



# Assessing Homelessness and Incarceration Among Youth Aging Out of Foster Care, by Type of Disability

JoAnn S. Lee<sup>1</sup> · Gilbert Gimm<sup>2</sup> · Maya Mohindroo<sup>1</sup> · Louise Lever<sup>1</sup>

Accepted: 5 January 2022

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

## Abstract

Youth in foster care are at greater risk of incarceration and homelessness as they age out of care and transition to adulthood. Prior studies have shown that multiple placements, childhood trauma, race and ethnicity, and educational attainment are associated with these adverse outcomes. However, few studies have examined the prevalence and risk factors of incarceration and homelessness among youth in foster care with disabilities as they age out and transition into adulthood. Using data from the 2014 cohort of the National Youth in Transition Database (NYTD) and Adoption and Foster Care Analysis Reporting System (AFCARS), this study examines the prevalence of incarceration and homelessness by disability type at age 17, and how risk factors are related to incarceration and homelessness at ages 19 and 21. Findings show that youth in foster care with emotional disabilities are more likely to experience homelessness and incarceration, but this association was not robust in multivariate models. On the other hand, those with a physical or intellectual/developmental disability have lower odds of homelessness. Employment and school enrollment are associated with a lower risk of homelessness and incarceration, regardless of disability type. These results suggest that disaggregating youth in foster care by type of disability is necessary to provide specific recommendations to improve and target resources and supports for these vulnerable youth as they age out of foster care and transition to adulthood.

**Keywords** Incarceration · Homelessness · Foster care · Disabilities · Aging out · Transitions to adulthood

The transition to adulthood is a challenging process for most young adults in America. Families and colleges often play an important role in providing support and guidance (Brock, 2010; Danziger & Rouse, 2007; Guldi et al., 2007). The transition to adulthood is especially difficult for youth who age out of the foster care system because they lack the normative social and financial supports of family (Courtney & Heuring, 2005; Osgood et al., 2010; Rebbe et al., 2017). Youth who age out of the foster care system can experience an abrupt withdrawal of support from the foster care system and become fully responsible for themselves even if they are not prepared to do so (Harwick et al., 2017). Many youth who age out of foster care may also have experienced trauma or other adverse experiences prior to, upon entering,

and during their time in care. For example, some youth may have experienced multiple placements, which exacerbates the challenges of making a successful transition to adulthood. Consequently, young adults who are not prepared for this transition to adulthood may be at greater risk of experiencing housing instability and homelessness; and in turn, some youth may become incarcerated as well (Courtney et al., 2005, 2007, 2010).

It is important to acknowledge the heterogeneity within the foster care population, which has direct implications for the supports a young adult will require. Although youth with disabilities represent 53% of those aging out of care (Slayter, 2016), the seminal studies of transition, such as the Midwest Study of the Adult Functioning of Former Foster Youth (the Midwest Study) and the Casey Alumni Study have excluded them (Blakeslee et al., 2013). The resulting lack of evidence and gaps in knowledge about this vulnerable subpopulation make it difficult to design programs that will support them. This study addresses the gap by paying attention to youth with a disability in its identification of risk factors for

✉ JoAnn S. Lee  
jlee120@gmu.edu

<sup>1</sup> Department of Social Work, George Mason University, 4400 University Drive, MSN 1F8, Fairfax, VA 22030, USA

<sup>2</sup> Department of Health Administration and Policy, George Mason University, Fairfax, VA, USA

homelessness and incarceration among youth aging out of the foster care system using a social exclusion framework.

## Conceptual Framework

This paper's conceptual framework has two parts: Oliver's (2013) social model of disability and the social exclusion framework (see Fig. 1). The social model of disability asserts that what causes individuals' disability is not impairments themselves but "the disabling barriers faced in society" (p. 1024). In other words, "[d]isability is the result of social arrangements that, by placing and acting as barriers, work to restrict the activities of people with impairments" (Terzi, 2004, p. 149). The initial goal of the social model of disability was to create more accessibility for people with disabilities in societies and workplaces (Davis, 2013). Watson and Vehmas (2019) point out that "how people deal with impairment... is determined in many ways by their access to a range of social and material resources" (p. 25). Those resources can be defined as, but not limited to medical services, public assistance, access to legal aid and advocacy groups, and physical and cognitive therapies. In line with this, this study adopts the definition of disability by the 2001 International Classification of Functioning, Disability and Health (ICF): the interaction between a person's health conditions, social as well as physical environment, and personal factors which can limit functioning and restrict participation in the community (World Health Organization, 2002). Thus the inability to live independently in the community is a form of disability. Other examples of disabilities include

a wide array of functional limitations, such as visual and hearing impairments, mobility limitations, intellectual or developmental disabilities, and emotional disabilities.

Lee and Patton's (2017) social exclusion framework extends the social model of disability in that the framework theorizes a process, which allows for an examination of the developmental transition to adulthood. Social exclusion is a process characterized by "catastrophic detachment" from conventional society, which occurs in multiple dimensions, such as the economic, spatial, and political (Lee & Patton, 2017). The framework draws upon the concept of capabilities, which according to Sen (1999), allow "people to do things—and the freedom to lead lives—that they have reason to value" (p. 85). Like the social model of disability, the social exclusion framework draws attention to the ways in which social arrangements contribute to an individual's limited or lack of agency in their own lives (Lee & Patton, 2017). For youth aging out of care, capabilities are the skills they need to live independently in a community, such as working, engaging in social interactions with other people, and managing a budget. Services designed for this group such as independent living services are designed to help them develop such capabilities. Thus, failure to provide adequate services may be one mechanism of the social exclusion of youth aging out of foster care, and it seems likely that those with disabilities are at particular risk.

During the transition to adulthood, homelessness and incarceration are manifestations of social exclusion for which youth who have been involved in the foster care system are at particular risk (Lee & Patton, 2017). Individuals who are homeless may have been excluded from the labor

