AIDS and Behavior (2019) 23:792–801
https://doi.org/10.1007/s10461-019-02417-8

ORIGINAL PAPER

Exploring the Relationship Between Foster Care Experiences and HIV Risk Behaviors Among a Sample of Homeless Former Foster Youth

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Published online: 4 February 2019

Abstract
Recent research shows high rates of poor behavioral health outcomes among homeless former foster youth, including increased risk for HIV-risk behaviors. In the current study, data were collected from 184 youth at drop-in centers in Los Angeles using behavioral health questionnaires to explore the relationships between specific aspects of foster care experiences and engagement in HIV-risk behaviors. Results indicated that youth whose first homelessness experience occurred before leaving foster care were significantly more likely to engage in drug use with sex and exchange sex than those whose first homelessness experience occurred after leaving foster care. Intervention services targeting HIV-risk behaviors should consider the aspects of foster care placements that may increase the risk of these behaviors, such as long periods of placement or experiencing homelessness before exiting foster care, as well as those that may decrease the risk of these behaviors, such as exiting placement at an older age.

Keywords Foster youth · HIV risk · Homeless youth · Risk behaviors

Introduction

Nearly 2 million unaccompanied youth ages 13 to 24 experience homelessness in the United States each year [1]. Approximately 30% of homeless adults report a foster care history, while only 4% of the general public report the same [2–4], and research suggests that between 11 and 36% of youth with a history of foster care go on to experience homelessness in their lives [5]. Recent research also shows high rates of poor behavioral health outcomes among homeless former foster youth [6–8], and separate work has shown increased risk of HIV among foster and former foster youth [8–12]. However, although both homeless youth and former foster youth face increased risk of HIV [6, 13, 14], very little research has been conducted on the HIV-risk behaviors of youth who have experienced both homelessness and foster care, necessitating additional exploration.

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Background

Youth who have a history of homelessness as well as a history of foster care may accumulate the risk factors associated with homelessness and also those associated with foster care placement. Thus, their life experiences may position them at heightened risk of engaging in HIV-risk behaviors, necessitating an increase in research to better understand the distinctive needs of this population. Research to date shows that a history of childhood abuse, which is common among former foster youth, is associated with high rates of substance use and substance abuse disorders, having sex at a younger age, increased risk of some sexually transmitted illnesses (STIs), and having more sex partners. Moreover, research also shows that older foster youth have higher rates of substance use and risky sex practices than the general public [8–12]. Thus, findings suggest that former foster youth are at high risk of poor behavioral health outcomes, including HIV and STIs [15–19]. Foster youth continue to face these risk factors after emancipation and well into adulthood, but research has not examined specific issues faced by former foster youth who also experience homelessness.

Research on homeless youth has suggested this population shows a similar pattern of risk behaviors as former foster youth. Homeless youth (not specifically with foster care

histories) are more likely than housed youth to engage in sex at an earlier age, engage in inconsistent condom use, use drugs with sex, experience high rates of STIs including HIV/AIDS, have high-risk partners, have concurrent sex partners, and participate in exchange sex, meaning they exchanged sex for money, drugs, shelter, food, or clothing [20–23].

Research to date has been limited, however, in that studies have made only gross comparisons between youth with and without foster care experience. Children's foster care experiences are heterogenous. Factors such as the number of foster care placements, age at first foster care placement, type of placement, and experience transitioning out of care vary greatly and affect outcomes for foster youth [24–27], yet research has not delved into how various aspects of the foster care experience may affect subsequent health outcomes.

Two manuscripts have explored the behavioral risk factors of former foster youth. One, a typology of homeless former foster youth [28], examined how a generated risk typology relates to substance use and sexual risk-taking during homelessness, finding that the risk behaviors demonstrated by many homeless youth are similarly shown by homeless former foster youth, and affect behavioral health outcomes. The other, a study of comorbid substance use and mental health disorders among homeless former foster youth, found that service utilization had positive benefits for homeless and former foster youth, but also that this population has difficulty accessing these services [29].

The primary limitation of the existing data is a lack of detail about children's foster care experiences. It remains unclear which aspects of foster care experiences may serve as risk or protective factors for HIV-risk behaviors, and the directionality of these relationships for foster youth who subsequently experience homelessness.

