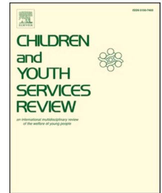
Children and Youth Services Review 119 (2020) 105676

Contents lists available at ScienceDirect

Children and Youth Services Review

journal homepage: www.elsevier.com/locate/childyouth



Educational attainment among young adults experiencing homelessness in seven cities across the United States

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A R T I C L E I N F O

Keywords:
Education
Educational achievement
Homelessness
Young adults

A B S T R A C T

Background: Although young adults experiencing homelessness (YEH) are at particular risk for lower educational attainment compared to their housed peers, limited research has explored the demographic and psychological factors associated with earning key educational milestones among YEH.
Objective: This study aims to answer the following research questions: *What levels of educational attainment are reported among YEH? What factors are associated with earning key educational milestones?* A better understanding of the asso3ciated risk factors may inform future educational interventions for YEH by ameliorating the barriers which have limited their educational success.
Methods: This study uses the Homeless Youth Risk and Resilience Survey (HYRRS) dataset, a seven-city sample of 1,426 YEH (aged 18–26) surveyed between June 2016 to July 2017 to study risk factors associated with educational attainment.
Results: Multinomial logistic regression was used to assess correlates of earning less than a GED. Foster care involvement, juvenile justice system involvement, CAGE score, and earlier-onset housing instability was associated with lower educational attainment (operationalized as earning less than a GED).
Conclusion: Findings indicate that interventions supporting YEH in educational systems must be multifaceted, addressing the myriad factors correlated with educational attainment.

1. Introduction

There are approximately 553,000 people experiencing homelessness on any given night in the United States (HUD, 2018), and young adults experiencing homelessness (YEH) are among the most vulnerable members of the homeless and unstably housed population (Rahman, Turner & Elbedour, 2015). One in 10 young adults ages 18–25 (approximately 3.5 million young adults total) report experiencing some form of homelessness over a 12-month period in the United States (Morton, Dworsky & Samuels, 2017).

YEH face many barriers to achieving traditional developmental milestones in comparison to their housed peers; among these barriers is educational attainment, such as completing high school, a General Educational Development (GED), or postsecondary education. As educational attainment is a traditional route to accessing financial capital such as employment, income, and financial stability (Hyman, Aubry, & Klodawsky, 2011; Josephson, 2018), YEH may thus be positioned to face a constellation of adverse life outcomes in addition to

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https://doi.org/10.1016/j.childyouth.2020.105676
Received 13 August 2020; Received in revised form 28 October 2020; Accepted 29 October 2020
Available online 10 November 2020
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enduring precarious or unstable housing.

Whereas ample research has explored the experiences of YEH in the K-12 context (Chow, Mistry, & Melchor, 2015; Grothaus, Lorelle, Anderson, & Knight, 2011; Havlik, Schultheis, Schneider, & Neason, 2016; Miller, 2011), research on the postsecondary experiences of YEH has focused primarily on the obstacles YEH face when entering higher education spaces (Chaplot, Cooper, Johnstone, & Karandjeff, 2015; Crutchfield, Chambers, & Duffield, 2016; Hallett, 2010; Huang, Fernandez, Rhoden, & Joseph, 2018). This study thus aims to understand both the levels of educational attainment among YEH, as well as the associations between risk factors and levels of educational attainment.

1.1. YEH in the United States

Young adults in the United States are classified as homeless if they have "no viable residence" (e.g., on the streets or in emergency shelters) or no stable residence (e.g., couch surfing on a temporary basis), or if they are not "in the custody of the State" (e.g. foster care; correctional institutions; Cauce et al., 2000, p. 231). Among the roughly one in 10 young adults aged 18–25 who experience homelessness over a 12-month period, around half are *couch surfing* and the other half experience *literal homelessness* – sleeping in cars, temporary structures, or on the streets (Morton, Dworsky & Samuels, 2017).

Young adults may become homeless or unstably housed for myriad, often intersecting, reasons. The predominant reason young adults become homeless is family conflict (National Center for Homeless Education, 2012). Young adults may also leave home because of sexual and/or physical abuse, family financial crisis, and unstable temporary housing, among other reasons (Barrett, 2019). Young adults who identify as lesbian, gay, bisexual, transgender, queer, and questioning (LGBTQ) are at particular risk for becoming homeless, often directly tied to family intolerance of their LGBTQ identity (Robinson, 2018). Although up to 10 percent of the overall young adults population identifies as LGBTQ, up to 40 percent of YEH identify as LGBTQ (True Colors Fund, 2019). Furthermore, LGBTQ young adults of color are most represented among LGBTQ young adults accessing homelessness services (Choi, Wilson, Shelton, & Gates, 2015). YEH thus often exist at the intersection of multiple marginalized identities in addition to experiencing housing instability.

1.2. Educational experiences of YEH

Educational systems track how many students report experiencing homelessness over the course of a school year. During the 2017–2018 academic year, 1,504,544 students experiencing homelessness were reported across the U.S. K-12 public school system (National Center for Homeless Education, 2020); this number has reportedly increased by about 70 percent in the past ten years (National Center for Homeless Education, 2019). The number of unaccompanied YEH (those under 18 and not in the physical custody of a parent or guardian) increased by about 25 percent between 2016 and 2017, representing five to 13 percent of the total population of K-12 students experiencing homelessness in 2017 (varying by state) (National Center for Homeless Education, 2019). This number is likely an underestimate, as it does not include students experiencing homelessness during the summer, students who drop out of school, or students who do not report their homelessness or housing instability to school officials.

The McKinney-Vento Act (U.S. Department of Education, 2003) promises educational access and supports to YEH in the U.S. enrolled in K-12 education. The act mandates that supports such as transportation are afforded to all students. The act also offers students the right to either (a) stay in a school if a family or student moves out of the district due to unstable housing, or (b) attend a school in a district where a student is living without a permanent address (National Center for Homeless Education, 2019).

