



**National Association of State Mental Health Program
Directors**

**66 Canal Center Plaza, Suite 302
Alexandria, Virginia 22314**

Assessment #10

**Addressing Intersecting Social and
Mental Health Needs among
Transition-Aged Homeless Youth**

August 2019

Alexandria, Virginia

**Tenth in a Series of Ten Briefs Addressing—Beyond the Borders:
International and National Practices to Enhance Mental Health Care**

This work was developed under Task 2.2 of NASMHPD's Technical Assistance Coalition contract/task order, HHSS2832012000211/HHS28342003T and funded by the Center for Mental Health Services/Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services through the National Association of State Mental Health Program Directors.

Addressing Intersecting Social and Mental Health Needs among Transition-Aged Homeless Youth

Winiarski, D.A., Glover, A.C., Bounds, D.T., and Karnik, N.S.

Acknowledgement:

Development of the (Addressing Intersecting Social and Mental Health Needs among Transition-Aged Homeless Youth) was partially supported by a contract from the Substance Abuse and Mental Health Services Administration (SAMHSA) to the National Association of State Mental Health Program Directors (NASMHPD).

Citation:

Center for Mental Health Services

Addressing Intersecting Social and Mental Health Needs among Transition-Aged Homeless Youth

Substance Abuse and Mental Health Services Administration, 2019.

Disclaimer: The views, opinions, and content expressed in this publication do not necessarily reflect the views, opinions, or policies of the Center for Mental Health Services (CMHS), the Substance Abuse and Mental Health Services Administration (SAMHSA), or the U.S. Department of Health and Human Services (HHS).

Title: Addressing Intersecting Social and Mental Health Needs among Transition-Aged Homeless Youth

Authors: Winiarski, D.A., Glover, A.C., Bounds, D.T., Karnik, N.S.

Disclosures and acknowledgments: DTB's time was supported by the National Center for Advancing Translational Sciences (NCATS) of the National Institutes of Health under Award Number KL2-TR002387. At the time this review was written, DTB was also a Scholar with the HIV/AIDS, Substance Abuse, and Trauma Training Program (HA-STTP), at the University of California, Los Angeles; supported through an award from the National Institute on Drug Abuse (R25-DA035692). NSK's time is supported in part by NCATS (UL1-TR002398) and the National Institute on Drug Abuse (R01-DA041071). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or any other funders.

Word count: 5,707

Highlights:

- Youth homelessness is a serious social problem with numerous intersecting risk factors.
- Interventions for homeless youth have not adequately addressed the root causes of homelessness, most notably trauma and related mental health problems.
- Collectively, past and current research all support the importance of developing short-term and targeted interventions that harness technology to reach a wider network of youth.

Previous presentation: N/A

Abstract

Objective: Youth homelessness is a poorly-understood and complex social phenomenon. In this paper, we address the risk factors for homelessness in youth and underscore the unique mental health concerns that so often perpetuate the cycle of poverty and housing instability among these high-risk youth. We also discuss the gaps that exist in mental health treatment for homeless youth, and identify potential solutions to addressing the existing barriers to care.

Methods: A literature review was conducted to evaluate the existing research on youth homelessness.

Results: Previous studies have demonstrated high rates of trauma and subsequent mental health problems among homeless youth. Intervention studies in this population are challenging to conduct, and often have high attrition rates. The authors' work suggests that homeless youth desire mental health services, and are especially enthusiastic about programs that address interpersonal difficulties and emotion regulation. Clinical outcome data suggest that future interventions should address trauma more directly in this population. Technology-based interventions are one potential avenue by which these needs can be addressed, and through which access to care can be maximized among homeless youth.

Conclusions: Future research on homeless youth should incorporate technology-based platforms and address the mental health needs identified as most salient by youth. Proposed policy changes at local, state, and federal levels designed to facilitate addressing the disparity in access to services for this population are discussed as well.

Identifying and Defining the Issue

Homelessness is a serious and poorly-addressed social problem. It is estimated that 552,830 people experienced homelessness on any given night in 2018 (*i.e.*, 17 out of every 10,000 people in the United States population) [1]. Among those experiencing homelessness during that time, 7% were youth under the age of 25. Overall, the United States Department of Housing and Urban Development (HUD) reports that rates of homelessness have been decreasing in the last decade, but there was a slight increase in rates between 2017 and 2018 (0.3 percent).

For some groups, such as youth, rates of homelessness have been decreasing more slowly [1]. Homeless youth often have significantly higher rates of mental health difficulties than their same-aged housed peers [2]. The concomitant impact of mental health difficulties and the inadequate availability of resources often leads to unremitting homelessness.

Efforts to address homelessness require interventions at the individual, local, state, and federal levels. Therapeutic and supportive efforts made by individual clinicians are an integral component of addressing this social concern, but long-term change is only possible through the reformation of several state and federal policies that often inadvertently reinforce and perpetuate the cycle of homelessness for youth aging out of the juvenile justice and child welfare systems. This paper will summarize the available literature on the mental health needs of homeless youth and the interventions developed to-date, highlight novel approaches to addressing the disparities in access to these much-needed services for this population, and discuss strategies for prioritizing this public health concern at local, state, and federal levels.

Current Knowledge and its Limits

Risk Factors for Homelessness in Youth

Understanding risk factors for the onset and prolongation of homelessness is especially critical in transition-age youth, a pivotal developmental time point that spans ages 16 through 25 [3]. Late adolescence and young adulthood are times when youth are expected to begin taking the financial and social steps necessary to transition from dependent to independent living, but this transition is fraught with additional challenges for youth struggling with complex mental health needs [4, 5]. Homelessness complicates this transition even further. Whereas stably housed youth have familial and/or financial resources available to them to aid in this major developmental transition, homeless youth are often estranged from their families [6]. As a result, homeless youth struggle to navigate the transition to independence, with about half likely to continue experiencing homelessness as adults [7].