It is likely that the risk behaviors of homeless youth with a history of foster care are increased by both their homelessness and their foster care experiences. The purpose of the current study is to examine the aspects of foster care experiences that may impact HIV-risk behaviors, with the expectation that children's foster care experiences may positively or negatively affect their risk-taking behaviors. Understanding the relationships between foster care experiences and HIV-risk behaviors will provide needed information on risk and protective factors for this population so that future interventions can be adapted to meet the needs of homeless former foster youth.

Methods

Sampling

Data were collected from 184 homeless former foster youth at a drop-in center in Hollywood, California, using a cross-sectional convenience sample of youth utilizing services at the center. The risk behavior questionnaire used was modeled after the YouthNet Study, [e.g. 13, 20, 29, 30]. Foster care experiences were measured through qualitative interviews conducted from a sample of 20 homeless former foster youth in 2014 and includes quantitative measures of foster care experience. Data was collected during 2- to 4-week intervals, over three periods during the summers and winter of 2015–2016. A power analysis was conducted to determine the appropriate sample size. A sample of approximately 200 youth was deemed adequate given the types of analyses to be conducted.

The drop-in center provides assistance to homeless youth ages 14 to 26, and any client receiving services at the center during data collection periods was eligible to participate. During the data collection time period, recruiters approached youth during service provision hours. Youth new to the agency that ran the drop-in center completed the agency's intake process before beginning the study, to ensure they met the eligibility requirements for the agency (and thus the study). A consistent set of two research staff members were responsible for all recruitment to prevent youth from completing the survey multiple times within each data collection period. A total of 475 individual youth were approached for participation in the study. Of those, 38.7% were eligible and elected to participate. The majority of youth who did not participate were ineligible for participation due to a lack of foster care experience. Of those who were eligible, 17 (7.7%) declined participation, and among those who initially agreed to participate, 8 (4.34%) did not complete the survey.

Signed voluntary informed consent was obtained from participants who were ages 18 and older and informed assent was obtained from youth ages 14 to 17, with the caveats that child abuse and suicidal and homicidal intentions would be reported. The Institutional Review Board (IRB) at the University of Southern California waived parental consent, as homeless youth under 18 years are usually unaccompanied minors, without a parent or guardian. Interviewers participated in approximately 40 h of training, including lectures, role-playing activities, mock surveys, ethics training, and emergency procedures.

The study consisted of two parts: a computerized self-administered survey and a social network interview. The social network interview included questions about the people within the participant's social network, the roles that these people played in their lives, and the behaviors in which the people within their social network engaged. The data were collected using standard ego-centric network data collection methods (see e.g., [13, 20, 22]). For the purpose of this analysis, however, only data from the self-administered behavioral health survey were utilized. The self-administered survey included an audio-assisted version for those with low literacy, and both parts of the survey could be completed

in English or Spanish. All participants received $20 in gift cards as compensation for their time.

Measures

Sociodemographic Variables

Age, race, gender, and sexual orientation were measured through self-report. Age was calculated by coding the youths' reported birthdates into an age based on the date of their interview. Racial categories listed on the survey included American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian or Other API (Asian/Pacific Islander), White, Latino/Hispanic, and Mixed race. However, due to the low numbers of participants reporting as American Indian/Alaska Native, Asian, and Native Hawaiian or other API, these categories were coded into a single "other" category. For the purpose of the logistic regressions performed in this analysis, race was dichotomized into "Black/African American" and "all other races." Questions pertaining to gender included the options: male, female, transgender (male-to-female), and transgender (female-to-male). Due to the low number of transgender participants, all responses related to gender were coded into male or female, based on the gender with which participants identified. Variables pertaining to sexual orientation included: homosexual, queer, bisexual, heterosexual, questioning/unsure, as outlined in Table 1. Due to the response rates across the orientations, sexual orientation was coded as either "heterosexual" or "LGBTQ" for the regressions only. All demographic characteristics examined on the questionnaire were the same as those examined in the YouthNet Study [13, 20, 29, 30].