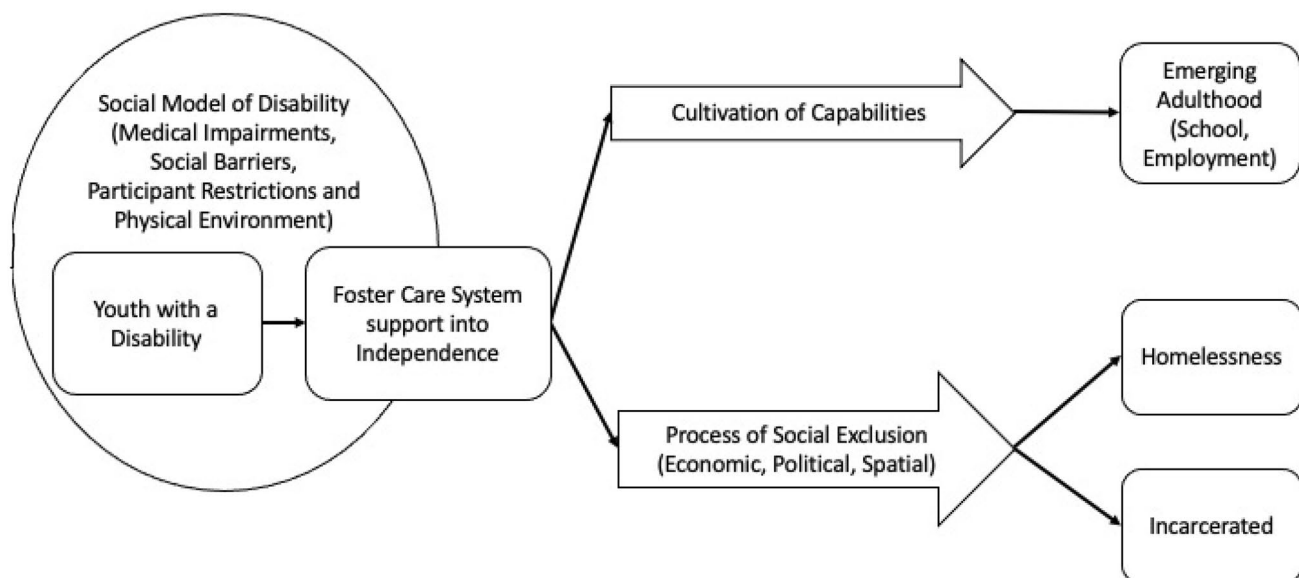


Fig. 1 Conceptual model

market and social connections, and may experience spatial exclusion due to banishment policies (Herbert & Beckett, 2010). Moreover, they may experience political exclusion if their lack of a household address limits their ability to vote. Individuals who are incarcerated are excluded from society economically, socially, spatially, politically, and psychologically through physical removal from society. When incarceration occurs during the transition to adulthood, it may also be a mechanism of social exclusion by disrupting important developmental tasks of young adulthood, namely attaining the capabilities to live independently through the acquisition of human capital (education and work experience), and social capital (relationships with mentors and friends). Identifying factors related to the social exclusion of youth in foster care with disabilities aging out of care can help us to better target interventions to prevent such outcomes.

### Risk Factors for Homelessness and Incarceration Among Young Adults

Homelessness is fairly common among youth aging out of foster care. In the Midwest Study, 17.7% of participants at age 21 had experienced homelessness at least once since exiting foster care, and an estimated 31–46% of participants experienced homelessness by age 26 (Courtney et al., 2007, 2011). More recently, the California Youth Transitions to Adulthood study (CaLYOUTH) found that at age 21, an estimated 24.6% had experienced homelessness since their last interview, about 2 years before (Courtney et al., 2018). The National Youth in Transition Database (NYTD) reported a similar share of youth who experienced homelessness, suggesting regional statistics reflect risk nationwide. For example, an estimated 20.4% of participants aged 19 (Lee & Ballew, 2018; Prince et al., 2019) and 29% of participants aged 21 (Huang et al., 2021; Kelly, 2020), reported being homeless at some point in the last two years.

Youth aging out of the foster care system may have limited housing options that are affordable and stable. For example, colleges and universities provide access to affordable housing (i.e., dorms and apartments) which facilitate the growing independence of young adults (Brock, 2010). Yet, many youth who have aged out of foster care do not complete college, and many attend 2-year colleges that do not have the same robust residential programs as 4-year colleges (Courtney et al., 2007, 2018). Thus, many youth aging out of foster care are excluded from accessing these normative supportive housing programs.

The aim of transitional housing programs (THPs) is to provide scaffolding to support young adults who do not attend 4-year postsecondary schools. Yet, Brown and Wilderson's (2010) study of THPs in San Francisco found that they may be inadequate to prevent homelessness among

youth with former foster care experiences. Their study compared the experiences of youth with former foster care experiences who lived in a THP targeting youth with former foster care experiences specifically with those who lived in a THP without such targeting. Their findings showed that both groups experienced homelessness prior to entering the THP, although those in a targeted THP had fewer risk factors for homelessness and experienced shorter periods of homelessness. These findings suggest the existence of barriers to housing access among young people with particular need. This study highlights that while these programs may disrupt social exclusion by providing important, supportive attachments to these young adults, the difficulty of accessing these supportive housing programs may contribute to prior experiences of social exclusion, especially for the most high-risk youth.

Studies also report higher rates of incarceration among youth aging out of foster care. In the NYTD data, about 22% of those aged 19 (Lee & Ballew, 2018; Prince et al., 2019) and 18.6% of those aged 21 (Huang et al., 2021) had been incarcerated in the last 2 years. At age 21, about 29.7% of participants in the Midwest study and 15.2% of participants in the CaLYOUTH study reported that they had spent at least one night in a correctional facility since their last interview about two years prior (Courtney et al., 2007, 2018).

Children and youth within the foster care system who have disabilities are at risk of not achieving permanency, which is associated with a higher likelihood of experiencing homelessness and incarceration in the future (Cheatham et al., 2020). One study found that non-emotional disabilities can lower the risk of homelessness, but emotional disability raises the risk of both incarceration and homelessness (Huang et al., 2021; Kelly, 2020). Emotional disabilities are the most prevalent type of disability among youth in the foster care system aging out of care (Cheatham et al., 2020).

### Prevalence, Causes, and Implications of Disability Among Children in Foster Care

In 2018, national survey data indicated that 5.4% of American youth (age 5–15 years) and 6.3% of young adults (age 16–20 years) reported having a disability (Erickson et al., 2020). However, 22% of maltreated youth have a disability (Sullivan & Knutson, 2000) and a study of children in Minnesota found a similar pattern among those who were the subject of reports to the child welfare system as well as higher risk among children with such reports aged 5 to 18 (Lightfoot et al., 2011). The same study found that among children with substantiated maltreatment likelihood of being in foster care was doubled among those with disabilities. A nationwide study estimated that 32% of all youth in foster care and 53% of youth aging out of foster care have a

disability (Slayter, 2016), reflecting higher rates of adoption and reunification among youth without disabilities.

## Emotional Disabilities

The prevalence of emotional disabilities among youth in the foster care system and transitioning out of it reflect mutually reinforcing relationships between such disabilities, reports to the child welfare system, maltreatment, and trauma. A history of trauma may contribute to the development of an emotional disability, such as an adjustment disorder or anxiety disorder such as posttraumatic stress disorder. Experiences of maltreatment are often the gateway into the child welfare system and ultimately foster care. Experiences of interpersonal trauma can have a direct impact on a trauma survivors' emotional regulation (Ehring & Quack, 2010). In well-functioning families, primary caregivers model for children how to adaptively or maladaptively regulate their emotions and give feedback to children regarding their own emotional responses and guide them toward achieving particular goals (Ehring & Quack, 2010). Maltreatment disrupts these processes.

Adverse childhood experiences (ACEs), including child maltreatment, have a direct impact on the ability of youth in foster care to make a successful transition into adulthood, as they impact both short-term and long-term outcomes (Rebbe et al., 2017; Slayter, 2016). A prior analysis of Midwest Study data found that ACEs strongly predicted the ability of youth aging out of foster care to avoid homelessness (Rebbe et al., 2017). The same study found higher rates of emotional disability among youth with multiple ACEs (Rebbe et al., 2017).

