health issues have not been formulated or put into practice and therefore require additional data and attention.

Homelessness, ACEs, and Substance Misuse

As previously reviewed, research establishes homelessness as a prevalent risk factor for substance misuse (Jurewicz et al., 2021; Moss et al., 2020; Narendorf, 2017). Substance misuse is particularly common among those who are homeless and have also experienced childhood trauma (Tam et al., 2003a; Zlotnick et al., 2004). Being subjected to severe childhood adversity has been specifically related to drug abuse in adult homeless women in Spain ($N = 138$) (Guillén et al., 2020) which found that the more stressful life events that occur before the age of 18, the more likely one was to misuse substances in adulthood. In this sample, the most commonly used substances among the homeless women were sedatives (48%), alcohol (36%), cocaine (41%), cannabis (39%), and heroin (26%). Research has shown that ACEs among a homeless sample ($N = 397$, no racial breakdown provided) were directly associated with heavy substance misuse of drugs, with over 78% of those who used heavy drugs reporting at least one ACE as compared to those who did not participate in heavy drug use (Zlotnick et al., 2004).

Homelessness, ACEs, Substance Use, and Race. Race of participants in studies on homelessness and participant substance misuse have been found to be closely related (Santa Maria et al., 2018). A 2018 study looking at ACEs and homeless youth from Harris County, TX ($N = 416$, age: 13-24, 54% African American, 13% White, 11% Hispanic, 5% Other) found race/ethnicity to be significantly associated with substance use with those identifying as White and those identifying as Hispanic as more likely to participate in substance misuse (Santa Maria et al., 2018). The average ACE number among participants was 4.3, again reinforcing that when participants endorse four or more ACEs, they are at a far higher risk for developing a substance misuse disorder regardless of age at onset of homelessness. The intersectionality between childhood trauma, mental health, and substance misuse, coupled with the addition of the marginalization of being homeless suggests additional data may be helpful in order to inform future policy, practice, and intervention assembly.

Taken together, current evidence suggests homeless persons are at a far greater risk for substance misuse than the general population (Moss et al., 2020). Despite race/ethnicity being significantly associated with substance use in the homeless population (Santa Maria et al., 2018), little research has been done to determine the influence of race on the interaction between ACEs and substance misuse in the homeless population. Understanding how race and ethnicity influence clinical practice for an already marginalized population (homeless persons) would help clinicians to advocate for better policy and practice for the treatment of these populations.

Rationale

Homeless individuals endorse more ACEs than the housed, and these ACEs put homeless individuals at a higher risk for long-term housing insecurity (Roos et al., 2013), mental health diagnosis, and substance use disorders (Liu et al., 2020). The ACEs questionnaire attempts to

shed light on three main categories of difficult events in childhood (abuse, neglect, and family dysfunction) through ten ACEs (Felitti et al., 1998). A recent study found that homeless participants were reporting, on average, four out of ten ACEs (Liu et al., 2020). Similarly, a 2019 cross-sectional study found those with four or more ACEs were 16 times more likely to have been homeless at some point in their lifetime than those with fewer than four ACEs (Liu et al., 2020). As Minnesota is ranked 15th in the country for homeless individuals per capita (*Minnesota Homelessness Statistics, 2020*), research focused on better understanding the experiences of homeless people would benefit the state, institutions that support homeless persons, as well as those who experience and are affected by homelessness.

Not only have ACEs been found to impact the likelihood of adult homelessness (Chapman et al., 2004; Philogene-Khalid et al., 2020), an increased number of ACEs has also been linked to adult mental health issues (Montgomery et al., 2013). As the number of ACEs an individual reports increases, so does the likelihood of developing a mental health disorder. This relationship makes it important to continue work focused on how the number and type of ACEs impact mental health functioning (Chapman et al., 2004). Previous research on the connections between homelessness, ACEs, and mental health has historically focused on depression (C. M. Lee et al., 2017; Schilling et al., 2007); however, the link between homelessness, ACEs, and mental health has more recently been linked to severe psychopathology (Liu et al., 2020).

The number of ACEs experienced by a homeless person has also been closely linked to the likelihood they will misuse substances (Guillén et al., 2020). Some research suggests the link between homelessness and ACEs results in heavy illicit drug use (Zlotnick et al., 2004). Other studies suggest alcohol to be the most problematic among homeless individuals who report ACEs (Eyrich-Garg et al., 2008; Narendorf, 2017). Further, those who are homeless often use

tobacco and alcohol far more than the general public (Guillén et al., 2020). Despite the discrepancy among the literature as to what substance is used most among this population, it is clear that substances are misused at a higher rate than in the home population (Eyrich-Garg et al., 2008; Guillén et al., 2020; Narendorf, 2017). An unfortunate consequence of the relationship between ACEs and substance misuse for homeless individuals is a decrease in job participation, as well as use of social services (Tam et al., 2003a).

Although there is a plethora of information about ACEs, including research establishing the relationship between ACEs, mental health, and substance misuse in the homeless population, little research has been done to show the impact of race on these relationships. Multiple studies throughout this review disregarded racial or ethnic variables when sharing their findings (e.g., Aubry et al., 2016; Mabhala et al., 2017; Woodhall-Melnik et al., 2018), despite census data showing that communities of color are more likely to experience homelessness at higher rates (National Alliance to End Homelessness, 2020). Similarly, people of color have been shown to endorse more ACEs than their White counterparts (Giano et al., 2020). With less access to health care, and more barriers (including discrimination in the health care system), racial and ethnic factors ought to be considered moving forward when treating those with a low SES, ACEs, and a mental health and substance misuse diagnosis (Beech et al., 2021).

Given the gap in our understanding of the influence of ACEs on the mental health and substance use needs of the homeless population in the context of racial and ethnic differences, the following aims and hypotheses were developed:

Aim #1: To investigate whether the number of ACEs among homeless individuals of different races and ethnicities impact the number of depression symptoms they endorse.

Hypothesis #1: As the number of ACEs increase, the likelihood of a mental health diagnosis in the homeless population will also increase. This hypothesis is in line with previous literature showing that as the number of ACEs increases, the likelihood of a mental health disorder will increase as well (Kessler et al., 2010; Mackelprang et al., 2014).

Hypothesis #2: Marginalized racial identity status will moderate the relationship between ACEs and presence of mental health diagnosis. Specifically, for those with a marginalized identity status, the relationship between ACEs and presence of mental health diagnosis will be stronger than for those who identify as White. Previous literature supports this hypothesis in showing that people of color are more likely to endorse a higher number of ACEs, and those with more ACEs are at a greater risk for developing a mental health disorder in their lifetime (Lee et al., 2017; Liu et al., 2020).

Aim #2: To investigate whether the number of ACEs among homeless individuals of different races and ethnicities impact the longevity of substance use symptoms they will endorse.

Hypothesis #3: As the number of ACEs increase, current severity of substance misuse (last 30 days) in the homeless population will increase. Previous literature supports this hypothesis showing that homeless persons are at a greater risk for misusing hard drugs heavily (Zlotnick et al., 2004).

Hypothesis #4: As the number of ACEs increase, severity of substance misuse in the long term (last two years) in the homeless population will increase. Previous literature supports this hypothesis showing that homeless persons are at a greater risk for misusing substances over the long-term (Guillén et al., 2020).

Hypothesis 5: Marginalized racial identity status will moderate the relationship between ACEs and current severity of substance misuse (30 days). Specifically, for those with a

marginalized identity status, the relationship between ACEs and severity of substance misuse will be stronger than for those who identify as a part of a non-marginalized identity.

Hypothesis 6: Marginalized racial identity status will moderate the relationship between ACEs and severity of substance misuse in the long term (last two years). Specifically, for those with a marginalized identity status, the relationship between ACEs and severity of substance misuse will be stronger than for those who identify as a part of a non-marginalized identity.