Table 1 Baseline demographics (n = 173)

	All youth (n = 173)		
	n (%)	Mean	SD
Age		21.99	1.95
Race			
American Indian/Alaska Native	8 (4.68)		
Asian	1 (0.58)		
Black or African American	81 (47.37)		
Native Hawaiian or other API	1 (0.58)		
White	22 (12.87)		
Latino/Hispanic	22 (12.87)		
Mixed Race	36 (21.05)		
Gender			
Male	117 (67.63)		
Female	48 (27.75)		
Transgender—male to female	7 (4.05)		
Transgender—female to male	1 (0.58)		
Sexual orientation			
Homosexual	14 (8.28)		
Queer	3 (1.78)		
Bisexual	26 (15.38)		
Heterosexual	119 (70.41)		
Questioning/unsure	7 (4.14)		

Foster Care Variables

Foster Care Demographics A number of foster care experience variables were chosen to describe basic experiences in foster care placements. Age at first foster care placement was measured on a 7-point scale, ranging from placement at birth through placement at age 17. Time spent in placement was measured on a 6-point scale, ranging from less than a year to 15 or more years. Age at exit from foster care was measured on a 4-point scale including categories for ages 5 and younger, ages 6 to 11, ages 12 to 17, and under 18 years old. Type of placement options included kinship care, foster care, group home, juvenile detention, psychiatric hospital, and camp. These options were not mutually exclusive, but meant to capture the range of placements that a person may have throughout their childhood. The options for reason for placement included: physical abuse, sexual abuse, neglect, parental drug problems, truancy, suicide attempt, personal drug use, parental psychiatric problems, placement at birth, and other. All foster care demographic questions were adapted from questions on the Foster Care Experiences Assessment in 2014.

Foster Care Housing Outcome The options listed for housing situation after transition out of foster care included: family, family of origin, adoptive family, transitional living facility, couch surfing, homelessness, independent living, shelter, jail, rehab, and foster family. Number of foster care placements was measured on a 5-point scale ranging from 1 to 2 placements, through 20 or more placements.

Perceptions of Foster Care Finally, participants were asked about their general feelings about foster care. Feelings of being supported and feelings of being respected were measured using a 5-point scale that included the options "never," "almost never," "sometimes," "almost always," and "always." For the purpose of the logistic regressions, the questions pertaining to feelings about placement were coded into three categories, to include low, medium, and high levels of support and respect. All foster care variables selected were chosen based on either their importance in the published literature or the frequency of their discussion during the qualitative interviews conducted in the current study.

Homelessness Variables

Basic information was collected regarding individuals' homelessness experiences including total time spent homeless measured in months and years and age at first homelessness. Timing of homelessness was asked to determine whether homelessness occurred before leaving foster care (before age 5, between 6 and 11 years old, between 12 and 18 years old) or after leaving foster care (as a minor, as an adult). The options for perceived cause of homelessness included: aging out of foster care, self-blame, disagreements with family/friends, kicked out of their house, lost a job/need a job, evicted, "lost my roommate and couldn't pay for rent", drug use, "I stopped trying", no foster care resources, no support system, by choice, "I made poor choices", needed transitional services, family problems from childhood. Time currently spent homeless was measured on a 6-point scale, ranging from less than a year to 14–18 years. Time spent homeless over the lifetime was measured on a 6-point scale ranging from less than a year to 11–13 years. Homelessness questions were taken from the YouthNet Study [13, 20, 29, 30].

HIV-Risk Behaviors

HIV-risk variables were selected from the YRBS [31], which have been tested for validity and reliability. Measures that were included in final models included a series of dichotomized variables such as ever having sex, condom use at last sexual encounter, drug use with sex at last sexual encounter, exchange sex over the lifetime, exchange sex over the last 3 months, condom use with exchange sex, injection drug use over the lifetime, injection drug use over the last 3 months, and ever having an STI test (other than HIV). HIV testing behavior was measured on a 3-point scale, with points for testing within the last 3 months, testing done between 3 and 6 months ago, testing done 6 or more months ago.

Analyses

One of the main objectives of this analysis is to explore the characteristics of homeless former foster youth as well as their HIV-risk behaviors, including condom use at last sexual encounter, drug use with sex at last sexual encounter, exchange sex over the lifetime, exchange sex over the last 3 months, condom use with exchange sex, injection drug use over the lifetime, injection drug use over the last 3 months, HIV testing behaviors, and ever having an STI test (other than HIV). Thus, a majority of the analyses included descriptive statistics of the wide variety of variables used to categorize this population. Beyond that, a series of logistic regressions were conducted for HIV-risk behaviors to determine if they are affected by foster care experiences, and for other models of HIV-risk behaviors that may be impacted by the timing of homelessness as it pertains to foster care transition. These models were built by the foster care and HIV-risk variables that were selected through a series of correlations conducted between related variables from the literature. All logistic regression models included controls for age, race, gender, and sexual orientation.