Prior research has explored the complex experiences of YEH across K-12 educational landscapes. Schools have been established as a key source of social support for YEH (Chow, Mistry, & Melchor, 2015), as well as a bridge toward social capital (Miller, 2011). Schools play an instrumental role in meeting many needs of YEH, such as academic support and transportation (Grothaus, Lorelle, Anderson, & Knight, 2011; Hallett, Skrla, & Low, 2015). Yet, there are numerous barriers in meeting the needs of many homeless and unstably housed students, including shame and stigma in being seen as homeless (Kidd, 2007), low disclosure rates of homeless or unstably housed status (Ausikaitis et al., 2015), and limited awareness of the McKinney-Vento supports available (Aviles, 2017). One of the overwhelming stressors YEH face in K-12 settings is transience. On average, over 40% of YEH attend two or more schools per year (Rahman et al., 2015); each time a student transfers schools, they must adapt to a new school environment. Overall, homelessness, more than any other risk factor, impacts high school completion rates and may lead to young adults not earning key educational milestones such as a high school diploma, GED, or college degree. YEH are 87% more likely to stop going to school than their housed peers (Hynes, 2014).

The McKinney-Vento Act (U.S. Department of Education, 2003) does not extend support to students beyond twelfth grade. Thus, YEH who seek postsecondary education opportunities are largely unsupported by formal policies. YEH, therefore, face a myriad of obstacles when entering higher education spaces: general financial insecurity (Chaplot et al., 2015), "hoops" to jump through to access financial aid (Crutchfield, Chambers, & Duffield, 2016), and present or imminent residential instability (Hallett, 2010; Skobba, Meyers, & Tiller, 2018).

Homelessness among college students is a growing trend (Ellis, 2013); Free Application for Federal Student Aid (FAFSA) estimated that 58,000 students experienced homelessness on campuses across the nation (Gross, 2013). However, it is not mandatory for colleges to keep track of students experiencing homelessness; therefore, accurate prevalence rates are lacking. Furthermore, this rate is likely an underrepresentation as students may underreport their homelessness status due to fear of being stereotyped and unmerited consequences (Paden, 2012). Flaws in policies related to jobs, affordable housing, and affordable education increase the risk factors for students who have financial and housing vulnerability to become or remain homeless during school (Ringer, 2015). Institutional interventions and prevention efforts are thus needed to alleviate the risk factors and consequences of homelessness among college students to increase educational attainment.

1.3. Educational attainment in the United States

Educational attainment is associated with better earning potential in the United States. In 2018, the U.S. Department of Education reported that median earnings of those with a master's degree or higher ($65,000) were 19% higher than the earnings of those with a bachelor's degree ($54,700), and the median earnings of those with a bachelor's degree were 57% higher than the earnings of one who completed high school ($34,900) (National Center for Education Statistics, 2020). These values illustrate that earning higher educational attainment is associated with higher earning potential.

Educational attainment also has significant implications for employability. In 2018, the unemployment rate for individuals with less than a high school diploma was 8%, compared with 5.4% for those who graduated from high school (Josephson, 2018). Individuals who attended some college but did not earn a degree had an unemployment rate of 5%, compared with 3.8% for those who earned an associate degree, 2.8% among graduates with a bachelor's degree, and 2.4% for graduates with master's degrees (Josephson, 2018). While rates go up and down the differences by education level persists. Unsurprisingly, individuals who have not earned a college degree often have fewer employment opportunities. This, in turn impacts their ability to earn a livable wage and maintain stable housing.

Whereas many YEH can harness the necessary supports and social

capital necessary to achieve traditional educational milestones (Skobba, Meyers, & Tiller, 2018), prior research suggests a strong negative correlation between experiencing youth homelessness and educational attainment (Duffield and Lovell 2008; Levin, Belfield, Muennig, & Rouse, 2007; Rahman et al., 2015). Thus, YEH are at a marked disadvantage when projecting their earning potential and employability in the long-term. However, limited research has explored the specific risk factors associated with lower educational attainment among YEH.

Young people experiencing homelessness who identify as a person of color, gender minority, or who have system involvement (foster care and juvenile justice) are disproportionately impacted by low levels of educational attainment (Burley & Halpern, 2001; Cavendish, 2014; Sweeten, 2006; National Center for Education Statistics, 2019; Wilkinson, Pearson & Liu, 2018). LGBTQ YEH experience harassment and oppression in school settings (Kosciw, Greytak, Bartkiewicz, Boesen & Palmer, 2012; Wilkinson, Pearson & Liu, 2018), which may in turn lead to these students feeling unsafe and missing classes or days of school because of safety concerns. The impact of a hostile school climate may lead to lower educational attainment and poor psychological well-being (Kosciw et al., 2012).

Participants' race/ethnicity are related to patterns of educational attainment. National statistics show that Black adults are almost twice as likely to drop out of high school compared to White adults (National Center for Education Statistics, 2019). More so, Latinx young adults are also disproportionately impacted by high rates of school dropout compared to other ethnicities (National Center for Education Statistics, 2019). Youth of color may be treated differently while they are in school settings; for example, Lopez (2003) examined the intersection of race and gender among Caribbean students in New York City schools, finding that both males and females were singled out due to their minority status and that male students were often targeted for stricter punishments in schools and placed in lower educational tracks.

Young people involved in foster care and juvenile justice systems are less likely to earn a high school or college degree (Burley & Halpern, 2001; Cavendish, 2014; Sweeten, 2006). Studies show that young people who are in juvenile justice may be stigmatized and labeled in school, making it harder for these students to find social support in school systems, thus leading to poorer educational outcomes (Sweeten, 2006). Furthermore, barriers foster care involved students face make it that much harder to find success in school. Previous work on foster care involved young people found that foster care involved students were on average, 15 to 20 percentile points below non-foster care involved students in statewide achievement tests; more so, twice as many foster care involved students had repeated a grade, changed schools during the year or been in special educational program compared to non-foster care involved students (Burley & Halpern, 2001).