These hypotheses are in line with previous literature showing that people of color are more likely to experience high levels of ACEs compared to White individuals (Giano et al., 2020) and there is evidence that greater ACEs are associated with an increased likelihood of developing a substance misuse disorder (Santa Maria et al., 2018). As such, it is expected that there will be a stronger current association between ACEs and substance misuse in BIPOCs (Giano et al., 2020; Santa Maria et al., 2018).

Method

Participants

The current study utilized archival data from the Minnesota Homeless Study conducted on October 25, 2018 by Wilder Research. It is considered to be a point-in-time study with interviews conducted with homeless persons in emergency shelters, domestic violence shelters, transitional housing programs, social service agencies, encampments, and abandoned buildings.

Over 1,000 volunteers were trained by Wilder Research to conduct the interviews across 300 locations. Participants in the study were given cash in the amount of \$10 as appreciation for their participation. The *2018 Homeless Study* instrument was used and has substantially grown since the study's inception in 1991. Housing advocates, policy makers, funders, state planners, and researchers have generated the questions in the instrument. Standard questions, which have been tested at other times, were used in the instrument whenever possible (Wilder Research, 2018).

Data was collected on a single day, statewide. The Minnesota Homeless Study sought to capture data by two means: face-to-face interviews, as well as a count of those experiencing homelessness in Minnesota. Wilder obtained count tallies by partnering closely with local homeless service providers who kept a close count of homeless persons on the night the study interviews were conducted. In order to be included in the study, participants had to meet the federal definition of homelessness, which is defined by the United States Department of Housing and Urban Development (HUD) as “a person sleeping in a place not meant for human habitation (e.g. living on the streets, for example) OR living in a homeless emergency shelter” (United States Department of Housing and Urban Development, 2019). The study also included those who had lost their primary residence, those who were attempting to escape domestic violence,

those who were near homeless on American Indian reservations, or had the inability to obtain stable housing due to lack of resources (Wilder Research, 2018).

In total, the study interviewed 4,181 adult participants. Among these participants, 37% were Black, 34% were White, 12% were American Indian, 8% were Hispanic, 2% were Asian American, and 7% were multi-racial or identified with another ethnic group not mentioned above. Additionally, 10% of adults in the study identified as being a part of the LGBTQIA+ community. Participants were excluded if they answered “not sure” or “not applicable” to any of the demographic, mental health, or substance use criteria. Any participant with missing data in any of the aforementioned variables was excluded as well. These exclusion criteria resulted in a final sample size of 412 for the current study.

Verbal consent was obtained prior to starting the interview, and no identifying information was collected.

Procedures

Archival data was received by the author of the current study from the 2018 Minnesota Homeless Study by Wilder Research. A de-identified SPSS file was provided by staff from the Amherst H. Wilder Foundation. The SPSS file contained data needed for the present study, including but not limited to demographic information, adverse childhood experiences, substance misuse, and mental health variables.

Materials

Due to the archival nature of the present study, no materials were needed.

Measures

Conventional ACEs Measurements. Seven items made up the ACEs scale on the MN Homeless Study. Table 1 compares the original ACE questionnaire to the ACEs used on the Minnesota Homeless Study.

Table 1

Original ACEs Questionnaire

MN Homeless Study Questions

While you were growing up, during your first 18 years of life...

Did an adult or person at least five 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 with you?

As a child, were you ever sexually mistreated or abused?

Yes – 1

No - 0

Did a parent or other adult in the household often push, grab, slap, or throw something at you, or ever hit you so hard that you had marks or were injured?

As a child, were you ever physically mistreated or abused?

Yes – 1

No - 0

Did a parent or other adult in the household often swear at you, insult you, put you down, or humiliate you, or act in a way that made you afraid you might be physically hurt?

No question included in the Minnesota Homeless Study

Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?

As a child, did you ever live with someone who was a problem drinker, alcoholic, or drug user?

Yes – 1

No - 0

Was a household member depressed or mentally ill, or did a household member attempt suicide?

As a child, did a parent or guardian ever struggle with mental health issues?

Yes – 1

No – 0

Was your mother or stepmother often pushed, grabbed, slapped, or had

As a child, did you witness abuse of another family member?

something thrown at her, or sometimes or often kicked, bitten, hit with a fist, or hit with something hard or ever repeatedly hit over at least a few minutes or threatened with a gun or a knife?	Yes – 1 No - 0
Did a household member go to prison?	As a child, did either of your parents ever go to prison? Yes – 1 No - 0
Did you often or very often feel that no one in your family loved you or thought you were important or special, or your family didn't look out for each other, feel close to each other, or support each other?	No question included in the Minnesota Homeless study
Did you often or very often feel that you didn't have enough to eat, had to wear dirty clothes, and had no one to protect you, or your parents were too drunk or high to take care of you or take you to the doctor if you needed it?	Did your parents ever neglect to provide you with food, shelter, or medical care, or leave you for long periods of time when you were too young to be on your own? Yes – 1 No - 0
Were your parents ever separated or divorced?	No question included in the Minnesota Homeless Study

Note: Verbal abuse, emotional neglect, and parental divorce are not included in this study as they are not present on the 2018 MN Homeless Study.

All items related to ACEs on the Minnesota Homeless Study were binary responses (yes/no), with a “refused” or “don’t know” option as well. Participant who chose the response “refused” or “don’t know” were excluded from study data analysis. A score from 0-7 was obtained, with 7 being the highest number of ACEs a participant can endorse.

Due to the nature of the scale used for the current study being created by the author, no previous research has investigated the reliability or validity of the scale. To address this issue, the items in this measure are based on the original ACE measure which has been widely utilized

in psychological research for 24 years. There is research on the reliability of the original ACEs measure upon which this study scale is based. Good test-retest reliability has been established on the original ACE measure utilizing a kappa coefficient analyses from -1 to +1 with +1 meaning the test is perfectly consistent (Dube et al., 2004). The ACE measure as a whole, as well as individual ACE questions, were found to be moderately to substantially consistent across time. Utilizing a sample of 658 participants (81% White) from Kaiser Permanente's Health Appraisal Center (HAC) in San Diego California, Dube et al. (2004) found responses and overall scores on the ACE questionnaire to be stable over time despite being retrospective as established by the kappa coefficient analyses (0.52 – 0.72). The original ACE measure does not have any founded validity (Bethell et al., 2017). Instead, items were considered as valid from the self-report of the parents involved in the original study. The observable nature of each ACE (face validity) was heavily relied on for the current study. However, the MN Homeless Study measure is modeled after the well accepted original ACE measure.

A Kuder Richardson test was done to establish reliability of the measure used in the current study ($\alpha = 0.73$; acceptable). The Kuder Richardson (KR) test is appropriate as it is used to measure the reliability, or internal consistency, of dichotomous variables. A score for the KR ranges from 0 – 1. The closer the score is to 1 the more reliable or consistent the measure is considered. Kuder Richardson scores with a range from 0.5 – 0.8 is generally acceptable (Wombacher, 2017), with scores of 0.35 – 0.7 considered acceptable for most research proposals (Jacob, 2017).

Mental Health Diagnosis. Whether a mental health diagnosis was present in participants was determined by six items, all of which have the same prompt (“In the last two years, have you been told by a doctor or nurse that you have any of the following conditions?”)

and the following response options: “yes,” “no,” “refused,” and “don’t know.” The conditions listed include: schizophrenia or another paranoid or delusional disorder; bipolar disorder, manic episodes, or manic depression; major depression or clinical depression; obsessive-compulsive personality or any other severe social or personality disorder; post-traumatic stress disorder (PTSD); and anxiety disorder or panic disorder.

