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UNDERSTANDING FACTORS THAT IMPACT HEALTH BEHAVIORS AND ACCESS TO HEALTHCARE AMONG YOUTH EXPERIENCING HOMELESSNESS

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by

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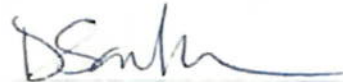KATHRYN ROSALES GALLARDO, MSSW

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2020

DEDICATION

To Sergio A. Gallardo

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by

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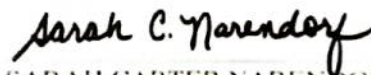
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Youth experiencing homelessness (YEH) have a high risk of adverse health outcomes and their utilization of healthcare services is low. This dissertation aims to further understand factors that impact YEH's health behaviors and access to healthcare services. This dissertation is in the form of three manuscripts that each contribute to the overall aim. In manuscript 1, we examined the rates and correlates of human papillomavirus (HPV) vaccination initiation and completion among a sample of YEH in seven U.S. cities using logistic regression models. We found that HPV vaccination completion is low among male (19%) and female (37%) YEH. Among male YEH, we found that those who were older, non-white identifying, resided in San Jose or St. Louis as compared to New York City, had no prior history of sex, and had no history of being tested for transmitted infections (STI) were less likely to initiate and/or complete HPV vaccination. Among female YEH, we found that those who had a lower education level, resided in San Jose or Houston as compared to New York City, had no prior history of sex, and no previous STI testing were less likely to initiate and/or complete HPV vaccination. Additionally, gay males and bisexual females were more likely to complete HPV vaccination compared to their heterosexual counterparts.

In manuscript 2, we used a mixed-methods approach to assess the type of support that YEH receive from family members and to understand the complexities and social dynamics of YEH's relationships with supportive family members. We found that 71% of participants had least one family member in their social network and 39% of participants received emotional and/or instrumental support from those family members. In addition, we found that YEH's ties to supportive family members served as a source of motivation for YEH to work toward achieving their goals. We also found that the support that YEH receive is influenced by their familial circumstances and need for autonomy.

In manuscript 3, we explored the barriers and facilitators that impact YEH's access to healthcare services from the perspective of healthcare and social service providers. We identified several barriers to YEH's access to healthcare services including: lack of awareness of healthcare services; lack of agency inclusivity of sexual and gender minorities; lack of trauma-informed care approach; complex, high-barrier healthcare service delivery system; cost of healthcare services; lack of consistency and continuity of care; and lack of coordination across healthcare facilities. We also identified several facilitators including: incorporating health assessments into social service intake protocols; building trust and promoting an accepting service environment; offering healthcare navigation assistance and accompanying YEH to appointments; mobile services and co-location of services; interagency partnerships and interprofessional collaborations; using multiple funding sources within and across agencies; and public health insurance and financial assistance programs.

Overall, findings from these studies can be used to guide the development of interventions designed to promote healthy behaviors among YEH. Furthermore, findings from

these studies can shed light on how to strengthen existing systems-of-care to better meet the healthcare needs of YEH.

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Literature Review

Youth experiencing homelessness

In the recent decade, youth experiencing homelessness (YEH) have gained increased attention as researchers and policy makers have directed efforts towards gaining a better understanding of the size and composition of the population, as well as the complexity of issues faced by this vulnerable population [1, 2]. YEH is a term used to describe unaccompanied minors and young adults between the ages of 12 and 24 who are homeless or unstably housed [3]. It is estimated that up to 1.7 million young people experience homelessness each year in the United States [2, 4]. YEH are a heterogeneous population; however, youth of color, youth who identify as lesbian, bisexual, gay, or transgender (LGBT), youth who are less educated, youth who have a history of foster care involvement, and youth who are parents have an increased risk of experiencing homelessness [5-7]. Youth often experience homelessness as a result of being kicked-out of their family home, aging out of the foster care or juvenile justice system, or running away from family conflict [8, 9]. Regardless of the cause of homelessness, many of these young people experience trauma prior to becoming homeless [10] and once homeless, they continue to face significant life stressors that further increase their vulnerability for experiencing negative health outcomes [10-12].

Adverse health outcomes among YEH

The experience of homelessness has a detrimental impact on a young person's physical and mental health [13, 14], as YEH continuously have to endure the harsh

conditions of the street life, coupled with the daily struggle to survive. YEH often fear for their lives while living on the street [10] and they commonly experience physical and sexual victimization, including rape, robbery, being shot at, physical assault, and sexual assault [11, 15]. The experience of being victimized on the street increases YEH's risk of experiencing mental illness, including substance use disorder, post-traumatic stress disorder, and depression [11]. YEH are more likely to attempt suicide and experience suicidal ideations, in comparison to non-homeless youth [16], as suicide is the leading cause of death among this population [17]. Exposure to the outdoor elements, crowded shelters conditions, and poor hygiene increase YEH's risk of contracting tuberculosis and experiencing numerous dermatology issues, such as sunburn, frostbite, scabies, and lice [13, 18]. Many YEH trade sex in an effort to secure food, shelter, or other basic necessities [8]. YEH's increased prevalence of engaging in trade sex, as well as other sexual risk behaviors, heightens their risk for contracting HIV and other sexually transmitted infections (STI) [19, 20]. In addition, evidence suggests many YEH do not receive routine immunizations, thus increasing their risk for contracting vaccine-preventable diseases, including hepatitis A, hepatitis B, and human papillomavirus [21].

Low healthcare utilization rates among YEH

The numerous physical and mental health issues commonly faced by YEH highlight the importance of connecting these young people to services and interventions that adequately address their health needs. Unfortunately, only a small portion of YEH use healthcare and mental health services [22, 23]. For example, one study found that only 28% of YEH accessed healthcare services, while only 9% of YEH accessed mental health services

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[24]. Other studies have found healthcare utilization rates among YEH ranging from 20% to 51% [22, 25] and mental health service utilization rates ranging from 14% to 43% [23]. Given YEH's increased risk of experiencing poor health outcomes and their low healthcare utilization rates, it is critical that we develop a better understanding of the factors that influence YEH's health behaviors and access to healthcare services.

Understudied health promoting behavior among YEH

There is a need to identify factors that are associated with health promoting behaviors that are understudied among YEH, such as vaccination. Human papillomavirus (HPV) vaccination, in particular, is a critical preventative health measure that has yet to be examined among YEH. Although HPV prevalence among YEH is largely unreported, YEH are likely at higher risk for contracting HPV given their high prevalence of engaging in sexual risk behaviors. Studies show that engaging in sexual risk behaviors, including having an early sexual debut, multiple sexual partners, and having sex while under the influence of drugs or alcohol, increase one's risk of HPV infection [26-29]. The majority of YEH are sexually active and it is not uncommon for YEH to have an early sexual debut and multiple sexual partners [8, 30]. For example, one study found that 34% of YEH had their first sexual encounter at 13 years or younger and 68% of YEH had sex with more than 4 partners in their lifetime [8]. YEH are more likely to engage in sexual risk behaviors while under the influence of drugs and alcohol [31, 32]. One study found approximately 85% of YEH have used drugs or alcohol before sex [33]. Trade sex is another sexual risk behavior commonly reported among YEH, as studies examining trade sex among YEH report rates between 9.4% and 43% [31, 33-36]. Given YEH's high rates of sexual risk behaviors, it is not surprising

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that STI rates among YEH are significantly higher than those of the general adolescent and young adult (AYA) population [37, 38]. Specifically, the prevalence rate for chlamydia ranged from 2.8% to 18.3% among YEH in comparison to 1.7% to 3.2% among the general AYA population. Similarly, the prevalence of gonorrhea among YEH ranged from 0.4% to 24.9%, as compared to 0.3% to 0.6% among the general AYA population. The prevalence rate of herpes ranged from 1.1% to 11.8% among YEH, in comparison to 3.9% to 8.2% among the general AYA population [37, 39]. Despite YEH's high rates of STIs and increased risk of contracting HPV, the factors associated with HPV vaccination uptake among this population remain unclear. Thus, further research is needed to assess the rates and correlates of HPV vaccination initiation and completion among YEH.

Impact of supportive family members on YEH's health behaviors

In addition to gaining new insight about potential factors that impact understudied health behavior among YEH, we also need to expand our existing knowledge about factors that have shown to positively impact YEH's health behavior. Specifically, the connections that YEH have with supportive family members warrant further study. Supportive family members within YEH's social networks can play an influential role in deterring YEH's engagement in harmful behaviors, serving as a key resource and potential buffer against adverse health outcomes [40-42]. For example, YEH are less likely to engage in high-risk behaviors, including frequent alcohol use, drug-related behaviors, and sexual risk behaviors, when they are connected to supportive family members [41, 42]. Furthermore, YEH's family members are less likely to engage in alcohol and drug use with YEH as compared to other members of YEH's social networks [40]. Beyond the impact that supportive familial

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relationships can have on YEH's behavior, research indicates that YEH who feel connected with their families have lower levels of psychological distress [43]. In addition, family members are the primary source of support for many YEH [40, 42, 44]. For example, one study found that approximately 67% of the family members within YEH's social network provided them with emotional or instrumental support [40]. While previous research has demonstrated the positive impact that supportive family ties may have on YEH's health behaviors, less is known about the nature of those relationships with supportive family members.

Factors that impact YEH's access to healthcare

In addition to gaining a deeper understanding of the factors that impact YEH's health behaviors, there is also a need to further explore the factors that impact YEH's access to healthcare services. Several studies have been conducted with YEH to better understand the factors that impede and facilitate their access to healthcare. YEH have identified numerous individual and structural barriers that prevent them from receiving services. Individual level barriers include: the desire to be self-reliant, lack of health insurance, limited financial resources to pay for services, perceived discrimination by providers, mental health issues, perceived inability to navigate the healthcare system, concerns about confidentiality, lack of transportation, problems with substance use, and lack of knowledge of available resources [22, 24, 45-48]. Additionally, YEH are reluctant to seek services that require them to disclose their homelessness status, primarily due to the shame and stigma associated with being labeled as homeless [49]. Structural barriers that prevent YEH from receiving services include: lack of continuity of care between agencies, restrictive agency rules, narrow service

eligibility requirements, lack of identification, paper work requirements, lack of available services, limited agency operating hours, and long waiting lists [45-47, 49].

Qualitative studies conducted with YEH have also identified several individual-level and structural-level facilitators that impact YEH's access to services [50]. Individual-level facilitators include: perceived need and desire for help, desire for a safe environment, awareness of a problem, and knowledge of services available [49, 51-53]. Structural-level facilitators to include: agency's ability to connect youth to other resources, promotion of life skills development, youth-centered services, mobile services, availability of free and easily accessible services, culturally competent staff, and providing assistance with navigating the service system [46-49, 53]. Several studies have also found that positive staff attributes are a key facilitator of service utilization among YEH [47, 53] [45]. For example, a study exploring service utilization among youth who had previously experienced homelessness found that staff who were open and accepting encouraged youth to engage in services [45]. While YEH provide valuable insight into the barriers and facilitators to service access from the perspective of service users, we have yet to gain insight on this topic from the perspective of service providers. Service providers can offer unique insights into the barriers and facilitators that exist at both the agency and system-level [54]. Further research is needed that explores the perspectives and experiences of healthcare and social services providers to better understand potential agency and system-level factors that impact YEH's access to healthcare.

Public Health Significance

YEH are a socially and economically vulnerable population with an increased risk of experiencing adverse physical and mental health outcomes [13, 14]. In comparison to their housed counterparts, YEH are at greater risk for engaging in health compromising behaviors, including substance use and sexual risk behaviors, and being exposed to violence, physical abuse, and sexual abuse [14, 55-57]. Additionally, in comparison to their housed counterparts, YEH have higher rates of mental illness, including depression, suicidal ideation, and substance abuse disorders, and higher rates of physical health issues, including STIs, HIV, hepatitis B, and hepatitis C [13, 14, 39, 56, 58-60]. YEH's mortality rate is ten times higher than that of the general youth population [61].

To address YEH's pressing health needs, connecting these young people to effective health promoting interventions and healthcare services is critical. However, healthcare services are underutilized by YEH [22-24]. Furthermore, health promotion interventions targeting YEH often are of poor quality and have had minimal to no impact on changing YEH's risk behaviors [62-64]. To develop effective interventions and a system-of-care that optimizes YEH's access to critical services, there is a need to further examine the factors that influence YEH's health behaviors and access to healthcare services.

First, there is a need to examine the factors that impact YEH's HPV vaccination uptake. By identifying the prevalence and correlates of HPV vaccination uptake, we will be able to identify potential vaccination disparities that exists among YEH and provide targeted guidance on how to remediate those disparities. Second, there is a need to gain a greater understanding of YEH's relationships with supportive family members. While research

indicates the positive influence that supportive family members can have on YEH's health behaviors and potential health outcomes, researchers still need to gain a clearer understanding of the relational mechanisms through which these positive outcomes might be achieved. By gaining insight into the complexities and social dynamics of YEH's relationships with supportive family members, we will be able to provide guidance on how interventions and programs can strengthen and better facilitate YEH's connections with supportive family members. Lastly, there is a need to understand the barriers and facilitators that impact YEH's access to healthcare from the perspective of providers. Based on the insight gained, we will be able to offer practice and policy recommendations aimed at strengthening the ways in which systems-of-care organize and deliver services to more effectively meet the healthcare needs of YEH.

Specific Aims

The aims of this dissertation are to gain a better understanding of the factors that influence YEH's health behaviors and access to healthcare services. This body of work will achieve these aims in the form of three papers. Aim 1 was to analyze cross-sectional data collected from YEH in seven U.S. cities to: 1) examine the rates of HPV vaccination initiation and completion among male and female YEH; and 2) to apply the Behavioral Model for Vulnerable Populations to identify predisposing, enabling, and need factors associated with HPV vaccination initiation and completion among YEH by gender. Aim 2 was to use qualitative and quantitative data from YEH to: 1) understand the type of support that YEH receive from family members; and 2) understand the relational complexities and social dynamics of YEH's relationships with supportive family members. Aim 3 was to use

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qualitative data to understand healthcare and social service providers' experiences and perceptions of the barriers and facilitators that directly impact YEH's access to healthcare services, as well as indirectly through impacting providers' abilities to connect YEH to healthcare services. Based on the findings of these three papers, the goal is to provide guidance on how to better tailor our services and interventions to meet the health needs of YEH.

Journal Article 1

Title: Human Papillomavirus Vaccination Initiation and Completion among Youth Experiencing Homelessness in Seven U.S. Cities

Target Journal: Prevention Science

Abstract

Little is known about human papillomavirus (HPV) vaccination uptake among youth experiencing homelessness (YEH), who may be at higher risk for HPV than their housed counterparts. We examined the prevalence and associations of HPV vaccination initiation and completion among YEH. Guided by the Behavioral Model for Vulnerable Populations, we analyzed cross-sectional data collected from YEH (N = 1,074; ages 18–26) in seven U.S. cities to assess HPV vaccination prevalence and to identify predisposing, enabling, and need factors associated with HPV vaccination status. Due to differences in vaccine recommendations, we conducted separate logistic regression analyses for men (n = 673) and women (n = 401). Approximately 19% of men and 37% of women had completed HPV vaccination. Several factors among men (i.e., older age, Black, Latinx, Multiracial, and Other race/ethnicity, San Jose or St. Louis residence compared with New York City, never having had sex, and not previously being tested for STIs) and women (i.e., lower education level, San Jose or Houston residence compared with New York City, and never having had sex) were associated with lower odds of HPV vaccination initiation, completion, or both. Gay men and bisexual women had higher odds of completing the vaccination series than their counterparts. Our findings reveal that HPV vaccination uptake is low among YEH and that there are vaccination disparities among subgroups of YEH. Youth-friendly HPV vaccination

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strategies and resources that are easy-to-understand, facilitate point-of-care services, and

address societal and systems-level vaccination barriers encountered by YEH are needed.

