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REVIEW PAPER

The Mental and Physical Health of Homeless Youth: A Literature Review

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Abstract Youth homelessness is a growing concern in the United States. Despite difficulties studying this population due to inconsistent definitions of what it means to be a youth and homeless, the current body of research indicates that abuse, family breakdown, and disruptive family relationships are common contributing factors to youth homelessness. Moreover, the experience of homelessness appears to have numerous adverse implications and to affect neurocognitive development and academics, as well as mental and physical health. Substance use, sexually transmitted infections, and psychiatric disorders are particularly prevalent in this population. Whereas some of these problems may be short-lived, the chronic stress and deprivation associated with homelessness may have long-term effects on development and functioning. Further, difficulties accessing adequate and developmentally-appropriate health care contribute to more serious health concerns. Suggestions for future research and interventions are discussed.

Keywords Youth homelessness · Mental health · Substance use · Sexually transmitted infections

Background

The number of youth living without their families and permanent shelter is a growing concern in the United States and overseas [1]. Research suggests that on any given night in the United States there are 1.6–2 million homeless youth living on the streets, in shelters, or in other temporary accommodation [2, 3]. The prevalence of youth homelessness, however, is difficult to determine due to a number of factors, which include the lack of a

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consistent definition of homelessness in the literature, as well as the population's transient nature and the impermanence of their homeless status [4, 5].

Homeless youth are a heterogeneous population and are described by a variety of terms in the literature. These terms include *runaways* (i.e., youth who have spent more than one night away from home without parental permission), *throwaways* (i.e., youth who have been forced to leave home by their parents), *street youths* (i.e., youth who live in high risk non-traditional locations such as under bridges and in abandoned buildings), and *systems youth* (i.e., youth who have previously been involved in government systems such as foster care or juvenile justice) [4, 6]. For the purposes of this paper, we use the term "homeless youth" to refer to all of these groups. Additionally, we define a homeless person as anyone who lacks a fixed, regular, and adequate nighttime residence; and whose primary nighttime residence is a supervised shelter designed to provide temporary living accommodation, including emergency shelters, transitional housing, or a place not designed for regular nighttime human habitation (e.g., such as under a bridge or in a car). This is based on the definition established by the U.S. Congress, which is used by the U.S. Federal Government [7].

In addition to the mixed terminology, research has not consistently operationalized what it means to be a youth. The United Nations defines "youth" as including all people between the ages of 15 and 24 years [8]. Studies of homeless youth, however, have included participants that range in age between 12 and 17, 19, 21, or 24 years.

The overall impermanence and chronicity of homelessness, as well as the relative inconsistency of the definition of homelessness across studies, has further contributed to the difficulty in determining prevalence [9]. Research conducted with 59 homeless youth in Texas found that the length of time spent living on the streets varied from 2 months to 8 years [3]. A study of 50 homeless youth in Los Angeles aged 18–23 years found that 12% of youth had been homeless for <1 year, 56% for 1–5 years, and 32% for more than 5 years [10].

The absence of consistent definitions in studies of homeless youth makes it difficult to accurately determine the number of individuals in this population. Although this is due, in part, to the nomadic, transient nature of homeless youth, it can also be attributed to various other factors. In particular, the literature lacks clear, consistent definitions of the constructs of homelessness, youth, and chronicity. This shortcoming limits researchers' ability to draw conclusions about this vulnerable population as a whole and to make comparisons about subgroups of homeless youth.

Another weakness of the literature is that researchers have used various methodologies to study the characteristics of this population, as well as prevention and intervention programs. This makes it difficult to compare results of studies and perform meta-analyses to synthesize data. It is, therefore, difficult to draw empirically-supported conclusions about many of the issues that homeless youth face.

As such, this paper seeks to review the findings from studies of homeless youth and organize them; several themes emerged. First, various studies have examined the causes of homelessness in unaccompanied youth. A second focus of the research has been to characterize homeless youth and the implications of homelessness. These studies are concerned with issues of neurocognitive functioning, academic achievement, high risk behaviors and activities, financial and legal issues, abuse and violence on the street, and mental and physical health. A third theme of the literature is health care, which includes the topics of access to, utilization of, and barriers to care. Finally, there is a small, but slowly growing, set of studies that has examined prevention and intervention programs designed for homeless youth. The authors conclude with a discussion of the implications of the research and future directions.

Causes of Youth Homelessness

There is no single cause for homelessness; however, most of the reasons named by youth can be grouped into three broad inter-related categories: family breakdown, which includes behaviors of parents and youth, economic problems, and residential instability [11, 12]. The most common reason that young people leave home is due to disruptive family relationships or family breakdown [13]. This may include poor family functioning, unstable home environments, socioeconomic disadvantage, and separation from parents or caregivers [14]. Parental drug and alcohol use is a frequently cited reason for leaving home among young people, as it is often associated with parental abandonment, family violence, and neglect, as well as sexual, physical, and psychological abuse [15–18]. An Australian study of 302 homeless young people (12–20 years-old) found that family conflict or family breakdown was evident in all of the participants' explanation about why they left home [19]. Only a small group of individuals in this study described a simple cause and effect relationship between one issue (e.g., drug use) and homelessness. Moreover, only 20% of the participants indicated that their own drug use was either a primary or secondary cause of their homelessness [19].

Trauma and Abuse

Homeless youth experience high rates of trauma and abuse prior to their experience of homelessness. Studies indicate that this group endorses notably high rates of abuse by family and non-family members, rape, and assault [20]. Abusive family relationships are particularly detrimental, because they have been associated with subsequent mental health problems and risky behaviors [21]. Abuse may be verbal, emotional, physical, or sexual in nature. Although the findings of studies vary, homeless youth report greater exposure to abuse and neglect prior to leaving home relative to their housed peers [22, 23]. U.S. Government agencies report that sexual abuse rates prior to leaving home in this population range from 17 to 35% and the rate of physical abuse is reported to be as high as 60% [13]. A Seattle based study of 328 youth (12–21 years-old) living on the streets or in shelters, supports these high figures. Eighty-two percent of participants reported past experiences of physical abuse, 26% endorsed sexual abuse, and 43% described family neglect [24].In a more recent study, 50% of the participants had witnessed intrafamilial abuse, 50% had been physically abused, 39% had been sexually abused, and 68% had experienced verbal abuse [15]. Many of these youth had been victims of multiple types of abuse. Specifically, 71% reported histories of at least 3 different kinds of abuse and 18% indicated that they had experienced more than 5 kinds of abuse [15].