All items related to mental health on the Minnesota Homeless Study were binary responses (yes/no), with a “refused” or “don’t know” option as well. Participants who chose the response “refused” or “don’t know” were excluded from study data analysis. If participants endorsed ANY mental health diagnosis, they were coded as a 1 for its presence. In order to be coded as a 0, participants had to have denied the presence of any mental health diagnosis.

Substance Use. Two substance use measures were created by the author to determine the current (within the last 30 days) and long term (within last two years) severity of substance use concerns that individuals were endorsing.

A current substance use measure of ten items was created by the author (score of 0 – 10). See Table 2 for a list of questions and the breakdown of how questions are clustered and scored for the measure of current substance misuse, within the last 30 days. The more substances reported within the last 30 days, the higher the current severity of substance misuse.

A long-term substance use measure of four items was created by the author (score of 0 – 4). Table 3 contains a list of questions and the breakdown of how questions are clustered and scored for the measure of long-term substance misuse within the last two years. The higher the score from 0 – 4, the higher the severity of substance misuse within the last two years.

Due to the nature of both scales being created by the author, there is no clear validity or reliability. Face validity is heavily relied on for this measure. Although use does not necessitate

dependence (Katz et al., 2011), the more substances the participant endorses, the higher likelihood they may be at a risk for substance misuse disorder (Table 2) (Guillén et al., 2020). Additionally, the items asking about whether or not a participant attended any kind of treatment (treatment facility, outpatient, detox center) would suggest increased use of the health care system (Table 3) (Moulin et al., 2018). A Kuder Richardson test was performed in order to establish reliability of the current substance use measure ($\alpha = 0.69$) and the long-term substance use measure ($\alpha = 0.579$). Because Kuder Richardson scores with a range from 0.5 – 0.8 is generally acceptable (Wombacher, 2017), with scores of 0.35 – 0.7 considered acceptable for most research proposals (Jacob, 2017), both measures were considered acceptable for the current study.

Table 2 <i>MN Homeless Study Questions</i>	<i>Scoring</i>
In the last 30 days have you used crack or any kind of cocaine?	Yes - 1 No - 0
In the last 30 days have you used heroin?	Yes - 1 No - 0
In the last 30 days have you used codeine, morphine, fentanyl, or another opioid?	Yes - 1 No - 0
In the last 30 days have you used meth (methamphetamines)?	Yes - 1 No - 0
In the last 30 days have you used alcohol?	Yes - 1 No - 0
In the last 30 days have you used marijuana?	Yes - 1 No - 0
In the last 30 days you used synthetic stimulants (bath salts, K2, synthetic marijuana)?	Yes - 1 No - 0
In the last 30 days have you used other (non-opioid) pharmaceutical drugs not prescribed to you?	Yes - 1 No - 0

Do you feel like you now need to see a health professional for any drug or alcohol problems?	Yes - 1 No - 0
Are there any medications for an alcohol or chemical abuse problem that you are not taking?	Yes - 1 No - 0

Table 3 <i>MN Homeless Study Questions</i>	<i>Scoring</i>
In the last two years have you ever been treated in an outpatient alcohol or drug treatment program?	Yes - 1 No - 0
During the last two years have you been told by a doctor or nurse that you have an alcohol abuse disorder?	Yes - 1 No - 0
During the last two years have you been told by a doctor or nurse that you have a drug abuse disorder?	Yes - 1 No - 0
In the last 12 months have you been admitted to a detox center?	Yes - 1 No - 0

Race and Ethnicity. Two items were used to determine the race and ethnicity of participants. The first item, determining ethnicity, is “are you of Hispanic or Latino origin” with the options: yes, no, refused, or don’t know. Those who answered “refused” or “don’t know” were excluded for the purposes of this study. The second item, determining race, is “is your race or ethnic background... (CHECK ONE)” with the options: African American; African born, yourself or a parent; Asian or Pacific Islander; White or Caucasian; American Indian; Some other group; refused; or don’t know. Participants who answered “refused” or “don’t know” were excluded for the purposes of this study.

In the current study, participants were separated into two groups: those who identified as White, and those who identified as any other racial group, which was defined as all BIPOC participants. Participants were separated into two groups, in order to have sufficient sample sizes

to detect statistically significant discrepancies between White individuals and those with marginalized identities.

Research design. The Minnesota Homeless Study is a quantitative, non-experimental research design, as is the current study.

Data analysis. The first and second hypothesis both utilized a logistic regression analysis. The first hypothesis was that as the number of ACEs increases, the likelihood of a mental health diagnosis in the homeless population would also increase. The independent variable is the number of ACEs and the dependent variable is likelihood of mental health diagnosis. The main effect of number of ACEs on mental health diagnosis endorsement answered hypothesis one.

A moderation analysis was conducted to answer the second hypothesis; specifically, marginalized racial identity status will moderate the relationship between ACEs and presence of mental health diagnosis. That is, for those with a marginalized identity status, the relationship between ACEs and the presence of a mental health diagnosis will be stronger than for those who identify as White. The independent variable is number of ACEs, the dependent variable is likelihood of mental health diagnosis, and the moderator variable is racial or ethnic identity. The main effect of number of ACEs on mental health diagnosis endorsement with race as a moderating factor answered hypothesis two.

A correlation was utilized for the third hypothesis. The third hypothesis was that as the number of ACEs increase, severity of current substance misuse in the homeless population will increase. The independent variable is the number of ACEs and the dependent variable is severity of current substance misuse. The correlation between the number of ACEs and severity of substance misuse answered hypothesis three.

A correlation was utilized for the fourth hypothesis. The fourth hypothesis was that as the number of ACEs increase, severity of long-term substance misuse in the homeless population will increase. The independent variable is number of ACEs and the dependent variable is severity long term substance misuse. The correlation between the number of ACEs and severity of long-term substance misuse answered hypothesis four.

A linear regression with moderation analysis was utilized for the fifth hypothesis. The fifth hypothesis was that each separate marginalized racial identity status will moderate the relationship between ACEs and severity current substance misuse. Specifically, for those with a marginalized identity status, the relationship between ACEs and severity of substance misuse will be stronger than for those who identify as a part of a non-marginalized identity. The independent variable is number of ACEs, the dependent variable is severity of current substance misuse, and the moderator variable is racial/ethnic identity. The main effect of number of ACEs on severity of current substance misuse with race as a moderating factor answered hypothesis five.

A linear regression with moderation analysis was utilized for the sixth hypothesis. The sixth hypothesis was that each separate marginalized racial identity status will moderate the relationship between ACEs and severity of long-term substance misuse. Specifically, for those with a marginalized identity status, the relationship between ACEs and severity of long-term substance misuse will be stronger than for those who identify as a part of a non-marginalized identity. The independent variable is number of ACEs, the dependent variable is severity long term substance misuse, and the moderator variable is racial/ethnic identity. The main effect of number of ACEs on severity of long-term substance misuse with race as a moderating factor answered hypothesis six.

Power and effect size. This study utilized an archival dataset, therefore power and effect size for study results were calculated utilizing the G*Power software. Given our sample size of 412, assuming an alpha of 0.05 and a power of 0.8, we would be able to detect a small effect size of 0.14 for correlation analyses. Given our sample size of 412, assuming an alpha of 0.05 and a power of 0.8, we would be able to detect a small effect size of 0.02 for the linear regression analyses.

Software. The software used to analyze this study was SPSS Version 28.

Ethical Issues

Consent. The data obtained for this study is archival. Therefore, informed consent was obtained from study participants before partaking in the Minnesota Homeless Study. Eligible participants provided verbal consent prior to participating in the survey. No identifying information was collected from participants; therefore, further consent was not needed for future research per the APA ethics code (Section 8.05). No further consent was needed for the present study as no participants in the original study gave any identifying information. The first page of the survey script with the intent for verbal consent is located in Appendix A.