Model Specifics

For the foster care experience models, individual models were tested for time spent in foster care, number of foster care placements, and foster care exit age, each with a series of HIV-risk behaviors. These models controlled for age, race, gender, sexual orientation, feeling supported in foster care, and feeling respected in foster care. For the homelessness timing models, individual models were created for "first homelessness experience before foster care" and any HIV-risk behaviors that were significantly correlated. All foster care variables were chosen based on the prior literature's establishment of risk and protective factors associated with specific experiences, such as time spent in foster care, number of foster care placements, and age at exit from foster care. All analyses were conducted using SAS 9.3 [32]. Data were screened for missingness. Observations with missing data were removed from analyses. Data collection included 184 individuals, but the final sample for the analyses was 173, including only those youth who answered the questions for outcome variables; 11 youth did not answer all of the questions for outcome variables.

Results

Demographics

Basic demographic statistics were run for sociodemographic, foster care, homelessness, and HIV-risk behavior variables (Table 1). The average age of the participants was 21.11 years (SD = 1.95). The plurality of youth reported their race as Black/African American (47.37%), followed by Mixed race (21.05%). White and Latino youth represented 12.87% of the sample. The majority of youth reported being male (67.63%) and heterosexual (70.41%), with 15.38% reporting their sexual orientation as bisexual, and 8.28% as homosexual.

The majority of youth reported being placed in foster care between ages 14 and 17 (21.47%), ages 2–3 (20.25%) or ages 11–13 (17.79%) (Table 2). For time spent in the foster care system, 22.98% reported being placed for 15 or more years, and 20.50% reported being placed for less than a year. Over half of the participants (56.43%) reported transitioning out of care before age 18, with the next highest group being the

Table 2 Basic foster care demographics (n = 173)

	All youth (n = 173) n (%)
Age at placement	
At birth	23 (14.11)
Under 1	9 (5.52)
2–3 years old	33 (20.25)
4–6 years old	15 (9.20)
7–10 years old	19 (11.66)
11–13 years old	29 (17.79)
14–17 years old	35 (21.47)
Time spent in placement	
Less than 1 year	33 (20.50)
2–4 years	32 (19.88)
5–7 years	35 (21.74)
8–10 years	13 (8.07)
11–14 years	11 (6.83)
15 or more years	37 (22.98)
Age at exit from placement	
Under 18 years old	79 (56.43)
12–17 years old	37 (26.43)
6–11 years old	13 (9.29)
5 years old or younger	11 (7.86)
Housing after FC transition	
Family	26 (16.25)
Family of origin	28 (17.50)
Family/adoptive	13 (8.13)
Transitional living facility	19 (11.88)
Couch surfing	10 (6.25)
Homeless	28 (17.50)
Independent living	5 (3.13)
Shelter	6 (3.75)
Jail	10 (6.25)
Rehab	2 (1.25)
Foster family	13 (8.13)

Table 3 Basic foster care demographics (n = 173)

	All youth (n = 173) n (%)
Number of FC placements	
1 to 2	54 (33.54)
3 to 4	36 (22.36)
5 to 9	20 (12.42)
10+	26 (16.15)
20+	25 (15.53)
Type of placement	
Kinship	21 (13.21)
Foster home	104 (65.41)
Group home	21 (13.21)
Juvenile detention	5 (3.14)
Emergency shelter	6 (3.77)
Psychiatric hospital	1 (0.63)
Camp	1 (0.63)
Placement reason	
Physical abuse	52 (30.06)
Sexual abuse	25 (14.45)
Neglect	66 (38.15)
Parental drug problems	55 (31.79)
Truancy	18 (10.40)
Suicide attempt	5 (2.89)
Personal drug use	16 (9.25)
Parental psychiatric problems	29 (16.76)
Placed at birth	20 (11.56)
Other	23 (13.29)
Feelings about foster care	
Support	
Never	23 (14.29)
Almost never	23 (14.29)
Sometimes	27 (16.77)
Almost always	41 (25.47)
Always	47 (29.19)
Respect	
Never	25 (15.63)
Almost never	28 (17.50)
Sometimes	22 (13.75)
Almost always	43 (26.88)
Always	42 (26.25)

12- to 17-year-olds (26.43%). The housing situation immediately following transition from foster care varied widely, with 16.25% reporting living with family members, 17.50% reporting living with their family of origin, and 17.50% reporting immediate homelessness.