Although various studies have found that a significant number of homeless youth have histories of abuse, there is evidence that suggests that the relation between trauma, including abuse, and homelessness may be bidirectional in nature. That is, homelessness may precipitate, or be a consequence of, trauma [20]. Youth who experience abuse during childhood may leave home in order to avoid it; however, this may simply shift the types of abuse that they experience [20]. Alternatively, homelessness may increase the risk for abuse, particularly specific types of abuse, beyond that which would be expected based on abuse during childhood [25]. As homelessness is associated with numerous stressful, isolating, and marginalizing experiences, youth may place themselves in situations that increase their risk for further abuse [25].

At-Risk Groups

Specific groups of individuals may also be at-risk for becoming homeless. Studies indicate that youth who have been involved in the foster care system and lesbian, gay, bisexual, and transgender (LGBT) youth may be particularly vulnerable to homelessness [26]. Many youth in the foster system become homeless when they "age out" of foster care at 18 years-old. As a result, this subpopulation is older than the general population of homeless youth. When youth in the foster care system become emancipated at 18 years-old, many do not have adequate financial and social supports to allow obtainment of independent housing and, consequently, become homeless [10]. A study of youth in the Michigan foster care system, found that approximately 30% of emancipated youth experienced decreasingly stable or continuously unstable housing situations in the 3 months following their release [26]. Within these groups, non-white youth were more likely to have unstable living situations [26]. This was associated with an increased risk for victimization, school dropout, emotional problems, and behavior problems; however, it is of note that 22% of the youth were placed in foster care initially, because of behavior problems [26, 27].

LGBT youth are another group at-risk for homelessness. The relative proportion of homeless youth who identify as LGBT depends on the study and where it was conducted. A 2006 review of the literature found that between 20 and 40% of homeless youth identify as LGBT [28]. Within this population, family conflict is a primary cause of homelessness [28]. For many of these youth, coming out to a parent preciptates a negative reaction, which may prompt them to runaway or parents to kick the child out of the family home [28]. Ultimately, the variability in the causes of youth homelessness and its onset may differentially impact youth and their mental and physical health.

The Implications of Homelessness in Youth

Homelessness has been associated with numerous adverse outcomes across multiple domains. The detrimental effects of homelessness on cognitive and academic functioning, financial stability, and mental and physical health have been consistently noted in the literature. Whereas some of these effects may be short-lived and limited to the period of homelessness, others are more enduring in nature.

Neurocognitive Development

Adolescence and early adulthood are periods of marked social, psychological, and physical development. Among the changes that occur during this time is rapid brain development. Specifically, increases in myelination during this time allow for greater connectivity among the different regions of the brain, improved speed, increased efficiency, and enhanced modulation of the timing and synchrony of neuronal firing [29, 30]. Additionally, significant maturation of the prefrontal cortex, the area principally responsible for executive functioning, occurs during this time. Executive functioning includes the processes of strategy identification, decision making, inhibition, reasoning, working memory, planning, and organization, as well as behavior and emotion regulation [29, 31–34]. Research has identified that the prefrontal cortex undergoes a protracted period of development, which continues from early childhood well into the mid-twenties. In addition to overall increases in prefrontal cortical volume, improved coordination between the prefrontal cortex and the limbic system, structures that control memory, emotion regulation, and motivation, also occurs [30, 35, 36].

Because of the numerous changes in the structure and function of the brain that occur during adolescence and young adulthood, there is greater potential for the environment to affect development [32]. Maturational changes that occur in the structure of the brain are associated with improvements in decision making and emotional regulation, as well as decreases in disinhibition and impulsivity. It is due to the relative immaturity of these regions of the brain that youth are more likely to engage in reckless and risky behaviors [37, 38]. Moreover, the period of rapid brain development during adolescence and young adulthood helps to explain behaviors, such as poor decision making, recklessness behaviors, risk taking, and emotional outbursts, which are typical of this developmental period, and are believed to reflect the periodic instability of the neural systems that are growing and increasing in their sophistication, as well as control [37, 38].

Generally, parents, teachers, and other significant adults assist adolescents and young adults in their development of decision making and reasoning skills; however, homeless youth often do not have access to supportive adult relationships. Consequently, they make decisions about how and where to live during a time when their decision making and problem solving skills are immature [39]. These youth are at greater risk of making bad decisions and operating in high risk situations compared to their housed peers [40].

Few studies have examined cognitive functioning in homeless youth and most have looked at young accompanied minors. The limited research in this area indicates that deficits occur across multiple domains. Impairments have been found in visuomotor and problems solving skills, judgment, logical thinking, and processing speed [41]. Additionally, studies of homeless children have found lower scores on tests of verbal abilities [42]. Significant deficits in attention have also been observed in homeless youth with abuse histories [41]. Because the current body of literature does not include longitudinal studies, it is unknown whether cognitive deficits precede homelessness or is a consequence of it. Studies that have examined the effects of poverty on cognitive functioning indicate that factors common to homelessness and poverty, such as food insufficiency, negatively impact cognitive functioning [43]. Additionally, some youth may be genetically predisposed for low cognitive ability, which may be further amplified by the stressors, and lack of supports and resources characteristic of homelessness.

Although studies of homeless adults indicate that cognitive functioning improves once individuals are housed, it is not known whether cognitive deficits in children and adolescents improve if stable housing is achieved. Research that has examined the effects of stress on cognitive functioning in children suggests that the effects may be permanent; specifically, stress appears to increase the speed at which the prefrontal cortex develops and stunts neural growth [44].