Background

Human papillomavirus (HPV) is the most common sexually transmitted infection

(STI) in the United States, accounting for 71% of STIs, and disproportionately affects

adolescents and young adults (AYA) (Satterwhite et al., 2013). Prior to the introduction of

HPV vaccination, it was estimated that approximately 38% of adolescents and 54% of young

adults were infected with HPV (Satterwhite et al., 2013; Dunne et al., 2007). In 2007, the

Advisory Committee on Immunization Practices (ACIP) recommended (Category A) routine

HPV vaccination of girls aged 11–12 years and catch-up vaccination through age 26

(Markowitz et al., 2007). The ACIP updated their recommendation in 2011 to include routine

HPV vaccination for boys aged 11–12; catch-up vaccination through age 21 for all men and

through age 26 for high-risk men, including men who have sex with men (MSM); and

vaccination based on shared clinical decision making (Category B) for men aged 22–26 years

(Centers for Disease Control and Prevention (CDC), 2011). Since the introduction of HPV

vaccination, HPV prevalence has decreased significantly among AYA (Drolet et al., 2019;

Oliver et al., 2017). Because HPV is associated with adverse health outcomes in men and

women, including several cancers (Jemal et al., 2013), HPV vaccination is critical, especially

among AYA populations at high risk for acquiring HPV.

One AYA population that may be at particular risk for HPV infection is youth

experiencing homelessness (YEH). YEH engage in high rates of sexual risk behaviors,

including having an early sexual debut, multiple sexual partners, having sex while under the

influence of drugs or alcohol, and trading sex for money, food, or shelter (Narendorf et al., 2015; Beech et al., 2003), which, in turn, increase their exposure to HPV. Additionally, YEH have a higher prevalence of STIs (chlamydia: 2.8 -18.3%; gonorrhea: 0.4 - 24.9%) than the general AYA population (chlamydia: 1.7 - 3.2%; gonorrhea: 0.3- 0.6%) (Satterwhite et al., 2013; Caccamo et al., 2017). Unfortunately, HPV vaccination uptake among YEH may be lower than their housed counterparts given that general immunization rates among YEH are low (Schwarz et al., 2005; Ensign, 2001); one study found that only 11% of YEH had documented up-to-date immunizations (Ensign, 2001). YEH have reported several barriers to receiving immunizations, including limited knowledge of infectious disease transmission, irregular school attendance (limiting access to school-based vaccination services), prioritizing basic needs over immunizations, and lack of provider recommendation for immunizations (Doroshenko et al., 2012). Although YEH who are 18 years and younger can receive the HPV vaccine at no cost from providers and clinics enrolled in Medicaid's Vaccine for Children (VFC) program (The HPV vaccine: Access and use in the U.S., 2018), YEH often face challenges to accessing healthcare (Beharry et al., 2018; Dawson and Jackson, 2013), which further exacerbates the barriers to HPV vaccination uptake. Despite YEH's high risk of acquiring HPV, little is known about HPV vaccination uptake specifically among this AYA population.

Conceptual Framework

Although the Health Belief Model is commonly used to examine factors associated with vaccination behavior (Allen et al., 2010), the Gelberg-Andersen Behavioral Model for Vulnerable Populations is particularly applicable to individuals experiencing homelessness

and, thus, can be used to identify characteristics associated with HPV vaccination uptake among YEH (Andersen, 1995; Gelberg et al., 2000). This model posits that an individual's use of services is contingent upon one's predisposition to use services (predisposing factors), the factors that facilitate or hinder their use (enabling factors), and their need for care (need factors) (Andersen, 1995).

Predisposing factors include residential history (e.g., length of homelessness), demographic characteristics (e.g., race/ethnicity), and social structure characteristics (e.g., education level) (Gelberg et al., 2000). Research has found higher HPV vaccination rates among AYA who are younger, female, White, more highly educated, and youth who identify as gay or bisexual than their counterparts (CDC, 2018; Simons et al., 2015; Kester et al., 2013; Schmidt and Parsons, 2014; Agénor et al., 2016).

Enabling factors include community factors that may impact service use (e.g., community resources, geographic location) (Gelberg et al., 2000). For example, past juvenile justice system involvement may impact vaccination uptake, as juvenile justice facilities that are enrolled as a VFC provider can offer HPV vaccination to committed and/or detained adolescents (Henderson et al., 2010; CDC, n.d.). One study found that prior to entering a detention facility, detained youth had significantly lower HPV vaccination coverage compared to the general youth population. However, HPV vaccination rates increased after a young person's first detention and surpassed that of the general adolescent population for youth with multiple detention episodes (Gaskin et al., 2015). Furthermore, youth involved in the foster care system can receive the HPV vaccination through various Medicaid programs (e.g., VFC program, Early and Periodic Screening and Treatment program), as most of these

youth are eligible for Medicaid, with the possibility of extending their healthcare coverage until age 26 (Child Welfare Information Gateway, 2015; The HPV vaccine: Access and use in the U.S., 2018). HPV vaccination coverage varies across states and cities, suggesting that geographic location impacts HPV vaccination coverage (Walker et al., 2017). Vaccination coverage for a particular area, in turn, may be impacted by how healthcare is delivered and the effectiveness of local immunization programs (Walker et al., 2017). Area-based socioeconomic factors, including poverty level and population density, may also impact vaccination coverage, as these factors are indicators of the available resources in a community (Henry et al., 2018).

Need factors relate to an individual's self-perceived and professionally evaluated need for care (Gelberg et al., 2000). Young people may lack awareness of their risk of HPV and need for vaccination (Cartmell et al., 2018). YEH, specifically, often do not prioritize preventive healthcare, such as immunizations, as they typically only seek care to address urgent health needs (Ensign and Bell, 2004). Thus, a provider's evaluation and subsequent vaccination recommendation is particularly applicable for HPV vaccination uptake among YEH. Providers are more likely to recommend HPV vaccination to youth they perceive to be at higher risk of contracting HPV (Gilkey and McRee, 2016), including youth with an early age of sexual debut (Henrikson et al., 2016). Providers might also perceive youth coming in for an STI test to have a higher HPV risk and recommend vaccination, as STI testing has been associated with HPV vaccination uptake (Fontenot et al., 2016).

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Purpose

In this study, we examined the prevalence and associations of HPV vaccination among a diverse sample of YEH aged 18–26 years. Given the gender differences regarding the initial approval of HPV vaccination and subsequent ACIP recommendations (CDC, 2011; Markowitz et al., 2007; ACIP, n.d.), we conducted separate analyses for men and women. We also applied the Behavioral Model for Vulnerable Populations to identify predisposing, enabling, and need factors associated with HPV vaccination initiation and completion among YEH by gender.

Methods

Sample and Recruitment

We analyzed cross-sectional data collected using the Homeless Youth Risk and Resilience Survey among YEH (N = 1,426) across seven U.S. cities: Denver, CO.; Houston, TX; Los Angeles, CA; New York City (NYC), NY; Phoenix, AZ; San Jose, CA; and St. Louis, MO. Between June 2016 and July 2017, we used standardized study protocols to recruit YEH from participating multi-service, non-profit organizations, including drop-in centers, emergency shelters, and transitional housing service sites. We described the study objectives, and obtained informed consent from eligible participants (i.e., aged 18–26 years, English-speaking, and either homeless [e.g., spent previous night in shelter, on the streets] or unstably housed [e.g., staying temporarily with friends, family members]). Of the 1,426 YEH who completed the survey, 339 who did not know their vaccination status and 13 with missing data on the vaccination initiation outcome variable were excluded, thus the analytical sample was 1,074. Participants with missing data on the vaccination variable did not differ

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significantly across demographics from the included participants. Additional study details are published elsewhere (Santa Maria et al., 2019). This study was approved by the institutional review board at all involved universities.

Measures

Predisposing factors included self-reported race/ethnicity, age, sexual orientation, gender identity (dichotomized as "cisgender" or "transgender"), education (dichotomized as "< high school diploma/GED" or "≥ high school diploma/GED"), and length of homelessness (dichotomized as "≤ 2 years" or "> 2 years" of accumulated lifetime homelessness). Enabling factors included foster care history, juvenile justice history, and city. We assessed foster care history and juvenile justice history by asking participants, "Have you ever been in foster care?" and "Have you ever been involved with the juvenile justice system? (i.e., juvenile court, probation, detention, or diversion)," respectively. Response options were "yes" or "no." City was determined by the location of study enrollment. Need factors included age of sexual debut (categorized as "< 13 years," "≥ 13 years," or "never had sex") and previous STI testing (dichotomized as "yes" or "no").

The dependent variables were HPV vaccination initiation and HPV vaccination series completion. We assessed HPV vaccination initiation by asking participants, "In your life, have you received the HPV vaccination that protects against certain cancers and genital warts?" Response options were "yes," "no," or "don't know" (treated as missing). Participants who responded affirmatively were categorized as having initiated the HPV vaccination series. To assess HPV vaccination completion, we asked participants who

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initiated HPV vaccination, "How many of the 3-shot HPV vaccination series did you receive?" Response options were "one," "two," or "three." Participants who reported receiving all three doses were categorized as having completed the HPV vaccine series (all participants were 18 years or older when the ACIP recommended 2 doses for individuals initiating vaccination before their 15th birthday in 2016) (ACIP, n.d.).

Data Analysis

We conducted preliminary analyses to assess the association between gender assigned at birth and HPV vaccination initiation and completion. As expected, a significantly higher proportion of women initiated ($p < .001$) and completed ($p < .001$) the 3-dose HPV vaccine series than men. Therefore, we conducted separate analyses for men and women.

We used descriptive statistics to examine demographic characteristics and HPV vaccination status. We used multivariable logistic regression to model the association between predisposing, enabling, and need factors, and the odds of HPV vaccination initiation and HPV vaccination completion among initiators by gender, adjusting for age, race/ethnicity, and city. We assessed both the data and model residuals to ensure the logistic regression modeling assumptions were met.

To assist with building the final multivariable logistic regression models, we applied the purposeful selection method, which consists of seven steps that use a combination of statistically driven and scientifically informed strategies to identify a set of variables that comprise the "best" model (Hosmer Jr et al., 2013). In Step 1, we performed a series of bivariate analyses to identify variables significantly associated (< 0.20) with the two HPV vaccination outcome variables. In Steps 2–7, we set the significance level at 0.05 for all

multivariable logistic regression models (Hosmer Jr et al., 2013). We used list-wise

deletion\complete case analysis to handle missing data (< 1% across variables), and

conducted all analyses using SPSS version 24 (IBM Corporation, 2016).

Results

Sample Characteristics

Table 1.1 presents the descriptive statistics of the analytical sample by gender.

Among young men (n = 673; mean age = 21.1 years), 37.9% identified as Black, 90.8%

identified as cisgender, and 79.0% identified as heterosexual. Approximately 40% reported

receiving at least one HPV vaccination dose and approximately 19% reported completing the

HPV vaccination series. Among young women (n = 401; mean age = 20.6 years), 39.4%

identified as Black, 92.8% identified as cisgender, and 58% identified as heterosexual.

Approximately 62% reported initiating HPV vaccination and 37.1% reported completing the

HPV vaccination series.

Table 1.2 presents the bivariate associations with HPV vaccination initiation and

completion. While variables that were statistically significant at the 0.20 level were included

in the initial multivariable models, for parsimony, only those most significantly (<0.05)

associated with the outcome variables are discussed here. Among men, vaccine initiation was

associated with younger age; transgender identity; gay or bisexual sexual orientation; NYC

residence; and prior history of foster care, STI testing, or sexual intercourse. Vaccination

completion differed significantly by race/ethnicity and sexual orientation. Specifically, male

vaccine completers were disproportionally White and identified as gay or questioning.

Among women, vaccination initiation differed significantly by race/ethnicity, education

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level, and age of sexual debut; vaccine initiators were disproportionally White, Black, or Multiracial; were more educated; and had a prior history of sex.

Multivariable Logistic Regression Analyses for HPV Vaccination Initiation

Table 1.3 presents results of the final adjusted multivariable logistic regression models. The assumptions for these models were valid. Among men, those who were older, resided in San Jose or St. Louis versus NYC, and had no prior history of sex or STI testing were less likely to initiate vaccination. Older age was associated with lower odds of HPV vaccination initiation (adjusted odds ratio [aOR] = 0.81; 95% confidence interval [CI] = [0.73, 0.89]). Identifying as gay (aOR = 2.07; 95% CI = [1.08, 3.97]) was associated with higher odds of HPV vaccination initiation than identifying as heterosexual. San Jose (aOR = 0.40; 95% CI = [0.19, 0.84]) and St. Louis (aOR = 0.43; 95% CI = [0.21, 0.88]) residence were also associated with lower odds of HPV vaccination initiation than NYC residence. Never having had sex (aOR = 0.35; 95% CI = [0.20, 0.60]) and no previous STI testing (aOR = 0.28; 95% CI = [0.18, 0.46]) were associated with lower odds of HPV vaccine initiation than early sexual debut (< 13 years) and previous STI testing, respectively.

Among women, those with a lower education level, resided in San Jose or Houston versus NYC, and had no prior history of sex were less likely to initiate vaccination. Lack of a high school degree (aOR = 0.42; 95% CI = [0.26, 0.68]) and residing in San Jose (aOR = 0.40; 95% CI = [0.18, 0.88]) and Houston (aOR = 0.34; 95% CI = [0.16, 0.75]) were associated with lower odds of HPV vaccination initiation. Women who had never engaged in sex (aOR = 0.25; 95% CI = [0.11, 0.58]) had lower odds of HPV vaccination initiation than women who had an early sexual debut (< 13 years).

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Multivariable Logistic Regression Analyses for HPV Vaccination Completion

Among male vaccine initiators, identifying as Black (aOR = 0.30; 95% CI = [0.13, 0.71]), Latinx (aOR = 0.29; 95% CI = [0.10, 0.81]), other (aOR = 0.32; 95% CI = [0.11, 0.96]), or Multiracial (aOR = 0.30; 95% CI = [0.12, 0.75]) was associated with lower odds of HPV vaccination completion than identifying as White. However, identifying as gay (aOR = 3.24; 95% CI = [1.37, 7.64]) was associated with higher odds of HPV vaccination completion than identifying as heterosexual.

Among female vaccine initiators, identifying as bisexual (aOR = 2.09; 95% CI = [1.13, 4.33]) was associated with higher odds of HPV vaccination completion than identifying as heterosexual. However, having less than a high school degree (aOR = 0.49; 95% CI = [0.26, 0.97]) and having never had sex (aOR = 0.33; 95% CI = [0.11, 0.98]) were associated with lower odds of HPV vaccination completion than having a high school degree or more and having had sex before the age of 13, respectively.

Discussion

This study is among the first to examine the prevalence of HPV vaccination, as well as the predisposing, enabling, and need factors associated with HPV vaccination initiation and completion, among a diverse national sample of YEH. The overall vaccination completion prevalence (25.7%) among this AYA population was lower than that among the general youth population (43.4%) (Walker et al., 2017). This may be due to the greater societal and system-level barriers that impede YEH's access to healthcare, including YEH-related stigma leading to underfunding of resources, lack of homeless youth-centered services, and lack of coordination and continuity of care (Beharry et al., 2018; Dawson and

Jackson, 2013). HPV vaccination coverage for men was roughly half that for women (18.9% vs. 37.1%, respectively), which may be due to the additional challenges male AYA encounter when accessing healthcare, including lack of men-focused sexual and reproductive health (SRH) services and limited service availability (Santa Maria et al., 2018). These findings highlight the importance of developing easily accessible HPV vaccination interventions designed for both female and male YEH (Santa Maria et al., 2018). Additionally, given that nearly a quarter of our original sample reported an unknown HPV vaccination status, further research is needed on HPV serology tests that can determine HPV immunity (Grant et al., 2016), thus allowing for immediate vaccination of YEH who are not yet protected against HPV.