About one-third (33.54%) of the participants reported one or two out-of-home placements, and 22.36% reported three or four placements (Table 3). Still, 16.15% of participants reported 10 or more placements, and 15.53% reported 20 or more placements. The majority of participants reported spending time in foster homes (65.41%), with equal percentages of youth reporting placements in kinship care and group homes (13.21%). Regarding reasons for placement, youth indicated neglect (38.15%), parental drug problems (31.79%), and physical abuse (30.06%) as the reasons for placement in foster care. When asked about their feelings regarding foster care, the plurality of youth reported feeling always (29.19%) or almost always (25.47%) supported, and always (26.25%) or almost always (26.88%) respected.

On average, study participants had been homeless for 2.27 years on average (SD = 2.74), and their average age at first homeless experience was 16.52 years (Table 4). At

Table 4 Homelessness characteristics among former foster youth (= 173)

	All youth (n = 173)		
	n (%)	Mean	SD
Time homeless		2.27	2.74
Age at first homelessness		16.52	4
Do you consider yourself homeless	121 (73.33)		
First homeless experience			
Before leaving FC—before 5 years old	11 (7.28)		
Before leaving FC—6–11 years old	15 (9.93)		
Before leaving FC—12–18 years old	46 (30.46)		
After leaving FC—as a minor	22 (14.57)		
After leaving FC—as an adult	57 (37.75)		
Cause of your homelessness			
Aged out of foster care	44 (29.14)		
I blame myself	29 (19.21)		
Disagreements with family/friends	20 (13.25)		
Kicked out	21 (13.91)		
Lost a job/need a job	5 (3.31)		
Evicted	3 (1.99)		
Lost my roommate and cant pay rent	4 (2.65)		
Drugs	1 (0.66)		
I stopped trying	2 (1.32)		
No FC resources	4 (2.65)		
No support system	4 (2.65)		
By choice	1 (0.66)		
I made poor choices	2 (1.32)		
Needed transitional services	4 (2.65)		
Family problems from childhood	3 (1.99)		
Time homeless- current			
Less than 1 year	58 (38.67)		
1–2 years	31 (20.67)		
3–4 years	32 (21.33)		
5–7 years	23 (15.33)		
8–10 years	1 (0.67)		
11–13 years	3 (2.00)		
14–18 years	2 (1.33)		
Time homeless- lifetime			
Less than 1 year	30 (19.21)		
1–2 years	28 (18.30)		
3–4 years	41 (26.80)		
5–7 years	35 (22.88)		
8–10 years	6 (3.92)		
11–13 years	4 (2.61)		

the time of the interview, 73.33% of participants considered themselves homeless. Where first homeless experiences were concerned, 37.75% reported first becoming homeless after leaving foster care, and as an adult, while 30.46% reported their first homeless experience being before they left foster care at ages 12 to 18. They reported their causes of homelessness largely as a result of aging out of the foster care system (29.14%), followed by self-blame (19.21%), disagreements with family/friends (13.25%), and being kicked out (13.91%). The plurality of youth reported that they had currently been homeless for less than a year (38.67%), and that their time spent homeless over the course of their lifetime was 3 to 4 years (26.80%), followed by 5 to 7 years (22.88%).