Risk. The present study employed archival data, identifying information was not collected from participants and was not be provided by Wilder Research, and informed consent was obtained to be used for future research purposes; therefore, there was no additional estimated risk to participants as a result of this study.

Deception. No deception was involved as this was an archival research study.

Confidentiality. Wilder Research assigned individuals random identification numbers in the identification process. The SPSS file contained no identifying information.

Information and Debriefing. Information and debriefing of study participants does not apply due to the archival nature of the study. No debriefing took place. Wilder Research will be provided a copy of the Clinical Research Project in full once it is completed and ready to submit for publication.

Retention of Data. Data is stored on a secure server at the Amherst Wilder Foundation. Data was provided to this author on the de-identified SPSS file (demographic information, ACEs, mental health and substance use questions). A secure thumb drive will be kept for 5 years after the completion and submission of the present Clinical Research Project. After the 5 years has been completed, the data will be permanently deleted. If publication is pursued, data will be preserved on the secured thumb drive for an additional five years from the publication date and then deleted permanently per APA guidelines.

Permissions. Permission was granted and data was provided by Brian Pittman, Research Scientist at Wilder Research (Appendix B).

Conducting Research on Marginalized Populations. The APA released its first multicultural guidelines in 2002 (APA, 2002). A decade earlier, a content analysis article stated that even in articles explicitly published about African Americans, most of the subjects were White and middle class (Graham, 1992). The article further describes how the larger body of literature has featured a steady decline in publications about African Americans since the 1970's, and even goes so far as to say that psychology in the 1990s was raceless. Today, the APA's multicultural guidelines are updated every ten years, with the most recent guidelines published in 2017 (APA, 2017). Given that the current research study explores race as a moderating variable, the following pages explore why research on racial differences has historically been overlooked

when studying the homeless population and how psychologists could better represent those from varied racial backgrounds in future research studies with homeless persons.

Race and ethnicity have often been overlooked in both research and clinical practice. Prior to the 2002 multicultural guidelines (APA, 2002), little guidance was given around working with those from diverse backgrounds. Graham (1992) suggested five possible explanations for the absence of research on African Americans specifically. By 1992, the pool of African American psychologists was significantly reduced due to education accessibility issues. Second, there was a preference for race research to be published in non-APA journals due to omission of participants and data, as well as explicit racism within the APA at the time. Third, significant fear regarding publishing research around social issues and the potential backlash stopped psychologists from seeking out a diverse participant pool. Fourth, bandwagon effects (e.g., a topic being heavily researched when the topic is popular, but quickly forgotten once the topic falls out of popularity) were often present and short-lived, such as the “difference versus deficit” discussion surrounding Black English Vernacular. And finally, changes in the ideas, feelings, and attitudes of the era (e.g., less research on the functioning of psychological forces on social influences) resulted in fewer publications featuring African American participants (e.g. developmental psychology disregarding the differences of the lifespan between White and Black participants until recently). Although Graham (1992) focuses largely on African Americans, many of these issues continue in some form for other racial or ethnic groups as well; including but not limited to the Hispanic, Latino, Asian, and Indigenous communities.

More recent psychological research literature asserts that studies which incorporate diverse populations ought to include diversity of thought, culture, and measures (APA, 2017). Multiple modes of accommodation regarding data collection and analysis have been suggested in

order to ethically work with diverse populations in both research and practice. The suggestions most pertinent to the current research study are examined in some detail below.

A 2014 literature review examining the prevalence of race related articles in educational psychology journals suggested that Critical Race Theory (CRT) should be a consistent aspect of the applied theoretical framework when developing studies that seek to understand race more fully (DeCuir-Gunby & Schutz, 2014). CRT is the theoretical framework where one analyzes history with race as a central focus. The authors suggest that by allowing CRT to inform theory, the research then has more depth and application for the people-group it is studying.

A more recent 2020 literature review suggests we simply follow the “golden rule” when conducting research on those with marginalized identities (Chesser et al., 2020). To expand, Chesser et al. (2020) suggest embracing inclusivity to the fullest extent. They propose modifying projects to make diverse participation more accessible and extending safety protocols to protect the identities of historically marginalized participants, of whom many take advantage. These authors’ final and perhaps most important suggestion, is to only operate research projects if the outcome of said project benefits the diverse community as much, if not more, than the scientist or company sponsoring the research.

Similarly, an executive summary outlining clinical implications of the APA’s multicultural guidelines (APA, 2017) on practice, research, and consultation suggests a Bi-Directional Model for working with multicultural populations (Clauss-Ehlers et al., 2019). This study hopes to assist psychologists in identifying, understanding, and responding to individuals from communities different than their own. When done ethically, psychologists can then support and encourage marginalized identities in a manner that benefits the individual. Specifically, the Bi-Directional Model suggests practitioners understand the value of multicultural persons as an

individual in the community and as a practitioner in the profession. These values were utilized upon interpretation on the results of the present study.

Further, as the present study's sample is entirely made up of those who are people without fixed, regular, or adequate nighttime residences special care was taken when deciding how to refer to such population within the context of the present paper. A 2020 survey found that "homeless persons" or "persons experiencing homelessness" to be the most widely accepted terms (Tsai et al., 2023). Tsai et al. (2023) additionally outline that best practice is to ask individuals how they would like to be addressed; however, given the archival nature of the present study "homeless persons" and "those experiencing homeless" will be utilized most often.

It is important to acknowledge as the writer that I come from an immense amount of privilege. I am a White, mid-20's, middle class student who is obtaining her doctorate. I have access to healthcare and do not experience food instability. I have a permanent residence that provides safe shelter. It is my intention with this privilege to do my ethical duty, as well as fulfill my moral obligation, to treat the participants of the present study, and the data I receive with dignity by utilizing and maintaining the aforementioned considerations. Specifically, race and ethnicity demographics were clearly stated as a part of the methods for the present study. Race and ethnicity demographics will also be provided for all studies mentioned throughout the literature review. Consultation from BIPOC individuals in health service psychology was utilized whenever possible both within Augsburg and the Amherst Wilder Foundation. Additionally, the study was reviewed both by the institution of Augsburg and the Amherst Wilder Foundation to ensure quality control.

Results

Demographic Information

Frequencies for the race and ethnicity of all participants eligible for inclusion are presented in Table 1 ($N = 412$). Over half of participants who completed the survey were people of color ($n = 245, 59.5\%$), with the remaining participants self-identifying as “White or Caucasian” ($n = 117, 40.5\%$).

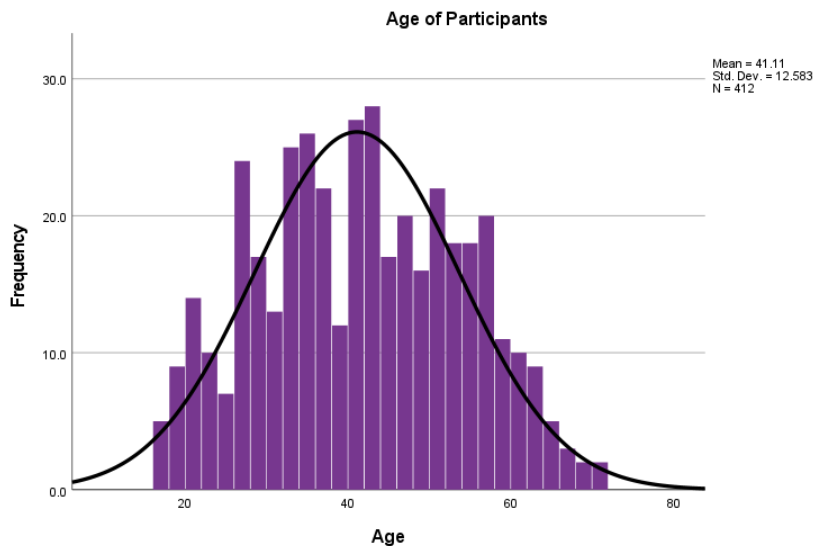
Frequencies for the gender of participants are presented in Table 1 ($N=412$).