Gay men were more likely to initiate and complete HPV vaccination and bisexual women were more likely to complete HPV vaccination than their heterosexual counterparts, which is consistent with previous findings (Agénor et al., 2016). While further research is needed to explore why HPV vaccination completion is higher among bisexual women, vaccination may be higher among gay men than heterosexual men because providers recommend HPV vaccination more often to MSM (Gilkey and McRee, 2016). Additionally, sexual health education and disease prevention efforts often target MSM, thus providing them with more opportunities for HPV vaccination (Agénor et al., 2016). Given the ACIP's Category A and Category B vaccination recommendation for AYA through age 26 (ACIP, n.d.), vaccination efforts should be directed towards catching up all YEH who are not up-to-date on HPV vaccination.

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Older men were less likely to initiate HPV vaccination and men who identified as Black, Latinx, Multiracial, or other were less likely to complete HPV vaccination than their respective counterparts. Regarding age, national estimates indicate that older men initiate HPV vaccination at a lower rate than younger men (CDC, 2018), which may be partly due to limited vaccination funding opportunities for individuals older than 18 years. For example, the VFC program only provides coverage for youth aged 18 and under (The HPV vaccine: Access and use in the U.S., 2018). Regarding race/ethnicity, previous studies have found lower HPV vaccination completion rates among Black and Latinx AYA than among their White peers (Simons et al., 2015; Kester et al., 2013). These disparities may be due to system-level barriers, including differential access to healthcare and provider recommendation, due to language, cultural, and poverty-related barriers (Jeudin et al., 2014).

Women without a high school education were less likely to initiate and complete HPV vaccination than those with a higher level of education. Research demonstrates that individuals who have a lower education level are less likely to be aware of HPV vaccination and are less knowledgeable about HPV, potentially due to disparities in how health information is obtained and evaluated (Kontos et al., 2012). For example, 61% of YEH use the Internet to seek out heath information (Barman-Adhikari and Rice, 2011), but those with a lower education level are less likely to seek out online health information and, when they do, they may have a limited ability to evaluate it (Diviani et al., 2015). Additionally, HPV-related cancer prevention education material is often written at high literacy levels (Helitzer et al., 2009), thus creating challenges for YEH with lower literacy skills.

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Women from Houston and San Jose and men from San Jose and St. Louis were less likely to initiate vaccination than their counterparts from NYC. According to the 2016 National Immunization Survey-Teen, NYC was one of the areas that had the greatest average annual increase in HPV vaccination initiation from 2013 to 2016 (Walker et al., 2017). Differences in vaccination coverages between NYC and other cities in this study may be due to the effectiveness of local immunization programs. For example, immunization programs in NYC and other recognized jurisdictions attributed their spike in HPV vaccination uptake to several activities, including improving provider education, providing feedback to providers to improve coverage, working with community partners, and launching media campaigns (Walker et al., 2017). NYC's high population density, compared with that of other cities in this study, may also contribute to its higher vaccination coverage, as residing in densely populated and urban areas has been associated with higher HPV vaccination coverage, potentially due to shorter distances to healthcare services and a higher density of safety net service providers (Henry et al., 2018). Additional research is needed to determine which mechanisms are influencing the location differences in HPV vaccination among YEH.

Among men, women, and vaccine-initiating women, those who had never had sex were less likely than those who had sex before age 13 to initiate or complete HPV vaccination. Additionally, men who had never been tested for an STI were less likely than those who had been tested to initiate vaccination, which has been previously reported only among women (Fontenot et al., 2016). This may be due to providers recommending vaccination to youth who they perceive to be at high risk for HPV, which includes sexually active youth (Gilkey and McRee, 2016). However, the ACIP's recommendation of routine

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HPV vaccination does not distinguish between high- or low-risk youth. Moreover, the vaccination should ideally be administered prior to sexual debut (Markowitz et al., 2007). Additionally, sexually active youth are more likely to utilize SRH services (Hall et al., 2012), thus allowing for more vaccination opportunities. YEH who have not had sex may seek healthcare services for other acute health issues; however, providers have reported challenges with addressing preventative health issues during acute healthcare visits (Cartmell et al., 2018). Subsequently, it is critical for all YEH-serving healthcare providers to have the system supports, resources, skills, and confidence to provide a strong and effective endorsement of HPV vaccination at each encounter to avoid missed opportunities for HPV vaccination that contribute to health inequities.

This study has some limitations. First, we recruited youth who were seeking services from homeless service organizations; thus, our findings may not generalize to YEH who are further disconnected from services. Second, we included cities from the four main U.S. Census regions of the United States to better understand the experiences of YEH in different parts of the country. However, the seven cities included in the study are not fully representative of the diversity of U.S. cities and the factors that may impact city-level HPV vaccination coverage. Similarly, HPV vaccination uptake may differ for YEH in rural communities. Third, YEH's immunization records are often incomplete and difficult to access (Schwarz et al., 2005), potentially due to transience and sporadic healthcare visits. Subsequently, HPV vaccination status was based on self-report and subject to recall bias. Nearly 24% of the original sample reported an unknown HPV vaccination status, thus leading to potential underreporting of study findings.

In sum, this study found that YEH are largely unprotected against HPV and highlights the need for increased vaccination efforts to be directed towards this at-risk population, especially those YEH subgroups in which vaccination disparities persist. To maximize YEH's HPV vaccination coverage, youth-centered HPV vaccination intervention strategies tailored for YEH that are developmentally appropriate, are easy-to-understand, and address the significant vaccination barriers confronted by YEH are needed (Beharry et al., 2018; Santa Maria et al., 2018). Because youth who were most likely utilizing SRH services (STI testing and sexually active youth) had a higher likelihood of HPV vaccination, providers should use every healthcare encounter as an opportunity to provide HPV vaccination (Fontenot et al., 2016), which further requires the elimination of barriers that prevent YEH from accessing healthcare. Moreover, there is a need for co-location of YEH-serving healthcare and social services so that upon a youth's initial contact with any homeless service provider, they have access to point-of-contact prevention care, including vaccinations.

Table 1.1. Descriptive Characteristics of Total Sample by Gender

Characteristics	Men N = 673 (%)	Women N = 401 (%)
Race/Ethnicity		
White	131 (19.5)	64 (16.0)
Black	255 (37.9)	158 (39.4)
Latinx	108 (16)	80 (20.0)
Other	76 (11.3)	36 (9.0)
Mixed	103 (15.3)	63 (15.7)
Age, mean (SD)	21.1 (2.1)	20.6 (2.1)
Gender Identity		
Cisgender	609 (90.8)	372 (92.8)
Sexual Orientation		
Heterosexual	531 (79.0)	232 (58.1)
Gay or Lesbian	52 (7.7)	33 (8.3)
Bisexual	51 (7.6)	111 (27.8)
Other/Questioning	38 (5.7)	23 (5.8)
Length Homelessness		
> 2 years	212 (31.5)	114 (28.5)
Education		
< HS Diploma	192 (28.7)	135 (33.8)
City		
Los Angeles, CA	119 (17.7)	49 (12.2)
Phoenix, AZ	101 (15.0)	52 (13.0)
Denver, CO	123 (18.3)	33 (8.2)
St. Louis, MO	76 (11.3)	53 (13.2)
Houston, TX	85 (12.6)	65 (16.2)
San Jose, CA	95 (14.1)	69 (17.2)
New York, NY	74 (11.0)	80 (20.0)
Foster Care Hx		
Yes	236 (35.1)	168 (42.0)
Juvenile Justice Hx		
Yes	251 (37.4)	126 (31.5)
Previous STI Test		
No	156 (23.3)	45 (11.3)
Age of Sexual Debut		
< 13 years	130 (19.3)	58 (14.5)
≥ 13 years	384 (57.1)	267 (66.6)
Never had sex	159 (23.6)	76 (19.0)
HPV Vaccine Initiation		
Yes	266 (39.5)	248 (61.8)

HPV Vaccine Completion		
Yes	126 (18.9)	148 (37.1)

Abbreviations: SD, standard deviation; HS, high school; Hx, history; STI, sexually transmitted infection; HPV, human papillomavirus.

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Table 1.2. Bivariate Associations with HPV Vaccination Initiation and Completion by Gender

	Men						Women					
	Vaccination Initiation			Vaccination Completion			Vaccination Initiation			Vaccination Completion		
	Initiators[a]	Non-initiators[b]		Completers[c]	Non-completers[d]		Initiators[a]	Non-initiators[b]		Completers[c]	Non-completers[d]	
Characteristics	n=266 (%)	n=407 (%)	p value[e]	n=126 (%)	N=135 (%)	p value[e]	n=248 (%)	n=153 (%)	p value[e]	n=148 (%)	n=98 (%)	p value[e]
Race/Ethnicity			.600			.004			.045			.076
White	49 (18.4)	82 (20.1)		35 (27.8)	13 (9.6)		42 (16.9)	22 (14.4)		28 (18.9)	14 (14.3)	
Black	105 (39.5)	150 (36.9)		46 (36.5)	58 (43.0)		102 (41.1)	56 (36.6)		51 (34.5)	51 (52.0)	
Latinx	38 (14.3)	70 (17.2)		12 (9.5)	23 (17.0)		39 (15.7)	41 (26.8)		28 (18.9)	10 (10.2)	
Other	28 (10.5)	48 (11.8)		13 (10.3)	15 (11.1)		20 (8.1)	16 (10.5)		12 (8.1)	7 (7.1)	
Mixed	46 (17.3)	57 (14.0)		20 (15.9)	26 (19.3)		45 (18.1)	18 (11.8)		29 (19.6)	19 (16.3)	
Age, mean (SD)	20.7 (1.97)	21.4 (2.13)	<.001[f]	20.8 (2.06)	20.7 (1.91)	.696[f]	20.6 (2.09)	20.6 (2.12)	.898[f]	20.6 (2.09)	20.6 (2.11)	.874[f]
Gender Identity			.002			.688			.244			.577
Cisgender	230 (86.5)	379 (93.1)		108 (85.7)	118 (87.4)		233 (94.0)	139 (90.8)		140 (94.6)	91 (92.9)	
Sexual Orientation			.002			.006			.797			.075
Heterosexual	195 (73.3)	336 (82.6)		80 (63.5)	111 (82.2)		142 (57.3)	90 (59.6)		78 (52.7)	62 (63.3)	
Gay or Lesbian	31 (11.7)	21 (5.2)		21 (16.7)	10 (7.4)		23 (9.3)	10 (6.6)		11 (7.4)	12 (12.2)	
Bisexual	27 (10.2)	24 (5.9)		16 (12.7)	11 (8.1)		68 (27.4)	43 (28.5)		49 (33.1)	19 (19.4)	
Other/Questioning	13 (4.9)	25 (6.1)		9 (7.1)	3 (2.2)		15 (6.0)	8 (5.3)		10 (6.8)	5 (5.1)	
Length Homeless			.103			.159			.928			.210
> 2 years	74 (27.9)	138 (33.9)		30 (24.0)	43 (31.9)		70 (28.3)	44 (28.8)		46 (31.1)	23 (23.7)	
Education			.593			.059			.001			.190
< HS Diploma	79 (29.8)	113 (27.9)		29 (23.0)	45 (33.6)		68 (27.5)	67 (43.8)		36 (24.3)	31 (32.0)	
City			<.001			.181			.248			.164
Los Angeles, CA	46 (17.3)	73 (17.9)		22 (17.5)	23 (17.0)		29 (11.7)	20 (13.1)		16 (10.8)	13 (13.3)	
Phoenix, AZ	34 (12.8)	67 (16.5)		19 (15.1)	15 (11.1)		31 (12.5)	21 (13.7)		20 (13.5)	11 (11.2)	
Denver, CO	52 (19.5)	71 (17.4)		28 (22.2)	23 (17.0)		21 (8.5)	12 (7.8)		14 (9.5)	7 (7.1)	
St. Louis, MO	33 (12.4)	43 (10.6)		20 (15.9)	13 (9.6)		38 (15.3)	15 (9.8)		26 (17.6)	12 (12.2)	
Houston, TX	29 (10.9)	56 (13.8)		13 (10.3)	16 (11.9)		36 (14.5)	29 (19.0)		16 (10.8)	20 (20.4)	
San Jose, CA	26 (9.8)	69 (17.0)		9 (7.1)	17 (12.6)		37 (14.9)	32 (20.9)		27 (18.2)	10 (10.2)	
New York, NY	46 (17.3)	28 (6.9)		15 (11.9)	28 (20.7)		56 (22.6)	24 (15.7)		29 (19.6)	25 (25.5)	
Foster Care Hx			.023			.276			.130			.704
Yes	107 (40.2)	129 (31.7)		55 (43.7)	50 (37.0)		111 (44.9)	57 (37.3)		65 (43.9)	45 (46.4)	

Characteristic			P			P			P			P
Juvenile Justice Hx			.449			.854			.111			.519
Yes	104 (39.1)	147 (36.2)		49 (38.9)	54 (40.0)		85 (34.4)	41 (26.8)		49 (33.1)	36 (37.1)	
Previous STI Test			<.001			.662			.053			.216
No	29 (11.0)	127 (31.3)		13 (10.3)	16 (12.0)		22 (8.9)	23 (15.2)		16 (10.8)	6 (6.2)	
Sexual Debut Age			<.001			.418			.005			.051
< 13 years	66 (24.8)	64 (15.7)		36 (28.6)	30 (22.2)		41 (16.5)	17 (11.1)		26 (17.6)	15 (15.3)	
≥ 13 years	161 (60.5)	223 (54.8)		75 (59.5)	84 (62.2)		172 (69.4)	95 (62.1)		108 (73.0)	63 (64.3)	
Never had sex	39 (14.7)	120 (29.5)		15 (11.9)	21 (15.6)		35 (14.1)	41 (26.8)		14 (9.5)	20 (20.4)	

Abbreviations: HPV, human papillomavirus; SD, standard deviation; HS, high School; Hx, history; STI, sexually transmitted infection.

[a]Received ≥ 1 HPV vaccine dose; [b]Received no HPV vaccine dose; [c]Received 3 HPV vaccine doses; [d]Received 1 or 2 HPV vaccine dose(s); [e]P values are for the χ^2 test unless otherwise indicated; [f]t test.