Among the transition-age youth at greatest risk for homelessness are those in the juvenile justice or foster care systems [8] as these youth are about to age out of the systems that have been providing services for them and often do not have any reliable social,

educational, financial, employment, or housing opportunities available [9]. Studies conducted with youth aging out of the foster care system have found that over 25% of youth spend their first night “out of the system” in a shelter or on the street [10, 11]. Courtney [12] found that 12% of a sample of 141 youth leaving foster care had been homeless for at least one night within the first year of aging out. Similarly, Fowler & Toro [13] found that 17% of a sample of 264 former foster youth experienced homelessness for an average of two months within the first four years of aging out. Within this same time period, one-third of former foster youth were unstably housed, and reported having to couch surf with friends or “double up” an average of 2.8 times over a 13-month period. Notably, youth who experienced homelessness after leaving the foster care system reported greater levels of psychological distress, higher rates of victimization, and more frequent risky behavior than those who did not become homeless until later in life.

However, one limitation of the Fowler & Toro research is that it was difficult to distinguish between the youth who were more vulnerable at baseline (*i.e.*, before they aged out of the system) from those who became so as a function of becoming homeless. Further complicating this distinction was that the youth experiencing housing instability and homelessness were unable to access mental health and social support services (for reasons not clearly identified in the study). Less than one-third of the youth sampled were able to access social services through a homeless shelter, and only 3% utilized outreach programs. Additionally, although 70% were diagnosed with clinically-significant mental health concerns, only 21% of these youth actually received any kind of mental health care.

The largest longitudinal evaluation of former foster care youth, conducted by Dworsky, Napolitano, and Courtney, found that these youth are at a disproportionately greater risk for homelessness during their transitional period, and that anywhere from 31% to 46% of youth in the study experienced at least one episode of homelessness before the age of 26 [14]. There were several important risk factors that emerged in this research, the most notable being that youth with histories of physical abuse, those who engaged in delinquent behaviors, and those who presented with symptoms of a mental health disorder were at greater risk for experiencing homelessness after aging out of the foster care system.

Youth who age out of the juvenile justice system generally do not fare better. Many existing housing policies bar individuals who have committed certain offenses from qualifying for or receiving public housing or Section 8 rental housing assistance [15]. These youth are also less likely to receive either housing or financial assistance from their families. Feldman and Patterson (2003) [16] found that most justice-involved youth were generally not living with their parents and could not provide a permanent address prior to their involvement with the system. These youth have limited-to-no support once they are released from or age-out of the court system.

Moreover, approximately 80% of homeless youth surveyed by the New York City Association of Homeless and Street-Involved Youth Organizations [17] did not have a

high school diploma or high school equivalency diploma (GED). When combined with an existing criminal record, the lack of education credentials even further limits their job prospects. In addition, in many cases, child welfare lapses while youth are in detention. Job scarcity and dire financial limitations, housing insecurity, and circumscribed social support often then “pressure” these youth to engage in risky and perhaps criminal behaviors that are essential for their survival (for an overview of “Strain Theory,” *see* Agnew, 1992 [18]). These survival behaviors often amplify the risk for repeated contact with the criminal justice system and sexual exploitation, and certainly contribute to an ongoing cycle of residential instability.

Mental health outcomes in homeless youth

At this time, the most common intervention for homelessness in the United States is to provide supportive housing and, since 2007, the number of beds available to homeless individuals has increased by 92% [1]. On the surface, this approach makes practical sense as it reduces the number of individuals without access to shelter. However, it in no way directly addresses the root causes of homelessness and therefore does not break the cyclical pattern that youth find themselves in. The collective research-to-date with homeless youth suggests that not accounting for, or poorly managing, trauma-related psychopathology results in adverse psychosocial outcomes for this population.

Severe and/or persistent traumatic experiences not only increase the risk of posttraumatic stress disorder (PTSD), but also correlate to emotional and behavioral health problems in other ways. Early childhood adversity is typically seen as a “universal” risk factor for later psychopathology [19]. For example, individuals who have experienced early life adversity have altered frontolimbic brain functioning, which increases impulsive behavior and decreases the ability to process facial emotions correctly [20]. These impairments in turn may make it more challenging for youth to maintain stable housing and employment, and can impede their ability to form interpersonal connections with others. These are all skills necessary for breaking out of the cycle of homelessness. Other lines of research have suggested that social adversity leads to mental health problems across the lifespan via specific epigenetic modifications that alter the body’s stress response system [21-24].

Homeless youth experience disproportionately high rates of trauma, both leading up to and while experiencing homelessness. Not surprisingly, the lifetime prevalence of psychiatric disorders is estimated to be twice as high for homeless youth than their housed peers [25]. In a large study of homeless youth from several major cities in the United States, 57% of the 146 sampled youth experienced a traumatic event and 24% met DSM-IV criteria for PTSD [26]. Trauma was identified as the most common risk factor for psychopathology among 35 homeless youth between the ages of 14 and 25 [27] and as many as 77% of homeless youth reported experiencing physical abuse, sexual abuse, or both [28]. Youth, particularly females, are often targeted by sexual exploiters or may be forced to resort to trading sex out of desperation for survival, which only further intensifies the traumatic experiences that often led to homelessness in the first place [29].