Table 1

Baseline Characteristic	Frequency	Percent
Race/Ethnicity		
White or Caucasian	167	40.5
American Indian	98	23.8
African American	84	20.4
Some Other Group	57	13.8
Hispanic	33	8.0
African born (yourself or a parent)	3	0.7
Asian or Pacific Islander	3	0.7
Gender		
Male	225	54.6
Female	185	44.9
Self-Identity	2	0.5

Frequencies for the ages of survey participants are presented in Figure 1. The average age of participants was 41.11 ($SD = 12.58$), with a median of 41 and the range of 17-71.

Figure 1



ACE count frequencies are represented in Table 3. Over 90% of participants reported at least one ACE, with over 50% of participants reporting four or more ACEs. The average number of ACEs among participants was 3.55 ($SD: 2.04$), with a median of 4.

Table 2

Frequencies of ACE Count

Number of ACEs	Frequency	Percent	Cumulative Percent
0	34	8.3	8.3
1	46	11.2	19.4
2	65	15.8	35.2
3	52	12.6	47.8
4	49	11.9	59.7
5	87	21.1	80.8
6	54	13.1	93.9
7	25	6.1	100.0

Table 3 represents the number of times each ACE was endorsed by participants. The most common ACEs among participants were: living with one who had a substance use problem,

witnessing abuse as a family member, and a parent or guardian struggling with mental health issues. The least common ACE was a parent or guardian going to prison.

Table 3

Frequencies of Specific ACEs

ACE Measured	Frequency of "Yes"	Valid Percent
Live with someone with substance use issues	304	73.8
Witness abuse of family member	276	67.0
Parent/Guardian with mental health issues	252	61.2
Physical maltreatment/abuse	232	56.3
Sexual maltreatment/abuse	155	37.6
Emotional neglect/abuse	142	34.5
Parent in Prison	101	24.5

Table 4 represents the number of times each mental health disorder was endorsed by participants. The most common mental health disorders among participants were clinical anxiety, clinical depression, and post-traumatic stress disorder (PTSD). The least common mental health disorder endorsed among participants was schizophrenia/paranoia/delusional disorders.

Table 4

Frequencies of Specific Mental Health Disorders

Mental Health Disorder	Frequency of "Yes"	Valid Percent
Mental Health Disorder (General)	371	90.0
Anxiety or Panic Disorder	318	77.2
Major or Clinical Depression	293	71.1
PTSD	256	62.1
Bipolar, Manic Episode, Manic Depression	197	47.8

OCD or Personality Disorder	114	27.7
Schizophrenia, Paranoia, Delusional Disorder	85	20.6

Table 5 represents the number of times each current substance use question was reported by participants. The most common current substances used among participants were alcohol and marijuana. The least common current substance used was synthetic stimulants.

Table 5

Frequencies of Current Substance Use

In the last 30 days...	Frequency of "Yes"	Valid Percent
Alcohol	214	51.9
Marijuana	209	50.7
Methamphetamines	104	25.2
Crack or Cocaine	56	13.6
Opioids	54	13.1
Heroin	47	11.4
Other (non-opioid) drug not prescribed	43	10.4
Synthetic Stimulants	27	6.6
<i>Do you feel that you now need to see a health professional about any alcohol or drug problems?</i>	118	28.6
<i>Are there any medications for an alcohol or chemical abuse problem that you are not taking?</i>	52	12.6

Table 6 represents the number of times each long-term substance use question was reported by participants. The most common long-term substance use question reported among participants was having received treatment for alcohol or drugs in the last two years. The least common long-term substance use question reported was being admitted into a detox center in the last 12 months.

Table 6

Frequencies of Long-Term Substance Use

In the last two years...	Frequency of "Yes"	Valid Percent
Treated in alcohol or drug treatment program	201	48.8
Told by a doctor or nurse that you have a drug abuse disorder	183	44.4
Told by a doctor or nurse that you have an alcohol abuse disorder	154	37.4
<i>In the last 12 months have you been admitted to a detox center?</i>	98	23.8

ACEs, Mental Health Diagnosis, and Race

Hypothesis I explored the relationship between the number of ACEs endorsed by participants and the likelihood of a mental health diagnosis. A binary logistic regression was done in order to obtain statistics for hypothesis one and two. A Nagelkerke R Square test was utilized to showcase how well the model predicted what was expected. The model explained 6.5% of the variance in having a mental health diagnosis. The number of ACEs was a significant predictor of a reported mental health diagnosis within the past two years ($p < .001$; see Table 7). The model correctly identified 90% of the data. The odds ratio expressed that for every increase in number of ACEs, a person was 1.35 times more likely to endorse a mental health disorder.

Table 7

Logistic Regression Analysis of Mental Health Diagnosis as Predicted by ACEs

	B	SE	Wald	df	Sig.	Exp(B)
Number of ACEs	.30	.09	12.09	1	<.001	1.35
Constant	1.29	.28	21.32	1	<.001	3.62

Hypothesis II utilized race as a moderator for the relationship between number of ACEs endorsed by participants and likelihood of a mental health diagnosis. In order to run the logistic regression a variable was created where participants were either classified as part of a marginalized racial identity ($n=278$) or White ($n=167$). Block one was made up of the variables, number of ACEs and race, and the interaction effect was utilized in block two. In this analysis, the number of ACEs was again found to significantly increase the likelihood of a mental health diagnosis. It was found that for every increase in ACE participants were 1.25 times more likely to endorse a mental health disorder across participants. However, race/ethnicity did not significantly predict the presence of a mental health disorder, nor did the interaction between race/ethnicity and number of ACEs (see Table 8).

Table 8

Moderation Analysis of Mental Health Diagnosis as Predicted by ACEs and Race/Ethnicity

	B	SE	Wald	df	Sig.	Exp(B)
Number of ACEs	.22	.11	4.42	1	.04	1.25
Race/Ethnicity	-.42	.58	.51	1	.47	.66
Race/Ethnicity x Number of ACEs	.18	1.86	.98	1	.32	1.20
Constant	1.49	.36	26.80	1	<.001	3.62

ACEs and Substance Use

Hypotheses III and IV explored the relationship between the number of ACEs reported by participants and their severity of substance use. Hypothesis III explored the relationship between the number of ACEs reported and the severity of current substance use ($M=2.24$, $SD=1.99$). Hypothesis IV explored the relationship between the number of ACEs reported and the severity of long-term substance use ($M=1.54$, $SD=1.27$). . Table 9 represents the summary of the data for hypotheses three and four. The Pearson correlation for hypothesis three did not

produce a significant relationship between the number of ACEs and current substance use ($p = .09$). The Pearson correlation for hypothesis four did produce a significant relationship between number of ACEs and long-term substance use ($p = .04$). Specifically, as the number of ACEs increased, the likelihood of long-term substance use increased as well. However, it is important to note that this was a weak effect ($r=.10$). Therefore, it is important to acknowledge that while there appears to be a link between ACEs and long-term substance use in those without a permanent nighttime residence the finding is small and there are likely other factors, not measured in this study, that provide a better understanding of aspects that contribute to long-term substance use.