Table 1.3. Covariate Adjusted Multivariable Logistic Regression Models for HPV Vaccination Initiation and Completion

	Men				Women			
	Vaccination Initiation[a]		Vaccination Completion[b]		Vaccination Initiation[c]		Vaccination Completion[d]	
Characteristics	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value
Race/Ethnicity								
White (Ref)								
Black	1.18 (0.71-1.98)	.523	0.30 (0.13-0.71)	.005	0.94 (0.47-1.87)	.855	0.48 (0.22-1.23)	.085
Latinx	0.90 (0.48-1.67)	.727	0.29 (0.10-0.81)	.019	0.57 (0.27-1.20)	.138	1.35 (0.54-4.33)	.572
Other	1.05 (0.53-2.06)	.898	0.32 (0.11-0.96)	.042	0.78 (0.32-1.91)	.579	0.93 (0.28-3.45)	.906
Mixed	1.09 (0.61-1.97)	.77	0.30 (0.12-0.75)	.011	1.22 (0.54-2.76)	.632	0.76 (0.29-2.04)	.577
Age	0.81 (0.73-0.89)	<.001	1.00 (0.86-1.17)	.97	0.99 (0.88-1.12)	.903	0.97 (0.83-1.13)	.652
Gender Identity (Ref: Cisgender)								
Transgender	1.75 (0.93-3.28)	.083						
Sexual Orientation								
Heterosexual (Ref)								
Gay or Lesbian	2.07 (1.08-3.97)	.028	3.24 (1.37-7.64)	.007			0.74 (0.29-1.94)	.534
Bisexual	1.30 (0.68-2.46)	.424	2.00 (0.84-4.79)	.12			2.09 (1.13-4.33)	.031
Other/Questioning	0.74 (0.33-1.67)	.465	3.51 (0.84-14.7)	.085			1.50 (1.65-5.64)	.523
Length Homeless (Ref: ≤ 2 years)								
> 2 years	0.81 (0.55-1.20)	.29	0.68 (0.37-1.26)	.218				
Education (Ref: ≥ HS Diploma)								
< HS Diploma			0.68 (0.37-1.27)	.228	0.42 (0.26-0.68)	<.001	0.49 (0.26-0.97)	.034
City								
Los Angeles, CA	0.57 (0.29-1.12)	.104	1.32 (0.50-3.48)	.57	0.45 (0.19-1.08)	.075	0.89 (0.32-2.50)	.821
Phoenix, AZ	0.67 (0.32-1.37)	.267	1.62 (0.57-4.57)	.364	0.50 (0.22-1.18)	.114	1.38 (0.50-4.12)	.549
Denver, CO	0.74 (0.38-1.48)	.397	1.59 (0.63-4.01)	.328	0.46 (0.18-1.21)	.115	1.31 (0.43-4.45)	.652
St. Louis, MO	0.43 (0.21-0.88)	.022	2.71 (0.96-7.66)	.06	0.78 (0.33-1.83)	.565	2.20 (0.87-5.87)	.104
Houston, TX	0.51 (0.25-1.04)	.064	1.38 (0.49-3.91)	.453	0.34 (0.16-0.75)	.007	0.67 (0.25-1.65)	.396
San Jose, CA	0.40 (0.19-0.84)	.015	0.95 (0.31-2.93)	.934	0.40 (0.18-0.88)	.023	1.54 (0.54-4.34)	.418
New York, NY (Ref)								
Foster Care Hx (Ref: No)								
Yes	1.33 (0.93-1.92)	.12			1.41 (0.89-2.22)	.143		
Juvenile Justice Hx (Ref: No)								
Yes					1.43 (0.88-2.33)	.153		
Previous STI Test (Ref: Yes)								
No	0.28 (0.18-0.46)	<.001			0.62 (0.31-1.26)	.189		
Sexual Debut Age								

< 13 years (Ref)							
≥ 13 years	0.74 (0.47-1.16)	.185			0.65 (0.33-1.28)	.212	0.84 (0.37-1.91)	.669
Never had Sex	0.35 (0.20-0.60)	<.001			0.25 (0.11-0.58)	.001	0.33 (0.11-0.98)	.045

Abbreviations: HPV, human papillomavirus; OR, odds ratio; CI, confidence interval; *Ref, reference category;* HS, high school; Hx, history*; STI, sexually transmitted infection*. Multivariable logistic regression models were adjusted for race/ethnicity, age, and city location.
[a]n = 664; [b]n = 259; [c]n = 397; [d]n = 245.

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Title: Hidden champions: Exploring supportive family relationships of youth experiencing homelessness

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Abstract

The relationships that youth experiencing homelessness (YEH) have with supportive family members can positively influence YEH's health behaviors and overall well-being. However, little is known about the relational mechanisms through which these positive outcomes are achieved. We used a mixed-methods approach to assess the type of support that YEH receive from family members and to explore the complexities and social dynamics of YEH's relationships with supportive family members. We assessed cross-sectional survey data and qualitative data from in-depth interviews conducted with 30 YEH in Houston, Texas. Quantitative data indicate that 71% (n=20) of participants reported having at least one family member in their social network and 39% reported receiving emotional and/or instrumental support from family. Qualitative themes further contextualized the emotional and instrumental support YEH received from their families. In addition, results revealed that families served as a source of motivation for YEH to achieve their goals and YEH's familial relationships are impacted by their familial circumstances and need for autonomy. Further, YEH contributed to their familial relationships by giving of their time and participating in acts of services. In return, YEH gained a sense of connectedness. The evidence suggests that there is a need for interventions designed to strengthen familial ties among YEH who are transitioning to adulthood (18-25 years). These interventions should take into account YEH's

need for autonomy, desire for familial connectedness, willingness to contribute to their families, and build on the positive motivation that YEH can garner from supportive family ties.

Background

Youth experiencing homelessness (YEH) have a high risk of adverse health outcomes associated with engagement in harmful behaviors [1-4]. Specifically, many YEH engage in high rates of substance use (up to 95%) and sexual risk behaviors (up to 85%) [5-8], including trading sex for food, shelter, or money, to survive and cope with the harsh realities of homelessness [9, 10]. YEH's engagement in high-risk behaviors may be influenced by their social network, or the group of individuals with whom they associate and spend most of their time [11-14]. For example, YEH are more likely to engage in substance use and sexual risk behaviors when individuals in their social network also engage in those risk behaviors [13, 14]. YEH are also more likely to engage in a higher number of those risk behaviors when at least one individual in their social network engages in these behaviors with them [11, 12]. Accordingly, the relationships that YEH have with individuals in their social network may impact their behavior, which, in turn, impacts their health.

Despite the potential negative impact of social networks on YEH's behavior, social networks may have a positive impact on behavior, serving as a critical resource and a protective factor against adverse health outcomes [12, 15, 16]. For example, compared with YEH who lack a network of social relationships, those who have a network of social relationships are less likely to engage in substance use and trade sex and to have multiple sexual partners [17]. In addition, YEH can receive various forms of support, including

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instrumental, emotional, and informational support, from individuals in their social network [16, 18, 19]. YEH who receive higher levels of social support, in turn, are more likely to use adaptive coping strategies, as social support may buffer the stress associated with homelessness [20]. In addition, social networks can promote a sense of connectedness and belonging [21], which can be foundational to fostering positive identity and promoting the health of vulnerable young people [21, 22], as YEH communicate regularly with individuals in their social network, both face-to-face and through social networking [18, 23].

YEH's social networks may comprise a diverse range of individuals who provide varying levels of support [16]. On average, studies indicate that the size of YEH's social networks range from 2.6 to 13.46 members [17, 23, 24] and may include significant others and/or sexual partners; friends they met prior to becoming homeless; friends they met while living on the street; social service professionals, such as case managers; adults who have assumed the role of natural mentors; and family members [15-17, 19]. In terms of support, studies have found that approximately 33% to 44% of YEH's social network members provide them with some form of support [11, 15, 18]. For example, one study that examined the provision of support in social networks among a sample of L.A. based YEH found that approximately 56% of relationships provided no support, while 8%, 14%, and 22% of relationships provided only instrumental support, only emotional support, or both instrumental and emotional support, respectively [18]. The study also found that YEH are more likely to receive support from sexual partners, family members, and non-street-based contacts [18].

Within YEH's social networks, family relationships may play an especially important role in the lives and behavior of YEH. Although YEH's family relationships are commonly characterized by family breakdown, abuse, or disruption, which may be the cause of their homelessness [25, 26], some of these young people maintain positive relationships with various family members even after becoming homeless [12, 15]. For example, between 12% and 31% of YEH's social networks are composed of family members, many of whom tend to be non-parental relatives, such as siblings [12, 15, 16, 24]. Furthermore, many YEH (up to 67%) primarily receive emotional or instrumental support from family members in their social networks [15, 16, 18]. Besides providing YEH with support during times of crisis [27, 28], family members serve as a reminder that they are not alone [28]. In terms of behavior, supportive family members may decrease YEH's engagement in harmful behaviors. For example, YEH who are connected to supportive family members are less likely to engage in high-risk behaviors [12, 16], and those who receive instrumental support from family members are less likely to engage in frequent alcohol use [16]. Similarly, YEH who have at least one family member in their close social network engage in fewer sexual and drug-related risk behaviors [12].

As noted above, research indicates not only that many YEH continue to maintain relationships with their families, but that these familial connections are a primary source of support for YEH and have the potential to positively impact the health of these young people. However, there is limited research on the nature of YEH's relationships with supportive family members. Accordingly, it is unclear how the complexities and social dynamics of these relationships may serve as a buffer for adverse health outcomes among YEH. Thus, the

current study used a mixed-methods approach to gain a better understanding of the type of support that YEH receive from family members, as well as to contextualize the nature of YEH's connections to supportive family members. Insight gained from these findings may shed light on how researchers and practitioners can better identify and facilitate supportive connections between YEH and their families, as well as leverage healthy family relationships to further support these vulnerable young people.

Methods

Study Design

This study is part of a larger multi-site parent study called the Homeless Youth Risk and Resilience Survey (HYRRS) conducted among YEH located in seven U.S cities. In the current study, we utilized quantitative survey and qualitative interview data from 30 youth from Houston, Texas. The study was approved by the Institutional Review Boards of The University of Texas Health Science Center at Houston and the University of Houston.

Sampling, Recruitment, and Procedures

For HYRRS, we recruited homeless or unstably housed young adults who were seeking services from a young-adult specific shelter and drop-in center located in Houston (n=200) during the 2016 summer. We described the study objectives and asked interested young adults to participate in an eligibility screener, which assessed age and housing status. Youth were considered eligible if they were between 18 and 26 years old and literally homeless (e.g. staying on the streets or at a shelter) or currently unstably housed (e.g. couch surfing, staying at a hotel/motel).

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We used iPad tablets to assist with obtaining consent and data collection of the self-administered survey. Each eligible young person provided their informed consent by anonymously clicking a box on the tablet indicating their willingness to participate in the study. After a young person agreed to participate in the study, an anonymous person-identification-code (PID) was generated for each participant to prevent duplication across data collection sites or cities. We then asked each young person to complete the REALM-SF screener for health literacy [29, 30]. Youth who scored between 1-3 out of 9 were encouraged to allow a research assistant to read the survey out loud to them in a private setting and those who scored higher than 3 were asked to complete the survey independently [31, 32]. Research assistants remained available throughout the duration of the survey to assist youth with any questions that arose. The survey took approximately 45 minutes to 1 hour to complete and each participant received a $20 gift card upon completion. For this study, we analyzed the data from 30 youth from HYRRS who participated in the qualitative portion of the study.

We recruited 30 youth who completed the survey to also participate in a semi-structured interview about different topics related to their homelessness experience. We recruited youth for the qualitative portion of the study based on their interest in participating as well as interviewer availability. Interested youth signed a new consent form and we recorded their anonymous PID number to link quantitative and qualitative information during analysis. The interviews were conducted in a private office by a trained research assistant and lasted between 20-45 minutes. We digitally recorded the interviews and provided participants with an additional $10 gift card incentive upon completion of the interview.

Measures

In addition to demographic characteristics (i.e., age, gender identity, race/ethnicity, sexual orientation, and age at first homelessness), we assessed characteristics of YEH's social network, including sources and types of support. Using a modified social network survey [33], youth were asked to list 5 people they are closest to and have interacted with the most over the past 3 months to assess sources of support. Participants were then asked to describe their relationship to each of the 5 individuals by selecting from the following response options: "Family," "Friends from home or from before you were homeless," "Friends or peers you know from the street or from this agency (not staff)," "Person you are romantically, intimately, or sexually involved with," "Case worker, social worker, agency staff or volunteer," "Person from school," "Person from work," or "Other." To determine the percentage of youth who had at least one family member in their support system, we adapted a count procedure [16] in which we created a dichotomous measure. Youth who listed at least family member in their social support system were assigned a value of 1 and those who did not list any family were assigned a value of zero.

To assess the type of support (e.g. emotional, instrumental) youth received, we asked youth to answer two questions about each of the 5 individuals they previously listed. We assessed emotional support by asking participants, "In the past 3 months, when you have been in crisis, feeling depressed, or dealing with a drama and major issues, who have you gone to for help or advice?" We assessed instrumental support by asking participants, "In the past 3 months, who have you borrowed money or other material things from when you needed it?" For each of the support questions, participants had the option of responding,

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"None of the above" if they did not receive a particular type of support from any of their 5 listed individuals. We used a similar count procedure as the one previously described to determine the percentage of YEH who listed at least one family member who provided emotional or instrumental support. Accordingly, we created a dichotomous measure for each type of support. If participants reported receiving emotional or instrumental support from at least one family member, we assigned a 1 to that support variable – otherwise assigned a 0 to that support variable.

For the in-depth interview, researchers used a loosely structured interview guide. The participants were asked a range of open-ended questions to learn more about their homelessness experience, sense of belonging and identity, goals, and social support network. Specifically, participants were asked about the various people that they go to for support.

Data Analysis

Quantitative and qualitative data were analyzed separately. Group level quantitative and qualitative findings were used in a complementary approach to gain a fuller understanding of the topic of interest [34]. To analyze the quantitative demographic and social support variables, SPSS version 25.0 [35] was used to conduct descriptive statistics. Two participants were excluded from the quantitative analysis due to missing data on the social support variables.

The qualitative interview recordings were transcribed and coded in ATLAS.ti (version 8.4.3). Thematic content analysis was used to develop codes and to identify the primary themes that emerged from participant's interviews [36]. Specifically, the first author read through all the transcripts and made notes summarizing overall thoughts and

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impressions regarding different aspects of participants relationships with supportive family members [37]. Using an iterative process, the first author then proceeded to code the transcripts by organizing data into chunks of text and grouping codes into themes. Exemplar quotes were pulled to represent the identified themes [37].

Results

Quantitative Results

Approximately 50% of the sample identified as female, 57% African American, and 57% heterosexual (Table 2.1). On average, the participants were 20.4 years old and experienced their first episode of homelessness at 18.1 years of age. Quantitatively, 71% (n=20) of participants reported having at least one family member in their social network. Among those 20 participants, 55% received emotional support and 55% received instrumental support from at least one of the family members listed in their social network. Among the total sample, 39% had at least one family member from whom they received emotional and/or instrumental support.

Qualitative Results

Five themes emerged from the interviews that contextualize the relationships that participants have with their families: (a) Emotional support: She's like a safe haven for me; (b) Instrumental support: She let me take a shower, give me some food… But I don't want to overstep that boundary; (c) Motivation: I wanna show my mother and father that I want to do better; (d) Contribution: I try to help her out; and (e) Independence: I'm still young. I'm gonna bump my head... So let me do that. The first two themes are reflective of the emotional and instrumental support that participants received from their families and also shed light on

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participants' considerateness in their request for instrumental help. The last three themes capture aspects of YEH relationships that extend beyond their family member's provision of instrumental and emotional support. Specifically, the theme centered on "Motivation" captures the ways in which family served as a source of motivation for participants to achieve their goals. The theme entitled "Contribution" reflects the support that participants provided to their families, which helped them remain connected to their loved ones. The theme entitled, "Independence" reflects participants' desire for independence and autonomy, and their related need to reject their family's support.

Emotional support: She's like a safe haven for me

Several young people described their relationships with family members, including parents, grandparents, siblings, and extended family, as being their primary form of emotional support. Family members provided encouragement and a listening ear, as young people navigated the daily struggles associated with homelessness. Some young people chose to distance themselves or completely disconnect from abusive and conflict-ridden family relationships, while still maintaining regular communication with family members they perceived to be supportive. For example, a young woman who was kicked out of her foster mom's house discussed having a strained relationship with her foster mom and not talking to her birth mom due to her mom's addiction to drugs. However, she reported to have a close relationship with her three brothers, "*I communicate with my brothers prolly like everyday*." (19-year-old, African American, female, 3 family members) Similarly, another young woman who was kicked out of her mom's house reported she had not talked to her mom since being kicked out. However, she expressed that she would reach out to her sister during times of

crisis, as her sister was her primary source of support and offered her a sense of security, "*I'd talk to my sister… Yeah, she's like a safe haven for me*." (20-year-old, African American, female, 2 family members) Other participants also reported that their family members were the people they reached out to for emotional support during difficult times. For example, a young woman who had been living under a bridge after getting evicted from her apartment commented, "*Prayer*" and "*Talking to my mom*" (22-year-old, African American, female, 5 family members) helped her to get through each day.