Academic Achievement

In contrast to the small number of studies that have examined the impact of homelessness on neurocognitive functioning, many more studies have looked at the effects of homelessness on academic achievement and school performance; however, the findings from these studies have been inconsistent. For example, some research indicates that homeless youth experience high rates of suspensions, missed school days, and absenteeism, but others studies have found that the rates of these problems are comparable to those found among low-income youth [45–48]. As such, some researchers contend that poverty, and not homelessness, account for the pattern of academic problems observed.

One consistent predictor of academic difficulties among homeless youth is the high rate of school mobility, the transfer from one school to another, in this population [45, 49].

Studies have repeatedly found that high rates of school mobility and poor school attendance are associated with lower levels of academic achievement, which is predictive of lower levels of academic success and school failure [50]. Stressful events that are common among homeless youth, such as parental substance abuse and psychopathology, are also associated with low levels of achievement [45]. Poor academic achievement is evidenced by slower achievement growth rates and lower levels of achievement on standardized tests in reading, spelling, math, and science [46–48, 50, 51]. Additionally, a large number of homeless youth fail and must repeat a grade [41, 45, 51]. In one study of children living in a shelter, 45% had repeated a grade, 25% had failed a class, and 42% endorsed currently failing or doing sub-par work [45]. These results were supported by another study that found that twice as many homeless youth repeated a grade as housed youth [51].

For youth who struggle to meet academic demands, it remains unclear whether they receive adequate support services, as findings from studies have been inconsistent. Several studies indicate that homeless youth are more likely to be placed in special education programs, but others have found that fewer homeless children receive the special education supports that they need [45, 47]. Some researchers suggest that the small number of homeless youth who receive accommodations is due, at least in part, to the unmet need for academic assessments that determine whether accommodations are needed [48].

As a result of this combination of difficulties meeting academic demands and the lack of adequate support services, many homeless youth are at risk for school failure and dropout. Some studies have found that as few as 20 to 30% of homeless youth graduate from high school [1, 52]. It is of note that the high school dropout rate appears to differ depending on the region of the country being reviewed. In a study that examined the educational status of homeless youth in multiple cities across the United States, while only 64% of homeless youth in Austin and 54% in St. Louis were enrolled in or had graduated from high school, 88% of homeless youth in Los Angeles were enrolled in or had graduated from high school [53].

Youth who do not graduate from high school lack not only a degree, which is often required to attain a job, but also adequate job skills [52]. Large numbers of homeless youth are, therefore, unemployed [52]. For youth who are able to find a job, they are more likely to work in low paid, often menial jobs, without benefits or health insurance, and with limited opportunities for savings. They are also less likely to be familiar with community resources, as well as their legal and housing rights. To compound the issue, once people turn 18 years old they are often unable to access free or affordable education [54]. In the United States, many young people are supported by their parents well into their twenties. In fact, in 2009, approximately half of all American young people aged 18–24 lived with their parents [55]. Studies suggest that at least one quarter of youth receive some form of financial support from their families [56]. The lack of financial support for homeless youth can further compound the issues of homelessness and lead to extended periods of time spent on the streets, with very limited resources or opportunities available.

Violence and Trauma

Research indicates that, compared to the general population, homeless youth are at a greater risk of being the victims of violence [57]. As mentioned previously, many youth experience trauma and abuse prior to becoming homeless. Whereas youth experience high rates of physical and sexual abuse by family members prior to becoming homeless, many continue to be victimized subsequent to becoming homeless, just by different perpetrators [20]. In one study, homeless youth with a history of abuse prior to running away were more than twice as

likely to experience verbal and physical abuse by a partner during adolescence and emerging adulthood [25]. Females are at particular risk for violence and trauma [20].

As a result of physical assault and trauma homeless youth tend to endure more physical injuries and psychological consequences than their housed peers. For example, homeless youth have an elevated risk of acquired traumatic brain injury [59]. Living on the streets also has been found to increase the risk of mortality by up to 11 times that of the general population [58]. Psychological sequelae are also common in this population [20]. Trauma has been associated with a range of negative psychological consequences that include anxious and depressive symptoms, anger and irritability, and sexual concerns [20].

Health

Histories of abuse, unstable and often dangerous living situations, limited financial and emotional resources, engagement in substance use and high-risk sexual activity, and irregular patterns of sleep and eating contribute to the poor physical and mental health commonly found among homeless youth [60–63]. This population often has more advanced illnesses than their housed counterparts due to the lack of prevention and early intervention, which in turn results in illnesses that are more expensive and complicated to treat [64]. These youth are at high risk for infectious diseases, such as influenza, hepatitis, and sexually transmitted infections (STIs) [59]. Diabetes and dental problems are also common in this population. Further, many homeless youth present with skin and respiratory diseases, such as asthma and pneumonia, which are typically contracted while living on the streets or in crowded emergency shelters [64].

Sexually Transmitted Infections

Another common health problem among homeless youth is sexually transmitted infections. A substantial number of homeless youths engage in high-risk sexual behaviors, which place them at greater risk of contracting STIs, including the human immunodeficiency virus (HIV) [59, 60, 65]. Studies indicate that many homeless youth have sex with multiple partners, as well as engage in unprotected sex, survival sex, and prostitution [23, 66–69]. In one study, 70% of the sample endorsed unprotected sex in the past 3 months [70]. Other research suggests that high-risk sexual behavior is associated with greater chronicity of homelessness. In other words, individuals who experience more days of homelessness are more likely to engage in high-risk sexual behaviors [71]. Homeless youth also make their sexual debut 2–3 years earlier, at 12 to 13 years-old. Consequently, they are more likely to engage in high-risk sexual behavior for longer and are more likely to contract an STI [1, 23]. In fact, the prevalence of HIV is 3 to 30 times higher among homeless youth [72].

Gender differences in STIs have been observed in many studies. Research indicates that STI rates range from 11.3% in males to 62.7% in females [52, 73]. This may be accounted for by higher rates of unprotected sex among females, which has been found in some studies [74]. Whereas high-risk sexual behavior in females appears to be associated with lower levels of self-esteem, in males it is associated with poor decision-making skills [70].