## Other Risk Factors for Homelessness and Incarceration Among Youth Aging Out

In addition to disability, several risk factors for both homelessness and incarceration are prevalent among youth aging out. These risk factors relate to educational attainment and employment, particular experiences in the child welfare system that may be indicators of a process of social exclusion, as well as demographic characteristics.

## Educational Attainment and Employment

Educational attainment and employment are key indicators that the individual has a positive attachment to society (i.e., they are socially connected, not excluded). Both are negatively correlated with both homelessness and incarceration (Kelly, 2020; Lee et al., 2015). They are also intertwined: more jobs that provide a living wage require a college education or specialized skills (Rosenberg & Kim, 2018). Rates

of high school dropout are higher among youth in foster care than their non-foster care peer counterparts (Blome, 1997). Even foster care youth who become college students face a high rate of non-completion (Day et al., 2011). This is unsurprising, given that college students tend to rely on family for emotional and financial support (Rosenberg & Kim, 2018), a source that is not available to youth aging out of foster care (Slayter, 2016). The resulting low level of educational attainment increases risk of unemployment and low wage employment and therefore homelessness as well as incarceration.

Disability status compounds the risk of poor educational and employment outcomes among foster care youth. A recent study using merged data from NYTD and Adoption and Foster Care Analysis Reporting System (AFCARS) examined education and employment outcomes among youth aging out of foster care taking into account disability status (Cheatham et al., 2020). They found that youth with emotional disabilities had worse educational and employment outcomes, while those with non-emotional disabilities (physical, sensory, mental or other medical diagnoses) had better school outcomes (high school completion and college enrollment) than their peers without a disability (Cheatham et al., 2020). These findings suggest the importance of disaggregating specific types of disability instead of using a broad, aggregated measure of disability.

## Child Welfare System Experiences

Experiences with the child welfare system may be related to homelessness and incarceration outcomes. Some removal reasons increase risk. For example, youth who age out of foster care who were removed because of physical abuse have a higher likelihood of homelessness than those removed for other causes (Dworsky et al., 2013). Also, a youth in foster care who was removed for a child behavioral or emotional problem is associated with greater odds of both homelessness and incarceration (Prince et al., 2019). Placement type may also increase risk. Prince et al. (2019) found that youth placed in a group or institutional setting were more likely than those with a foster family placement to experience involvement in the legal system. Brown and Wilderson (2010) found that high rates of unstable housing correlated with spending more time in non-family placements among youth formerly in foster care. Through a lens of social exclusion, these factors may be interpreted as indicators of the youth's attachments to conventional society.

Youth who age out of the foster care system are likely to have experienced multiple placement types, which may disrupt the development of secure attachments and thus contribute to a process of social exclusion. Placement instability may have negative effects on development which can later impact youth's transition to adulthood, including a greater

risk of homelessness (Dworsky et al., 2013). In a study conducted in Detroit, youth aging out of foster care averaged 5.2 placements during their stay in foster care (Fowler et al., 2009). Another study found that youth in foster care with more than two placements of any kind were more likely to be homeless (Shah et al., 2017). Placement instability may also cause frequent school changes. This instability can cause them to miss school days and fall behind academically (Stott, 2012). Research has shown that youth in foster care who attended four or more high schools within two years of aging out were more likely to be homeless than youth in foster care who attended one or two schools (Shah et al., 2017).

On the other hand, maintaining a positive attachment may help disrupt the process of social exclusion. Recent evidence suggests that extended support from the foster care system plays a role in building resilience and reducing the likelihood of homelessness and incarceration (Huang et al., 2021; Kelly, 2020). Young adults in the Midwest Study who received extended care (i.e., continued to receive foster care services after turning 18) were less likely to experience arrests than youth who left care (Lee et al., 2012, 2014). Lee et al.'s (2015) analysis of data from the Midwest Study using structural equation modeling found a pathway to adult criminal behavior at age 23 which appeared to operate through education and employment: youth who did not have a high school diploma or equivalency by age 19 were less likely to be employed at age 21, and were more likely to be involved in criminal behavior by ages 21 and 23. Involvement in criminal behavior raises the likelihood of incarceration for young adults.

Youth with disabilities may be less likely to achieve permanency and therefore more likely to age out than youth without a disability (Cheatham et al., 2020; Slayter, 2016). Youth who take advantage of extended care support from the foster care system offered through age 21 and have a disability are more likely to receive needed services and less likely to become homeless than those detached at an earlier stage (Cheatham et al., 2020; Prince et al., 2019).

## Demographic Factors

Males are at higher risk than females for homelessness and incarceration (Courtney et al., 2012; Dworsky et al., 2013; Lee et al., 2012). Race/ethnicity may also be a risk factor. Youth in foster care are disproportionately children of color (Anyon, 2011) and more likely to experience adverse outcomes within the system. For example, children who are African American are more likely to be removed from their homes and parents who are African American are more likely to have their parental rights terminated than their White counterparts (Anyon, 2011). While children who are Hispanic are reported to child protective services at similar rates to youth who are non-Hispanic White, reports are

slightly more likely to be substantiated in their cases. Furthermore, children who are Hispanic are removed from their homes more quickly, and spend more time in placement than their peers who are non-Hispanic White (Davidson et al., 2019). Finally, children who are Hispanic tend to receive fewer and less effective services in the child welfare system than their peers who are non-Hispanic White (Davidson et al., 2019). In a study conducted in Washington State youth who were African American and in foster care faced an elevated risk of homelessness upon aging out (Shah et al., 2017). Youth who are African American in general also face an elevated risk of severe disability compared to youth who are non-Hispanic White (Goyat et al., 2016), which can compound the risk of incarceration and homelessness among those who are aging out of foster care.

## The Current Study

We seek to expand our understanding of youth aging out of foster care by taking into account specific types of disability using national data. We do this by investigating individual factors and experiences that are associated with homelessness and incarceration to inform how environments and systems may be improved to better prevent social exclusion among youth aging out of care, especially those with a disability. Three research questions drive this study:

1. What is the prevalence of homelessness and incarceration among youth aging out of foster care, by disability status and type?
2. To what extent does disability type (i.e., intellectual disability, physical disability, sensory impairment, emotional disturbance) increase or decrease the risk of homelessness and incarceration among youth aging out of foster care?
3. Do prior experiences with the foster care system (e.g., reason for youth removal, number of removals) influence the odds of homelessness and incarceration for youth aging out of foster care?

We use merged administrative data from NYTD and AFCARS to develop a more in-depth understanding of the experiences of youth aging out of foster care with particular attention to youth with disabilities.

## Methods

### Data

We used the 2014 cohort NYTD outcomes database (Children's Bureau, 2019), which interviewed youth when they

were 17 years old, with follow-up interviews when they reached 19 and 21 years of age, respectively, to find out how they were doing as they age out of care and transition to adulthood. The NYTD cohort includes youth who were in the baseline population, were in foster care on the day of the survey, completed the survey within 45 days of their 17th birthday, and provided at least one valid answer to survey questions about their transition outcomes (e.g., financial and educational; National Data Archive on Child Abuse and Neglect & White, 2019). The outcome data were collected through surveys of the youth administered by the states in person, online, or over the phone.