Table 5 Sex risk variables among homeless former foster youth (n = 173)

	All youth (n = 173) n (%)
Ever had sex	153 (90.00)
Condom use—last sex	73 (47.71)
Drug use—last sex	63 (41.18)
Exchange sex—lifetime	40 (26.14)
Recent exchange sex	22 (50.00)
Condom use with exchange sex	16 (37.21)
Injection drug use—lifetime	25 (14.88)
Injection drug use—recent	14 (40.00)
Ever had HIV test	157 (90.75)
Last HIV test	
Last 3 months	106 (67.52)
3–6 months ago	39 (24.84)
6 + months ago	12 (7.64)
Ever had STI test (other than HIV)	49 (28.32)

The vast majority (90.00%) reported ever having sex, and just under half (47.71%) reported having used a condom at their last sexual encounter (Table 5). Among youth who reported ever having sex, 41.18% reported using drugs with sex at their last sexual encounter. For exchange sex, 26.14% reported ever engaging in exchange sex, with 50.00% of those participants reporting having engaged in exchange sex recently and 37.21% reporting using a condom with exchange sex. Among all participants, 90.75% reported ever having had an HIV test, with 67.52% of those youth reporting having had an HIV test in the last 3 months, and 24.84% reporting testing 3-6 months ago.

Logistic Regressions

For the final multivariable logistic regressions (Table 6), one-tailed tests were used, using the existing literature on risks associated with particular foster care placements. Youth were less likely to use condoms as the number of years in foster care increased (OR 0.44, CI 0.18, 1.08) and as their number of foster care placements increased (OR 0.51, CI 0.24, 1.09). Foster youth were less likely to engage

Table 6 Logistic regression models examining foster care experiences impacting HIV risk behaviors (n = 173)

Models	Condom use N = 173 OR (95% CI)	Condom use N = 173 OR (95% CI)	Injection drug use N = 173 OR (95% CI)	Drug use with sex N = 173 OR (95% CI)	Exchange sex N = 173 OR (95% CI)
Foster care experience models					
Age	1.09 (0.41, 2.87)	0.95 (0.24, 1.10)	0.82 (0.31, 2.18)		
Race	0.84 (0.55, 1.27)	0.85 (0.60, 1.22)	**0.63 (0.38, 1.04)***		
Gender	0.54 (0.21, 1.38)	**0.48 (0.21, 1.08)***	0.44 (0.14, 1.36)		
Sexual orientation	1.59 (0.61, 4.18)	1.58 (0.69, 3.66)	**4.53 (1.62, 12.72)*****		
Placement type	1.12 (0.66, 1.90)	1.29 (0.83, 0.99)	1.16 (0.73, 1.86)		
Feeling supported in foster care	1.25 (0.65, 2.37)	1.14 (0.66, 1.96)	1.01 (0.48, 2.12)		
Feeling respected in foster care	1.01 (0.55, 1.85)	0.99 (0.59, 1.68)	0.95 (0.47, 1.92)		
Model 1					
Time spent in foster care	**0.44 (0.18, 1.08)***				
Model 2					
Number of foster care placements		**0.51 (0.24, 1.09)***			
Model 3					
Foster care exit age			**0.25 (0.06, 1.04)***		
Homelessness with foster care predictor models					
Age				1.03 (0.51, 2.10)	**4.73 (0.81, 27.53)***
Race				**0.68 (0.48, 0.97)****	1.10 (0.55, 2.19)
Gender				0.69 (0.31, 1.53)	0.28 (0.06, 1.34)
Sexual orientation				**2.21 (0.97, 5.02)***	0.61 (0.13, 2.94)
Model 4 anD 5					
First Homelessness—before leaving foster care				**2.38 (1.18, 4.80)****	**10.25 (2.02, 51.95)*****

Bold values are statistically significant

*p < 0.05, **p < 0.01, ***p < 0.001

in injection drug use as their age of exit from foster care increased (OR 0.25, CI 0.06, 1.04), and participants whose first homeless experience occurred before leaving foster care were significantly more likely to engage in drug use with sex (OR 2.38, CI 1.18, 4.80) and exchange sex (OR 10.25, CI 2.02, 51.95) compared with participants whose first homeless experience was after leaving foster care.

Discussion

This examination led to a number of novel conclusions about homeless former foster youth. Among the current sample of youth in Los Angeles, the majority represent a non-White or mixed-race background who first experienced homelessness before adulthood. High percentages of participants reported extremely long periods of placement, homelessness upon transition out of foster care, or a first experience of homelessness while still in foster care. Previous research has established that outcomes for foster youth are impacted by time spent in placement and experiences of transition out of foster care, and that outcomes for foster youth of color are related to the impact of institutionalization, connectivity with positive, supportive adults, and racial disparities [24–26, 33]. Thus, on a purely descriptive level, the current results indicate that there are areas within the child welfare system that can and should be focused on, to impact outcomes for this population. While some of these issues require societal attention, change at the child welfare system can begin with an opening of the dialogue surrounding the prevalence of homelessness among foster youth, as well as the impact of long periods of time in placement.