In order to better understand the factors that contribute to the high rates of STIs among homeless youth, recent studies have examined the influence of social networks on sexual risk-taking behaviors [74, 75]. These studies have found that a larger network of peers who engage in pro-social behavior (i.e., have more friends who attend school, have jobs, and get along with their parents) is associated with lower levels of engagement in risky sexual behaviors among homeless youth [74]. The same study found that problematic social

networks do not contribute to high-risk sexual behaviors [74]. Another aspect of social networking that has been studied is the use of the Internet to maintain social relationships. Rice et al. [75] found that youth who used the Internet to communicate with their street peers were more likely to seek exchange sex; and youth who engaged in exchange sex were more likely to seek partners online. Consequently, these youth were at the highest risk for contracting HIV. In contrast, use of the Internet to maintain relationships home-based social networks was associated with significantly less risk [75]. More specifically, individuals who communicated with family members were significantly less likely to seek sex exchange and more likely to have been recently tested for HIV. Recent HIV testing was also associated with communication with home-based peers [75]. Overall, these studies found that the social networks of homeless youth are more diverse than previously believed and that their makeup can significantly affect high-risk behaviors and exposures to STIs [74, 75].

Substance Use

Studies have consistently found that substance use is more prevalent in homeless youth than housed youth [6, 23, 62, 76]. The high rates of use are consistent across geographical regions, cultures, and ethnicities [19, 62]. Both episodic heavy use and poly-substance use is common [77].

The prevalence of substance use varies across studies, and ranges from 70 to 90% [23, 76, 78]. A recent study conducted in San Jose, California compared the drug use of 42 homeless youth with a high-school sample and found that levels of substance use were twice as high among homeless youth [76]. Interviews with the youth revealed that 88% of participants currently used at least one substance, with the most common being alcohol (76%), tobacco (76%), and marijuana (69%). More than a quarter of homeless youth reported methamphetamine use and smaller numbers used cocaine, LSD, heroin, and ecstasy. Using the Rutgers Alcohol Problem Index (RAPI), a modified structured clinical assessment tool, Ginzler et al. [77] found even higher rates of substance use. Ninety-four percent of participants used tobacco and alcohol, 97% used marijuana, 73.4% used amphetamines, 55.5% used crack/cocaine, and 39.5% used heroin in the past year.

Various factors, such as gender, length of homelessness, and age influence substance use patterns. For example, more males than females use alcohol, marijuana, cocaine, meth, and crack [68, 79]. While gender differences exist for substance of choice, most research indicates that the prevalence of substance use disorders is similar in men and women [80]. Age is another factor that influences substance use patters. A study of drug use in an older ($\geq$21 years-old) and younger ($<$21 years-old) sample of street youth found that whereas older youth were more likely to use crack and engage in injection drug use, younger youth were more likely to have engaged in binge drinking [79]. Other studies have also found that older age is associated with higher levels of heroin use and lower levels of marijuana use [81]. Length of homelessness also affects substance use; increased length of homelessness is associated with higher rates of substance use [82].

Youth not only use substances regularly, but many also meet criteria for substance use disorders. For example, Ginzler et al. [77] reported that 86.1% of the 197 homeless youth sampled met the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) criteria for dependence or abuse for at least one substance, including alcohol, over the past year. More specifically, 57.8% met the DSM-IV criteria for an alcohol abuse or dependence diagnosis, 56.1% endorsed marijuana abuse, 38.1% reported amphetamines/cocaine abuse, and 18% met criteria for heroin abuse [77].

The use of substances is also more frequent, heavier, and begins earlier, with factors such as age, gender, and length of homelessness seeming to influence patterns of use [69, 78, 83]. In a sample of 285 homeless youth, participants used substances a mean of 22.7 days out of the previous 30 days [40]. Other studies have found that a little less than half of homeless youth use substances regularly, with approximately one-third of youth using substances on a daily or weekly basis [69, 84]. Many homeless youth also engage in heavy use, which includes the use of multiple substances, large quantities of substances, and intravenous drug use (IDU). In fact, a recent study found that 33.8% of homeless youth abused multiple substances in the past 3 months [84]. Intravenous drug use is relatively less common, but studies indicate that a notable number of homeless youth use drugs intravenously. For example, Carlson et al. [66] found that 25% of the participants in their sample had engaged in IDU in the past 3 months. Although homeless youth often begin to use substances in their pre- and early teens, IDU typically is delayed until the late teens or early twenties [18, 62, 85].

As with risky sexual behavior, drug use is associated with social networks. Research has found that a large number of problematic peers (i.e., peers who are gang involved, steel, have been arrested, or have overdosed) put youth at particular risk for engaging in heavy drug use [74]. Further, a larger number of face-to-face relationships relative to other homeless youth who use drugs is associated with heroin, methamphetamine, alcohol, and marijuana use [75].

The high rates of substance use have proven to be detrimental. In addition to the direct risks of substance use, homeless youth who use substances are more likely to experience mental health sequelae, such as depression and anxious coping, and engage in other high-risk behaviors [78, 86, 87]. This, in turn, puts them at risk for various health problems. Specifically, individuals who engage in IDU are at increased risk for contracting HIV [86, 87]. Substance use also increases the likelihood that individuals will engage in risky sexual behaviors. This puts them at risk for STIs, as they are less likely to use a condom, as well as more likely to have sex with a larger number of partners and partners who are "high-risk" [68, 78, 88]. In fact, research suggests that substance use is a strong predictor of HIV [89, 90]. Further, substance use is associated with higher levels of psychological distress, which is already a problem for many homeless youth [38, 91].