In addition to being at greater risk for traumatic stress disorders, homeless youth are at elevated risk for other mental and behavioral health problems as well. They have high rates of depression, anxiety, substance use, and psychosis [30], as well as a greater number of suicide attempts [2, 31]. In addition to internalizing symptomatology, homeless youth are more likely to be diagnosed with externalizing disorders than their stably housed peers (*i.e.*, Conduct Disorder, Attention Deficit Hyperactivity Disorder) [32, 33]. Externalizing behavior problems are especially problematic in this population because aggression and impulsivity can impact youths' abilities to remain in the shelter system (and therefore with access to some sort of case management and mental health support, however limited) and increase the likelihood that these youth will be routinely "street homeless."

An Overview of Interventions in Populations of Homeless Youth

Despite the wide range of mental health diagnoses seen in this population, most research has focused on risky sex and drug use, with mental health sequelae (*e.g.*, depression and anxiety symptoms) being seen as secondary outcomes.

There are several very important limitations to the existing literature in this area. First, very limited research has been done within the last 10 years on addressing mental health disparities in homeless youth. In addition, drawing comparisons across studies is challenging given the wide variability in both methodology and theoretical underpinnings of the intervention frameworks being evaluated [34, 35]. An additional limitation of these interventions is the high participant attrition rate, which makes longitudinal assessment challenging. Finally, when longitudinal follow-up is possible, the impacts of the interventions are generally found to be unsustainable over the long-term. Several studies are briefly summarized below, and key findings and significant limitations highlighted where appropriate.

Despite its success in the treatment of substance abuse disorders in traditional clinical settings [36], two evaluations of Brief Motivational Interviewing among homeless youth suggest it is not necessarily the most effective strategy for reducing substance use in this population. For example, Peterson and colleagues (2006) [37] found that, while there were initial reductions in illicit drug use between treatment and control groups following participation in a brief, three-session motivational interviewing intervention, this outcome did not persist at a three-month follow-up. The intervention also did not yield reductions in marijuana and alcohol use, two of the most commonly-used substances in this population [38]. A slight modification of this program, which included an additional treatment session, did result in decreased alcohol and marijuana use, but there was no significant difference between the treatment and control groups [39].

Behaviorally-driven approaches appear to yield better long-term outcomes as measured by self-reported reductions in substance use. Using a Community Reinforcement Approach (CRA), which relied on principles of operant conditioning to increase social rewards for sober activities, Slesnick and colleagues [40] found that twelve sessions of CRA, coupled with four sessions of HIV education and skill practice, led to self-reported

reductions in the number of days of usage and in the number of drugs used. The addition of case management to CRA yielded significant decreases in drug and alcohol use at 12 months [41]. An important finding from this study was that the number of sessions did not predict the rate of behavioral change.

Other researchers have similarly found that intensive and multidisciplinary case management leads to short-term reductions in substance use. But again, these treatment models are still complicated by low retention [42] and, in some cases, differences between control and treatment groups have not been observed at all [43, 44]. Furthermore, the effectiveness of these models has been somewhat more challenging to gauge given the numerous confounding factors that are difficult to control in the designs. In one study, daily drug screening and intensive individual counseling resulted in a large drop in drug dependence [45], but long-term success has not been determined. Others have found that, when health resources and skills training are included in traditional shelter-based care, females are more likely than males to show reductions in substance misuse [46]. This moderating effect of gender has been suggested in the literature on interventions for risky sexual behavior as well, with an emphasis on developing gender-specific interventions for high-risk homeless youth populations [47].

However, it appears that simply providing youth with access to treatment services through shelter systems does not yield long-term reductions in high-risk behavior [48, 49]. In fact, when traditional drop-in center access was paired with vocational training, supportive mentorship, and clinical services, youth showed improvements in self-reported mental health outcomes, but also increases in risky behaviors (*i.e.*, drug use and number of sex partners) [50].

An additional methodological challenge in studies of case management-based interventions is the inability to evaluate group differences at onset (*i.e.*, prior to when youth arrived at a shelter) thereby precluding a thorough examination of differences [51] between treatment and control groups.

Family Involvement

One especially promising area of intervention for homeless youth prioritizes the strained familial relationships that are so essential during this transitory developmental period. As discussed earlier, homeless youth often have strained or very limited relationships with their families. Paradoxically, research suggests that family involvement is a crucial component of improved outcomes in homeless youth.

To date, however, only six clinically effective interventions supported by randomized controlled trial data have been identified [52]. These interventions include: Ecologically Based Family Therapy (EBFT), Functional Family Therapy (FFT), Multidimensional Family Therapy (MFT), Multisystemic Therapy (MST), Treatment Foster Care Oregon (TFCO), and Support to Reunite, Involve, and Value Each other (STRIVE). Each intervention includes four core components that are likely essential to their efficacy: 1) providing the services within the home, 2) offering clinical services in conjunction with

parent training, 3) the inclusion of multiple, intensive sessions, and 4) the use of graduate-level therapists. Each intervention varies in how these four core components are implemented, but each includes some form of each of these elements.

While each intervention has been shown to work with families, the specific intervention targets have varied. For instance, EBFT, FFT, and STRIVE all have focused on family functioning, which meant support was provided to strengthen positive family interactions through communication and problem-solving skills. In contrast, MFT, MST, and TFCO targeted specific populations and/or risk behaviors; adolescent substance use, delinquency, and foster families, respectively.

Strong evidence links both family conflict and trauma to increased mental health problems and substance use, as well as to delinquent and high-risk sexual behaviors [53]. Not surprisingly, evaluations of these trauma-informed family interventions suggest that they show promise in reducing risk behaviors among homeless youth. A study comparing the clinical effectiveness of FFT (office-based), EBFT (home-based), and shelter-based service (control group) found that the family-focused intervention groups yielded a significantly greater reduction in daily drug and alcohol use, and that youth with significant abuse histories were especially responsive to EBFT[54-56].