The current results also indicate that a number of specific aspects of the foster care experience directly impact HIV-risk behaviors. Former foster youth reported low rates of recent condom use, comparable to research on other samples of homeless youth [34–36], however rates of engagement in exchange sex are higher than those of other homeless youth from similar samples [37], perhaps as a result of differences in trauma experiences or even in social network composition. Particularly where foster care experiences are concerned, the current results indicate that long periods spent in care, as were reported by a large percentage of youth in this sample, negatively impacts condom use. Conversely,

age at exit from foster care seems to serve as a protective factor, as older age of exit from foster care appears to serve a protective factor against engagement in injection drug use. Although time spent in foster care and age at exit from foster care may initially appear to be contradictory, these findings indicate that shorter placements in out-of-home care starting at an older age may protect against some HIV-risk behaviors, compared to a longer time spent in care starting at an earlier age. As other studies have found, these results may relate to the types of social network connections made during youth's time spent in foster care [38]. Finally, the timing of homelessness experiences provides some insight into risk factors for this population, with rates of both drug use with sex and engagement in exchange sex increased among youth who experience homelessness before they exit foster care.

Limitations

A number of limitations exist for the analyses conducted. First, the data represent a cross sectional analysis of homeless youth in Los Angeles; causality cannot be implied. Additionally, although the sample size was adequate for these regressions, few youth indicated that they had engaged in exchange sex. As a result, the regression results demonstrated a large confidence interval for the odds ratio, suggesting that the sample size for that variable was too small. Further, homeless youth in Los Angles do not necessarily represent the characteristics of youth across the country, and foster care experiences, while having many factors in common, do vary across counties and states. Thus, foster care experiences may have a considerable variation depending on their location. Additionally, while these analyses do include a wide range of experiences common to many former foster youth, in utilizing a sample of homeless youth, all of whom have experienced foster care, it is difficult to know which experiences may also be common among homeless youth without a history of foster care. To truly understand which experiences drive HIV-risk behaviors, homeless youth with and without a history of foster care would need to be compared. Finally, because this analysis was concerned with youths' perception of experiences, all data were gathered through self-report measures and therefore subject to a number of biases.

Conclusion

A number of implications emerge from these results. Services and interventions geared toward foster youth should be informed by the demographics these youth; they are largely youth of color, and largely minors or young adults who have had a range of foster care experiences. Services targeting HIV-risk behaviors should consider the impact that foster care placements may have on these behaviors, such as the risk factors associated with long periods of time spent in placement, or with experiencing homelessness before exiting foster care, and the protective factors associated with exiting from placement at an older age. Acknowledging these experiences, and addressing their risk and protective factors, may contribute toward tailoring interventions that better impact HIV-risk behaviors. While few risk behavior interventions have focused specifically on foster care experiences, studies such as iHeLP for substance use among transitioning foster youth [39] account for trauma experiences common to many foster youth. Results from this study could also inform studies examining the mechanisms for sexual health decision-making, such as condom use [40].

On a policy level, these results indicate that a number of aspects of foster care experience can be steered toward options that may reduce later risk behaviors. Working toward reducing overall time spent in foster care and experiences of homelessness during foster care may benefit the sexual health of these youth as they transition into adulthood. Changes in policies regarding time spent in foster care and exposure to homelessness during foster care require changes at the state and county levels regarding acceptable placement lengths and interventions for those youth who have experienced extremely long out-of-home-care settings that lack permanency, as well as those who are homeless while under state care. And better understanding the protective factors associated with exiting foster care at an older age—potentially including developmental milestones and independent living skills offered to older youth—could contribute to fostering positive transition outcomes. Although these results are only a start toward the understanding of the impact of foster care experiences on the lives of homeless youth, they suggest points of intervention within the child welfare system, and among homeless service providers, that may aid in reducing HIV-risk behaviors among homeless former foster youth.

Funding This study was funded by NIMH F31MH112251.

Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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