Mental Health

The literature has consistently reported high levels of psychiatric disorders among homeless youth including depression, anxiety, substance use, posttraumatic stress disorder, and psychosis [92]. The lifetime prevalence of psychiatric disorders is almost as twice as high for homeless youth compared with their housed peers [80, 93]. A study of 364 homeless adolescents in Seattle, aged 13–21 years (mean age 16.4 years) used standardized measures to assess mental health status [1]. Youth were assessed using the Diagnostic and Statistical Manual-III-Revised version (DSM-III-R) categories, the Youth Self Report (YSR), and other standardized indices of anxiety, depression, and self esteem [94, 95]. The researchers found that the overall rates for psychiatric disorders of were high, with two thirds of the sample having at least one diagnosis based on the DSM-III-R criteria [1]. More specifically, 53% met the criteria for Conduct Disorder or Oppositional Defiant Disorder, 32% for Attention Deficit Hyperactivity Disorder, 21% for mood disorders, 21% for mania or hypomania, 12% for Post Traumatic Stress Disorder, and 10% for Schizophrenia [1].

Clinically significant anxiety and mood disorders are particularly prevalent in this population [41, 42, 52]. One of the most common anxiety disorders among homeless youth is Post Traumatic Stress Disorder, with studies indicating that one-quarter to one-third of

homeless youth meet criteria for this disorder [52, 96]. Mood disorders, including Major Depressive Disorder and Bipolar Disorder, are also prevalent among this population. A study by Busen and Edgebretson found that 41% of this population met the criteria for Major Depressive Disorder [52] and 41% met the criteria for Bipolar Disorder. When compared to males, females were more likely to be diagnosed with anxiety and affective disorders, 42 and 28% versus 21 and 12%, respectively [80].

Given the high rates of mood disorders that are reported in the literature, it is perhaps not surprising that there are also markedly high rates of suicidal ideation, attempts, and completed suicide [93, 97]. While some pre-existing mental and physical health problems associated with abusive and neglectful pre-street backgrounds may contribute to suicidality, these issues are typically intensified by the high risk lifestyle of street living [4]. Substantial variability in suicidal ideation and attempts has been noted across studies was noted [93]. In a 2001 review, 40–80% of homeless youth endorsed suicidal ideation and 23–67% reported that they had attempted suicide [93]. The findings of more recent studies are comparable [52, 62]. For example, in a study of 100 homeless males aged 16–19 years in Ottawa, 21% reported a past suicide attempt, while 43% reported lifetime suicidal ideation [98]. This large discrepancy in prevalence rates may be due the absence of a consistent definition of a "true" suicide attempt. In particular, inclusion of non-fatal self-harming behaviors and thoughts in the operationalized definition of suicidal ideation or attempt may inflate numbers in some studies [93]. Alternatively, the discrepancy may be due to the lack of a consistent timeframe around the suicide attempts and ideation.

Similar to the high rates of internalizing symptoms (i.e., mood and anxiety disorders), disruptive behavior disorders and externalizing disorders are also prevalent among homeless youth. The overall rates of disruptive behavior disorders suggest that the majority of homeless youth meet criteria for at least one of these disorders. Some studies indicate that approximately three-quarters of homeless youth meet life-time criteria for Conduct Disorder [42, 96, 99]. Attention Deficit Hyperactivity Disorder is also common, with one study finding almost one third of participants meeting criteria for diagnosis [52]. The relative prevalence rates of disruptive behaviors disorders is also notable, as research has suggested that they are four times more common in homeless youth than housed youth [42, 96, 99]. In contrast to the gender differences that exist in internalizing symptoms, males are more likely to be diagnosed with externalizing disorders [80].

Many homeless youth meet the criteria for multiple diagnoses [80, 93]. One study found that the rates of dual diagnoses (comorbid substance-use and other psychiatric disorders) among homeless youth ranged from 35 to 38% [23, 80, 93]. A more recent study found even higher rates of comorbidity, with 76% of the sample meeting criteria for multiple diagnoses [52].

Notably, the assessment of mental health problems in homeless youth is problematic for various reasons. First, it is often difficult to determine whether a homeless person's mental status is caused by a pre-existing mental disorder, the demands of homelessness, chronic stress, substance abuse, or a combination of these factors [100]. The assessment tools that are employed in studies to diagnose psychiatric disorders may also contribute to some of the inconsistent findings in the research. Whereas some studies use non-standardized scales, others use a small subset of questions from standardized or other scales, in a piecemeal fashion. As such, the reliability of the assessment tools may be poor. It is of note that the research that does use standardized measures consistently reports higher rates of psychiatric disorders among homeless youth relative to those who are housed [101]. Moreover, some studies conceptualize psychiatric symptoms as continuous variables and do not indicate whether criteria have been met for a psychiatric diagnosis. In contrast, others use psychiatric diagnoses.

There are many factors that have been implicated in the development of mental illness among homeless youth. These include external factors that predate the homelessness including: lack of parental care, sexual and physical abuse, parental conflict, and parental psychiatric disorder [102]. Individual characteristics, such as resilience, have also been associated with lower levels of psychological distress more broadly [103]. Other factors that occur subsequent to a homeless episode, for example, social support, substance use, and length of homeless episode, also have been linked to psychological distress and mental illness [102, 103]. Gay, lesbian, and bisexual homeless youth also report higher rates of depression and suicide attempts than their heterosexual counterparts [89]. Additionally, it is notable that some of the behaviors and activities in which homeless youth engage can affect emotional well-being. For example, a history of survival sex, which is common among homeless youth, is predictive of depressive symptoms [104]. It is unclear whether these symptoms precede the lack of housing or are the effect of the chronic stress of being homeless on emotional, intellectual, and behavioral processes [30]. A better understanding of the temporal order of these factors would be helpful in guiding future intervention research.

Access to Health Care

Despite the high rates of health related concerns faced by homeless youth, they are often disinclined to access services [101]. Various factors appear to contribute to their reluctance. Homeless individuals as a group must contend with multiple barriers to accessing healthcare, which can be financial, structural, or personal in nature [9]. Common financial barriers include a lack of health insurance and an inability to pay for transportation [9, 68, 82, 105]. One study, for example, found that 65% of homeless youth did not have health insurance [52]. Although free health insurance (e.g., Medicaid) and free healthcare is available, fulfilling eligibility requirements is often complicated by structural factors, such as an inability to show evidence of a fixed permanent address, birth certificate, or photo identification [105]. Some studies suggest that homeless youth are reluctant to access healthcare services, because of difficulty navigating the healthcare system, few clinic sites, lack of coordination among providers, specific hours for homeless youth, and long waitlists [9, 106, 107]. Additionally, many of the clinics that serve homeless individuals integrate child and adult services, which some homeless youth reports makes them uncomfortable [9].