Table 9

Correlations Between Number ACEs and Current and Long-Term Substance Use

		Current Substance Use	Long-Term Substance Use
Number of ACEs	Pearson Correlation	.09	.10
	Sig. (2-Tailed)	.09	.04
	Mean	2.24	1.54
	Standard Deviation	1.99	1.27
	N	412	412

ACEs, Substance Use and Race/Ethnicity

Hypotheses V and VI explored the impact of race/ethnicity on the relationship between the number of ACEs endorsed by participants and their severity of substance use. Hypothesis V explored the impact of race/ethnicity on the relationship between the number of ACEs endorsed and the severity of current substance use. In order to run the moderation analysis a variable was created where participants were either classified as part of a marginalized racial identity ($n=278$) or White ($n=167$). Block one was made up of the variables, number of ACEs and race, and the interaction effect was utilized in block two. In this analysis, the number of ACEs was found to

significantly impact current substance use. More specifically, as the number of ACEs increased, so did the likelihood of current substance use among participants. However, race/ethnicity did not significantly predict current substance use, nor did the interaction between race/ethnicity and number of ACEs. However, the interaction term of race/ethnicity and number of ACEs was approaching significance ($p = .068$; see Table 10).

Table 10

Moderation Analysis of Current Substance Use as Predicted by ACEs and Race/Ethnicity

	B	Std. Error	Standard Coefficients Beta	t	Sig.
Number of ACEs	.38	.11	4.42	2.22	.03
Race/Ethnicity	.40	.58	.17	.99	.33
Race/Ethnicity x Number of ACEs	-.18	1.86	.41	-1.83	.07
Constant	1.31	.69	.10	1.88	.06

Given this near significant value, separate correlations for the relationship between ACEs and current substance use were run for White and BIPOC participants. Means and standard deviations by group for number of reported ACEs and current substance use scores are presented in Table 11. The correlation between number of ACEs and current substance use for White participants was found to be significant ($p=.021$); that is, as the number of ACEs increased, the severity of current substance misuse increased (see Table 11). However, the correlations for BIPOC participants found no significant relationship between ACEs and severity of current substance use.

Table 11

Correlations Between Number of ACEs and Current Substance Use by Racial Group

	White	BIPOC
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		(n = 159)	(n = 250)
ACEs x Current Substance Use	Pearson Correlation	.18	.01
	Sig. (2-Tailed)	.02	.84
Number of ACEs	Mean	3.53	3.56
	Standard Deviation	2.01	2.07
Current Substance Use	Mean	2.38	2.38
	Standard Deviation	2.11	2.11
N		159	250

Hypothesis VI explored the impact of race/ethnicity on the relationship between the number of ACEs endorsed and the severity of long-term substance use. In this analysis, the number of ACEs was not found to significantly impact the likelihood of long-term substance use. Race/ethnicity did not significantly predict the likelihood of long-term substance use, nor did the interaction between race/ethnicity and the number of ACEs (see Table 12).

Table 12

Linear Regression Analysis between ACEs, Long-Term Substance Use and Race/Ethnicity

	B	Std. Error	Standard Coefficients Beta	t	Sig.
Number of ACEs	.02	.11	.04	.22	.83
Race/Ethnicity	-.14	.26	-.05	-.54	.59
Race/Ethnicity x Number of ACEs	.02	.06	.07	.07	.74
Constant	1.57	.44		3.54	<.001

Discussion

The current study sought to establish the relationships between ACEs and mental health conditions, as well as between ACEs and substance use disorders, in Minnesota's homeless population. Additionally, the impact of racial differences on the relationship between ACEs and mental health/substance use disorders in the homeless population was explored. The Minnesota Homeless Study (Wilder Research, 2018) dataset was utilized to explore these questions. The Minnesota Homeless Study (Wilder Research, 2018) collects data on homeless persons residing in Minnesota every three years, with the exception of their upcoming study being conducted after five years (next projected data collection in October 2024) due to the COVID-19 pandemic.

The participant pool of the current study differs demographically from previous literature on both homelessness and ACEs. Over 50% of the current study sample self-identified as BIPOC, in contrast to a study of 34,643 homeless persons (Elbogen et al., 2021) where 57% of the study identified as White. Other studies fail to mention race and ethnicity of the sample altogether (e.g., Aubry et al., 2016). Including race and ethnicity as a demographic characteristic is integral to locating discrepancies between those who identify as White and those whose racial and ethnic identities are considered marginalized. Having a sample that is more than 50% BIPOC emphasizes the experiences of those individuals. As only approximately .08% of current research focuses on the link between homelessness and race (Jones, 2016) a more diverse sample is necessary in order for results to be generalizable to persons experiencing homelessness as a whole.

The current study found that participants reported a median of four ACEs, and a mean of 3.6. This is in line with current literature on the homeless population, as previous studies have reported an average of four or more ACEs experienced by individuals in this community (Bellis

et al., 2017; Felitti et al., 1998; Radcliff et al., 2019). Although the mean in the current study is lower than expected, it is important to keep in mind that the present study used only 7/10 original ACEs. For reference, the ACE question asking whether parents are divorced is not included and approximately 40-50% of all marriages end in divorce (Miller, A., 2013). Of note, 90% of participants in the current study endorsed a mental health diagnosis. In a recent 2021 systematic review and meta-regression analysis investigating the prevalence of mental disorders of the homeless population in high income countries, it was found that approximately 76% of the homeless population endorsed a mental health disorder (Gutwinski et al., 2021) which is significantly more than the general population (Han et al., 2017). As such, the prevalence of mental health disorders supports previous studies showing significantly higher mental health concerns in the homeless community as compared to the general population.

ACEs and Mental Health Diagnosis

The current study hypothesized that as the number of ACEs reported increased, the likelihood of mental health diagnosis would also increase. The results of the logistic regression supported this hypothesis, showing that for every increase in number of ACEs, a homeless participant was 1.35 times more likely to endorse a mental health disorder. These findings are in line with recent cross-sectional research indicating that number of ACEs identified in persons who are homeless is a risk factor for developing a mental health diagnosis later in life in the (Bellis et al., 2017) as well as the general population (Chang et al., 2019).

Several other studies have linked an increased number of ACEs to increased mental health issues in the homeless population, particularly in regard to co-occurring disorders, depression, and an increase in suicidal ideation (R. D. Lee & Chen, 2017; Liu et al., 2020). Literature suggests that four or more ACEs increases the likelihood of a multitude of health

issues, including mental health (Bellis et al., 2017; Felitti et al., 1998). The present study found the median number of ACEs to reported to be four, therefore increasing the likelihood that mental health problems would be present.

However, results did not support the hypothesis that the link between ACEs and the likelihood of a mental health diagnosis would be moderated by race. While numerous previous studies have found that individuals who identify as BIPOC report more ACEs on average than their White counterparts (Lee & Chen, 2017; Liu et al., 2020; Wilder Research, 2018; Smith et al., 2021), no previous literature has investigated whether race moderates the relationship between ACEs and the development of a mental health diagnosis. While the proposed moderation effect was not found to be significant, it is worth mentioning that 90% of the sample endorsed a mental health diagnosis regardless of race or ethnicity. The current sample has a higher percentage of mental health concerns than the meta-analysis that suggests 76% of persons experiencing homelessness endorse mental health disorder (Gutwinski et al., 2021), which suggest the sample is on the higher end of what other studies have found. As such, it is still possible that race may moderate the relationship between ACEs and a mental health diagnosis; however, high saturation of mental health diagnoses in the current study made it difficult to detect.

ACEs and Current Substance Use

Study results did not support our hypothesis that as the number of ACEs increased, the severity of current substance misuse would also increase. Study results were mixed in regard to the relationship between ACEs and current substance use. This initial analyses with the full sample did not show a relationship between these two constructs.