We also used case level data of children and youth in foster care each year from AFCARS (Children's Bureau, 2016). We merged the NYTD and AFCARS 2014 data using a combination of the state and record number, as this provides a unique identifier of the child (i.e., some cases from different states may have the same record number). For the records from NYTD that did not match, a second merge was conducted with AFCARS data in the following year (2015). The remaining 1083 records from Wave 1 that did not match with AFCARS data were dropped from the sample.

At baseline, respondents were 17 years old. Eliminating cases through the matching process resulted in 16,479 matched youth in the cohort. At Wave 2, respondents were 19 years old and there was an overall response rate of 72%, and we had 8915 matched youth while at Wave 3 respondents were 21 years old and there was an overall response rate of 64% and we had 7797 matched youth in the analytic sample.

## Measures

### Outcome Variables

Descriptive statistics for our measures are presented in Table 1. The two primary outcome variables, homelessness and incarceration, were obtained from NYTD and measured at Waves 2 and 3. Homelessness was a dichotomous variable (= 1) if youth responded "yes" indicating there was a time when they did not have a "regular or adequate place to live" in the past two years. Incarceration was a dichotomous variable (= 1) if youth responded "yes" indicating they had been "confined in a jail, prison, correctional facility, or juvenile or community detention facility in connection with allegedly committing a crime" in the past two years.

### Primary Independent Variables

Measures of disability were obtained from AFCARS, which provides an overall measure of a diagnosed disability. If a participant had not been evaluated by a qualified professional, this variable was assigned a value of "not yet

determined". In order for a study participant to be reported as having a disability (= 1), they would need to have been clinically diagnosed by a qualified professional such as a Licensed Professional Counselor (LPC) or psychiatrist, as having one of four types of disabilities. An intellectual or developmental disability (i.e., mental retardation) was indicated (= 1) if the child was evaluated as having below average cognitive and motor functioning as well as deficits in adaptive behavior that may adversely affect a child's socialization and learning, according to the International Classification of Diseases, Ninth Revision (ICD-9) categories of Downs Syndrome, Microcephaly, and mental retardation. Visual or hearing disability (= 1) was indicated if the child had a visual or hearing impairment that would adversely affect their educational performance. Physical disability (= 1) was indicated if the child has a physical condition that adversely affects the child's day-to-day motor functioning. Finally, the youth was indicated as having an emotional disability (= 1) if they had a condition that interfered with their social functioning, including their ability to maintain interpersonal relationships, inappropriate types of behavior or feelings under normal circumstances, a general pervasive mood of unhappiness or depression, or a tendency to develop physical symptoms or fears associated with personal problems. The category of emotional disability encompasses a wide array of diagnoses according to the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders, including depression, ADHD, and violent behavior. While other studies focus on emotional disability, and consider those with additional disabilities as a single category (Cheatham et al., 2020), we use four separate measures to indicate the presence or absence of each type of disability (i.e., intellectual/developmental, visual/hearing, physical, and emotional). Although some overlap in disability diagnoses exists, this is only a small fraction of the baseline sample (7.35%), and the overlap is mostly between emotional disability and one or more of the other disability types (7.17%).

### Covariates

We also took into account education and employment outcomes, constructed from NYTD outcome data and thus available at all three timepoints. We constructed a dichotomous variable to indicate whether the youth was employed (1 = yes). This was based on two separate questions measuring whether a youth was employed part-time (1–34 h/week) or full-time (> 35 h/week) at the time of the interview. Additionally, we included a measure of whether the youth was currently enrolled in school (1 = yes), which included if the youth was on a summer or winter break.

We also used variables that captured aspects of the youth's foster care experience from AFCARS. These included their current placement, which were combined into

**Table 1** Descriptive statistics and characteristics of youth participants aging out of foster care

	N	#	%
<b>Outcomes</b>			
Homeless	15,169	2652	17.48
Homeless (Wave 2)	7846	1616	20.60
Homeless (Wave 3)	6914	2034	29.42
Incarcerated	15,181	4901	32.28
Incarcerated (Wave 2)	7855	1557	19.82
Incarcerated (Wave 3)	6890	1327	19.26
<b>Disability</b>			
Any diagnosed disability	15,066		
Yes		7006	46.50
No		6609	43.87
Not yet determined		1451	9.63
Intellectual/developmental	15,169	654	4.31
Visual/hearing	15,169	958	6.32
Physical	15,169	160	1.05
Emotional	15,169	5579	36.78
<b>Demographics</b>			
Male	15,169	7588	50.02
Female		7581	49.98
Race/ethnicity	15,169		
White		6486	42.76
Black		4419	29.13
Hispanic		2906	19.16
Other		1155	7.61
Unknown		203	1.34
Employed	15,265	2150	14.08
Employed (Wave 2)	7842	3181	40.56
Employed (Wave 3)	6912	3910	56.57
Enrolled in school	15,299	14,370	93.93
Enrolled in school (Wave 2)	7842	4270	54.45
Enrolled in school (Wave 3)	6912	2038	29.48
Medicaid expansion state	15,114	8551	56.58
<b>Child welfare system characteristics</b>			
Current placement	15,169		
Foster family		5837	38.48
Pre-adoptive home/kinship/trial		2867	18.90
Group home/institution		5529	36.45
Independent/run away		837	5.52
Removal reason			
Physical abuse	15,131	1980	13.09
Sexual abuse	15,131	1292	8.54
Neglect	15,131	6878	45.46
Child disability	15,131	694	4.59
Child behavior problem	15,131	5365	35.46
Extended care (age 19)	7842	3170	40.42
Extended care (age 21)	6912	1293	18.71
	N	Mean	Standard deviation
Number of placements	15,111	5.60	6.01

Measures are from Wave 1, except where noted

four categories: foster family (reference group); pre-adoptive home, kinship, or trial; group home or institution; independent or run away. We also included variables that would take into account the youth's removal reason. These were not mutually exclusive categories, and we selected five removal reasons based on prevalence and relevance to the current study: physical abuse, sexual abuse, neglect, child disability, and child behavior problem. We also included the number of placements in the current removal episode as a measure of placement instability and a measure of whether youth was receiving extended foster care services. This variable was coded as 1 if the youth was under the care of the State Title IV-B/IV-E agency at the outcome interview (both Wave 2 and Wave 3). Finally, we included a measure of whether the state decided to expand Medicaid (= 1) under the Affordable Care Act. This is particularly relevant to young adults with disabilities, since prior research has found lower access to health care among low income individuals in non-expansion states compared to expansion states (Han et al., 2015).

We also included demographic variables as control variables. These included gender (male = 1 or female = 0) and race/ethnicity. Race/ethnicity consisted of five categories: White, Black, Hispanic, Other, and Unknown.

## Analytic Approach

First, we examined the bivariate associations between our two outcomes variables, homelessness and incarceration and measures of disability at all three Waves (ages 17, 19, and 21). We report on differences between any diagnosed clinical disability and both outcomes, as well as the four specific disability types at Waves 1, 2, and 3. We used chi-square analyses to identify statistically significant associations.