STRIVE is a five-session family-based intervention designed to reduce risk behaviors and drug use based on core principles of cognitive behavioral therapy among newly-homeless youth, ages 12 to 17. Overall, Milburn and colleagues found that participants in a STRIVE study showed improvements in indices of mental health and reductions in HIV risk behaviors, as well as reductions in alcohol and drug use. Notably, however, marijuana use increased in the treatment group but decreased in the control group [57]. In addition, participants in the treatment group reported a decrease in the number of new sexual partners, whereas the number of sexual partners increased in the control group, suggesting that STRIVE may be especially effective in targeting risky sexual behavior among homeless youth. Overall, studies evaluating family-based interventions in this population suggest that such multisystemic approaches yield positive behavioral outcomes in homeless youth.

New Findings or Knowledge

New Directions in Clinical Research with Homeless Youth

Clinical data from a shelter-based clinic studied by the authors confirms that there is a significant need for mental health services in this population, and that some youth are motivated to return for care (Winiarski et al., 2019, submitted manuscript). Our research team worked to develop an in-house clinic staffed by doctoral-level clinicians two to three times per week, at varying times of the day to accommodate work and school schedules. Youth can self-refer for treatment or can be referred by their case managers. Clinical outcome data suggest that youth attended an average of 3.03 therapy sessions, but a sharp decline was observed in the number of youth who attended more than one

session (*i.e.*, 49.4 percent of youth only attended the intake session, whereas attendance in the second session dropped to 13 percent).

Most youth were rated as moderately-to-severely ill at intake and the most common clinical concerns for which youth returned to treatment were depression and trauma. Future individual interviews and focus groups are planned with these youth but, at present, anecdotal evidence suggests that poor experiences with the mental health system in the past, as well as very restrictive school and work schedules are interfering with establishing sustained care.

To address these logistical barriers, our research team has also explored the effectiveness of technology-based interventions in this population. In one study, 35 sheltered homeless youths were provided with a cellular phone that came preloaded with mental health mobile applications [58] and one month of prepaid data. Study participants were given the option to attend a total of three phone “coaching” sessions with a doctoral-level psychologist. A large proportion of the youth (57%) participated in these phone sessions, and engaged outside of these scheduled phone sessions by sending an average of 15 texts to their therapist during the one-month study period.

The most common issues addressed during the coaching sessions were interpersonal problems, stress management, goal-setting, and emotion regulation. Improvements in clinical indicators (*i.e.*, depression, anxiety, PTSD, and emotion regulation) were not statistically or clinically significant. However, because this study was designed to provide a bridge to supportive mental health services, and not intended to replace traditional outpatient care, we would not expect to see dramatic reductions in clinical symptoms.

Nevertheless, an encouraging finding is that 52% of study participants indicated they were very or extremely satisfied with the intervention, 48% of respondents found that the skills they learned in the phone coaching sessions were beneficial, and 43% reported they regularly integrated the new skills learned in the coaching sessions. Study participants were given opportunities to rate the helpfulness of these tips, with topics covering motivation, self-care, and goal-setting. The majority of the youth in the study (64%) were most enthusiastic about the daily tips that were pushed to their phone. Despite the participants’ positive ratings of several aspects of the study, one of the most significant limitations was that participants and therapists struggled to identify times that worked for the phone coaching sessions.

In an effort to address this logistical concern while retaining elements of the intervention that study participants found to be most helpful, a fully automated intervention for the population was developed (Glover et al., 2019, submitted manuscript). A total of 100 homeless youth in several shelters across the Chicago area were recruited for participation in this study, and again received a cellular phone with data/talk/text for a maximum of six months. Assessments were completed at baseline, the three-month midpoint, and a six-month follow-up. Of those who completed the midpoint and endpoint assessments, 62.5% and 68.4%, respectively, reported benefitting from the intervention.

As in the first phase of this study, the study participants liked and benefited most from features that were fully automated, (*e.g.*, the daily tips and surveys that were delivered through the push notification features on their devices). Despite the high acceptability and self-reported usefulness of the mental health mobile applications, retention in this study was low. Of the 100 youth originally recruited in the study, 48% completed the midpoint assessment, and only 19% completed the endpoint assessment.

Developing Novel Research Programs for Homeless Youth

The main takeaways from our work with this population is that youth desire services and are willing to engage, but competing demands (*e.g.*, securing longer-term stable housing, employment, and education) often conflict with their availability for traditional outpatient care (even when provided over the phone) and also make it difficult to sustain ongoing engagement in mental health care programs. Relatedly, youth are most engaged with tools that require little time and investment, and more specifically with mobile applications that prompt them to engage rather than having to initiate engagement on their own.

Taken as a whole, these results suggest that the most effective solutions to addressing disparities in mental health access among traditionally underserved homeless youth should involve mobile platforms in some capacity. Our research team's results are consistent with other literature in this area, suggesting that technology can be harnessed to improve reach and specificity of health resources in traditionally underserved populations, but that more work is needed to increase retention in these studies and to understand the long-term clinical benefits of these types of technology-based interventions (see Parker, 2018 [59] and Anderson-Lewis, 2018 [60] for reviews of the literature).

Based on participant feedback from the two phases of the cell phone studies summarized above and from the clinical data collected in the shelter-based clinic, it appears that the greatest effort needs to be made to develop interventions that are both trauma-focused and to address emotion-regulatory difficulties often self-reported in this population. We also argue that directly addressing trauma and emotion regulation can lead to improvements in other mental health outcomes (*e.g.*, declines in depression and anxiety) and reductions in risk behaviors like substance use, which may be a method for coping with intense emotions stemming from traumatic experiences.