Homeless youth may also be unwilling to seek professional health care for more personal reasons, such as embarrassment and lack of knowledge [82]. In fact, one study of homeless young people aged 14–24 years-old found that participants were most likely to seek health advice from other homeless youth. This was followed by self-treatment and, if self-treatment failed, then individuals accessed health clinics [108]. The negative beliefs of homeless youth about the health care system appear to be due, in part, to a fear that they will encounter discriminatory attitudes and negative judgments by health professionals [9, 107, 109]. These concerns might be warranted, as research with medical students has indicated that they hold more negative attitudes towards homeless people at the end of their medical training than when they began [110]. Another reason that many youth do not access healthcare is that they do not believe that they have a problem or need help [82, 106]. This appears especially true of youth with substance use problems.

Prioritization of treatment for certain disorders is cited as another barrier to health care services [107]. Many youth report that some medical and mental health conditions, such as

bipolar disorder, receive priority care and result in a lack of services for individuals with other problems. As a result, youth with less critical and dangerous symptoms are less likely to receive care [107].

In contrast to the findings that suggest that homeless youth are reluctant to access healthcare services, some studies have found that if services are accessible, youth will use them. This is particularly true for experienced homeless youth [82]. For example, one study found that 99% of participants in the study used healthcare services in the past 3 months when it was readily accessible [66]. Youth appear to access services primarily for pregnancy, mental health issues, trauma, STIs, and substance use problems, as well as chronic conditions and dental problems [9]. Unfortunately, because many youth do not seek health care early, they are at risk for more serious health concerns and emergency situations. Youth are also more likely to seek services at agencies that cater to or specifically serve homeless youth [107]. Additionally, support and information from family, friends, and other homeless youth support help-seeking behaviors [107]. Improving access by minimizing barriers may ultimately lead to improved mental and physical health among this population.

Intervention and Prevention Programs

Despite the numerous studies that show homeless youth are an uniquely vulnerable population, with high rates of mental health, physical, and substance use problems, few prevention and intervention studies exist. In a review of the intervention literature, Slesnick et al. [111] found 12 studies that evaluated treatment effectiveness. These studies targeted a variety of different outcomes. Five studies looked exclusively at STD or HIV interventions. Two studies examined drug and alcohol use. Four studies included mental health outcomes. Five of the studies included interventions that targeted multiple areas of functioning [111]. The authors further categorized these studies into case management and vocational training interventions, substance use interventions, and STD/HIV prevention and intervention programs.

The findings indicated that overall the interventions currently available ineffectively address the various risk factors and presenting problems confronted by homeless youth. This may be attributed, in part, to the targeted nature of many studies [111]. Homeless youth face a variety of stressors and risk factors from a lack of basic necessities, such as inadequate food and shelter, to more complex psychological and medical problems. Interventions that target only one aspect of an individual's life will likely not effect meaningful change; rather, a more holistic approach to intervention is required [111]. Moreover, given that homeless youth frequently report that poor coordination of services impedes their access to care, interventions that incorporate and synchronize services may be more effective [9, 106, 111]. Another finding was that motivational interventions appeared to be ineffective with street youth. General distrust of service providers and complex presenting problems likely require longer-term interventions that allow for the development of more trusting relationships with providers, as well as time to address the range of issues with which homeless youth present [111].

A more recent review of the literature retrieved only 11 intervention studies [112]. This also encompassed various types of treatment: case management, independent living, brief motivational interviewing, cognitive behavior therapy, living skills, supportive housing, and peer-based interventions. Outcome measures were also varied and included service utilization, housing, employment, educational achievement, days homeless, life domains,

social support, and general health [112]. Based on the U.S. Preventive Services Task Force Work Group rating system, which assesses intervention definition, use of an appropriate control group, random assignment, and psychometric soundness of the measures, among other factors, seven of these studies were considered to be of poor quality [112]. In addition to the poor quality of the studies, the heterogeneity of the interventions, participants, methods, and outcome measures precluded the possibility of significant findings [112]. The authors also observed that most intervention studies of homeless youth examined substance use and have not considered issues of well-being, quality of life, living skills, and social support [112].

Even if current prevention and intervention programs were effective, numerous challenges to implementation exist [113]. In particular, there is a notable lack of awareness of the problem of homelessness among at a local level, which makes it difficult to serve them. Additionally, funding for prevention and intervention programs is scarce, especially during economic downturns [113]. The lack of knowledge and funding has made it difficult to develop and subsequently implement prevention and intervention programs [113]. Nonetheless, high quality research is needed to develop effective, empirically-supported prevention and intervention programs [112].

Research: Limitations and Ethical Issues

Limitations

Although there is growing body of literature in the area of homeless youth, it is weakened by a variety of limitations. First, studies lack theory and consistent definitions of homelessness [21]. Variations exist in what qualifies individuals as youth and homeless (e.g., street youth, youth who live in shelters, youth who live in unstable housing with family or friends), as well as in length of homelessness [21, 41, 50]. These differences may affect the nature of the sample and the generalizations that can be made from the results of the research.

A second limitation of the current research pertains to data collection. Many studies have utilized measures that are not psychometrically sound and are, consequently, fundamentally problematic. Whereas some measures are not reliable or valid, others have not been standardized for use with homeless youth [21]. Another failing of the current research is that it rarely employs multi-method, multi-informant data collection [21]. In particular, many studies use self-report measures without incorporating other methods of data collection [3, 38, 85, 104]. The inclusion of informants is perhaps the more difficult problem to address, as parents frequently act as informants for minors; however, this can put homeless youth at risk and may be ill-advised. As such, gathering data from other individuals with whom the youth is in contact, such as friends, acquaintances, social workers, and case managers, may be one way to provide a more multidimensional understanding of homeless youth.