Second, we estimated multivariate logistic regression models in order to identify whether disability status was associated with homelessness and incarceration at ages 19 and 21 while controlling for a variety of factors. Logistic

regression models are used when the outcome variable is dichotomous, and coefficients, when exponentiated, indicate an odds ratio (Agresti, 2002). Odds ratios with values greater than 1 indicate greater odds, and less than 1 indicate lower odds, while odds ratios of 1 indicate no difference in odds between the two outcomes (i.e., a one-to-one odds means each event has the same odds of occurring). Model fit was evaluated by examining changes in information criterion (LL, AIC, BIC), and ultimately variables with theoretical rationale and positive impact on the model fit indices were retained. Listwise deletion was used to address missing values. Differences between dropped cases and those retained for the analyses were examined, and while there were no differences in specific disability type, there were more males and those who had not been evaluated for a clinical disability at Wave 1 in the group with missing values.

## Results

As shown in Table 1, nearly half of the cohort had a clinically diagnosed disability (46.5%) with 9.7% not having been evaluated. A small percentage of youth aging out were diagnosed with an intellectual/developmental disability (4.3%), visual or hearing disability (6.3%), and a physical disability (1.1%). The most prevalent disability type in the sample was having an emotional disability (36.8%). We also observed an increasing prevalence of homelessness across Waves, with the proportion reporting that they had ever been homeless increasing from 17.5% at age 17 to 20.6% at 19 and 29.4% at 21. At baseline when the youth were 17 years old, the highest percent reported ever being incarcerated (32.3%), while 19.8% and 19.3% reported that they had been incarcerated during the last two years at ages 19 and 21.

Table 2 shows there were statistically significant differences among youth who reported that they had ever been homeless at age 17 and ever incarcerated at age 17 and

**Table 2** Bivariate associations

	Wave 1: Age 17				Wave 2: Age 19				Wave 3: Age 21			
	Homelessness		Incarceration		Homelessness		Incarceration		Homelessness		Incarceration	
	N	%	N	%	N	%	N	%	N	%	N	%
No clinical disability	15,076	***	15,088	*	7782		7700	*	6861		6775	
Not determined		18.43		31.09		20.21		18.15		28.89		19.24
Any clinical disability		21.33		34.84		21.96		20.47		30.60		17.5
Intellectual/developmental		15.81		32.38		20.62		20.83		29.74		19.28
Visual/hearing	15,172	10.69***	15,184	25.69***	7846	12.14***	7763	17.15	6914	21.72**	6826	21.21
Physical disability	15,172	14.09**	15,184	25.52***	7846	19.28	7763	17.84	6914	22.31**	6826	15.70
Emotional disability	15,172	10.63*	15,184	12.96***	7846	9.28**	7763	11.34*	6914	15.85**	6826	6.33**
	15,161	16.51*	15,181	35.04***	7846	22.56**	7763	22.26***	6914	31.87**	6826	20.89**

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$



**Table 3** Multivariate logistic regression with homelessness as the outcome

	Wave 2: Age 19 N = 7842		Wave 3: Age 21 N = 6912	
	Odds ratio	Standard error	Odds ratio	Standard error
<b>Disability type</b>				
Intellectual/developmental	0.463	0.086***	0.527	0.083***
Visual/hearing	1.251	0.158	0.733	0.095*
Physical	0.463	0.167*	0.484	0.151*
Emotional	1.078	0.068	1.103	0.065
<b>Demographics</b>				
Male	0.864	0.051*	0.887	0.050*
Female (ref)				
<b>Race/ethnicity</b>				
White (ref)				
Black	0.904	0.066	1.078	0.073
Other	1.273	0.132*	1.237	0.123*
Hispanic	0.962	0.078	0.988	0.075
Missing	0.417	0.158*	0.568	0.155*
Employed	0.737	0.045***	0.603	0.033***
Enrolled	0.550	0.033***	0.677	0.043***
<b>Child welfare system characteristics</b>				
Number of placements	1.043	0.005***	1.042	0.005***
<b>Placement type</b>				
Foster home (ref)				
Kinship/pre-adoptive	1.059	0.091	0.950	0.075
Group or institution	1.361	0.093***	1.280	0.081***
Independent or run away	2.128	0.261***	1.407	0.174**
Extended care	0.423	0.029***	0.460	0.039***
Constant	0.371	0.031***	0.510	0.038***
Null				
LL		-3988		-3671
AIC		7978		7376
BIC		7985		7494
Model				

LL log-likelihood, AIC Akaike information criterion, BIC Bayesian information criterion

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 4 Multivariate logistic regression with incarceration as the outcome

	Wave 2: Age 19 N = 7830		Wave 3: Age 21 N = 6867	
	Odds ratio	Standard error	Odds ratio	Standard error
<b>Disability type</b>				
Intellectual/developmental	0.697	0.118*	0.858	0.144
Visual/hearing	1.171	0.162	1.042	0.162
Physical	0.723	0.244	0.341	0.162*
Emotional	1.033	0.069	0.986	0.070
<b>Demographics</b>				
Male	1.985	0.127***	2.422	0.163***
Female (ref)				
Race/ethnicity				
White (ref)				
Black	1.166	0.089*	1.195	0.096*
Other	1.057	0.125	1.374	0.163**
Hispanic	1.093	0.095	1.218	0.112*
Missing	0.828	0.265	0.646	0.227
Employed	0.646	0.042***	0.463	0.031***
Enrolled	0.567	0.036***	0.691	0.055***
<b>Child welfare system characteristics</b>				
Number of placements	1.050	0.005***	1.036	0.005***
Removal reason				
Physical abuse	0.852	0.087	1.023	0.103
Sexual abuse	0.746	0.103*	0.763	0.104*
Neglect	0.938	0.066	0.912	0.067
Child disability	0.591	0.104**	0.525	0.100**
Child behavior problem	2.235	0.164***	1.668	0.129***
Placement type				
Foster home (ref)				
Kinship/pre-adoptive	1.473	0.142***	1.218	0.119*
Group or institution	2.323	0.173***	1.633	0.127***
Independent or run away	2.519	0.332***	1.893	0.272***
Extended care	0.475	0.036***	0.465	0.053***
Medicaid expansion	1.323	0.092***	0.790	0.056**
Constant	0.101	0.012***	0.162	0.019***

Table 4 (continued)

	Null	Model	Null	Model
LL	-3897	-3315	-3367	-2964
AIC	7797	6676	6735	5975
BIC	7803	6836	6742	6132

LL log-likelihood, AIC Akaike information criterion, BIC Bayesian information criterion  
 \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

recently incarcerated at age 19 based on whether they had been diagnosed with a disability. Notably, youth who had not been evaluated for a disability had a higher rate of homelessness and incarceration at baseline than youth evaluated as having a disability. At age 19, a higher percent of youth who had not been evaluated and had been diagnosed with any disability reported incarceration in the prior two years than those with no disability. Table 2 also shows that fewer youth with an intellectual/developmental disability, visual/hearing, and physical disability experience homelessness and incarceration, while those with an emotional disability experienced higher rates of these outcomes.