Having the ability to communicate regularly with supportive family members was critical for many young people, especially among those with long distance family members. However, environmental barriers associated with homelessness, such as lacking access to an electrical outlet to charge a phone, sometimes impeded participants' ability to communicate with their families. For example, one young man whose family lives out of state reported, "*I talk to my family just about every day. If I don't it's probably cause like my phone dead or something. I couldn't charge it, other than that every day*." (25-year-old, African American, male) Another young woman whose family lived out of state reported that she could only talk to her family when she had access to Wifi on her tablet. In addition, strict shelter rules impeded one participant's ability to communicate with family, as one young woman commented she was required to put away all her belongings in a locker before entering a shelter for the evening, "*I would say that's probably the only sucky part is not having the phone, to talk to my mom and stuff*." (20-year-old, Hispanic, female, 2 family members)

Instrumental support: She let me take a shower, give me some food… But I don't want to overstep that boundary

Several participants discussed various ways in which their families provided instrumental support, including giving them money, caring for their children, and helping them care for their basic needs. For example, in between sleeping on the streets, young people would commonly spend a night sleeping at the home of a relative, as one participant commented, "*Last night I slept over my sister's house but like two days ago I was outside*." (22-year-old, African American, female, 2 family members) While some participants reported regularly couch surfing with family members, other participants expressed reluctance with reaching out to family for tangible support and only did so when they desperately needed to sleep or shower, or during times of crisis. For example, one young woman was evicted from her apartment and reluctantly called her father for help before eventually returning to the streets:

> *I'm by myself and I have nowhere to go, so I was forced to call my father and tell him*
> *to come get me. And I took my stuff to my father's house, but I went into a*
> *depression, cause I'm not used to being with my father like that. I just leave my stuff*
> *at his house, and I left my dog, and I just go over there, you know, and I get money*
> *from him. I take a shower, whatever the case may be, my hygiene is number one, I'm*
> *not fina to play that. And I just go. [back to the streets]* (24-year-old, other
> race/ethnicity, female, 3 family members)

This young woman later expressed that she did not want to have to rely on her father despite his desire to be there for her; however, during her time of need, she was able to reach out to him and accept the level of support in which she felt comfortable.

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By contrast, a couple of participants' reluctances with asking their families for support stemmed from their recognition of certain risk that their families took by allowing them to stay at their homes. Subsequently, these participants were careful not to overstep their boundaries when asking their families for help. For example, one young man expressed being conflicted about spending the night at his little sister's apartment because he could jeopardize her housing assistance if he were to get caught:

> *So who I really have on my side is [sister name], that's my little sister that stay in [program name]. But I can't even be going over there like that cause she can get kicked out for me being over there and I don't wanna do that. I rather sleep out on the streets than see my little sister out here on the streets with me. That ain't- That's not gonna add up. That's who really just help me, my little sister.* (20-year-old, African American, male, 3 family members)

Similarly, another young man reported that he could no longer stay with his aunt with a felony on his record because of the household policies that she had to comply with as a foster care parent. Recognizing the risk involved, this participant was mindful not to take advantage of his aunt's willingness to help, "*If I'm on the streets real bad and just need to take a shower. She let me take a shower, give me some food, let me sneak in… But I don't want to overstep that boundary.*" (23-year-old, multi-racial, male)

Other participants recognized that their families were also going through hardships of their own and were limited in their abilities to provide support. For example, one young woman reported that her family helps her out financially when they are able to. However,

this young woman refused to ask her family for money during times when her family was also struggling to make ends meet:

> *My mom and my sister been in their own situation, so it's like I'm not even gonna ask. It's like my sister's pregnant now and my mom's lease is about to end … she's pretty much tryna to figure out how she's gonna pay rent and stuff like that too.* (20-year-old, Hispanic, female, 2 family members)

When it came to receiving instrumental help from their families, YEH often had to navigate internal struggles associated with requesting and accepting help, as well as, the external reality of their families sometimes limited ability to provide support.

Motivation: I wanna show my mother and father that I want to do better

Participants discussed how their family motivated them to work towards bettering their circumstances. Specifically, a couple of participants expressed a desire to do something positive with their lives in an effort to make their parents proud. For example, one participant who left their parent's house to become more independent expressed, "*I wanna show my mother and father that I want to do better.*" After leaving their parent's home, this participant reported that they were working towards securing housing and employment and also commented, "*I have the drive and I have the intelligence to actually…and the purpose to actually strive for better instead of being homeless. My purpose is to prove to my parents I can be just like them.*" (19-year-old, African American, transgender, 5 family members)

Another young man reported having a strained relationship with his mom as a result of his drug addiction. With the help of case managers, he reported he is taking steps to achieve his goals of obtaining employment and reestablishing a relationship with his mom:

They [case managers] help me set up some goals. They help me get my ID, my social and stuff... Help me get kinda close to my mom and talk to her a little bit. So they really tryna just bring me close to my family. And I'm really looking forward to that...That's really my biggest goal is for me and my mom to sit down and just have a conversation one-on-one. (21-year-old, Hispanic, male, 1 family member)

Family served as a source of motivation, as these young people were driven to better their circumstances by their desire to make their parents proud.

Contribution: I try to help her out

In the midst of dealing with the ongoing struggles associated with homelessness, several participants continued to stay connected to their families by playing a contributing role. While most participants no longer lived in the same household as their families, some young people continued to support their families by fulfilling various family obligations. For example, one participant ran away from home and was staying in an emergency shelter after having an altercation with her stepfather. Despite living away, this participant continued to help her family out, "*I probably see them [family] once a week if anything. Just to help my mom around the house during the weekends*." (20-year-old, Hispanic, female) Another young woman reported that she regularly visited and helped out her grandmother, whom she considered to be her primary support system. This participant expressed that her grandmother has a number of family obligations with taking care of her little cousin, so she tries not to worry her grandmother about her own homelessness situation:

I try to help her out. I had just went to go seen her and get her some cigarettes. Still smoke cigarettes, ain't supposed to... I don't ask her to do stuff for me, you know. I

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don't even call my grandma on a daily basis. It's like I worry her, but try not to... So yeah I talk to her and I had just went to go and seen her. (19-year-old, multi-racial, female, 4 family members)

Other participants gave back to their families by spending time with them, as several participants regularly visited their children or younger siblings who they no longer lived with. For example, one young man kept in regular communication with the mother of his children and reported that visiting his children was the focal point of his day. Another young woman who had been sleeping on the streets and intermittently couch surfing with different family members reported that she was trying to establish a closer connection to her family. On a typical day, in addition to figuring out where she will sleep that night and looking for a job or housing, this participant reported that she tries to spend time with her family, despite sometimes being exhausted:

> *It [her day] never go according to plan. Like today, I'm posed to be going swimming with my little sister, but after, you know, everything I might be tired. I'm not gon' wanna get them and deal with them because they little kids, you know. I'm probably still gon' have to go get em cause I feel bad.* (22-year-old, African American, female, 2 family members)

By giving back to their families, through helping out with household chores, visiting an elderly relative, spending time with one's children and taking younger siblings on an outing, participants were able to maintain a close connection with their families.

Independence: I'm still young. I'm gonna bump my head... So let me do that

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For many participants, learning to be self-reliant and establishing their independence apart from their families was central, especially considering they were at an age in which they were transitioning to adulthood. As such, several participants who refused to accept help from their families seemingly did so because it meant they would have to relinquish their sense of autonomy in some capacity; which some considered an unacceptable trade-off. For example, a couple of participants highlighted the importance of being able to make their own mistakes so they could learn and grow as individuals; something they may not be able to do if they were dependent on their families. One participant who struggled with various health issues expressed a strong desire to be self-reliant throughout her narrative. This participant explained why it was important for her to make it on her own after getting evicted from her apartment, despite her father's desire to help:

> *He's [her father] trying to be there but because of my disabilities. It's hard because he doesn't understand it. He feels that he knows better and he knows what's best and all this. And like I told him, "I'm still young. I'm gonna bump my head, I'm gonna fall on my ass. So let me do that," and I guess he's trying to coupe me up, and that's something I'm not gonna allow him to do. They didn't raise me to sit on my ass; they didn't raise me to depend on nobody. So, before I depend on my parents, I'll just do what I have to do.* (24-year-old, other race/ethnicity, female, 3 family members)

By accepting her father's help, this young woman may not have been able to live her life in the way that she chose. Similarly, a couple of participants who became homeless as a result of family conflict reported they avoided accepting help from their families because they did

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not want to deal with their families infringing on their autonomy. For example, one young woman commented:

> *I know my situation and I know that if it comes down to it and I really needed somewhere else to go, that I could go, but then I couldn't do the things that I want to do on my own. And other people gonna have their input on what they want from my life and stuff like that.* (20-year-old, African American, female, 2 family members)

For several participants, the support that their families offered them was often weighed against their own desire to be independent and strong sense of self-reliance. While several participants expressed that they could still depend on their families for support if they really needed it, many of them were resolute in their decision to face their hardships on their own.

Discussion

This study used a mixed-methods approach to examine the type of support that YEH receive from family members in their social network, as well as explore the complexities and social dynamics of YEH's relationships with supportive family members. Consistent with previous studies [15, 18], we found that many YEH continue to maintain relationships with family members after becoming homeless. In particular, approximately 71% of participants reported having at least one family member in their social network, and approximately 39% of participants reported receiving instrumental or emotional support from those family members. We also found that, beyond providing support, family members served as a source of motivation for YEH to improve their life circumstances. We found that YEH's contributed to their familial relationships and gained a sense of connectedness in return. Lastly, YEH's

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familial support is influence by their familial circumstances, as well as their need for autonomy.

Participants often sought emotional and instrumental support from family members with whom they maintained a positive relationship. While participants frequently cut off abusive or conflict-ridden familial relationships, they communicated regularly with supportive family members. In some cases, participants who were kicked out of their homes by their parents or primary guardians received instrumental or emotional support from non-parental relatives, including siblings, aunts, and other extended family members. Consistent with previous findings [16, 18], our findings indicate that family members provided YEH with instrumental support in various forms, including giving them money, caring for their children, and providing for their basic needs by temporarily opening their homes so that YEH could sleep, shower, and eat. In addition, our findings indicate that family members were a key source of emotional support for YEH, as they helped many participants cope with the daily stressors associated with homelessness by providing encouragement, advice, and a sense of security. Because emotional support is a priority need among YEH that is often inadequately met [38], facilitating YEH's communication with family members should be a goal of service organizations that serve these young people (e.g., drop-in centers, shelters). Specifically, service organizations should have flexible policies that enable YEH to access their social networking technologies (e.g., mobile phone, tablet, texting), and provide YEH with free access to the Internet, chargers, and electrical outlets to charge devices.

In addition to providing emotional and instrumental support, participants' families served as a source of motivation for YEH to work towards improving their life

circumstances. While YEH have previously identified other motivators for improving their lives, including witnessing others successfully transitioning out of homelessness and the responsibility of caring for a pet [39], our findings indicate that family members are also a strong motivator for YEH. Specifically, participants reported that the desire to make their parents proud or to reestablish a strained parental relationship motivated them to transition out of homelessness. Because familial relationships serve as a motivator for some YEH, practitioners working with YEH should explore how supportive familial ties can be harnessed, potentially through techniques such as motivational interviewing [40], to encourage YEH to work towards transitioning out of homelessness and pursuing their educational and career goals.

Some participants contributed to their relationships with family members in exchange for a since of connectedness, thus suggesting that YEH's familial relationships are reciprocal. Previous research with vulnerable youth demonstrates that engaging in acts of community contribution and participating in meaningful activities can help young people to develop and maintain strong connections with others, which, in turn, can provide them with a sense of purpose and belonging, as well as increase their feelings of self-esteem and self-worth [22]. Our findings shed light on how reciprocity emerges in the context of YEH's relationships with supportive family members. Specifically, despite their homelessness circumstances, several participants contributed to their families in various ways, including spending time with an elderly relative, taking younger siblings on an outing, visiting their children, and helping out at a family member's home. While most of these participants could not contribute tangible support to their families because of their limited means, they contributed

what they could to their families, which most often included quality time and acts of service. By doing so, participants were able to strengthen familial ties and gain a sense of connectedness. Further research is needed to explore the relationship between familial contributions and familial connectedness among YEH.

Some participants' families were facing their own housing and financial constraints, which influenced the type of support received by YEH, as participants were mindful not to ask their families for help beyond what they could provide. Previous research shows that YEH commonly have a history of family poverty, as one study found that approximately 40% of YEH come from families that received public assistance or lived in public housing [41]. Moreover, 30% of YEH report that poverty plays a central role in their homelessness [42]. Our findings demonstrate how YEH navigate the process of seeking support from family members who have financial or circumstantial limitations. For some participants, their family's situation informed their decision of whether or not to ask for support, when to ask for support, and the type of support that they asked for. Some participants only sought help from their families when they desperately needed to care for their basic needs (e.g., access to food, a shower, and a safe place to sleep) because they did not want to jeopardize their family's housing situation. Other participants refused to ask their families for money when they knew their families were also struggling financially. The fact that participants considered their families' circumstances when seeking support shows that these young people not only valued the relationships that they have with supportive family members, but also cared for the overall well-being of those loved ones.

Many participants expressed a strong sense of self-reliance and need for independence, which influenced the level of support they were willing to accept from their family. Previous research demonstrates that young people have an increased need for autonomy as they transition to adulthood, a developmental stage that is characterized by several life transitions, including leaving one's parental home [43, 44]. Youth who are transitioning to adulthood (aged 18-25 years), in particular, are at a point in their lives when they are striving to develop certain qualities they feel are most important for becoming an adult, including being able to accept responsibility for themselves and making independent decisions [44]. YEH, specifically, commonly develop a self-reliant attitude and try to handle things on their own because of past negative experiences and distrust of others [45-47]. YEH are often reluctant to seek help from others in times of distress because of their self-reliant attitude [45], which is potentially further compounded by their developmental need for independence. Our findings shed light on how YEH's need for independence and self-reliant attitude affect the dynamics of their relationships with supportive family members. Specifically, as a way to preserve their autonomy, several participants opted to completely forgo or only accept a minimal amount of tangible support from family during times of crisis, despite some families' desire to provide more. For many participants, accepting help from their families not only contradicted their self-reliant values, but also invited family members to have a greater influence on how participants lived their lives, thereby infringing on their independence. While the intentions of some family members may have been well meaning, participants expressed the importance of having the opportunity to make their own mistakes and accept the consequences of those mistakes. To do so, many participants were willing to

face the difficulties of homelessness alone. Accordingly, there is a need for interventions aimed at strengthening supportive family ties that are specifically tailored to meet the needs of YEH who are transitioning to adulthood (aged 18-25 years). Existing family interventions are primarily designed for YEH who are younger than 18 years who have the potential to return home [48-52]; however, older YEH are less likely to return home [53]. Our findings indicate that, even in the context of supportive familial relationships, family reunification may not be the best option for older YEH, as several participants reported that their families lack the resources or capacity to provide them with permanent housing or financial support. In addition, many YEH may be unwilling to return home if doing so would compromise their autonomy and self-reliant values. Subsequently, interventions that aim to reestablish or strengthen existing YEH's familial ties and promote YEH's connectedness with supportive family members may be more appropriate for YEH who are transitioning to adulthood. Furthermore, it is important for researchers and practitioners to consider the ways in which YEH's relationships with supportive family members can be mutually beneficial. Given YEH's need for autonomy, YEH should be empowered to make their own decisions regarding which familial relationships, if any, they would like to reestablish or strengthen [15].

The current study has some important limitations. First, our sample size was limited to 30 YEH who were seeking services from a shelter and drop-in center. Thus, our findings may not generalize to YEH who are disconnected from service organizations and who have different familial social network compositions. Second, the qualitative interviews covered a range of topics related to participants' experience of homelessness, so it did not focus solely

on sources of support. While YEH's familial support was not the sole focus, participants' discussion of their relationships with various family members and familial support was a salient topic that emerged across the interviews. However, there may be additional information related to different aspects of YEH's familial support network that this study did not capture. Thus, future research can extend our findings by asking more nuanced questions related to YEH's familial support networks.