Although more research is needed to develop effective and targeted clinical interventions for homeless youth, it is clear that traditional approaches to psychotherapy are not likely to result in high rates of treatment utilization and retention. As our work and the work of others has shown, the most effective treatments in this population are flexible and meet youth where they are. Recent research from our team has demonstrated the significant impact that community-based work can have on reductions in trauma symptomatology among runaway adolescents who have been victims of sexual violence in the past. For example, nurse practitioner-facilitated community visits and empowerment groups contribute to reductions in trauma responses among youth [61].

An additional consideration is the allocation of resources to the development of single-time point interventions given the high rates of attrition noted across several studies of homeless youth. These interventions are designed to be low-threshold, easy to access, and to have small behavioral targets. They are designed to be brief and require limited or no follow-up or continuity. In addition, because behavioral outcomes in this population are not necessarily “dose-dependent” [41], future iterations of interventions among homeless youth should emphasize the development of targeted mental health delivery programs. Ideally, these brief interventions would be problem-focused and skills-based, and would address the needs that youth have self-identified as most problematic (*e.g.*, stress management and interpersonal stress).

Related to the development of targeted interventions is the notion of discerning responders from non-responders at treatment onset to help improve retention and impact clinically meaningful change [62]. Biological and psychological factors may interact to influence treatment outcomes, and a careful consideration of these factors might help clinicians tailor interventions more appropriately to clients. Although this guideline can and should be applied to mental health treatment more broadly, it is especially salient in high-risk populations with complex mental health needs for whom traditional mental health approaches do not yield consistently effective outcomes.

Policy Implications

The research and interventions outlined above have significant policy implications. Much has been learned regarding the challenges of providing services to homeless youth, and there is certainly more to learn. The discussion below highlights several critical areas that should be addressed through policy-level approaches.

Restructuring the Notion of Mental Healthcare Delivery

Traditional structures for mental health care delivery focus on two major settings: inpatient services and outpatient services. Inpatient mental health care generally includes acute hospitalization for situations where one is a danger to oneself or others, or is otherwise gravely disabled and unable to provide for his or her own basic needs. In addition to hospitalization, many policy analysts include residential, partial hospitalization, and other programs that reduce intensity in steps within the cluster of inpatient services.

In contrast, outpatient mental health services include traditional ambulatory care services in either primary care or outpatient mental health clinics. These services generally include some type of comprehensive assessment, ongoing psychotherapy and case management, and pharmacotherapy. The addition of these broad outpatient interventions to primary care clinics has been rather recent and due in some measure to the recognition that patients generally access primary care more easily than mental health care. Co-location, and integrative and collaborative care models, have been advanced in recent years to address these needs.

Working with homeless youth often presents a series of challenges to these systems of care. First, homeless youth tend to be more mobile and less likely to obtain care at a single location or medical home. Second, homeless youth often do not have the chronic medical conditions that are apt to drive adults to routine medical care. Third, stigma and fear of institutional care often prevent homeless youth from seeking care in traditional settings. Many homeless youth age out of the foster care system, and the experience of these prior systems of care can create a negative perception of care providers that may prevent homeless youth from engaging in services more readily.

Providers and organizations that work with homeless youth have developed novel strategies to address some of these challenges. First, many homeless-serving organizations have adopted Housing First models [63]. Housing First places the act of giving shelter as the primary act prior to consideration of other services including mental health treatment. These models acknowledge that symptomatic individuals or others who may be continuing to use drugs or participate in other risky behaviors may benefit from having housing rather than demanding stability of these behaviors prior to housing. Housing First recognizes that providing housing is an intervention in and of itself that may lead to stability of many social and psychological problems. These models have shown consistent impact in adults, with increased stability and improved engagement with services. Kozloff and colleagues' trial is one of the first for homeless youth. Second, providers have used co-location of services to try to better engage youth in programmatic contexts that increase the likelihood of engagement. Finally, Assertive Community Treatment (ACT) models have been deployed with success for homeless youth. The structure, intensive nature, and low caseload of these models generally allow case managers and providers to better support youth who have multiple vulnerabilities and complex social needs.

In addition to further advancing these proven models, we see two areas of potential innovation to better address the needs of homeless youth. As outlined earlier in this paper, initial trials of using mobile devices to engage homeless youth are showing some promise. The potential of these devices is high because of their portability and the desire of youth to engage with technology. A challenge resides in doing this research while maintaining a sound ethical framework [64] and a pragmatic approach to engagement of youth who may not prioritize their health and mental health.

Smartphones have qualities that make them particularly appealing for homeless youth interventions. Youth already desire these devices as a means of staying connected to others in their social worlds and they serve as a means of entertainment. These devices can serve to transmit data using wearable elements, a basis from which to explore mobile applications that may have mental health capabilities, and the capability of serving as a receiving point for tele-mental health interventions.

Another avenue that merits research is the potential of using peer opinion leaders (POLs) as a vehicle for intervention. Many homeless youth have had poor interactions with healthcare providers in the past and may therefore be mistrustful of the healthcare system

and of adults in general [25], but they may be more responsive to treatments that are introduced to them by peers. Homeless youth social networks are just beginning to be understood and the potential to use social media and in-person social connections to drive interventions has potential. Questions remain as to the best modality to train peers and what can be done to support effective interventions.

To understand these phenomena, research on homeless youth might benefit from recent advancements in HIV research and interventions [65] or from adaptations of the “Friendship Bench” framework [66] that has shown promise in creatively re-allocating mental health resources in low-and-middle-income countries by training layperson mental health providers. Training “youth ambassadors” who can disseminate information on sustained mental health care, psychoeducation on the links between trauma and substance use/emotion regulation difficulties, and other mental health concerns relevant to this population could have positive outcomes. We speculate that youth will be more likely to reach out to their peers for support initially, and may be more receptive to follow-up care that is vetted by a trusted peer who understands and has experienced analogous situations.