Table 3 shows the multivariate logistic regression models for youth who reported homelessness in the last 2 years at ages 19 and 21. Consistent with the bivariate associations, an intellectual/developmental disability, visual/hearing disability, and being physically disabled were associated with a lower likelihood that the youth reported they recently had experienced homelessness at ages 19 and 21 compared to those without these disabilities. Being employed and being enrolled in school were associated with a significantly lower likelihood of recently experiencing homeless than those who were not employed and not enrolled in school. Additionally, youth with more placements had higher odds of reporting that they recently had experienced homeless at ages 19 and 21. In comparison to youth living in a foster home at age 17, those living in a group home or institution, or were independent or had run away, were more likely to have experienced homelessness. Those who reported that they were currently in extended foster care reported lower odds of recent homelessness than those who were not in foster care.

Table 4 shows the multivariate logistic regression models for youth who reported experiencing incarceration in the last 2 years at ages 19 and 21. The coefficients for disabilities are in the same directions as the bivariate and the homelessness models, although fewer are significant. Youth with an intellectual/developmental disability were less likely than those without this disability to have been recently incarcerated at age 19. Youth with a physical disability were less likely than those without a physical disability to have been recently incarcerated at age 21. We also see that youth who were employed and enrolled in school were also less likely to have been recently incarcerated than those who were not employed and not enrolled in school at ages 19 and 21. A higher number of placements was associated with a higher likelihood of recent incarceration. Youth who were removed from the home for sexual abuse or a disability were less likely to have been recently incarcerated than youth who were not removed for these reasons. However, youth who were removed for child behavior problems were more likely to have been recently incarcerated at ages 19 and 21 than youth removed for other reasons. Youth who were in a placement other than a foster home were more likely to have

been recently incarcerated at ages 19 and 21 than those who were placed in a foster home. Youth who were currently in extended foster care were less likely to have been recently incarcerated than youth who were not currently in foster care. Finally, youth who lived in a Medicaid expansion state were more likely to have been recently incarcerated at age 19 but less likely to have been recently incarcerated at age 21 than those living in states without the Medicaid expansion.

## Discussion

To answer our research questions, first, we found small differences in the experiences of homelessness and incarceration among youth aging out of foster care with and without a disability. However, clear differences emerged when we disaggregated youth by disability type, and these differences persisted in all three Waves. Those with a physical disability reported the lowest rates of homelessness and incarceration, those with an emotional disability reported the highest rates, and those with an intellectual/developmental disability or visual/hearing disability were between them. Yet, only some of these associations were robust in the multivariate models. For example, the associations for physical and intellectual/developmental disability were robust, as they remained significant in three of the four multivariate models. However, the findings for emotional and visual/hearing disability were less robust. In contrast to prior studies that found an emotional disability was associated with an increased likelihood of both homelessness (Huang et al., 2021) and incarceration (Kelly, 2020), we did not find evidence of a statistically significant association. However, it appears that other variables in the models that are related to an emotional disability increase the risk of homelessness and incarceration.

Additionally, the effect of disability varied by outcome and age. While the results for other variables remained consistent across both time points, we found evidence of variation by disability type. While both intellectual/developmental and physical disability were consistently associated with a lower likelihood of homelessness at both ages 19 and 21, this was not the case in the incarceration models. Specifically, it appears that an intellectual/developmental disability has a protective effect against incarceration at age 19 but not 21. On the other hand, a physical disability has a protective effect against incarceration at age 21 but not 19. Similarly, a visual/hearing disability has a protective effect against homelessness only at age 21 but not 19. These variations suggest disparities in the availability of services tailored to adults with specific disabilities that are not provided through the child welfare system. Also, the quality of these services may vary by disability type, which consequently affects the risk of homelessness and incarceration. Finally, it is possible that these services are more accessible in the states that

have opted for the Medicaid expansion (Han et al., 2015), which may explain the significance of this variable in the incarceration models.

The study findings demonstrate the importance of assessing the risk of homelessness and incarceration by specific type of disability, instead of using a composite measure of “any disability”, or excluding youth with specific types of disabilities. We conducted a sensitivity analysis in our multivariate models, alternatively using a single measure of any clinical disability, and the results were not statistically significant for both homelessness and incarceration at both ages 19 and 21. Further, differentiating between intellectual/developmental, physical, and sensory disability types are also important. Prior studies have distinguished an emotional disability, but have not considered other types of disabilities separately in their analyses (Cheatham et al., 2020; Huang et al., 2021). However, our results show that these distinct types of disability vary in their association with the risk of homelessness and incarceration. Our social exclusion framework highlights the need to tailor social supports and policies to the specific needs of young adults with disabilities, which can reduce barriers to services and improve community participation. In turn, improved access to services and social engagement can ultimately reduce the risk of homelessness and incarceration.

Prior studies of disabled youth transitioning out of foster care have focused on emotional disability (Cheatham et al., 2020). Yet, we find the measure of emotional disability too imprecise. AFCARS defines emotional disability as a

condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree: An inability to build or maintain satisfactory interpersonal relationships; inappropriate types of behavior or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal problems. The term includes persons who are schizophrenic or autistic. (National Data Archive on Child Abuse & Neglect, 2019, p. 33)

This broad measure includes a wide array of different mental health conditions, including anxiety disorders, mood disorders such as depression, schizophrenic and other psychotic disorders, personality disorders, and Tourette syndrome. Without details about the underlying conditions which underpin this broad definition of emotional disability, it is difficult to know how to address these youths’ needs. This may translate into a failure to adequately equip these youth with the capabilities to become independent adults, resulting in their potential social exclusion. Although this may be a data limitation based on the information collected by administrators, future studies should consider a detailed survey of

youth in foster care with emotional disabilities to identify the underlying conditions.

Also, we found that youth who had not been evaluated for a disability reported higher rates of homelessness and incarceration at age 17 than those without a clinical disability, and even in comparison to those with a clinical disability. This finding was startling, since prior studies have not specifically reported on this group (Cheatham et al., 2020; Slayter, 2016). It is unclear why these youth have not received a formal evaluation. And there are potential data issues related to this outcome. A child is required to have a health assessment within 30 to 60 days of entry into foster care. Sometimes, a child may receive an assessment which is recorded in their paper file, but this does not necessarily trigger an update in AFCARS (Children's Bureau, 2012). Alternatively, there may be some data logic issues, where answers to the individual disability diagnoses are "no" and the any diagnosed disability variable becomes incorrectly coded as "not yet determined" rather than "no" (Children's Bureau, 2012). Yet, it is unclear the extent of these data issues (Children's Bureau, 2012).

Nevertheless, there may be something about these youth who are recorded as "not yet determined"—they are more likely to be evaluated outside of the 30–60 day window, or at least to take longer to be evaluated than most of their peers. This raises questions about who is less likely to be evaluated immediately. This delay may be related to a child characteristic, or to child welfare system experiences such as placement type. It is possible that these youth experience the highest rates of placement instability and thus, an evaluation could not be completed. Yet, a bivariate analysis to explore this possibility suggested otherwise, indicating that this group had fewer placements in the current episode than those who had been evaluated. These unevaluated youth should be a priority focus in future research.