Third, most studies of homeless youth have not used comparison groups; therefore, it is unclear how homelessness or interventions relatively affect youth [21]. Haber and Toro recommend that studies compare homeless youth to youth who face extreme levels of poverty. They also suggest that studies could look at normative experiences of childhood, adolescence, and emerging adulthood and compare homeless youth with a matched sample [114].

Concerns about participant samples are a fourth weakness of the homeless youth literature. Many studies use convenience sampling, which has produced rather homogeneous study populations [3, 38, 53, 62, 71, 78, 80, 85, 111]. For example, many studies only examine homeless youth in one city, one shelter in one city, or one subgroup of homeless youth [45]. Studies conducted in different cities suggest, however, that homeless youth are a heterogeneous population [53]. In fact, diversity exists with regard to a variety of different factors, including demographic data, degree of transience, level of education, and substance use and addiction, among others [53]. Further, samples are frequently not random [84, 106]. For example, some samples include only individuals who seek medical and mental health care [52, 71, 84, 106]. These factors, in conjunction with small sample sizes and high attrition rates, limit researchers' ability to generalize results [2, 71, 85, 89]. Nevertheless, the transient and covert nature of homelessness in unaccompanied youth has made it difficult to assemble samples that reflect the overall population, as well as to gather accurate information about their numbers and characteristics, particularly over time [14, 21, 50, 104]. Some researchers suggest that these obstacles may be insurmountable [14].

Ethical Issues

In addition to the numerous practical factors that make it difficult to conduct research with homeless youth, there are also a variety of ethical considerations that have made it uniquely complex and challenging to work with this population. These range from overarching issues such as the lack of guidelines to more specific aspects of conducting research with unaccompanied minors. Cumulatively, it is likely that the various barriers have made it too difficult for some researchers to pursue this type of work and, therefore, has limited the current knowledge base.

One of the primary difficulties in working with homeless youth is the lack of guidelines. That is there are no specific recommendations to guide research beyond those developed for work with vulnerable populations [115]. Investigators and institutional review boards (IRBs) may be uncertain about how best to protect the rights of participants. Although researchers may refer to precedent when structuring and submitting their project, IRBs often disagree with these solutions and may be reluctant to provide effective alternative solutions [115].

Other, more specific methodological issues also exist. For example, concerns about the consent and assent process often arise. Whereas most research with minors requires that a parent or guardian provide consent and that youth provide assent, many researchers who work with homeless youth believe that this population should be able to consent for itself [115]. They contend that if 14 year-olds can consent for medical and mental health treatment, then they should be able to consent to participate in studies [116]. Studies also indicate that 14 year-olds are developmentally able to make informed decisions about participation in research that is comparable to adults [116]. Although this may be the case, few studies have examined the effects of participation in research without parental consent [116]. Another reason to allow youth to provide consent is that the prerequisite of parental consent may not only preclude many youth from participation, but it may also pose a danger to some youth, particularly for those who left home to escape abuse [116]. To address this issue of consent, some researchers request a waiver of parental consent [115]. For youth who reside in shelters, an advocate from the agency may be asked to provide consent and confirm that the youth understand the assent form [See 117]. Another tactic to encourage involvement in research is the use of oral consent. This may be appropriate when the risks of the research are minimal, as it allays concerns about confidentiality [115].

When taken together, these methods help to simultaneously preserve the rights of participants and facilitate participation.

The use of incentives, specifically questions concerning the type and quantity of compensation, is a frequent concern among those who study homeless youth. Researchers have used various kinds of incentives including: money, gift cards, and food [115, 116]. Concerns about the use of money as compensation are many. For youth who have very little money, even a small amount of money may be coercive [116]. Additionally, given the high rates of drug and alcohol use in this population, questions about the appropriateness of money as an incentive have been raised [115]. If money is to be used, there is no consensus about a proper or reasonable amount [115, 116]. There is also no agreement about the ethical use other types of incentives or whether incentives are appropriate at all, as any type of incentive may be seen as coercive with this population [115]. Yet, participation in research is needed to better understand and serve these youth. One way to address this issue is to bring together homeless youth, individuals who work with these youth, and researchers who specialize in this area to discuss proper and desired incentives [116]. A community group such as this should address how to most appropriately encourage participation and compensate participants without coercion.

In addition to ethical questions that exist with regard to methodology, there are also issues that pertain to the role of the researcher and the nature of his or her relationship with the youth. In many instances, the researcher is also a clinician—either a physician or psychologist—who also may see the participant in the context of treatment. As such, a dual relationship may occur [116]. The line between the role of the researcher and the clinician may become blurred, which can result in a coercive relationship. This is a particular concern given the inherent power differential in the relationship between the provider and the patient, as well as between the researcher and participant [116]. Also unclear is the degree of confidentiality that the researcher can guarantee. Unlike the clinical relationship in which providers, particularly psychologists and psychiatrists, are trained to communicate from the outset the limits of confidentiality in cases of suicide, homicide, and child abuse, these exceptions are often not stipulated in consent forms [116]. Research with homeless youth, however, frequently inquires about these issues. In the case of researchers who have a dual relationship with a participant-patient, a youth may share information in one context that he or she may not have shared in other. This raises the ethical dilemma about how much confidentiality researchers can promise [116].

Conclusions, Implications, and Future Directions

Despite the large number of homeless youth in cities across the country, they are often forgotten as they are out of view, living in temporary shelters or with friends and relatives. Not only do these youth experience unstable housing, but most have faced extraordinary adversity prior to their homelessness. Many youth have contended with economic hardship, abuse, neglect, and a breakdown of the family. These experiences often lead to myriad negative neurocognitive, academic, and health sequelae. The adverse outcomes of homelessness are often further exacerbated by the various barriers to healthcare services that these youth face. As such, many homeless youth are at particular risk for more serious physical and mental health problems.