Suggestions for Governmental Influence on Homeless Youth Research

In order to be most effective, policy-level changes need to occur at each branch of the government. Local governments have generally focused on creating shelter spaces for homeless youth. This priority should remain, with the modification that local governments should be discouraged from using vagrancy laws to drive homeless individuals out of communities. In tandem with these approaches, local governments could encourage peer-driven interventions and provide services that engage homeless youth to better support one another.

State and federal governments provide the major share of funding to support homeless youth interventions. Federal and state laws would benefit from greater consistency in definitions of homelessness and age of majority decision-making, which vary dramatically by state. Technology interventions would also benefit from consistency of laws across state lines. Tele-mental health laws and policies vary dramatically across state lines. Restrictions on interstate practice create hurdles to working with homeless youth who may cross state lines at regular intervals.

Identifying Stakeholders and Measuring Clinical and Research Progress

Most researchers work closely with stakeholders. Including homeless youth, case managers, mental health providers, researchers, and local community leaders in the development of comprehensive interventions and policies is critical. Venues and organizations exist to help convene stakeholders, and both researchers and clinicians should prioritize working with these groups and individuals at the outset. Not only do stakeholders have social clout within their communities that “outsiders” (*i.e.*, often the researchers and clinicians trying to enter these communities) do not possess, but these individuals are generally very motivated to bring meaningful change into their

communities and can be strong advocates for researchers and clinicians. Moreover, effective community engagement is often an essential catalyst for policy change [67].

A key element of any successful clinical research intervention is good program evaluation. While it is well beyond the scope of this paper to outline specific assessment tools, it is important to highlight the need to prioritize using well-validated and empirically supported mental health tools to monitor clinical outcomes among populations of homeless youth. Despite the many barriers to care discussed in detail here, finding ways to make these empirically supported tools available to homeless youth should be a priority. Of course, measuring traditional mental health outcomes (*i.e.*, depression, anxiety) should remain priorities, but other dimensions of mental health are worthy of attention as well (*i.e.*, emotion regulation). As rates of suicide continue to rise globally [68], it is especially important to focus on suicide assessment.

Focusing efforts on understanding resilience [69] in this population should also become a priority in future work. Homeless youth, as a group and individually, are highly resilient and this aspect is often ignored and neglected in research and interventions. Refocusing on resilience will likely increase engagement and connection among homeless youth.

In addition to good program evaluation, new research programs are needed to support the use of technology for homeless youth interventions. The number of researchers in this space is small and there is a need for research training programs as a means of encouraging trainees to focus on homeless youth.

Finally, this paper can only summarize the multidisciplinary work that must be done to address the complex social phenomenon of homelessness. Given that these proposed clinical and research endeavors can take years, we propose that the first concrete next step would be to convene key leaders to outline an agenda for this work. Doing this at the 4th Annual National Symposium on Solutions to End Youth Homelessness in June 2020 might be both feasible and practical if the leaders of the national symposium are open to creating such an agenda.

Conclusion

Youth homelessness is a serious, multifactorial problem that can only be adequately addressed through joint clinical and research endeavors, as well as through comprehensive reform at all levels of government. While homeless youth experience disproportionate amounts of stress and trauma, their access to reliable and empirically supported care is often thwarted by various structural barriers outside their control. Research with homeless youth is often complicated by high attrition rates, making it difficult to develop interventions specifically for this population. Technology-based interventions, as well as programs that mobilize youth to take charge of their own care, should be prioritized as new iterations of mental health services are developed for underserved populations, particularly for homeless youth.

This working paper was supported by the Center for Mental Health Services/Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services.

References

1. National Alliance to End Homelessness: State of Homelessness 2019. Washington, D.C.: National Alliance to End Homelessness 2019. <https://endhomelessness.org/homelessness-in-america/homelessness-statistics/state-of-homelessness-report/>
2. Kamieniecki G: Prevalence of psychological distress and psychiatric disorders among homeless youth in Australia: A comparative review. *Aust N Z J Psychiatry* 2001; 35:352-358.
3. Pottick KJ, Bilder S, Vander Stoep A, *et al.*: US patterns of mental health service utilization for transition-age youth and young adults. *J Behav Health Serv Res* 2008; 35:373-389.
4. Davis M, Sondheimer D: State child mental health efforts to support youth in transition to adulthood. *J Behav Health Serv Res* 2005; 32:27-42.
5. Davis M, Vander Stoep A: The transition to adulthood for youth who have serious emotional disturbance: Developmental transition and young adult outcomes. *J Ment Health Adm* 1997; 24:400-427.
6. van den Bree M, Shelton K, Bonner A, *et al.*: A longitudinal population-based study of factors in adolescence predicting homelessness in young adulthood. *J Adolesc Health* 2009; 45:571-578.
7. Castro A, Gustafson E, Ford A, *et al.*: Psychiatric disorders, high-risk behaviors, and chronicity of episodes among predominantly African American homeless Chicago youth. *J Health Care Poor Underserved* 2014; 25:1201-1216.
8. Toro P, Dworsky A, Fowler P: Homeless youth in the United States: Recent research findings and intervention approaches. In 2007 National symposium on homelessness research.
9. Lindblom, E. (1996). Preventing homelessness; in *Homelessness in America*. Phoenix, AZ, Oryx Press, 1996.
10. Clark R, Robertson M: *Surviving for the moment: A report on homeless youth in San Francisco*. Berkeley, CA, Alcohol Research Group 1996.
11. Robertson M: Homeless youth in Hollywood: Patterns of alcohol use. *Contemp Drug Probs* 1989; 16: 415.
12. Courtney M, Piliavin I, Grogan-Kaylor A, *et al.*: Foster youth transitions to adulthood: A longitudinal view of youth leaving care. *Child Welfare* 2001; 80:685-717.