In terms of characteristics of child welfare system experiences, we found that in the multivariate models, placement instability was statistically significant. These findings are consistent with previous findings that have identified placement instability as a risk factor (Crawford et al., 2018; Dworsky et al., 2013; Ryan & Testa, 2005; Shah et al., 2017). Additionally, placement in a group home or institution, independent, or run away were significantly associated with a higher likelihood of both homelessness and incarceration. These associations are also consistent with prior findings (Huang et al., 2021; Prince et al., 2019). Placement instability and placement in a non-family setting may contribute to difficulty in these youths maintaining natural supports and may be aspects of a process of social exclusion. Placement instability may contribute to youth feeling like they do not have control over their life, thus becoming disinterested in their future, and losing motivation to engage in school and plan their future (Stott, 2012).

In the incarceration models, we found that removal for a sexual abuse or child disability were associated with a lower likelihood of incarceration, and placement in a kinship/pre-adoptive home (versus a foster family) and removal for a child behavior problem were associated with a higher likelihood of incarceration. We explored the association between these removal reasons and disability diagnosis, and found that a child removed for child behavior problems was more likely to have been diagnosed with an emotional disability, while a child removed for a child disability was more likely to be correlated with an intellectual/developmental disability. The finding that youth placed in a kinship/pre-adoptive home were at higher risk for incarceration than youth placed in a foster home is surprising and warrants further study.

Taken together, the study findings suggest that it may be possible to identify a group of high risk youth while they are in the foster care system. Prior studies using latent class analysis indicate that there is heterogeneity among youth aging out of foster care (Courtney et al., 2012; Farmer et al., 2021). Brown and Wilderson's (2010) study, which compared youth formerly in foster care who participated in a homelessness prevention program with those in a homelessness intervention program (i.e., one group experienced homelessness), found that the youth who had experienced homelessness were older at intake, on average, and, during their time in foster care, were more likely to have experienced higher placement instability and to have spent more time in a non-family style foster care placement. Youth with disabilities are also at higher risk for many of these risk factors, including a lower likelihood of being placed in a foster family home, and a higher likelihood of being removed for child behavior problems and to emancipate from care (Slayter, 2016). Thus, when these risk factors cluster, youth may experience higher rates of homelessness and thus, social exclusion. In fact, these risk factors may be early measures of a youth becoming detached from conventional society and thus early indicators of social exclusion. These youth with the highest risk may have the most complex needs and thus require the most intensive services. They may be the most difficult to serve adequately. Yet, the child welfare system plays a role in the social exclusion of these young adults if they are not adequately prepared to transition into independent adulthood.

Our results also indicated that there are individual demographic differences in experiences of homelessness and incarceration. Women were more likely than men to experience homelessness, while men were more likely than women to experience incarceration. Also, in terms of race, there were no differences between individuals who identified as White versus Black or Hispanic in terms of homelessness, but individuals who identified as Black, other, and Hispanic were more likely to experience incarceration. While disentangling the ways that race/ethnicity shape the ways that

systems interact with individuals is beyond the scope of this study, it is likely that race/ethnicity does impact disability diagnosis, as well as experiences within the child welfare system and education and employment.

At the same time, there are protective factors that are associated with a lower risk of homelessness and incarceration, which may provide insight on how to disrupt the process of social exclusion. First, several specific types of disability were associated with a lower likelihood of homelessness and incarceration: intellectual/developmental, visual/hearing, and physical disability. Additionally, consistent with prior findings, youth who reported that they were receiving extended care services, employed, and enrolled in school were less likely to report that they had been homeless or incarcerated. In fact, these three protective factors can be interpreted as measures of the youth's attachment to society, which would be a contraindication of social exclusion (Lee & Ballew, 2018). The findings on these three protective factors were robust across models, and are consistent with prior findings (Huang et al., 2021; Kelly, 2020; Prince et al., 2019). These three factors are linked in that, in some states, extended care support is typically linked to employment and/or school enrollment. Prior research has found that youth with a diagnosed emotional disability were less likely to complete high school, enroll in college, and be employed (Cheatham et al., 2020), highlighting the challenges for youth with an emotional disability. Yet, employment and education during the transition to adulthood may be the crucial factors for preventing the social exclusion of these youth, since youth with disabilities are more likely to receive independent living services at higher rates (Okpych, 2015). But only some types of independent living services are associated with a lower likelihood of experiences of homelessness and incarceration, specifically postsecondary education support and financial assistance for education and room and board (Lee & Ballew, 2018). These studies may highlight the importance of providing services that are effective in supporting these youth. Together these studies may suggest that available services are not sufficient to prepare the highest risk youth aging out of care, including those with an emotional disability, for an independent adulthood.

This study has uncovered three possible pathways to homelessness and incarceration that youth in foster care with disabilities may experience. First, the emotional disability may lead directly to homelessness and incarceration because it interferes with the ability to develop capabilities to become independent adults. Due to the prevalence of emotional disabilities found among the NYTD cohort of youth in foster care, the likelihood of high exposure to trauma at a younger age, such as maltreatment, removal from the home, and instability, may require more specific and intensive services. The high and ongoing exposure to ACEs may negatively impact the youth's ability to sustain and maintain

employment and education, and thereby impact their ability to make a successful transition into independent adulthood (Rebbe et al., 2017). Youth in foster care with non-emotional disabilities are less likely to experience homelessness and/or incarceration, which supports the notion that disability type influences the youth's social environment, access to resources, and ultimately, their capabilities.

Second, abuse and/or neglect initially occurring early on in the youth's development may be a response to the youth's disability. As a result, the youth in foster care may struggle to develop their capabilities, such as through educational and employment attainment, because of social responses to their emotional disability. These social responses, therefore, may be the proximal cause of an increased likelihood of homelessness and incarceration among youth in foster care. Finally, it is also possible that there are conditions in the environment that contribute both to the child's disability, their maltreatment, and ultimately their ability to develop capabilities. For example, poverty is an environment of lack, which might result in delays in the child's development as well as parental capacity, leading to both child disability and maltreatment.

Notably, each of these pathways highlight how social arrangements set the stage for youth aging out of foster care. According to Oliver's (2013) social model, the key impairment for these youth is their age. As these youth reach adulthood, priorities such as meeting expectations of a successful transition out of care may overshadow the significant influences of social arrangements. In fact, these social arrangements may disproportionality shape their ideas of adulthood (in line for example with Berzin et al. (2014) finding that youth aging out of foster care believe that adulthood means not asking for help), comprehension of maturity, and capabilities to achieve the expected roles and responsibilities of adulthood. Therefore, it is not their age that is a challenge, but rather their beliefs about what it means to be an adult and society's expectation that an individual becomes an adult at the age of 18. This misalignment between society's idea of adulthood and a youth in foster care's capabilities may reflect the lack of inclusive programs or support within the foster care system that successfully supports their complex needs and challenges of these youth. Without adequate support structures, the capabilities of youth transitioning out of foster care can become stymied.