It was also hypothesized that race would moderate ACEs and current substance use. This moderation effect was approaching significance, which led to follow-up correlational analyses. These analyses suggested that current substance misuse was significantly correlated with number of ACEs endorsed for participants who identified as White. In contrast, the relationship between ACEs and current substance use was not significant for participants who identified as BIPOC. However, study results are in line with the broader substance use literature, which suggests race/ethnicity to be significantly associated with substance use in those identifying as White and those identifying as Hispanic (Santa Maria et al., 2018). Even more recently, Moss et al. (2020) found that African American participants, when compared to their White counterparts, were less likely to endorse a substance use disorder. Both studies indicate race as a risk factor, but do not discuss the potential of a moderating relationship.

ACEs and Long-Term Substance Use

Regarding the relationship between ACEs and long-term substance use, results supported our hypothesis that as the number of ACEs increased, so did the severity of long-term substance misuse in the homeless population ($p=.042$). Although the link between ACEs and substance use was found to be significant, the effect size was small ($r=.10$). While this finding aligns with previous literature, the small correlation suggests a more complicated picture. ACEs and long-term substance use are linked; however, it is likely that there are other factors contributing to their link. Despite limited literature distinguishing between current and long-term substance misuse, the findings from the current study add to previous literature suggesting that ACEs influence substance misuse in the homeless population (Zlotnick et al., 2004). Specifically, ACEs have been associated with consistent and heavy drug and alcohol use among the homeless population. The distinction between short and long-term substance use is a new contribution to

the literature. Other studies looking at ACEs, substance use, and homelessness either focus on current use or simply whether participants have a substance use disorder.

The results of the linear regression did not support the hypothesis that number of ACEs and long-term substance misuse were moderated by race/ethnicity in the current. Given that the previous analysis supported a significant and positive relationship between ACEs and long-term substance use, it may be that the impact of ACEs on long-term substance use was not affected by race/ethnicity of participants in the sample. Perhaps, similar to short-term substance use, long-term substance use and ACEs may be more closely associated with chronic life stressors than race/ethnicity (Alexander et al., 2022).

While previous studies suggest that homelessness and ACEs are risk factors for substance misuse (Jurewicz et al., 2021; Zlotnick et al., 2004), few studies separate substance use into current and long-term categories. The present study is the first to look at the connection between ACEs and short- or long-term substance use moderated by race, and as such no comparable research literature exists to contextualize these findings.

Limitations and Future Directions

Several limitations should be considered that may impact the application, generalizability, and interpretation of the present study's results. First, measures utilized during the present study can be considered a limitation. It is important to note that the original ACE measure (Felitti et al., 1998) had ten items, and only seven of those ten original items were used for the present study. This suggests that ACE scores for participants in the current study were likely an underestimate of their true score. The three specific items not included in the current study's ACEs measure were: the presence of emotional abuse in the home, having a family member in prison, and having a history of parent divorce/separation. Incarceration is on the rise

in the United States (Nosrati et al., 2021), and recent research suggests that 40-50% of marriages in the United States end in divorce (Kong et al., 2021). As such, it is a high possibility that participants would have endorsed more ACEs had they completed the entire original ten question ACE measure.

Another limitation to the current study is the acknowledgement that both the current and long-term substance use measures were generated by the current author and did not have a Kuder-Richardson of .7 or higher. Although Kuder-Richardson values of .35-.7 are considered acceptable for most research proposals (Jacob, 2017), there are more psychometrically established measures of substance use in the literature. Substance use measures that are currently available with a kappa of .75 or greater include: Alcohol Dependence Scale (Skinner & Allen, n.d.); Addiction Severity Index (McLellan et al., 1992); ASI Subscale for Alcohol (McLellan et al., 1992); Composite International Diagnostic Interview (World Health Organization, 1994); Drug Abuse Screen Test (Skinner, 1982); Drug Use Disorders Identification Test (Berman et al., 2016); Problem-Oriented Screening Instrument for Teenagers (McLaney et al., 1994); Severity of Dependence Scale (Gossop et al., 1995); Timeline Followback (Sobell & Sobell, 1992); and Chemical Use, Abuse, and Dependence (McGovern & Morrison, 1992).

Future research on this topic would benefit from using psychometrically established measures for current and long-term substance use to obtain more accurate data regarding relationships between substance use and ACEs. However, it should be noted that a recent systematic review and meta-analysis discussing the reliability and validity of substance use measures concluded that current measures should be expanded to include diverse populations

(Santos et al., 2020). Santos et al. (2020) additionally found the measures currently available have a higher risk of racial bias, despite their high reliability.

A third limitation of the present study is the inability to look at specific racial groups. The present study utilized two groups: participants who identified as White and participants who identified as BIPOC. Separating into two groups allowed for a higher likelihood to achieve statistical significance. The lack of separation between different BIPOC racial and ethnic identities can increase barriers to providing specific care to the groups with the most need, due to lack of information about which groups could use more support. Future research would benefit from separating out groups in a more specific manner during data analyses. A recent quantitative study investigating racial inequality in psychological research looked at over 26,000 studies from 1974-2018, and recommendations were made for both journals and researchers as to how to address diversity concerns (Roberts et al., 2020). Authors suggested that researchers detail the race and ethnicity demographics of their studies in a full manner rather than reduced dichotomies. More specific data can point clinicians in clearer directions regarding policy and practice.

A fourth limitation is the “point-in-time” aspect of the MN Homeless Study (Wilder Research, 2018). Data for the study is collected on a single day. Data collected showcases information for that day and is not as generalizable as a longitudinal study. Future research would benefit from looking at similar data over time. As the MN Homeless Study (Wilder Research, 2018) is conducted every three years, future research could look at the data collected from the Wilder Foundation since the inception of the point-in-time study.

Despite limitations, the present study had clear strengths. The population studied was diverse. The present study increases the number of BIPOC participants contributing to the

literature, as well as highlights the experiences of BIPOC homeless persons, a marginalized and vulnerable group. Increased data about the mental health issues faced by the homeless population may influence the types of policies and practices offered in Minnesota. Additionally, increased awareness of racial and ethnic representation in the homeless population may encourage lawmakers and clinicians to address systematic barriers influencing interventions and care.

Another notable strength is the replicability of the present study. As the Minnesota Homeless Study (Wilder Research, 2018) study is consistently done every three years (with the exception of the current delay from COVID), this study could be replicated in future samples to determine whether the relationships found in the current study between ACES, mental health, substance use, and race are consistent across time and across cohorts. If findings are consistent across different samples of the homeless population in Minnesota over time, it is more likely that this research would be generalizable, and further used to influence long-term systemic change.

Clinical Implications and Recommendations

Findings from the present study suggest several clinical implications. First, the high percentage of participants endorsing a mental health diagnosis suggests an increased need for mental health support for those who are experiencing homelessness. Multiple factors likely contribute to mental health concerns among the homeless population. Mental health concerns have been closely linked to those who have four or more ACEs (Bellis et al., 2017), and the median ACE score of four ACEs among those who participated in the current study is congruent with previous literature. Four or more ACEs has specifically been linked to depression (Lee & Chen, 2017), as well as severe mental illness (Liu et al., 2020) in the homeless population.

Further, as 90% of participants in the current study endorsed a mental health disorder, and the median number of ACEs reported was four, the connection between ACEs and mental health may encourage practitioners to consider ACEs as a risk factor for mental health symptoms when working with the homeless population. Incorporating the ACE measure (Felitti et al., 1998) as a part of a standard mental health intake process when working with individuals experience homelessness may aid practitioners in considering the influence of ACEs on symptom presentation.