13. Fowler P, Toro P, Tompsett C, *et al.*: Youth aging out of foster care in southeast Michigan: A follow-up study. Michigan Department of Human Services, Wayne State University, Detroit, MI 2006.
14. Dworsky A, Napolitano L, Courtney M: Homelessness during the transition from foster care to adulthood. *Am J Public Health* 2013; 103:S318-S323.
15. Popkin S, Cunningham M: CHA relocation counseling assessment interim report. Washington, DC, the Urban Institute 2001.
16. Feldman D, Patterson D: Characteristics and program experiences of youthful offenders within Seattle-King County Workforce Investment Act (WIA) Programs. Seattle, WA, Workforce Development Council of Seattle-King County Research & Development Committee, 2003.
17. New York City Association of Homeless and Street-Involved Youth Organizations: State of the city's homeless youth report. New York, NY, 2005.
18. Agnew R: Foundation for a general strain theory of crime and delinquency. *Criminology* 1992; 30:47-88.
19. Kessler R, McLaughlin K, Green J, *et al.*: Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *Br J Psychiatry* 2010; 197:378-385.
20. Lovallo W: Early life adversity reduces stress reactivity and enhances impulsive behavior: Implications for health behaviors. *Int J Psychophysiol* 2013; 90:8-16.
21. McGowan P, Szyf M: The epigenetics of social adversity in early life: Implications for mental health outcomes. *Neurobiol Dis* 2010; 39:66-72.
22. Anacker C, O'Donnell K, Meaney M: Early life adversity and the epigenetic programming of hypothalamic-pituitary-adrenal function. *Dialogues Clin Neurosci* 2014; 16:321-333.
23. Lutz PE, Almeida D, Fiori L, *et al.*: Childhood maltreatment and stress-related psychopathology: The epigenetic memory hypothesis. *Curr Pharm Des* 2015; 21:1413-1417.
24. McGowan P: Epigenomic mechanisms of early adversity and HPA dysfunction: Considerations for PTSD research. *Front Psychiatry* 2013; 4:110.
25. Edidin J, Ganim Z, Hunter S, *et al.*: The mental and physical health of homeless youth: A literature review. *Child Psychiatry Hum Dev* 2012; 43:354-375.
26. Bender K, Ferguson K, Thompson S, *et al.*: Factors associated with trauma and posttraumatic stress disorder among homeless youth in three U.S. cities: The importance of transience. *J Trauma Stress* 2010; 23:161-168.

27. Martijn C, Sharpe L: Pathways to youth homelessness. *Soc Sci Med* 2006; 62:1-12.
28. Ryan K, Kilmer R, Cauce A, *et al.*: Psychological consequences of child maltreatment in homeless adolescents: Untangling the unique effects of maltreatment and family environment. *Child Abuse Negl* 2000; 24:333-352.
29. Bounds D, Julion W, Delaney K: Commercial sexual exploitation of children and state child welfare systems. *Policy Polit Nurs Pract* 2015; 16:17-26.
30. Cochran B, Stewart A, Ginzler J, *et al.*: Challenges faced by homeless sexual minorities: Comparison of gay, lesbian, bisexual, and transgender homeless adolescents with their heterosexual counterparts. *Am J Public Health* 2002; 92:773-777.
31. Desai RA, Liu-Mares W, Dausey DJ, *et al.*: Suicidal ideation and suicide attempts in a sample of homeless people with mental illness. *J Nerv Ment Dis* 2003; 191:365-371.
32. Whitbeck L, Johnson K, Hoyt D, *et al.*: Mental disorder and comorbidity among runaway and homeless adolescents. *J Adolesc Health* 2004; 35:132-140.
33. Busen N, Engebretson J: Facilitating risk reduction among homeless and street-involved youth. *J Am Acad Nurse Pract* 2008; 20:567-575.
34. Xiang X: A review of interventions for substance use among homeless youth. *Res Soc Work Pract* 2013; 23:34-45.
35. Slesnick N, Dashora P, Letcher A, *et al.*: A review of services and interventions for runaway and homeless youth: Moving forward. *Child Youth Serv Rev* 2009; 31:732-742.
36. Rubak S, Sandbæk A, Lauritzen T, *et al.*: Motivational interviewing: A systematic review and meta-analysis. *Br J Gen Pract* 2005; 55:305.
37. Peterson P, Baer J, Wells E, *et al.*: Short-term effects of a brief motivational intervention to reduce alcohol and drug risk among homeless adolescents. *Psychol Addict Behav* 2006; 20:254-264.
38. Greene J, Ennett S, Ringwalt C: Substance use among runaway and homeless youth in three national samples. *Am J Public Health* 1997; 87:229-235.
39. Baer J, Garrett S, Beadnell B, *et al.*: Brief motivational intervention with homeless adolescents: Evaluating effects on substance use and service utilization. *Psychol Addict Behav* 2007; 21:582-586.
40. Slesnick N, Prestopnik J, Meyers R, *et al.*: Treatment outcome for street-living, homeless youth. *Addict Behav* 2007; 32:1237-1251.