1.4. Emerging adulthood theory

Navigating the transition from adolescence to adulthood is difficult regardless of housing and identity status. Often referred to as "emerging adulthood" (Arnett, 2000; 2007) the ages of 18–25 are characterized by identity exploration, self-focus, and feeling "in-between." Many emerging adults explore newfound independence in this period while still relying on family support for certain basic needs (Arnett, 2004). Yet, emerging adults experiencing homelessness and housing instability may experience particular stress in this developmental stage. They may be thrust into sudden responsibilities such as independent living, autonomous housing, and financial self-sufficiency (Thompson et al., 2016) while experiencing "social estrangement" from families, as well as other adults such as teachers and mentors (Grigsby, Baumann, Gregorich, & Cynthia, 1990).

A variety of psychological, developmental, and sociological factors may further exacerbate disruptions in meeting developmental milestones, including educational milestones, in young and emerging adulthood (Park, Kim, Kim, & Sung, 2007; Skobba, Meyers, & Tiller, 2018). Research suggests that alcohol use during adolescence is associated with lower educational attainment (Staff, Patrick, Loken, & Maggs, 2008), as are trauma, abuse, stress (Prasad, Swank, & Ewing-Cobbs, 2017), juvenile justice system involvement (Sweeten, 2006; Cavendish, 2014), and foster care involvement (Burley & Halpern, 2001). As each of these experiences may intersect with housing instability, YEH may be at particular risk for lower educational attainment in comparison with their housed peers.

While YEH demonstrate remarkable resilience in harnessing individual and social coping strategies (Thompson et al., 2016), coping without family or other supports may exacerbate harm, such as victimization, and substance abuse (Bender, Brown, Thompson, Ferguson & Langenderfer, 2015; Heinze, Jozefowicz & Toro, 2010). For these and other reasons, YEH may face considerable barriers in their efforts to succeed along conventional developmental pathways, such as meeting key educational milestones.

1.5. Present study aims

Since meeting key educational milestones is strongly linked with positive income and employment outcomes, it is critical to identify the risk factors associated with earning key educational milestones among YEH. Studies which have previously explored educational attainment among YEH have largely been conducted in singular geographic regions or have been drawn from small sample sizes (Duffield and Lovell 2008; Levin, Belfield, Muennig, & Rouse, 2007; Rahman et al., 2015). The present study thus builds upon prior research to understand educational attainment levels and factors associated with earning key educational milestones among a diverse sample of YEH across seven U.S. cities.

Previous research has shown that transience has been associated with negative mental health outcomes and high rates of substance use (Bender, Ferguson, Thompson, Komlo, & Pollio, 2010; Brown, Goodman, Guzman, Tieu, Ponath & Kushel, 2016; Ferguson, Bender, & Thompson, 2015). Thus, this study explores the role of transience in association with key educational attainment outcomes, alongside other factors which have been known to disrupt educational milestone attainment such as substance use, adverse childhood experiences, and foster care and juvenile justice system involvement.

Research shows that many YEH want to obtain key educational milestones (Rahman et al., 2015), yet there are a number of factors which may limit their educational attainment. This study thus aims to answer the following research questions: *What levels of educational attainment are reported among YEH? What factors are associated with earning key educational milestones?* A better understanding of the associated risk factors may inform future educational interventions for YEH by ameliorating the barriers which have limited their educational success.

2. Methods

2.1. Study design

Interdisciplinary researchers from the United States developed a national Research, Education and Advocacy Co-Lab for Youth Stability and Thriving (REALYST) to examine risk and resilience characteristics of YEH (ages 18–26) across seven cities (Los Angeles, San Jose, Phoenix, St. Louis, Denver, Houston, and New York City) in 2016–2017. A cross-sectional study design and purposive sampling was utilized to recruit 200 English-speaking YEH in each city (aged 18–26) from those seeking services at host agencies. Participating agencies were multi-service, non-profit organizations that offer homeless, runaway, and at-risk young adults a comprehensive system of care including street outreach, drop-in services, emergency shelter, and transitional housing. Sites sampled from different service outlets to capture the variation in experiences and demographics of young adults accessing different types of services. Institutional Review Boards (IRBs) at each of the six institutions

approved each site's study procedures.

2.2. Sample and recruitment

A standardized protocol for recruiting and screening potential research participants was used across the seven research sites. The eligibility screener assessed if young adults were within the required age range (18–26) and whether they were experiencing homelessness or unstable housing, defined as spending the prior night in a shelter, an apartment provided through a temporary housing voucher, on the streets, in a location not meant for human habitation, or staying temporarily with friends, acquaintances, or family where they could not stay for more than 30 days. Verbal informed consent was obtained from eligible participants.

2.3. Data collection procedures

Data were collected using tablets and laptops to deliver a self-administered electronic anonymous survey, the Homeless Youth Risk and Resilience Survey (HYRRS), through a shared data collection protocol across all study sites. Once youth provided consent, youth selected and entered an anonymous person-identification-code, which they entered into the tablet. This procedure enabled researchers to track and remove duplicates across data collection sites. Next, the young adult completed the Rapid Estimate of Adult Literacy in Medicine – short form (REALM-SF) screener (Murphy, Davis, Long, Jackson & Decker, 1993) for health literacy which was modified to reflect topics, phrases, and words that would come up in the survey (e.g., education, knowledge, substances). If a young person scored 1–3 (out of 9) on the REALM-SF they were encouraged to have the survey read aloud to them by a research assistant in a private setting. Those with scores higher than 3 were offered to complete the self-administered survey independently on the tablet. Study staff were available to assist all participants as needed throughout the survey implementation. However, the survey was designed to be fully self-administered to reduce social desirability of face-to-face disclosure of sensitive information (Phillips, Gomez, Boily & Garnett, 2010). The survey took approximately 45 min to complete. Participants were given a $20 to $25 gift card for a local grocery store or restaurant.