In recent literature, there are some recommendations for addressing ACEs and health for homeless persons when they present in healthcare settings. In one notable example, a commentary published collaboratively by a consultant nurse, consultant psychiatrist, and a specialist occupational therapist addressed the practical issues encountered by individuals in the homeless population when their ACE count is high and health care is needed (Albert et al., 2023). Albert et al. (2023) suggested six ways to approach the practical issues of ACEs and healthcare: become familiar with trauma-informed care; be consistent, predictable, and allow time for people; ask people what their priorities are and be flexible/creative; maximize people's capacity; speak to support workers; use the opportunities given. Many of those recommendations suggest a clinical approach which is client-centered, and further suggests that practitioners approach the homeless population with the assumption that trauma and triggers are present. In doing so, a deeper connection and therapeutic alliance may be achieved. The hope is that considering these aspects may increase access to healthcare, and adherence to treatment, in the homeless population.

In addition, the development and implementation of ACE -specific interventions for the diagnosis and treatment of mental health disorders in homeless individuals should be considered.

A 2020 systematic review of systematic reviews on ACE interventions noted that interventions regarding ACEs specifically have not been widely researched or addressed in the literature, and even less so for those experiencing homelessness (Lorenc et al., 2020). However, this review found seven main categories of intervention that did incorporate ACEs: cognitive behavioral therapy (CBT), other psychological therapies, psychoeducation, parent/foster carer training, cross-sector support, educational interventions, and housing/life skills interventions (Lorenc et al., 2020). CBT was found to be the predominant intervention for ACE exposure through their analyses of 25 systematic reviews. Specifically, CBT had the strongest evidence for outcomes related to ACEs involving abuse, particularly sexual abuse. Given this finding, increasing access to competent CBT practitioners for the homeless population may aid in providing better health care for homeless persons with a high ACE count and a mental health disorder.

Another clinical implication is related to the current study's finding that as the number of ACEs increased, so did the likelihood of long-term substance use. Given that the data was correlational, the study could not identify whether participants had long-term substance use prior to becoming homeless or not. However, a 2021 scoping review investigating the link between ACEs and substance use found that homelessness, in addition to ACEs, was highly connected with development of severe alcohol use disorder, tobacco use disorder, and cannabis use disorder (Leza et al., 2021; Moss et al., 2020). Findings from the present study, in combination with findings from previous literature, suggest that longitudinal substance use care for those who are homeless may be helpful. Understanding the additional risk factor homeless persons face (including risk for long-term substance use) may encourage practitioners to more intentionally target substance use when working with a homeless person who reports a high number of ACEs.

A final clinical implication for the present study relates to the finding that for White participants (but not participants who identified as BIPOC), there was a significant positive relationship between number of ACEs endorsed and current substance use. This finding suggests that substance use may not be as strongly connected to ACEs for BIPOC participants as compared to White participants. Results from the present study suggest that those who are White and seeking homeless services may benefit from an additional substance use screening question(s), further since ACEs are not connected to substance use, screening questions should be given to all BIPOC individuals, regardless of their endorsement of ACEs. Results from the present study suggest that those who are White and seeking homeless services may benefit from additional substance misuse support.

Conclusion

Homeless persons endorse four or more ACEs on a consistent basis (Liu et al., 2020), putting them at a higher risk for mental health issues (R. D. Lee & Chen, 2017) and problems surrounding substance misuse (Tam et al., 2003b). Over half a million people in the United States are considered homeless (National Alliance to End Homelessness, 2020), and as such, the need for research, advocacy, and intervention development is needed to support the well-being and psychosocial functioning of this population. Findings from the present study suggest that the number of ACEs has an impact on mental health diagnosis and long-term substance misuse for all participants experiencing homelessness, and that ACEs are correlated with current substance misuse for White individuals experiencing homelessness.

Multiple clinical implications were drawn from the present study including a need for increased mental health support for persons experiencing homelessness, incorporation of ACEs into the common intake, implementation of ACE-specific interventions, and understanding the

impact of substance misuse on those without an adequate nighttime residence. Some limitations of the current study included the measures used, the separation of participants into two distinct racial groups rather than further differentiation, and the point-in-time nature of the data collected. Further research would benefit from more diverse sample representation and specific separation of short versus long term substance misuse.

Given the relationship between ACEs, mental health, and substance use in the homeless population, further research on this topic would aid in creating policy, practice, and advocacy surrounding this marginalized population. Awareness of the impact of ACEs on mental health and substance use is necessary for providers to know and understand to create and implement best practices. Future research considering the interaction of race/ethnicity with homelessness and ACEs will be an invaluable addition.

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Appendix A

Informed Consent

Location code:

Location name:

Location type:

County:

WILDER USE ONLY:

 INTERVIEW #

WILDER USE ONLY

(IF THE BOX ABOVE IS BLANK) fill in the county where the interview is being conducted.

**MINNESOTA STATEWIDE SURVEY OF PERSONS WITHOUT PERMANENT SHELTER
 INTERVIEW SCHEDULE 2018**

Interviewer name: _____ Date: _____ Interview start time: _____ a.m. p.m.

Hello. My name is _____ and I'm a volunteer interviewer. We are doing a survey of people who do not have a regular or permanent place to stay. We would like your help. We are trying to collect information that will be helpful in creating affordable housing and planning other services.

Are you currently staying in a shelter or transitional housing program, or about to be evicted from your housing and have nowhere else to go?

Yes No ➔

↓

CONTINUE

Are you currently staying in a place that is **not a regular or permanent place to stay**, such as outdoors, in a car or vacant building, a place of business, or a place that you received a voucher for?

Yes No ➔

↓

CONTINUE

Are you currently doubled up with a friend or family member on a temporary basis because you have nowhere else to go?

Yes No ➔ **TERMINATE INTERVIEW**

↓

CONTINUE

The survey is voluntary and confidential. We will pay you \$10 cash for completing the interview. You don't have to be interviewed if you don't want to. Whether or not you do the interview will not affect any services you are receiving. No one will be identified in the survey. You do not have to tell us your name. If there are questions you don't wish to answer, we will skip them.

Would you be willing to take the time now to do the interview?

Yes No ➔ **TERMINATE INTERVIEW**

↓

GO TO Q. 1

Appendix B

Data Use Agreement



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Here for good.

**Wilder Statewide Homeless Study
DATA USE AGREEMENT
For Limited Data Sets**

NAME OF INDIVIDUAL AND/OR ORGANIZATION TO USE OR RECEIVE THE LIMITED DATA SET		
NAME OF ORGANIZATION AUGSBURG UNIVERSITY		
NAME OF INDIVIDUAL (LAST NAME, FIRST NAME, MIDDLE INITIAL) KECKEISEN, SALLY, K		
ADDRESS 2299 ORCHARD LANE,	CITY/STATE: WHITE BEAR LAKE, MN	ZIP CODE: 55110
ELECTRONIC MAIL ADDRESS: KECKEISS@AUGSBURG.EDU	TELEPHONE NUMBER: (920) 723-7575	
LIST ADDITIONAL PERSONS WHO WILL HAVE ACCESS TO USE OR DISCLOSE THE INFORMATION: DR. ABIGAIL HUGHES-SCALISE, CRP CHAIR		

DESCRIBE DATA TO BE ACCESSED
<p><i>(Describe the data to be accessed, e.g., year/s, survey questions, population/s, area/region/s.)</i></p> <p>2018 MN Homeless Study Survey</p> <p>Demographic Variables: 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 30, 31, 37, 80, 81, 93, 96, 99 Mental Health Variables: 17, 52c, 57b, 65, 66, 67b Substance Use Variables: 18, 57c, 65h/i, 67c, 68, 69, 70, 71 ACEs Variables: 78 a-g</p> <p>[WR COMMENT: Wilder is providing the entire 2018 Homeless Study dataset]</p>

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Abigail Hughes-Scalise, Ph.D. Chair
Marcia Bennett, Ph.D. Member
Trisha Hopkins-Smith, Ph.D. Member

Depositor's Name (Please Print): Sally K. Keckelsen

Author's Signature:  Date: 06/05/2024

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