41. Slesnick N, Kang M, Bonomi A, *et al.*: Six- and twelve-month outcomes among homeless youth accessing therapy and case management services through an urban drop-in center. *Health Serv Res* 2008; 43:211-229.
42. Souza R, Porten K, Nicholas S, *et al.*: Outcomes for street children and youth under multidisciplinary care in a drop-in centre in Tegucigalpa, Honduras. *Int J Soc Psychiatry* 2010; 57:619-626.
43. Wagner V, Sy J, Weeden K, *et al.*: Effectiveness of intensive case management for homeless adolescents: Results of a 3-month follow-up. *J Emot Behav Disord* 1994; 2:219-227.
44. Cauce A, Paradise M, Embry L, *et al.*: Homeless youth in Seattle: Youth characteristics, mental health needs, and intensive case management. Community-based programming for children with serious emotional disturbances: Research and evaluation. Baltimore, MD, Brookes Publishing, 1998; 611-632.
45. Steele R, O'Keefe M: A program description of health care interventions for homeless teenagers. *Clin Pediatr (Phila)* 2001; 40:259-263.
46. Rotheram-Borus M, Song J, Gwadz M, *et al.*: Reductions in HIV risk among runaway youth. *Prev Sci* 2003; 4:173-187.
47. Rew L, Fouladi R, Land L, *et al.*: Outcomes of a brief sexual health intervention for homeless youth. *J Health Psychol* 2007; 12:818-832.
48. Pollio D, Thompson S, Tobias L, *et al.*: Longitudinal outcomes for youth receiving runaway/homeless shelter services. *J Youth Adolesc* 2006; 35:852-859.
49. Thompson S, Pollio D, Constantine J, *et al.*: Short-term outcomes for youth receiving runaway and homeless shelter services. *Res Soc Work Pract* 2002; 12:589-603.
50. Ferguson K, Xie B: Feasibility study of the Social Enterprise Intervention with homeless youth. *Res Soc Work Pract* 2007; 18:5-19.
51. Kisely S, Parker J, Campbell L, *et al.*: Health impacts of supportive housing for homeless youth: A pilot study. *Public Health* 2008; 122:1089-1092.
52. Pergamit M, Gelatt J, Runes C, *et al.*: Implementing family interventions for youth experiencing or at risk of homelessness; *Family Interventions for Youth*. Washington, DC, Urban Institute, 2016.
53. Milburn N, Stein J, Lopez S, *et al.*: Trauma, family factors and the mental health of homeless adolescents. *J Child Adolesc Trauma* 2019; 12:37-47.

54. Slesnick N, Bartle-Haring S, Gangamma R: Predictors of substance use and family therapy outcome among physically and sexually abused runaway adolescents. *J Marital Fam Ther* 2006; 32:261-281.
55. Slesnick N, Prestopnik J: Ecologically based family therapy outcome with substance abusing runaway adolescents. *Journal of Adolescence* 2005; 28:277-298.
56. Slesnick N, Prestopnik J: Comparison of family therapy outcome with alcohol-abusing, runaway adolescents. *J Marital Fam Ther* 2009; 35:255-277.
57. Milburn N, Iribarren F, Rice E, *et al.*: A family intervention to reduce sexual risk behavior, substance use, and delinquency among newly homeless youth. *J Adolesc Health* 2012; 50:358-364.
58. Schueller SM, Glover AC, Rufa AK, *et al.*: A mobile phone-based intervention to improve mental health among homeless young adults: Pilot feasibility trial. *JMIR Mhealth Uhealth* 2019; 7:e12347.
59. Parker S, Prince A, Thomas L: Electronic, mobile and telehealth tools for vulnerable patients with chronic disease: A systematic review and realist synthesis. *BMJ Open* 2018; 8:e019192.
60. Anderson-Lewis C, Darville G, Mercado R, *et al.*: mHealth technology use and implications in historically underserved and minority populations in the United States: Systematic literature review. *JMIR Mhealth Uhealth* 2018; 6:e128.
61. Bounds D, Edinburgh L, Fogg L, *et al.*: A nurse practitioner-led intervention for runaway adolescents who have been sexually assaulted or sexually exploited: Effects on trauma symptoms, suicidality, and self-injury. *Child Abuse Negl* 2019; 90:99-107.
62. Winiarski D, Schechter J, Brennan P, *et al.*: Adolescent physiological and behavioral patterns of emotion dysregulation predict Multisystemic Therapy response. *J Emot Behav Disord* 2017; 25:131-142.
63. Kozloff N, Adair CE, Lazgare LI, *et al.*: "Housing first" for homeless youth with mental illness. *Pediatrics* 2016; 138:e20161514.
64. Karnik NS. Vulnerability, youth and homelessness: Ethical considerations on the roles of technology in the lives of adolescents and young adults; in *Neuroethics: defining the issues*. 2nd ed. Oxford: Oxford University Press, 2017.
65. Xiang Y, Fujimoto K, Schneider J, *et al.*: Network context matters: Graph convolutional network model over social networks improves the detection of unknown HIV infections among young men who have sex with men. *J Am Med Inform Assoc* 2019; ocz070.

66. Chibanda D, Bowers T, Verhey R, *et al.*: The Friendship Bench programme: A cluster randomised controlled trial of a brief psychological intervention for common mental disorders delivered by lay health workers in Zimbabwe. *Int J Ment Health Syst* 2015; 9:21.
67. Principles of Community Engagement, 2nd Edition, NIH Publication No. 11-7782. Washington, D.C., Dept. of Health & Human Services, National Institutes of Health, Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry, Clinical and Translational Science Awards, 2011.
https://www.atsdr.cdc.gov/communityengagement/pdf/PCE_Report_508_FINAL.pdf.
68. Hedegaard H, Curtin SC, Warner M: Suicide rates in the United States continue to increase. NCHS Data Brief, no 309. Hyattsville, MD, National Center for Health Statistics, 2018.
69. Masten A: Ordinary magic: Resilience processes in development. *Am Psychol* 2001; 56:227.