2.4. Demographics

The HYRRS asked about sociodemographic characteristics such as age of participant. Gender was measured as male, female, transgender male/trans man/ female-to-male (FTM), transgender female/trans woman/male-to-female (MTF), genderqueer, neither exclusively male or female, additional gender category/(or Other), decline to answer. For analysis, gender was recoded into three categories (male, female, gender minority). Sexual orientation was originally measured by five categories (Gay or Lesbian; Straight, that is, not gay; Bisexual; Something else; and I don't know/Questioning). For analysis, sexual orientation was recoded into two categories (heterosexual, not heterosexual). Ethnicity was originally categorized by seven categories (White or Caucasian (not Hispanic or Latino); Black or African American (not Hispanic or Latino); Hispanic or Latino; American Indian; Asian or Pacific Islander; Multi-Racial/Mixed-Race; Other). For analysis, ethnicity was recoded into five categories (White, Black, Latinx, other, and mixed race). The survey then asked the participant their age at the first time they became homeless/unstably housed.

2.5. Educational attainment

Educational attainment (dependent variable) was assessed by asking participants about their highest level of education achieved, including: 1 = none or less than high school degree, 2 = GED, 3 = high school diploma, 4 = one to three semesters of college, 5 = Associates (AA) degree, 6 = Bachelor's BA/BS degree, 7 = graduate degree). For ease in analysis, educational attainment was recoded into four categories (1 = no key educational milestone (none or less than a high school degree), 2 = GED, 3 = high school diploma, and 4 = some college or more).

2.6. System experience

The survey also measured a series of system involvement experiences via youth self-report, including whether the young adult reported any previous foster care experience (0 = *no,* 1 = *yes*) or juvenile justice experience (0 = *no,* 1 = *yes*). A new variable was then created combining foster care and juvenile justice involvement (1 = *yes*, 0 = *no*).

2.7. Substance use problem

Problematic substance use was measured by using the CAGE (i.e., Cut down, Annoyed, Guilty, and Eye-opener) substance abuse screening tool, (Ewing, 1984; Mayfield, McLeod, & Hall, 1974). The questions were modified slightly to also include drug use. This measure included the following four no (0)/yes (1) questions: "Have people annoyed you by criticizing your drinking or drug use?" "Have you ever felt that you ought to cut down on your drinking or drug use?" "Have you ever felt bad or guilty about your drinking or drug use?" "Have you ever had a drink or used drugs first thing in the morning to steady your nerves or to get rid of a hangover or to start the day right?" CAGE scores were added to create a composite score which ranged from 1 to 4, with higher scores representing greater alcohol and/or drug use. The total CAGE score was used in analysis.

2.8. Mental health

Mental health was assessed by asking participants if they had ever been told by a doctor or mental health provider if they had any of the following six different mental health problems- Attention-deficit/hyperactivity disorder (ADHD), Depression, Bipolar Disorder, Schizophrenia, post-traumatic stress disorder (PTSD), Conduct Disorder or Oppositional Defiant Disorder. Mental health was then recoded if a participant answered 1 = yes to any of the above it was recoded (0 = *no,* 1 = *yes).*

2.9. Adverse childhood experiences

The Adverse Childhood Experiences Scale (ACES; Felitti et al, 1998; Larkin & Park, 2012) included 10 items (each coded 0 = *no,* 1 = *yes*) to reflect young adult's experiences with childhood trauma and stress, including abuse (i.e. sexual, emotional, and physical), neglect (i.e., physical and emotional) and household challenges (i.e., mother treated violently, mental illness, incarcerated caretakers, household substance abuse, parental separation/divorce) experienced during the first 18 years of life. A composite score was created for each participant by adding the 10 dichotomous ACE variables. Scores range from 0 to 10, with higher scores reflecting a greater number of reported ACE occurrences. The total score was used in analysis.

2.10. Transience

The survey assessed transience by asking participants about the moves they had made since first becoming unstably housed or homeless, the interviewer then counted the total number of moves and entered the sum. The sum of the total number of moves was used in analysis.

2.11. Analytic approach

Data analysis was conducted using SPSS (version 25). First, a series of descriptive analyses were conducted to describe sample characteristics in terms of educational attainment as well as all independent

variables. The sample characteristics were described for the full sample and for each educational attainment subgroup. Bivariate analyses (ANOVA or chi square) were first conducted to examine relationships between all independent variables and the dependent variable, educational attainment. Any variables that were significantly associated at the bivariate level with the outcome at $p < .05$ were retained in the multinomial logistic regression model. Multinomial logistic regression analysis was then conducted by regressing the 4-category educational attainment dependent variable on the independent variables. The dependent variable in this model included four categories (1 = no key educational milestone (none or less than a high school degree), 2 = GED, 3 = high school diploma, and 4 = some college or more). The regression model examined the likelihood of being in the GED, high school diploma, or some college group compared to the no key educational milestone group in relation to independent variables. All independent variables significantly related to educational attainment at the bivariate level were entered into the regression model. As a result, in the multinomial regression model, the educational attainment dependent variable (reference category = no key educational milestone) was regressed on age first homeless, race/ethnicity, gender, system involvement, CAGE score, and total ACEs experienced. No key educational milestone was selected as the reference category in order to be able to identify associations between obtaining specific educational milestones (GED, high school graduation, attending college). To fully explore the relationships between the dependent variable (educational attainment) and independent variables, post hoc analyses were conducted by changing the reference category for the dependent variable and rerunning regression models.