In sum, we found that YEH's relationships with supportive family members, which are complex in nature, are a crucial source of support for YEH. Even when supportive family members lack the capacity to provide YEH with tangible resources, YEH benefit from maintaining supportive familial ties, as these relationships provide them with a sense of connectedness, emotional support to better cope with the everyday stressors of homelessness, and motivation for the future. To help meet the various needs of YEH, service organizations' policies, practices, and service environments should be developed in a way that not only support, but also facilitate, YEH's communication with supportive family members. Furthermore, interventions designed to strengthen familial ties among YEH who are transitioning to adulthood should take into account this vulnerable population's need for autonomy, desire for familial connectedness, and potential willingness to contribute to their families, as well as the strength and motivation that YEH can garner from supportive family ties.

Table 2.1. Sample characteristics of youth experiencing homelessness (N = 30)

	Frequency (%)
Gender	
Male	13 (43.3)
Female	15 (50.0)
Transgender	2 (6.7)
Race/Ethnicity	
African American	17 (56.7)
Hispanic	3 (10.0)
Multi-racial	7 (23.3)
Other	3 (10.0)
Sexual Orientation	
Heterosexual	17 (56.7)
Gay or Lesbian	5 (16.7)
Bisexual	7 (23.3)
Something else	1 (3.3)
	M(SD)
Age	20.4 (2.1)
Age at 1st Homelessness	18.1 (2.5)

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Title: Access to healthcare among youth experiencing homelessness: Perspectives from healthcare and social service providers

Target Journal: Children and Youth Services Review

Abstract

Access to healthcare services is critical for YEH given their high risk of experiencing adverse physical and mental health issues. Previous studies have identified factors that impact YEH's access to healthcare service from the perspective of YEH, however less is known from the perspective of providers. We examined the perspectives of providers regarding the barriers and facilitators that impact YEH's access to healthcare. We conducted 17 semi-structured interviews with healthcare and social service providers representing 10 agencies in Houston, Texas. Drawing on constructs from healthcare access frameworks, findings were categorized into barrier-and facilitator-related themes that reflected five dimensions of healthcare access – approachability, acceptability, accommodation, affordability, and adequacy. Identified barriers include: lack of awareness of healthcare services "approachability"; lack of agency inclusivity of sexual and gender minorities, lack of trauma-informed care approach "acceptability"; complex, high-barrier healthcare service delivery system "accommodation"; and cost of healthcare services "affordability". Identified facilitators include: incorporating health assessments into intake protocols "approachability"; building trust and promoting an accepting service environment "acceptability"; offering healthcare navigation assistance and accompanying YEH to appointments, mobile and co-location of services, interagency partnerships and interprofessional collaborations

"accommodation"; using multiple funding sources within and across agencies, public health insurance and financial assistance program "affordability"; lack of consistency and continuity of care, and lack of coordination across healthcare facilities "adequacy". Our study findings revealed incongruencies between the high-barrier, adult-centered way in which healthcare services are delivered and YEH's need for easily accessible, flexible, youth-centered healthcare services.

Background

It is estimated that over 3 million youth experience homelessness annually in the United States [1]. Homelessness negatively impacts the mental and physical health of youth [2-4]. Mental health issues among youth experiencing homelessness (YEH) include depression, post-traumatic stress disorder, suicidal ideation, and substance use disorders [5-7]. Physical health concerns include lack of a healthy diet, dermatologic disorders, respiratory problems, dental disease, and infectious diseases, such as influenza, sexually transmitted infections, and hepatitis [2, 8-12]. In addition, different forms of violence, including physical and sexual victimization, are prevalent among YEH [13-15]. Given the negative health impact of homelessness, access to healthcare services is critical for YEH.

Several studies have examined barriers and facilitators to accessing healthcare services from the perspective of YEH [16-19]. YEH have identified numerous barriers that impede their access to healthcare services, including lack of health insurance, limited financial resources to pay for services, mental health issues, limited skills to navigate the healthcare system, transportation issues, limited knowledge of available resources, lack of continuity of care among agencies, narrow service eligibility requirements, identification and

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paperwork requirements, discriminatory institutional policies towards sexual and gender minority youth, limited agency operating hours, parental consent requirements, and long waiting lists and wait times for services [16, 19-23]. YEH have also identified several factors that facilitate their access to healthcare services including awareness of a health problem, youth-centered services, mobile services, availability of free, timely, and easily accessible services, culturally competent and non-judgmental staff, and agencies providing information about services and assistance with service system navigation [16, 18-21, 24].

While several studies have examined the barriers and facilitators to healthcare access from the youth perspective, few have done so from the provider's perspective. Service providers can offer unique insights, as they can shed light on how agency and system-level policy, program, funding, and practice mechanisms hinder or facilitate YEH's access to healthcare. Previous qualitative studies conducted with YEH-serving providers help further our understanding of factors that impact YEH's access to general services. For example, a study conducted in New York State that explored providers' experiences working with highly mobile youth found that the service system's capacity limitations and restrictive county-level policies (e.g., shelter stay limits), impacted YEH's mobility, and identified that certain values, including building trust, meeting youth where they are, and accessibility were critical to working with YEH [25]. Another study that explored the prospects and challenges faced by the homeless youth service sector in Ontario, Canada, identified extensive intake processes and appointment-based meetings, staffing and resource shortages as barriers to services, whereas interprofessional relationships and easily accessible services enhanced YEH's access to services [26]. A study conducted in Melbourne, Australia that explored the

barriers and facilitators to service referrals among YEH identified resource and funding

shortages, inflexible entry criteria for services and a complex service system as barriers to

service referrals, whereas, positive staff attributes and establishing relationships with other

service providers were facilitators [18]. Other qualitative studies conducted with YEH-

serving providers have echoed the importance of trust-building and positive staff attributes

and also identified versatile services and advocating on behalf of YEH as facilitators [27, 28].

While findings from previous studies among providers help further our understanding

of factors that impact YEH's access to general services, they lack insight on factors that

specifically impact YEH's access to healthcare services. The majority of studies were

conducted with YEH-serving social service providers (e.g., youth shelter workers, front-line

youth workers) [22, 25, 27, 28], however, previous studies overlooked the perspective of

healthcare providers, such as physicians and nurses, who serve the YEH population.

Furthermore, previous studies often lack the perspective of administrative-level providers

(e.g., directors, CEO, program/project managers) who can offer insight from a systems level.

This qualitative study addresses this knowledge gap by examining the perspectives of a range

of healthcare and social service providers to shed light on the barriers and facilitators that

impact YEH's access to healthcare.

Conceptual framework

Several frameworks have been developed to guide our understanding of the meaning

and various dimensions of healthcare access. For example, Penchansky and Thomas (1981)

defined access as the fit between an individual's healthcare needs and expectations and the

characteristics of providers and the healthcare service system [29]. In their conceptualization

of access, they proposed five closely related dimensions of access: availability, accessibility, accommodation, affordability, and acceptability. Availability is the fit between the amount and type of existing services and the healthcare service needs of individuals. Accessibility refers to the location of healthcare services in relation to the location of individuals that need those services. Accommodation is the fit between how healthcare services are organized to accept patients (e.g., hours of operation, appointment mechanisms) and individuals' ability to accommodate those processes. Affordability is the relationship between the cost of healthcare services and available resources (e.g., insurance, financial assistance) and individual's ability to pay for those services. Acceptability is the fit between the characteristics of healthcare facilities and providers, as well as their attitudes about preferred patient attributes (e.g. individuals with public benefits) and the healthcare service preferences of individuals seeking services [29].

Building on the work of Penchansky and Thomas and that of others, including Aday and Andersen (1974), Haddad and Mohindra (2002), and Shengelia et al. (2003) [29-32], Levesque and colleagues (2013) conceptualized access as the possibility for individuals to identify healthcare needs, seek healthcare services, reach healthcare resources, obtain healthcare services, and be offered services that appropriately fulfill their healthcare need [33]. Furthermore, Levesque and colleagues operationalized access as five-paired dimensions (characteristics of healthcare service system and abilities of healthcare service users) that represent different stages of the healthcare-seeking process. The dimensions of access that reflect the characteristics of the healthcare service system include: (a) approachability, (b) acceptability, (c) availability and accommodation, (d) affordability, and (e) appropriateness

and adequacy. The five corresponding dimensions of access that reflect the abilities that service users must possess to transition through the different stages include: (a) ability to perceive, (b) ability to seek, (c) ability to reach, (d) ability to pay, and (e) ability to engage [33]. Similar to Penchansky and Thomas' framework, this framework's conceptualization of access reflects the interplay between characteristics of individuals and characteristics of the healthcare service system. However, Levesque and colleagues' framework adopts a broader scope of access by including a dimension that captures the stage in the healthcare-seeking process when an individual has a desire for care but has yet to begin the actual search for care. Specifically, the framework's dimension of approachability relates to the idea that people with a health need can identify that services exist and can be reached, and that those services can ultimately have an impact on their health. Activities that bring awareness to an organization's services, such as outreach and screenings, can increase an organization's approachability. In addition, Levesque and colleagues' framework includes a dimension of access related to continuing care and suggests that access to healthcare extends beyond an individual's initial contact with the healthcare system and comes into play each time a person tries to access care. Specifically, the adequacy of healthcare services, which relates to the way in which services are provided and their integrated and continuous manner, impacts individuals' health outcomes, service satisfaction, and service choice [33].

Study Purpose

In the current study, we draw on constructs adapted from the healthcare access frameworks proposed by Penchansky and Thomas (1981) and Levesque and colleagues (2013) to understand healthcare and social service providers' experiences and perceptions of

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the barriers and facilitators that directly impact YEH's access to healthcare services, as well as indirectly through impacting providers' abilities to connect YEH to healthcare services. Findings from this study will enable us to make data-driven recommendations on how to improve YEH-serving systems-of-care to increase YEH's access to healthcare services.

Methods

This study was part of a larger research initiative, the *Homeless Youth Healthcare Initiative* (HYHI) that examined healthcare and homeless services in Houston, Texas. Houston is the fourth largest city in the U.S. and is home to the largest medical center in the world [34].

Sample and Recruitment

For this study, a purposive sampling method was used to recruit providers from organizations that offer mental and physical healthcare services to YEH and social services agencies that served YEH. We purposively sampled providers who were knowledgeable about the agency services, as well as barriers and facilitators to YEH's access to healthcare services at both the system-level and the direct patient care level. Thus, providers were eligible to participate if they were an agency administrator or a staff member designated by agency administrators as someone who could speak and respond knowledgeably about the agency services. We generated a list of relevant healthcare providers to reach out to by identifying organizations that either (1) received federal healthcare for the homeless funding; (2) were designated as federally qualified health centers in or near shelters or drop-in centers used by YEH, or (3) served YEH as a target population. We also generated a list of well-known homeless service agencies in the greater Houston area. We called or emailed agency

administrators to provide information about the study and to extend an invitation to participate. We scheduled an interview time with providers who expressed an interest in participating.

Data Collection

From November 2017 to February 2018, we conducted 17 semi-structured interviews with providers from 10 participating healthcare and social service agencies in the greater Houston area. The interviews lasted approximately 1 hour. Prior to the interview, participants provided written informed consent. We conducted all interviews in a private location (e.g., an office or private room) at the provider's affiliated agency. Table 1 presents the open-ended questions we used to guide each interview. All interviews were digitally recorded and professionally transcribed. At the completion of the interview, each provider was given a $25 grocery store gift card that they could keep or donate on their behalf to a YEH-serving agency. This study was approved by the institutional review boards of the universities of the lead investigators.

Data Analysis

We used thematic content analysis to analyze the qualitative data [35]. Guided by the research aims of the current study, four members of the research team independently coded an initial set of three transcripts. Specifically, we coded each transcript using a thematic coding approach by organizing the data into chunks of text, grouping text into categories related to barriers and facilitators to healthcare access, and assigning a code [36]. We met multiple times to discuss, refine, and develop an initial codebook [37]. Specifically, we combined codes that were similar or overlapping and revised any discrepant codes using peer

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consensus. Then, the first author coded two additional transcripts using the developed codebook and added new codes as they emerged. We met again as a team to discuss and refine the newly added codes and finalize the codebook. The first author then coded all the transcripts and pulled exemplar quotes to represent potential themes. Based on the themes that emerged, we drew on constructs from the healthcare access frameworks proposed by Penchansky and Thomas and Levesque et. al to help organize the emergent themes and enhance our understanding and interpretation of the themes [29, 33, 38]. We incorporated the healthcare access frameworks in the later stage of the analysis process to avoid forcing the data into predetermined categories related to the various dimensions of healthcare access [39]. We used ATLAS.ti (version 1.6.0) to assist with data analysis and management.

Results

Participants consisted of seven social service providers and ten healthcare providers. Specifically, the social service providers included: two directors, one chief executive officer (CEO), one program director, two project managers, and one program manager. The healthcare providers included: four physicians, one director, one CEO, one psychologist, two nurse practitioners, and one patient navigator.

Several barrier and facilitator-related themes emerged relating to various dimensions of access. Specifically, providers' lack of awareness of various healthcare services in the community served as a barrier to approachability, as providers could only connect YEH to services they were knowledgeable of. Shelter and housing program-based health assessments served as a facilitator to approachability of services because they enabled providers to immediately identify potential health needs among YEH. Regarding acceptability, failure to

provide a gender and sexual orientation affirming environment and failure to provide services in a trauma-informed manner emerged as barriers, whereas, building trust and promoting an accepting service environment emerged as a facilitator. Regarding accommodation, the healthcare delivery system's paperwork and documentation requirements, complex system navigation, and limited operating hours and slots for walk-ins emerged as a barrier. By contrast, offering navigation assistance, mobile services, co-location of services, and interagency partnerships and interprofessional collaborations served as facilitators to making healthcare services more accommodating for YEH. Regarding affordability, the cost of healthcare services emerged as a barrier. To help offset healthcare service cost for YEH, providers used funding from multiple grants within and across healthcare agencies. In addition, public health insurance and a local financial assistance program also emerged as a facilitator to affordability of healthcare services. Regarding adequacy, the lack of consistency, continuity, and coordination of care emerged as barriers. Specifically, participants struggled to provide consistent and continuous care to a highly mobile population and encountered challenges with coordinating YEH's care across healthcare facilities. Table 2 presents the themes categorized as barriers or facilitators within corresponding dimensions of access.