Although a large number of gaps in the literature exist, there are several areas that are particularly wanting. There is a paucity of research in the area of cognitive and psychosocial development and functioning in homeless youth. Studies are needed that advance

our understanding of the impact of homelessness on the unfolding of cognitive skills, behavior, psychiatric functioning, and social networks. A better understanding of these factors and the interplay among them will serve to guide the development of targeted interventions that promote adaptive functioning.

One example of research in this area is a study currently being conducted by Hunter et al. at the University of Chicago. Specifically, they have developed a biopsychosocial model of high-risk behavior, which they are testing in a set of studies that examines neurocognitive functioning and psychiatric functioning. By comparing the neurocognitive functioning of homeless youth to the norms of the general population, as well as to other groups that have known neurocognitive impairments, the study will be able to provide a better understanding of the patterns of deficits in this population. The findings from this study will provide information that will be used to inform interventions that target cognitive functioning and coping skills.

The literature would also benefit from additional well-designed and well-implemented studies is the area of prevention and intervention. This is broadly needed across areas of medical and mental health, education, and adaptive skills. Given that targeted interventions that focus on a single domain have proven ineffective, research that examines the effectiveness of more holistic interventions is warranted [111]. Additionally, interventions that help youth develop skills that support age-appropriate and healthy functioning across areas may also be beneficial. Hunter et al. are developing an intervention designed to support the acquisition of decision-making skills and improved executive functioning. The goal is that this will lead to improved adaptive skills, decreased engagement in risky behaviors, and consequently, lower levels of medical and mental health problems.

In addition to studies that areas address gaps in the literature, higher quality studies also are needed. To do this, the fundamentals of research with homeless youth need to improve. Researchers need to move beyond convenience samples and recruit from multiple sources and preferably from multiple cities so that the findings generalize more broadly. Multi-method, multi-informant data collection would further strengthen the studies. Moreover, the measures employed should be psychometrically sound and appropriate for use with this population. Longitudinal studies also would enhance our understanding of the experience of homelessness, its impact on development, as well as the long-term effectiveness of treatments.

Studies that implement innovative methodologies are also needed to better understand the experience of homeless youth, as well as to provide effective services. Some researchers have begun to do this [117, 118]. As the majority of homeless youth use the internet, technology of various kinds has been used to collect data [75]. Technology has been employed to enhance our understanding of social networks and high-risk behaviors, as well as more general behavior patterns and healthcare use. In two studies that used online technology to evaluate the sexual behavior of homeless youth, increased time online and use of online social networks were associated with increased exchange sex and partner-seeking. They were also associated with some positive outcomes, including increased awareness and implementation of HIV/STI prevention [75, 117]. Additionally, technology may be incorporated into intervention and prevention programs to support and facilitate utilization of resources. It has already been used to better understand the ways in which social networks could be incorporated into prevention programming [117]. In one such study, networking technology was used to cultivate and support positive peer interactions, which are important for peer-based prevention programs [117]. Intervention research would benefit from examining other ways to employ technology to increase the utilization of medical and mental health services among homeless youth.

Most of the research with homeless youth to date has focused on deficits, pathology, and problems. These factors may not only be orthogonal to more positive constructs such as well-being and quality of life, but they do not capture the strengths of individuals. As a result, it remains unclear whether individuals who become homeless or the experience of homelessness unique sets of strengths. These positive attributes could potentially be exploited for prevention and intervention programs. As such, future studies may benefit from a focus on positive traits of homeless youth and positive outcomes.

Ultimately, homeless youth are a difficult population with which to conduct research, as evidenced by the current state of the literature. Because these youth are marginalized, there is a lack of awareness, particularly at the local level, about this population. This contributes to a lack of funding to support studies that improve our understanding and treatment of this population. The unseen nature of homeless youth also likely contributes to the inadequate number and range of services to support homeless youth. Despite the multiple technical and funding challenges in studying homeless youth, they are very much in need of improved knowledge of their experience and services. By aggregating and qualitatively synthesizing the findings from studies to date, we hope to raise awareness about this population and the need for additional research. Researchers, in turn, will need to employ creative techniques to study, assess, and treat these youth.

Summary

This paper examined youth homelessness in the United States with the goal of organizing the current body of research. Homeless youth are a diverse population and have been described in numerous ways in the literature. Inconsistent definitions of homelessness and the utilization of diverse methodologies to study homeless youth make it difficult to synthesize the current research and draw conclusions about the issues they face.

Studies of homeless youth fall into four main content areas: (1) causes of youth homelessness, (2) characterizations of homeless youth and the implications of youth homelessness, (3) healthcare, and (4) prevention and intervention programs. Research indicates that numerous factors contribute to youth homelessness. These include family breakdown, disruptive family relationships, and trauma and abuse. LGBT youth and individuals involved in the foster care system also are at particular risk for homelessness. Homeless youth are at risk for numerous adverse consequences. Specifically, neurocognitive development, academic achievement, violence and trauma, and health all appear to be negatively impacted by the experience of homelessness during childhood and adolescence; however, the directionality of the relation between homelessness and these negative outcomes has not been studied. Although substance use, medical problems, and psychiatric disorders are prevalent in this population, homeless youth are often unwilling to seek professional help due to difficulties accessing adequate, developmentally-appropriate, and affordable health care. Few prevention and intervention studies have been conducted despite the strong evidence that homeless youth are an uniquely vulnerable population; and the quality of many of these studies is quite poor.

The current body of research has been limited by a variety of factors. In particular, a lack of theory and inconsistent definitions, as well as methodological and psychometric weaknesses, have played a role in the current state of the literature. Further, various ethical challenges also have made it difficult to work with this population and have likely contributed to the gaps in the literature. There are several areas that would particularly benefit from future research. These include studies that examine the impact of homelessness on

development, prevention and intervention programs, and positive characteristics of homeless youth, among others. By reviewing and synthesizing the literature in the area of youth homelessness, we hope that this paper brings attention to this population, as well as precipitates additional research and funding.

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