3. Results

3.1. Sample characteristics

As seen in Table 1, most participants identified as Black (37.3%), cisgender (92.4%), and heterosexual (71.6%); with the mean age of 20.9 years (SD = 2.1). Furthermore, 38.9% of participants had a history of foster care involvement, 36.2% a history of juvenile justice involvement, and 18.3% had a history of both foster care and juvenile justice involvement. Regarding mental health, trauma and substance abuse, the mean score of substance use was 1.18 (SD = 1.44), the mean ACE score was 4.6 (SD = 2.99), and 61.4% of participants reported having been diagnosed with a mental illness at some point in their lives.

Table 1
Descriptive Characteristics and Differences Between No Educational Attainment, GED, High School Diploma, and Some College Groups (N = 1,426).

			Educational attainment				
		Total sample (N = 1426)	*No milestone*	*GED*	*High school*	*Some college*	*F or x^2 (df)*
		N(%)	439(30.9)	211(14.9)	528(37.2)	241(17)	
Age *(M, SD)*		20.88(2.09)	21.47 (2.05)	21.05 (2.12)	20.31 (1.95)	20.95 (2.09)	26.87*** (3)
Gender							21.49** (6)
	Male	833(58.5)	246(56.3)	145(68.7)	307(58.1)	131(54.4)	
	Female	483(33.9)	167(38.2)	53(25.1)	180(34.1)	81(33.6)	
	Gender minority	107(7.5)	24(5.5)	13(6.2)	41(7.8)	29(12)	
Sexual orientation							4.64 (3)
	Heterosexual	1018(71.6)	317(72.5)	153(72.5)	385(72.9)	158(65.8)	
	Not heterosexual	404(28.4)	120(27.5)	58(27.5)	143(27.1)	82(34.2)	
Ethnicity							48.28*** (12)
	White	270(19)	84(19.1)	49(23.2)	78(14.8)	58(24.1)	
	Black	531(37.3)	144(32.8)	76(36)	227(43.1)	81(33.6)	
	Latinx	247(17.3)	107(24.4)	32(15.2)	78(14.8)	28(11.6)	
	Other	145(10.2)	42(9.6)	22(10.4)	45(8.5)	36(14.9)	
	Mixed	231(16.2)	62(14.1)	32(15.2)	99(18.8)	38(15.8)	
Study Site							43.03** (18)
	Los Angeles	215(15.1)	57(13)	22(10.4)	86(16.3)	49(20.3)	
	Denver	208(14.6)	60(13.7)	42(19.9)	73(13.8)	32(13.3)	
	Houston	202(14.2)	57(13)	27(12.8)	91(17.2)	27(11.2)	
	New York	198(13.9)	65(14.8)	30(14.2)	73(13.8)	29(12)	
	Phoenix	208(14.6)	73(16.6)	31(14.7)	55(10.4)	48(19.9)	
	San Jose	197(13.8)	73(16.6)	26(12.3)	64(12.1)	32(13.3)	
	St. Louis	198(13.9)	54(12.3)	33(15.6)	86(16.3)	24(10)	
System Involvement							
	Foster care involvement (yes = 1)	553(38.9)	191(43.5)	78(37)	210(39.8)	74(30.7)	11.22* (3)
	Juvenile justice involvement (yes = 1)	515(36.2)	200(45.6)	91(43.1)	153(29.1)	71(29.5)	37.22*** (3)
	Both foster care and juvenile justice involvement (yes = 1)	261(18.3)	104(23.7)	42(19.9)	84(15.9)	31(12.9)	15.61** (3)
Substance use							
	Sum CAGE *(M,SD)*	1.18(1.44)	1.38(1.45)	1.06(1.39)	1.03(1.39)	1.22(1.54)	5.33** (3)
Mental health							
	Ever had mental illness (yes = 1)	848(61.4)	271(64.4)	123(60.3)	315(60.9)	137(58.3)	2.68 (3)
	Number of ACES experienced *(M, SD)*	4.6(2.99)	4.75(2.99)	4.62(2.96)	4.28(3.01)	5.05(2.89)	4.08**(3)
Transience							
	Number of moves *(M, SD)*	6.52(48.15)	7.78 (52.98)	3.56(5.40)	5.53 (44.33)	9.14 (65.53)	0.67 (3)
	Age of first homelessness *(M, SD)*	17.28(3.75)	16.46 (3.73)	17.45 (3.74)	17.43 (3.59)	18.3(3.85)	13.71*** (3)

Note: Mean and SD for each education category.
*$p < .05$. **$p < .01$ *** $p < .001$.

3.2. Aim 1: What levels of educational attainment are reported among YEH?

Regarding the research question *what levels of educational attainment are reported among YEH?,* 30.9% reported less than GED or high school diploma (no key educational milestone), 14.9% had earned a GED, 37.2% had earned a high school degree, 1.6% had earned an associate's degree, 14.2% had attended one to three semesters of college, 0.6% had earned a Bachelor's degree, and 0.5% had earned a graduate degree.

3.3. Aim 2: What factors are associated with earning key educational milestones?

3.3.1. Group differences

At the bivariate level (see Table 1), educational attainment was significantly ($p < .05$) associated with age, gender, race/ethnicity, data collection city site, foster care involvement, juvenile justice involvement, both foster care and juvenile justice involvement, CAGE score, number of ACES experienced, and age first homeless. These bivariate analyses were used to identify variables to include in the multivariable model.

3.3.2. Multivariable model

Results from the multinomial logistic regression analysis regressing the 4-category educational attainment variable on independent variables significant at the bivariate level are presented in Table 2. The final model fit was good, Model $x^2(60) = 188.10$, $p < .001$ Nagelkerke = 0.14.