Approachability

Barrier: Lack of awareness of healthcare services

Social service providers reported they sometimes were unaware of various healthcare services available to YEH. For example, in reference to a specific healthcare clinic that serves the general homeless population, a project manager responded, "Did not even know

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that [organization name] has healthcare." (Provider (P)5, social services (SS)) Healthcare providers also expressed that the knowledge gap of available services prevented YEH from accessing healthcare. A shelter-based nurse practitioner explained that youth were often unaware his clinic existed: "I've been here six years, and I still get people, they're saying, 'I didn't even know it was a clinic in here.'… So that's the main thing, just letting them know." (P15, healthcare (HC))

Providers expressed difficultly with continuously staying up-to-date on the full range of healthcare services available to YEH, especially while trying to fulfill other organizational and job responsibilities. A psychologist at a YEH-serving social services organization commented:

I think the barrier is communication, right, between these places that provide…there are a lot of services in Houston, but the communication between facilities, between providers, especially when, I think, you're working with a high crisis population. I think there's—just kind of in your own world, doing those things. (P14, HC)

To address the knowledge gap of available services, several providers expressed the need for a community-level healthcare navigator who could meet with YEH, identify their healthcare needs, and establish a plan to connect youth to the appropriate healthcare services. The CEO of a social services agency commented:

The problem is that everybody gets siloed... no one is really looking across this whole spectrum and trying to figure out how can we get YEH to access health services … So, it's almost like you need a health caseworker that somebody like us could call

somebody—when we have a new client come into our program, we could call this health caseworker, and they could come over and just talk to the kid. (P4, SS)

Facilitator: Incorporating health assessments into social service agency's intake protocols

To better facilitate the process of connecting YEH to needed health services, providers reported that some social service agencies incorporated in-depth health exams into their intake protocols. For example, a program director commented, "Everybody that is in our shelter has to have a medical assessment…They don't have to have it upon entering, but normally we like to get it between three to five days upon them entering into the crisis shelter." (P7, SS) Additionally, some agencies included additional health-related questions in their housing enrollment intake forms to help case managers determine to which healthcare services they should connect a young person. Furthermore, to ensure that all YEH referred into a housing program have an opportunity to discuss their health needs, leaders of the continuum of care reported that they were working to standardize the practice of how Rapid Re-housing providers assess and connect YEH to services. A project manager commented, "Anytime a client's enrolled into our housing program we should be taking note of what's going on and connecting them to services, whether they said they'd ever been diagnosed or not. Everybody needs a check-in every once in a while." (P3, SS)

Acceptability

Barrier 1: Lack of agency inclusivity of sexual and gender minority youth

Social service providers reported they were not willing to collaborate with or refer YEH to organizations that they perceived as non-affirming environments for sexual and gender minority youth. The CEO of a social services agency commented that he was very

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deliberate regarding the faith-affiliated organizations that his agency collaborates with: "We will only partner with faith communities that would not restrict our ability to do what we need to do for our kids, particularly as it concerns [sexual] orientation, gender identity, sexual health." (#4, SS) Similarly, a program manager reported he did not refer YEH to a specific shelter-based healthcare clinic due to the potential discriminatory treatment that a sexual minority-identifying YEH might endure: "Unless I want to submit my clients to abuse and indoctrination, and especially if they're LGBT (lesbian, gay, bisexual, or transgender) or non-Christian, then I would not send them over there." (P1, SS) This program manager's reluctance to refer YEH to services within a healthcare clinic that they perceived as non-LGBT friendly was supported by a fellow healthcare provider who worked for an organization with discriminatory practices towards men who have sex with men (MSM). When asked about working with YEH who engage in high-risk sexual behaviors, the provider responded that gay-identifying youth are often reluctant to disclose their sexual orientation due to the religious stigma at her organization.

Barrier 2: Lack of trauma-informed care approach

Social service providers expressed that some providers lack a deeper awareness of the impact that trauma has on a young person's life and how it may manifest in their behavior. For example, one provider explained that it is important for providers to be flexible and open-minded when working with YEH because YEH may sometimes act out or show up late to their appointments. Providers who do not operate from a trauma-informed care approach may inadvertently serve as a barrier to services for YEH, as a project manager commented:

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When you refer to a large organization …you kind of don't know what you're going to get. And so that, you can totally burn that bridge if you finally get this client to like, all right, I'll go see whoever, and then it doesn't go well because something happened, someone said something, someone looked at me a certain way, whatever it is. And then you've got to start all over again. (P3, SS)

Another social service provider discussed the challenges that his organization faced with connecting YEH to a shelter-based clinic due to the clinic's non-trauma informed policies. Specifically, the clinic's strictly enforced rules and high behavioral expectations lacked consideration for the YEH population, as the director of a social services organization explained:

They have a different expectation for behavior than we do. We understand our kids are traumatized and it affects behavior, and how kids think, and that they are in survival mode, and they've been told their whole lives that they are not worth living or caring for. And when we start to show them that we do care for them, sometimes they will do everything they can to show us that they are not worthy of that. So that's how we see behavior as separate from the person and that behavior is the result of something that's happened to them. It's not who they are. (P2, SS)

Facilitator: Building trust and promoting an accepting service environment

Several healthcare providers attributed their success in reaching YEH to creating a service-delivery environment in which YEH felt welcomed, accepted, and comfortable. Providers expressed that YEH often feel stigmatized as a result of their homelessness situation and subsequently, it is important for providers to be non-judgmental and provide

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care in a manner that makes YEH feel comfortable. A physician expressed that YEH do not "feel like a second-class citizen" (P10, HC) when they come in to receive services at her organization. Moreover, providers discussed the importance of building trust with YEH, as establishing trust served as a bridge to service engagement. For example, healthcare providers who conducted outreach at a YEH-serving agency were able to build trust with YEH by engaging them in a collaborative manner. A program manager explained:

> …the first thing they [healthcare providers] did is they came down and started playing cards with them, and then hang out with them, and then make themselves available as a regular human being, that they can actually be trusted. … Now the clients come to them. They approach them and say, 'Hey, I need this.'(P1, SS)

Accommodation

Barrier: Complex, high-barrier healthcare service delivery system

Many social service providers described the existing healthcare service delivery system as a complex, high-barrier system of care that was challenging for YEH to navigate. Providers expressed that YEH often struggle to meet healthcare agencies' paperwork and documentation requirements. For example, one provider reported that many YEH lack knowledge about their personal and family medical history and subsequently encounter difficulties completing medical intake forms. Additionally, some paperwork is not literacy appropriate for YEH, as a social services CEO commented, "Our kids often have a learning disability, have reading deficits, they don't handle paperwork well. They see that as an obstacle." (P4, SS) Providers also expressed that agencies' numerous documentation requirements for service eligibility (e.g., ID, letter of verification of homelessness, proof of

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health insurance) often required YEH to visit multiple agencies to obtain the necessary documentation for services, thus creating immense access barriers for a population that has low self-efficacy to complete multiple steps for services. Furthermore, a project manager expressed that the expectation for YEH be able to successfully navigate a complex healthcare delivery system was unrealistic:

> There's only so much that can be done when you're living on the streets and the expectation of "get your shit together" that's a pretty high expectation for someone who's not sleeping regularly. The quality of sleep is very low, so that in itself is— how much expectation do you have on someone's physical health or mental health to be sufficient enough to go and continue access and services? Particularly if they feel safe in a certain part of town, or they have a group of friends or family that they're trying to stick close to, yeah, they're probably not going to go access services. (P3, SS)

Several providers discussed the need for agencies to provide immediately accessible, point-of-contact healthcare services to YEH because providing a referral or scheduling an appointment in advance usually did not result in service connection. A project manager commented, "Getting youth to go or show up to anything is very difficult." (P5, SS) Similarly, shelter-based physician recounted the difficulties his staff encountered when trying to connect a young person to contraceptive services at a near-by clinic since it is not offered at their location:

> …it's not uncommon for us to try to make four or five referrals for a kid to [agency name] …So we try to work on them—work with them, make them an appointment—

so [agency name] is right over there, you can see it across the street and sometimes they don't get there so we'll circle back with them again. (P13, HC)

Given YEH's need for immediately accessible healthcare services, providers expressed that healthcare facilities' limited hours of operation were a barrier. Aside from the emergency room, to which YEH often have to resort, providers reported that there was not an accessible healthcare facility that is open 24 hours to accommodate YEH who get sick on the weekends or after hours. A physician commented, "So I think the time that providers are available is important. I think that's probably one of the biggest barriers… because kids don't need services just 9:00 a.m. to 5:00 p.m." (P11, HC) Limited slots for walk-in appointments were also a barrier as one shelter-based healthcare provider reported that his clinic only had capacity to service two walk-in patients per day.

Facilitator 1: Offering healthcare navigation assistance and accompanying YEH to appointments

Social service and healthcare providers discussed the importance of providing navigation assistance to YEH, as many YEH may not have previously received guidance from their parents or guardians on how to navigate the healthcare system. For example, a psychologist explained, "It's that re-parenting piece, you know? If a nineteen-year-old were struggling with this but had an intact family home, that's something mom would take them to. And so, a lot of those technical pieces being helped, being assisted [are missing]." (P14, HC) Providers taught YEH vital life skills by showing youth how to identify healthcare services online, discussing when to go to a clinic versus the emergency room, and demonstrating how to schedule an appointment.

Social service providers reported that accompanying YEH to healthcare appointments, as opposed to simply providing a referral, helped better ensure that YEH made it to a healthcare appointment. Providers also expressed that accompanying YEH to healthcare appointments enabled case managers to advocate on YEH's behalf, as a young person seeking services alone may encounter long wait times or be ignored when they ask for help. However, YEH are better attended to if their case manager is present, as a program manager explained, "A case manager goes with him. That makes—the whole story changes." (P1, SS)

Facilitator 2: Mobile services and co-location of services

To better facilitate YEH's connection to services, several healthcare providers brought their services to youth-serving agencies. Some of these services included HIV and STI testing and treatment, general healthcare services, and dental services. For example, a physician commented, "We do have a dental unit that goes out. It is a mobile unit that goes out to several locations and is stationed there for a month, until it takes care of the entire community in that area." (P9, HC)

Providers also discussed the benefits of co-locating healthcare and social services. A project manager reflected on his experience working at a homelessness services agency that was housed in the same building as a healthcare services agency, "It was really nice to be able to have that direct kind of referral. It wasn't just, here's your appointment, here's this, here's that. It was like, this is a true partnership" (P3, SS). In addition to bolstering cross-agency partnerships and facilitating direct referrals, one provider reported co-location of services could meet a critical mental health services gap at his agency. A social services

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director commented, "Clinical staff is outside of our typical service, so if there was an agency specific to funding that, that would place those people consistently at locations where it's needed most, I think that would go a really long way." (P2, SS)

Facilitator 3: Interagency partnerships and interprofessional collaborations

Providers reported that interagency partnerships helped streamline the referral process between agencies, thereby reducing some of the barriers YEH encounter when navigating the healthcare delivery system. A social services director explained how her agency developed a partnership with an adolescent-serving clinic: "We met them, and we told them how our kids work, they told us how they work, and we just kind of set the referral process and made it happen." (P6, SS) The resulting partnership helped ease the process of referring youth, scheduling appointments, and connecting youth with a healthcare professional. Several providers also commented that building interprofessional relationships provided them with direct organizational contacts that helped facilitate the service connection process. For example, the director at a healthcare organization commented on the benefits of collaborating with staff from a YEH-serving agency: "They call me or call my team whenever they have a client right in front of them... So, it's not necessarily a passive referral where you give them a flyer … We'll take care of it right then and there." (P12, HC) Another social service provider established a network of higher-level professionals across a range of healthcare agencies that can be called upon for assistance when YEH have an acute health need.

Affordability

Barrier: Cost of healthcare services

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Social service providers reported there was limited availability of free and low-cost healthcare services for YEH. While social service providers collaborated with several healthcare facilities in their communities, many of the services that these clinics offered were based on insurance or sliding scale fees. In reference to a federally qualified health clinic (FQHC), a project manager commented, "I think they're a really great community clinic. But that's different than homeless services, and I have to remind myself a lot of times like its sliding scale is different than no money. That's a big gap." (P3, SS)

Healthcare and social service providers reported that the high cost associated with some healthcare services (e.g., dental and vision services, psychiatric medication) made them inaccessible to YEH. For example, a physician reported, "Medications can become an issue for youth, especially some of the more expensive mental health medications. And so, ideally, if youth are able to get services and get prescriptions, then trying to fill them can also be a barrier." (P11, HC)

Facilitator 1: Using multiple funding sources within and across healthcare agencies

Healthcare providers strategically used multiple state and federally funded grants to meet the healthcare needs of YEH. In an effort to maximize the benefits YEH are eligible for, a healthcare director explained that his agency might pull from a funding source that has less stringent eligibility requirements if YEH do not have all their documentation during their first visit and then transfer YEH to additional funding sources when they bring the necessary documentation.

Healthcare providers also maximized the available funding across agencies to fully address YEH's health needs. Healthcare providers who work at more resource limited clinics

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reported they often connect YEH to larger healthcare facilities that have more funding to fill in the service gaps. For example, providers at a shelter-based clinic focused their limited resources on conducting medical screenings and addressing acute healthcare needs. A physician explained YEH were referred to a nearby FQHC for all other healthcare services, "We send out all the time…we really don't handle a lot of stuff in the clinic. Our doctors are here but we really work a lot with [FQHC clinic] … we try to keep our costs down as much as possible." (P11, HC)

Facilitator 2: Public health insurance and financial assistance program

YEH who were currently involved or aged-out of the foster care system qualified for Medicaid, which provided access to a range of preventative care and other medical services. A social services director reflected on the healthcare services available to YEH involved in the foster care system by commenting, "I think one thing that you have to keep in mind is: because they [foster care youth] have Medicaid, it is a very different…situation than another homeless kid without any… which I cannot imagine." (P6, SS)

Several healthcare providers expressed that a county-level healthcare financial assistance program, commonly known as the *Gold Card,* was a critical facilitator to healthcare access for YEH. A physician reported:

> For the kids who are really on their own who need public insurance, we try to arrange
> gold card, that is the probably the single—one of the most single important processes
> we—upon which access—hinges is the ability to get a gold card. (P13, HC)

Individuals experiencing homelessness can access free healthcare services at affiliated clinics. A nurse practitioner commented, "We use the Gold Card system… And they [YEH]

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get a special one; it's a homeless Gold Card, where they don't have to have any copays. They don't pay for any testing or labs or anything like that." (P15, HC)

Adequacy

Barrier 1: Lack of consistency and continuity of care

Several participants reported challenges with providing consistent care due to the transient nature of YEH's living situation. For example, a psychologist commented:

It's not uncommon for me to meet with somebody, they share this trauma history, they share depressive symptoms, and then maybe they discharge and I don't see them again. So that gap of the living situation changing, and therefore not being able to stick with a mental health professional over time. (P14, HC)

Because providers typically only met with YEH one time, providers did not have the opportunity to establish a strong provider-patient relationship in which they could become familiar with a young person's healthcare needs and provide continuity of care. A physician further explained, "So all of the time, your story is always getting changed… it's always like the entire sentence, never like, 'Oh, hey, how's that asthma going? Is the inhaler good?' It's not like that for them." (P10, HC)

Healthcare providers also reported challenges with providing continuous care, as they often could not reach YEH to follow-up about an appointment reminder or share positive test results. For example, a nurse practitioner reported, "They'll come in 'I need a gonorrhea, chlamydia.' And then they won't follow up to get the results and get the treatment... And there's no phones or anything to try to call." (P15, HC)

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Barrier 2: Lack of care coordination across healthcare facilities

Some providers reported challenges with coordinating care across healthcare facilities, which negatively impacted the care they were able to provide to YEH. For example, one physician explained that when he refers YEH to a specialist, it is helpful to know the outcome of a young person's results and treatment plan. However, the physician reported difficulties with obtaining information from other providers. Similarly, another physician reported difficulties accessing YEH's medical records from other healthcare facilities, thus limiting her ability to gain a clear picture of one's medical history. This physician expanded further on the need for providers to be able to easily and securely access YEH's medical records across healthcare facilities:

> To see records across facilities, so you can have a sense of diagnosis and medications that have been used in the past. Because I mean, if someone gave me the same med[icine] that didn't work last time, I'd be like, 'I'm not going back.' Right? They don't understand that you don't know that. And so, it gets really frustrating for them. (P10, HC)

Discussion

This study explored providers' experiences and perceptions of the barriers and facilitators that impact YEH's access to healthcare services in Houston, TX. This study is among the first to seek insights from a range of administrative-level healthcare providers and social service providers. By drawing on the healthcare access frameworks proposed by Penchansky and Thomas (1981) and Levesque and colleagues (2013), we identified multiple barrier-and facilitator-related themes that reflect different dimensions of access. Identified

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barriers include: lack of awareness of healthcare services "approachability"; lack of real and perceived agency inclusivity of sexual and gender minorities, lack of trauma-informed care approach "acceptability"; complex, high-barrier healthcare service delivery system "accommodation"; and cost of healthcare services "affordability". Identified facilitators include: incorporating health assessments into intake protocols "approachability"; building trust and promoting an accepting service environment "acceptability"; offering healthcare navigation assistance and accompanying YEH to appointments, mobile and co-location of services, interagency partnerships and interprofessional collaborations "accommodation"; using multiple funding sources within and across agencies, public health insurance and financial assistance program "affordability"; lack of consistency and continuity of care, and lack of coordination across healthcare facilities "adequacy". Findings from this study present new opportunities for policy and practice considerations designed to strengthen the way in which systems-of-care organize and deliver services to enhance YEH's access to healthcare services.