Several demographic factors were associated with educational attainment. Results show that for every year older a young person was when they became homeless, they had increased odds of attaining a GED (OR = 1.07 $p < .01$), high school diploma (OR = 1.06, $p < .01$), or some college (OR = 1.15, $p < .001$) as opposed to no key educational milestone. In terms of race/ethnicity, young adults who identified as Mixed-race and Black (compared to White) were more likely to earn a high school degree (OR = 1.87, $p < .05$; OR = 1.60, $p < .05$ respectively) and Latinx young adults were less likely (compared to White young adults) to have attained a GED (OR = 0.52, $p < .05$) and some college (OR = 0.36, $p < .01$). Whereas no gender differences were significant in predicting GED or high school attainment, results showed that YEH who identified as cisgender male and female were approximately 50% less likely (relative to gender minority peers) to have attended some college (as opposed to no key educational milestone; (OR = 0.45, $P < .05$; OR = 0.42, $p < .05$). Although significant at the bivariate level, city site was not significantly associated with educational attainment.

System-level factors were associated with educational attainment. Results showed that involvement in systems was not related to achieving a GED, but YEH who had been involved in both juvenile justice and foster care involvement were less likely than their peers (with no system involvement) to attain their high school degree (OR = 0.63, $p < .01$) and less likely to have attended some college (OR = 0.49, $p < .01$).

Several behavioral health factors were associated with educational attainment. CAGE score was significantly associated with educational attainment. Results show that scoring 4 on the CAGE (indicating clinically significant substance abuse problem), when compared to young adults who scored 0 (no indication of substance abuse problem) resulted in less likelihood of earning a GED (OR = 0.51, $p < .05$) and high school diploma (OR = 0.46, $p < .01$) as opposed to having not earned any key educational milestones. Results show that scoring a 1 or 2 on the CAGE, when compared to young adults who scored 0 resulted in less likelihood of earning a GED (OR = 0.44, $p < .01$), high school diploma (OR = 0.49, $p < .001$) (OR = 0.45, $p < .001$) and some college (OR = 0.47, $p < .01$) (OR = 0.42, $p < .01$) as opposed to not having earned key educational milestones. These results show that scoring higher than a 0 on the CAGE, has a negative impact on educational attainment at all levels. Results also show that ACE score was significantly associated with earning some college. For every one-unit increase in ACE score, participants had increased odds of earning some college (OR = 1.07, $p < .05$) as opposed to not having earned key educational milestones.

Post hoc analyses, changing the reference category in the dependent variable, found largely the same significance trends as the original model, with a few deviations highlighting primarily data collection site-level differences. When the reference category was changed to some

Table 2
Multinomial Logistic Regression Assessing Associations with Educational Attainment.

Factors		Educational Attainment					
		GED		High School		Some College	
		OR	95% CI	OR	95% CI	OR	95% CI
Age first became homeless		1.07**	1.01–1.12	1.06**	1.03–1.10	1.15***	1.09–1.22
Race/Ethnicity	Mixed	1.02	0.57–1.84	1.87*	1.16–3.02	0.83	0.47–1.48
	Black	0.99	0.59–1.64	1.60*	1.05–2.44	0.93	0.57–1.53
	Latinx	0.52*	0.29-0.95	0.83	0.52–1.33	0.36**	0.19-0.65
	Other	0.91	0.47–1.77	1.05	0.60–1.84	1.11	0.6–2.05
Gender	Male	0.91	0.43–1.96	0.71	0.39–1.31	0.45*	0.23–0.88
	Female	0.47	0.21–1.05	0.60	0.32–1.12	0.42*	0.21-0.84
System Involvement	Juvenile Justice	1.05	0.73–1.52	1.15	0.86–1.54	0.90	0.62–1.3
	Foster Care	1.02	0.72–1.46	0.78	0.59–1.03	0.70	0.48–1
	Foster Care and Juvenile Justice	0.81	0.53–1.24	0.63**	0.44-0.89	0.49**	0.31-0.79
Sites	LA	0.62	0.32–1.2	1.28	0.77–2.14	1.48	0.79–2.78
	St. Louis	1.14	0.59–2.19	1.23	0.71–2.12	0.98	0.48–2.02
	Houston	0.84	0.44–1.6	1.21	0.72–2.05	0.95	0.48–1.89
	New York	0.94	0.49–1.82	0.96	0.56–1.66	1.00	0.5–2.01
	Phoenix	0.67	0.37–1.23	0.62	0.37–1.04	1.11	0.61–2.04
	San Jose	0.70	0.36–1.33	0.86	0.51–1.46	1.01	0.52–1.97
CAGE score	1	0.44**	0.26-0.76	0.49***	0.33–0.73	0.47**	0.28-0.81
	2	0.65	0.39–1.09	0.45***	0.29-0.69	0.42**	0.24-0.74
	3	0.58	0.32–1.04	0.69	0.45–1.09	0.65	0.37–1.16
	4	0.51*	0.28-0.92	0.46**	0.29–0.72	0.87	0.52–1.47
Total ACES		1.01	0.95–1.08	0.97	0.92–1.01	1.07*	1–1.13
Model $x^2(60) = 188.10$, $p < .001$ Nagelkerke = 0.14							

Note. Reference category for Educational attainment: No key educational milestone; for Race/ethnicity: White; for Gender: Gender minority; for Site: Denver; for CAGE score = 4.
Note. OR = Odds Ratio; 95% CI = 95% confidence interval.
$^*p < .05$. $^{**}p < .01$ $^{***}p < .001$.

college, Los Angeles (OR = 0.42, $p < .05$) was associated with less likelihood of earning a GED and Phoenix (OR = 0.54, $p < .05$) was associated with less likelihood of earning a high school diploma as opposed to having earned some college. When the reference category was GED, Los Angeles (OR = 2.01, $p < .05$) was associated with greater likelihood of earning a high school degree and some college (OR = 2.37, $p < .05$) as opposed to having earned a GED. When the reference category was changed to high school degree, Los Angeles (OR = 0.49, $p < .05$) was associated with less likelihood of earning a GED and Phoenix (OR = 1.85, $p < .05$) was associated with greater likelihood of earning some college as opposed to having earned a high school degree.

4. Discussion

This study aimed to answer two research questions: *(1) What levels of educational attainment are reported among YEH? (2) What factors are associated with earning key educational milestones?* Using a large and more geographically diverse sample than previous research in this area, our study found that nearly one-third of young adults reported having attained *no* educational milestones. This rate is significantly higher than the national rate of 5.4% (National Center for Education Statistics, 2019) and is of concern given evidence that earning potential is quite low without a high school degree (Ausikaitis et al., 2015). More so, given that forty percent of the sample identified as Black, supporting Black-identified students should be a particular focus for programs seeking to increase education retention.

As expected, our findings confirm that participants involved in both the foster care and juvenile justice systems, were less likely to earn a high school or college degree, as were participants who reported any substance use problems (Bender, et al., 2015; Brown, et al., 2016; Burley & Halpern, 2001; Cavendish, 2014; Ferguson, et al., 2015; Staff et al., 2008; Sweeten, 2006). We were surprised to find that participants who reported having any ACEs were more likely to have some college education, as prior research has found a negative correlation between trauma exposure and educational attainment (Prasad, et al., 2017). It perhaps infers that young adults who have experienced more childhood adversity may have developed resiliency which fosters success in accessing higher levels of educational attainment. Further research is needed to understand the unique associations between trauma exposure and educational attainment.

Although our research did not find that the number of moves was significantly associated with educational attainment, young adults who became homeless at later ages were more likely to earn any key educational milestones compared to young adults who became homeless at younger ages. This finding is consistent with prior research demonstrating that early homelessness is associated with adverse life experiences (i.e., mental health and substance use problems, imprisonment) and lower levels of adult milestones (i.e., marriage/partnership, and full-time employment) compared to individuals who became homeless at later ages (Brown, Goodman, Guzman, Tieu, Ponath & Kushel, 2016). Prior research has also shown that transience between school settings disrupts educational progress (Rahman, et al., 2015) and that YEH are 87% more likely to stop going to school than their housed peers (Hynes, 2014). This finding suggests that becoming homeless at a younger age may serve as a disruptor in early school experiences in addition to setting the stage for future disrupted or halted educational experiences.

While extant research has documented the myriad axes of marginalization and oppression that LGBTQ YEH experience in school settings (Kosciw et al., 2012; Wilkinson, Pearson & Liu, 2018), our findings tell a more nuanced story: gender minority participants were *more* likely to have some college education than their cisgender counterparts. As gender minority youth are likely to experience early bullying, victimization, and harsh disciplinary practices in their early educational experiences in comparison to their cisgender peers (Palmer & Greytak, 2017; True Colors Fund, 2019), perhaps these early experiences help gender minority YEH develop resilient coping skills which allow them to progress in higher education. Prior research has also found that once homeless, some transgender young adults "described finding a community of which they felt a part, accessing information they needed, and developing skills of which they were proud" (Shelton, 2016, p. 281) – this may point to the role of community support in the social and educational development of gender minority YEH (Barman-Adhikari, Bowen, Bender, Brown & Rice, 2016). Future research is needed to better understand the association between gender identity and educational attainment among YEH.

Participants' race/ethnicity were related to patterns of educational attainment in our study. Latinx YEH in our sample were less likely to earn a GED and some college versus their White counterparts. On the contrary, mixed-race and Black participants were more likely to earn a high school diploma in comparison to White participants. These results stand in contrast to the national racial and ethnic patterns of high school dropout rates; national statistics show that in 2016, 8% of White adults had not completed high school compared to 15% of Black adults and 9% of mixed-race adults by the age of 25 (National Center for Education Statistics, 2019). Prior research has also found that Latinx young adults are disproportionately impacted by high levels of high school dropout rates compared to other races (National Center for Education Statistics, 2019). This contrast may be partially explained by the high percentage of non-White participants in our study (over 80%). Future research should examine whether racial/ethnic disparities in educational attainment can be explained by various risk factors included in this study, as well as other risk factors we did not include in our study.

Gender minority and mixed-race and Black participants in our sample were more likely to earn higher education compared to their cisgender and White peers. Thus, future research should examine YEH who identify with gender minority status and/or as people of color to explore factors which may support or explain their educational attainment. Lastly, Los Angeles and Phoenix sites became significant when running post hoc analysis, perhaps indicating city-level or organization-level differences in supports for obtaining key educational milestones. Future research should explore city-level differences, such as local policies or supports for YEH that impact educational attainment. For example, Hallett & Tierney (2012), recognize the value in developing relationships between homeless shelters and educational organizations that could positively impact the educational outcomes of young people experiencing homelessness.

4.1. Limitations

Certain study limitations should be noted. The study results are based on cross-sectional data, reducing the ability to draw causal conclusions. Future research may consider using longitudinal data to explain causal relationships such as the bidirectional relationship between homelessness and educational attainment. Additionally, the data were based on self-reports and could be biased due to the sensitive topics asked of participants. On the other hand, because the data were collected using self-administered surveys, threats of social desirability may have been at least partially mitigated. Furthermore, participants were recruited from service agencies serving YEH, so the sample is likely not representative of all YEH, importantly YEH who are disaffiliated from service systems. Additionally, the study may have inadvertently missed important risk or protective factors that were not included in these analyses. Research has suggested, for example, that social support is associated with educational attainment and homelessness (Ferguson, Jun, Bender, Thompson & Pollio, 2010; Nguyen, 2019) and should be considered for future research. Additionally, there are limitations in not capturing young peoples' experiences across different types education systems such as vocational programs; future research should include samples of young adults in alternative programs. Finally, our study only included English-speaking young people. Future research should consider administering their study in multiple languages, especially Spanish considering that several of the cities included in this study have

large Spanish speaking communities (Silva-Corvalán, 2004).