Approachability can be enhanced by establishing agency policies and procedures that facilitate proactive identification of healthcare needs and connection to services, as many YEH lack a medical home and only seek healthcare in emergency situations [20]. By incorporating health assessments and health-related questions into a social service agencies' intake protocols, social service providers can offer a bridge connecting youth to critical preventive healthcare services that YEH may not otherwise access. While findings from previous studies highlight the importance of conducting outreach to connect YEH to services [19, 23], this new finding from our study sheds light on the value of an agency's engagement

in in-reach activities to ensure that a young person's interface with the homelessness service system also facilitates their access to healthcare services. Consistent with previous research [26], our study findings show that providers lacked awareness and up-to-date knowledge of some existing healthcare services. To better facilitate efficient and effective utilization of the healthcare resources available to YEH, systems-of-care may benefit from adopting patient navigators who can support YEH's access to healthcare and social services across agencies and services [40, 41].

Organizations with policies and practices that discriminate based on sexual orientation or gender identity are less acceptable and create missed opportunities to connect YEH with needed healthcare services. For example, challenges arose with discussing HIV prevention strategies with MSM-identifying YEH because a particular organization's stigmatizing ideology did not foster a safe space in which these young people felt comfortable disclosing their sexual orientation or sexual behaviors. Consistent with our study findings, a previous study conducted with shelter staff and LGBTQ-identifying YEH found that young people did not feel safe coming out as LGBTQ or completely avoided shelters due to discrimination, homophobia and transphobia, and a lack of LGBTQ training within the shelter system [22]. Our study findings demonstrate the need for healthcare professionals to provide gender affirming and non-judgmental care. To ensure services are acceptable to YEH and to referring community organizations, all organizations and especially those perceived as non-affirming, should conduct regular assessments of user experiences and implement processes designed to reduce stigma and promote inclusivity. Organizations that are struggling in this area may further benefit by pairing up with organizations that have a strong

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reputation for promoting inclusivity. Beyond this, it is important for organizations perceived as non-affirming to inform referring community partners of the work they are doing to improve in this area.

In addition to a lack of inclusivity, organizations are less acceptable when they fail to incorporate knowledge of the impact of trauma on young people's lives. The healthcare service system can potentially be a source of re-traumatization, as YEH have previously described the healthcare seeking process as distressing and dehumanizing [16]. To make services more acceptable to YEH, our study findings, as well as those of other studies, highlight the need for healthcare services to be delivered in an inclusive, youth-friendly, and trauma-informed manner [22, 26, 42, 43]. Specifically, it is important for providers to develop trust with YEH and to collaboratively involve YEH in the healthcare decision making process [25, 27, 43]. Providers should be respectful, non-judgmental, and honest and strive to make YEH feel valued, comfortable, and listened to [19, 21, 27, 28, 43]. Policies and procedures that inform healthcare services and practices should be developed in a way that allow for service flexibility, tolerance of repeated attempts to achieve goals, and a forgiving attitude towards unmet expectations, rule-breaking, and acting out [25-28]. Lastly, providers who interface with YEH should receive training in trauma-informed care, youth-friendly healthcare delivery, and LGBTQ cultural competency [22, 43].

The complex way in which healthcare services are currently organized and delivered fails to accommodate YEH, a population that needs low-threshold access to youth-centered healthcare services. Findings from our study, as well as those of other studies, show that system, program, and insurance requirements such as identification, documentation of

service eligibility, taxing intake paperwork, and completing multiple steps and referrals for services, create significant challenges for YEH, as many of these young people do not have the skills and preparation necessary to navigate high-barrier healthcare service systems [16, 17, 20, 26]. By guiding YEH through each step of the service-seeking process, providers in our study helped young people overcome healthcare access barriers and equipped them with vital service navigation skills. Consistent with these findings, a previous study found that YEH are less likely to fall through the cracks during service referrals when providers supported a young person's transition to a new service provider by making phone calls on a young person's behalf to connect them to a new provider, taking the young person to meet the provider, and conducting joint sessions [18]. Additionally, our study findings show that bringing healthcare services to agencies in which YEH congregate through the use of mobile services and co-location of healthcare services reduces the need for YEH to visit multiple agencies to access healthcare and facilitates point-of-care service delivery. Previous studies have also found that YEH prefer healthcare services to be delivered at YEH-serving agencies, as it is both convenient and increases YEH's likelihood of receiving services [16, 20, 26]. Findings from our study also demonstrate that cross-agency partnerships and collaborations enabled YEH-serving providers to develop referral protocols and establish a more direct connection to healthcare services. Findings from other studies conducted with YEH-serving providers further highlight the benefits of developing cross-agency relationships and collaborations, including increased access to services, increased efficiency by reducing duplication of information and resources, delineating provider roles, and increased awareness of other services [18, 26].

There is a limited amount of affordable healthcare services for YEH, especially given that many of these young people are uninsured and lack financial resources. Our study findings showed that there were not enough low-cost and free healthcare services to meet YEH's healthcare needs. In previous studies, YEH have identified the cost of services as a barrier to accessing healthcare services [16, 23]. Although there is a high need for healthcare services among YEH, research indicates that need for services does not predict the prevalence of YEH-specific services [44]. To overcome shortages in YEH-specific healthcare resources, our study findings show that providers in resource-limited YEH-serving clinics maximized clinic funding by only addressing acute health needs and facilitating YEH's enrollment into other non-YEH specific healthcare clinic programs for comprehensive care. Thus, providers demonstrated that collaborative initiatives among healthcare organizations with funding for underserved populations, such as FQHC's, and YEH-serving organizations can serve as a gateway in which YEH can tap into a broader pool of state and local-level healthcare funding directed towards vulnerable populations. Providers in our study also identified YEH's lack of health insurance as a barrier; a finding that has been previously reported [20, 23]. To better ensure healthcare coverage for all YEH, expanding Medicaid in all 50 states, including Texas, is critical to addressing the needs of vulnerable young adults. In addition, increased funding of local financial assistance programs, such as Harris County's Gold Card Program, can serve as a stop-gap measure.

The adequacy of healthcare services that YEH receive is limited when providers are restricted in their ability to provide ongoing, continuous, and coordinated care. Developing a trusted provider-patient relationship is key for YEH, as the need for adult connections is

often an organizing principle in the lives of vulnerable young adults [41]. However, our study findings revealed that providers often missed out on the opportunity to establish an ongoing, trusted relationship when young people could only meet with a provider one time due to unstable housing related challenges (e.g., frequent mobility, limited resources). Our study findings also showed that providers encountered challenges with coordinating YEH's care across facilities, which negatively impacted YEH's healthcare experience. Consistent with these findings, previous studies have found that YEH become frustrated and sometimes disengaged with services when they had to retell their story every time they met with a new provider due to lack of care coordination in the referral process [16, 18, 21]. YEH-serving systems-of-care should consider implementing strategies aimed to strengthen YEH's continuity and coordination of care, such as establishing collaborative networks of care, utilizing a multidisciplinary, integrated, or team-based approach to care, offering case management, patient support, and outreach services, and utilizing web-based personal health information systems in which YEH can securely store their health histories and important health documents [41-43]. In addition, there is an increased need for systems-of-care to work towards achieving interoperability [45] so that YEH-serving healthcare providers across settings can securely find, send, receive, and integrate YEH's medical records.

The findings from our study should be considered in light of its limitations. First, our sample size was composed of 17 social service and healthcare providers. While our goal was to target agencies that served YEH, given the small sample size and use of purposive sampling, the results may not reflect the perspectives of all healthcare and service providers who serve YEH throughout the greater Houston area. Houston is a large urban city with a

wide range of healthcare and social service agencies. Providers from rural communities or communities with a limited number of service agencies may have different perspectives and experiences related to the factors that impact YEH's access to healthcare services. Second, we interviewed providers who held administrator positions or staff member designated by agency administrators, due to their knowledge about agency services, as well as their potential to offer a micro and macro level perspective regarding barriers and facilitators to YEH's access to healthcare. As such, the study participant's perspective may differ from that of other agency staff members who do not hold administrative-level provider positions. However, by gaining the perspective of providers who served in either the direct practice role, the agency administrator role, or both, we gained insight on the barriers and facilitators that occur at the direct service level, as well the agency and systems level.

This study is among the first to gain insight from a range of administrative healthcare and social service providers on the barriers and facilitators that impact YEH's access to healthcare services. Our study findings highlight the mismatch between the high-barrier, adult-centered way in which healthcare services are delivered and YEH's need for healthcare services that are flexible, youth-centered, and easily accessible. To better ensure YEH have access to existing healthcare services, there is a need for all YEH-serving organizations to have policies that promote youth inclusion and reflect the needs and rights of YEH [42]. Moreover, YEH-serving organizations should use a trauma-informed care approach to guide all organizational policies, programs, practices and client interactions. Strengthening interagency collaborations across YEH-serving healthcare and social service agencies is critical, as these relationships can pave the way for putting systems in place that help

streamline YEH's connection to healthcare services. There is also a need for systems-of-care to implement service delivery strategies, such as mobile services and co-location of services, that allow for low-threshold service access and immediate delivery of healthcare services to YEH. Additional research is needed to develop and evaluate intervention strategies, such as youth-friendly patient navigators and tailored web-based personal health information systems, that aim to increase YEH's access to healthcare services [41].

Table 3.1. Semi-structured Interview Guiding Questions

1. What specific services do you provide and how much of what you do focuses on YEH specifically?

2. If you think about the overall health needs of YEH, what do you see as the essential services? What service areas strike you as those that are highest priorities?

3. What challenges have you encountered in providing services to YEH?

4. What have you done that you feel has been particularly successful in providing services to YEH?

5. What barriers do you think prevent YEH from accessing your services or other needed services in the community?

6. Where do you see the gaps in the services that are currently available for this group? What suggestions do you have for addressing these gaps?

Table 3.2. Dimensions description and corresponding barriers and facilitators

Dimension	Barriers	Facilitators
Approachability: People with a health need can identify that services exist and can be reached. Organization activities, such as screenings and outreach, can increase an individual's awareness of existing services.	1) Lack of awareness of healthcare services	1) Incorporating health assessments into social service agencies' intake protocols
Acceptability: The fit between the characteristics of healthcare facilities and providers and their patient type preference and the healthcare service preferences of individuals seeking services.	1) Lack of agency inclusivity of sexual and gender minorities 2) Lack of trauma-informed care approach	1) Building trust and promoting an accepting service environment
Accommodation: The fit between how healthcare services are organized to accept patients (e.g., hours of operation, appointment mechanisms) and individuals' ability to accommodate those processes.	1) Complex, high-barrier healthcare service delivery system	1) Offering healthcare navigation assistance and accompanying YEH to appointments 2) Mobile services and co-location of services 3) Interagency partnerships and interprofessional collaborations
Affordability: The relationship between the cost of healthcare services and available resources (e.g., insurance, financial assistance) and individual's ability to pay for those services.	1) Cost of healthcare services	1) Using multiple funding sources within and across agencies 2) Public health insurance and financial assistance program

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Adequacy: The quality or way in which healthcare services are provided and their integrated and continuous manner	1) Lack of consistency and continuity of care	N/A
	2) Lack of care coordination across healthcare facilities	

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CONCLUSION

This dissertation was composed of three papers that aimed to understand factors that impact YEH's health behaviors and access to healthcare services. In the first manuscript, we examined the prevalence of HPV vaccination among YEH. We also identified predisposing, enabling, and need factors associated with HPV vaccination initiation and completion among YEH. We found that the overall vaccination completion rate among YEH was lower than that of the general youth population. A key takeaway from our findings was that YEH who were most likely utilizing SRH services (STI testing and sexually active youth) were more likely to be vaccinated, thus highlighting a gap in care among youth who are not connected to these services. Given these findings, services should be organized in a way that facilitate easy access to preventive services upon YEH's initial interface any healthcare or homeless service provider.

Given our study's findings of the vaccination disparities that exists among particular YEH subgroups, more research is needed to better understand the reasons for these disparities. Specifically, though qualitative research, we need to further explore HPV vaccination knowledge and perceptions among YEH who identify as Black, Latinx, or Multiracial, as well as among YEH with a lower education level. In addition, our findings demonstrated differences in HPV vaccination uptake by location. Future research can build on these findings by assessing the different state and local-level HPV vaccination funding mechanisms available and their impact on vaccination uptake among YEH.

In the second manuscript, we assessed the type of support that YEH received from family members. We also explored the relational complexities and social dynamics of YEH's

relationships with supportive family members. We found that over two-thirds of YEH have at least one family member in their social network and more than half of those participants receive support from family members. Our findings indicate that YEH's relationships with supportive family members can be a key source of support. Specifically, supportive family members provided emotional support by helping YEH cope with ongoing homelessness stressors, as well as instrumental support by helping YEH meet their basic needs. In addition, our study findings indicate that the benefits of supportive familial relationships are not necessarily contingent upon YEH's receipt of instrumental and emotional support. Beyond social support, familial relationships served as a source of motivation for youth to better their circumstances, provided youth with a sense of connectedness, and sometimes offered youth a potential safety net even if they chose not to use it.

To capitalize on the potential positive impact that supportive family members can have on YEH's health and well-being, our study findings suggest the need for the development of family strengthening interventions that are specifically tailored for YEH who are transitioning to adulthood. These findings shed light on critical factors (e.g. promotion autonomy, recognition of familial limitations and YEH's willingness to contribute) that interventions should address, but also give rise to further questions that call for future research. Specifically, more research is needed that further explores YEH's felt-sense of connectedness and belonging in relation to their connection to supportive family members. In addition, new research is needed that expands on our findings by exploring YEH's relationships with family of choice versus family of origin and examines potential differences and similarities.

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In the third manuscript, we explored the perspectives of healthcare and social service providers regarding YEH's access to healthcare. We identified multiple barriers and facilitators that impact YEH's access to healthcare services. Identified barriers include the lack of awareness of healthcare services, agency inclusivity of sexual and gender minorities, and trauma-informed care approach; the complex, high-barrier healthcare service delivery system; the cost of services; and the lack of care consistency, continuity, and coordination. Identified facilitators include: the incorporation of health assessments into intake protocols; trust building and promoting an accepting service environment; healthcare navigation assistance; mobile and co-locating services; interprofessional collaborations; financial assistance programs; and using multiple funding sources within and across agencies.

Overall, findings suggest that the manner in which healthcare services are organized and delivered creates numerous access barriers for YEH. Our study findings also shed light on YEH's need for flexible, easily-accessible, and youth-centered healthcare services. To increase YEH's access to critical healthcare services, systems-of-care may benefit from implementing the following strategies: 1) organizing services so that YEH's interface with the homelessness service system facilitates easy access to healthcare services by developing organizational protocols that promote YEH connection to healthcare through in-reach and outreach activities and by bringing healthcare services to YEH-serving organizations through mobile or co-locating services; 2) putting system supports in place that aim to streamline YEH's connection to healthcare services, as well as strengthen the continuity and coordination of those services by providing YEH with patient navigator and case management assistance, developing healthcare and YEH-serving organizational

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collaborations and partnerships, and utilizing a multidisciplinary, integrated, team-based approach to care; and 3) ensuring that all services are delivered in an inclusive, trauma-informed, and youth-friendly manner by providing relevant training to all YEH-serving healthcare and social service providers and staff, conducting ongoing assessments of service users experiences to identify occurrences of organizational discrimination and re-traumatization, and implementing protocols and procedures aimed to prevent discrimination, promote inclusivity, and allow for service flexibility. Future research can build on these findings by gaining the perspectives of YEH-serving providers located in rural communities. In addition, more research is needed to further evaluate innovative technologies, such as YEH-serving web-based personal health information systems, and data systems that allow for interoperability across healthcare providers.

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