5. Implications for policy and practice

Several federal policies aim to provide services and educational support for YEH. Since 1988, school districts have been able to access McKinney-Vento funds to support homeless students' educational needs (Department of Education, 2003). In 2009, The Homeless Emergency Assistance and Rapid Transition to Housing Act (HEARTH) revised the age of "youth" to include youth up to 21, and adapted school and supportive services available to youth of all ages experiencing homelessness (Rahman et al., 2015). The HEARTH act allowed YEH to have access to school and shelter programs through the McKinney-Vento Act and HUD programs until the age of 21. These federally funded programs are designed to assist homeless students meet their educational needs, and require states to include students who are considered homeless in school districts' academic assessments (Department of Education, 2020, 2003). However, McKinney-Vento policies stop at the high school diploma or GED level; interventions in higher education are unbound by any national policy. Furthermore, the needs of students in higher education are different than K-12 settings; while students experiencing homelessness or housing instability in K-12 settings may benefit from basic needs support such as housing and transportation services, students in higher education have these basic support needs in addition to needs related to vocational and career training.

It is concerning that even with services supporting education and policies providing support to assist with college tuition, system-involved young adults (those involved in the foster care and/or juvenile justice systems) showed lower levels of educational attainment. Our study points to the need for more resources for providers to support young adults in persisting through educational milestones. Additionally, greater support for young adults transitioning out of the foster care system is recommended, as supports for young adults transitioning out of foster care vary by state (Courtney et al., 2016). The loss of resources can place transitioning young adults at risk for material hardship, including the risk of homelessness (Fowler et al., 2017). Furthermore, interventions should support young adults transitioning out of foster care and juvenile justice systems in gaining housing stability as early as possible, since earlier onset housing instability was associated with lower educational attainment.

Community colleges offering associate degrees are lower barrier in terms of acceptance and cost than traditional four-year colleges and universities, and thus may be a laudable substitute for (or bridge to) Bachelor's Degrees for YEH. Gittell, Samuels, and Tebaldi (2017) found that while educational attainment of people entering the US workforce has plateaued in recent years, there has been an increase in rates of associate degree attainment at pace with an increase in overall US earnings, aggregate labor quality, and productivity. Interventions which help young adults bridge from GEDs or high school diplomas to matriculating and persisting in community college programs may be a promising direction for lifting YEH out of housing instability and on a track to higher earning potential. Yet, students in community college settings also face considerable barriers, such as extensive paperwork to justify their housing status, time limited support services, and difficult choices between employment and education (Crutchfield, 2018; Crutchfield, Chambers, & Duffield, 2016). Thus, interventions for YEH in community college settings must consider these barriers when designing supportive services for YEH.

Emerging adulthood is a period marked by feeling "in-between" (Arnett, 2000). Many emerging adults rely on considerable family support while exploring increased independence in living. However, emerging adults experiencing homelessness and housing instability may experience particular stress in this stage, as they are often disaffiliated from families and other adults who may otherwise provide support in achieving educational milestones, along with other developmental milestones (Thompson et al., 2016). Practitioners who work with emerging adults experiencing homelessness should support them in building networks of supportive and caring adults who may offer encouragement and assistance with educational needs, such as filling out applications, navigating financial aid, and accessing academic support where needed.

Educational institutions are not just places for skill development and learning – they are also sites of stability, social support, and connection. Even though YEH report low rates of social support across the board (Barman-Adhikari, Bowen, Bender, Brown, & Rice, 2016), secondary/postsecondary institutions are often the most salient site of support that YEH report (Bowman, Dukes, & Moore, 2012). While most interventions supporting YEH in school settings focus on either basic needs (such as housing and transportation) or key educational attainment milestones (such as attaining GED or high school diploma), it is also vital to consider the social and developmental needs of YEH in educational settings. Of course, school-based interventions for YEH at every educational level should consider both their instrumental and social development to prevent YEH from having adverse educational experiences and to assist young people who experience housing instability in achieving educational milestones. For example, school climate plays a meaningful role for students experiencing homelessness, findings suggest that positive school climate is related to higher academic achievement (O'Malley et al., 2015). Therefore, positive school climates may foster higher educational attainment by decreasing bullying and victimization – known barriers to moving through educational milestones (Astor & Benbenishty, 2018; Moore, Astor & Benbenishty, 2020).

6. Conclusion

Our findings provide compelling new information about the educational attainment of young adults experiencing homelessness. YEH face complex barriers to educational attainment, despite national policies in place to assist in meeting their support needs. Interventions and policies designed to support YEH while in school need to be multifaceted to address these complex barriers. Responsive school-based services should be complemented by parallel educational programming in homeless service agencies for young adults disaffiliated from, or seeking to re-enter, educational spaces. Well-resourced and early-intervention programming in these two settings, particularly for system involved or substance-using young adults, may help shift trajectories into young adulthood and beyond.

Compliance with Ethical Standards

The authors have complied with all ethical standards of this journal including: 1) disclosure of potential conflicts of interest (provided below); 2) compliance with the Principal Investigators Institutional Review Board policies for research involving human subjects; and 3) receiving verbal informed consent for all subjects providing original data for the research.

Funding

Not applicable.

CRediT authorship contribution statement

Stephanie Chassman: Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing, Visualization. **Danielle Maude Littman:** Writing - original draft, Writing - review & editing, Visualization. **Kimberly Bender:** Conceptualization, Methodology, Formal analysis, Investigation, Writing - review & editing, Visualization, Supervision, Project administration. **Diane Santa Maria:** Conceptualization, Methodology, Investigation, Writing - review & editing, Supervision, Project administration. **Jama Shelton:** Conceptualization, Methodology, Investigation, Writing - review & editing, Supervision,

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Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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