## Social Work Implications

Consistent with our practice experiences, it is clear that young adults in the foster care system are unprepared for and overwhelmed by the responsibility they are expected to assume and lack the necessary support from their foster family or case worker to achieve their goals. A case worker can provide resources and services that will aid in studying

for the GED, resume building, or life coaching. However, ultimately the decision to follow through with these responsibilities lay on the youth. For youth who have experienced trauma and/or have a disability, these tasks can be daunting to complete without additional support such as a foster family or case worker might provide. In particular, existing policies do not do enough for young adults with a mental illness. These are the youth categorized as having an emotional disability while they are in the system—yet as adults, they transition into having a mental illness. Mental illness poses barriers for steady employment, maintaining healthy relationships, and overall functioning in daily life. For example, a local caseworker shared cases of young adults who had experienced extensive trauma histories with significant PTSD. One youth had immigrated to the United States as a child, and lacked formal education beyond the first grade at age 17. Another had been accepted into college, but with complex needs, lacked the necessary support to be successful. The worker described foster families who described seeing their former foster children who were homeless after aging out of care.

Study findings suggest two policy implications to improve the support of youth aging out of foster care. First, transition services for the most high risk youth should be bolstered. According to this study, these youth would include those who were preparing to age out of care but have not been evaluated for a disability, those with an emotional disability, those who had been removed from their home for a child behavior problem, those who experienced placement instability, and those who were in a non-family placement at age 17. These may be indicators that these youth are already experiencing a process of social exclusion. As Lee and Ballew (2018) found among adjudicated youth, it seems that, while independent living services may be sufficient to support the average youth aging out of foster care, they are not sufficient for the youth who are at the most risk. Understanding how to address these youths' needs in order to equip them with the capabilities to be independent will be crucial in disrupting a process of social exclusion that already may be apparent upon their entry into the foster care system.

Second, further extending transition services to age 25, especially for the most high risk youth, may make a significant difference in reducing the likelihood of the social exclusion of these youth. For example, in the case of a 17-year-old with a first grade education, diagnosed PTSD, who learned from their impoverished family that theft is a survival strategy, additional time and support may be required to equip the youth with the necessary capabilities to become an independent adult. Even for youth who follow the normative path of graduating from high school at age 18 and college at 22, familial financial support of youth without foster care experience can extend well into their 20s and 30s (Schoeni & Ross, 2005). The educational and social disruptions that

older youth in foster care experience creates greater need even as it undermines their access to support. A social exclusion framework indicates that extending support to age 25, along with developing appropriate supports, may go a long way in cultivating the capabilities of these youth in foster care with disabilities to live as independent adults.

## Limitations

This study had a few limitations. First, as a correlational study, it could not offer causal inferences between having a disability and experiences of homelessness or incarceration. Second, the broad category of emotional disability includes a wide array of mental health conditions (e.g., anxiety, depression, schizophrenia, etc.). The absence of more detailed conditions limits the ability to develop targeted interventions, which may include behavioral therapy or pharmacological interventions for youth in foster care at greater risk of future homelessness or incarceration. Third, while this study draws on a national dataset, states collect the administrative data, and the method, quality, and completeness of data may vary by state. For example, some states opted to interview a random sample (sub-group) of the baseline population in their age 19 and 21 follow-up surveys (National Data Archive on Child Abuse and Neglect & White, 2019), making it difficult to generalize our findings. Fourth, some of the dataset measures lacked detailed information, such as the duration or severity of homelessness and incarceration. The dataset does not distinguish youth who experienced a brief spell of homelessness from those who experienced chronic homelessness for two years or brief stays in jail from years of incarceration. Similarly, the dataset measures of employment and extended care only captured the individual's status at the time of interview, and thus youth who had not been employed the whole period between interviews would be treated the same as someone who may have lost their job just before the interview. Nonetheless, the use of national data provides valuable insights for interventions to protect a vulnerable population.

## Conclusion

We find that youth aging out of foster care report a high prevalence of disabilities, the bulk of which are emotional disabilities. Further, we find that specific disability types are related to the likelihood of homelessness and incarceration—two important social exclusion outcomes. For example, emotional disability is associated with higher odds of both social exclusion outcomes, while intellectual or developmental disability, visual/hearing disability, and physical disabilities are associated with a lower likelihood of social exclusion, including homelessness and incarceration.

Finally, education and employment appear to be important factors related to reducing the likelihood of social exclusion. Thus, in order to increase the sense of belonging of all youth aging out of care, we need to develop appropriate services and programs that can facilitate their involvement in education and employment. This likely begins with affordable and appropriately supervised housing, but may include a range of supports.

**Funding** There is no funding to declare.

**Data Availability** The data used for this study are publicly available by request through the National Data Archive on Child Abuse and Neglect (NDACAN).

## Declarations

**Conflict of interest** The authors have no conflict of interest to disclose.

## References

- Agresti, A. (2002). *Categorical data analysis*. Wiley.
- Anyon, Y. (2011). Reducing racial disparities and disproportionalities in the child welfare system: Policy perspectives about how to serve the best interests of African American youth. *Children and Youth Services Review*, 33(2), 242–253. <https://doi.org/10.1016/j.childyouth.2010.09.007>
- Berzin, S. C., Singer, E., & Hokanson, K. (2014). Emerging versus emancipating: The transition to adulthood for youth in foster care. *Journal of Adolescent Research*. <https://doi.org/10.1177/0743558414528977>
- Blakeslee, J. E., Del Quest, A., Powers, J., Powers, L. E., Geenen, S., Nelson, M., Dalton, L. D., & McHugh, E. (2013). Reaching everyone: Promoting the inclusion of youth with disabilities in evaluating foster care outcomes. *Children and Youth Services Review*, 35(11), 1801–1808. <https://doi.org/10.1016/j.childyouth.2013.08.010>
- Blome, W. W. (1997). What happens to foster kids: Educational experiences of a random sample of foster care youth and a matched group of non-foster care youth. *Child and Adolescent Social Work Journal*, 14(1), 41–53. <https://doi.org/10.1023/A:1024592813809>
- Brock, T. (2010). Young adults and higher education: Barriers and breakthroughs to success. *The Future of Children*, 20(1), 109–132. <https://doi.org/10.1353/foc.0.0040>
- Brown, S., & Wilderson, D. (2010). Homelessness prevention for former foster youth: Utilization of transitional housing programs. *Children and Youth Services Review*, 32(10), 1464–1472. <https://doi.org/10.1016/j.childyouth.2010.07.002>
- Cheatham, L. P., Randolph, K. A., & Boltz, L. D. (2020). Youth with disabilities transitioning from foster care: Examining prevalence and predicting positive outcomes. *Children and Youth Services Review*, 110, 104777. <https://doi.org/10.1016/j.childyouth.2020.104777>
- Children's Bureau. (2012). *AFCARS Technical Bulletin #2 Disability Information*. Children's Bureau.
- Children's Bureau, Administration for Children and Families, U.S. Department of Health and Human Services. (2016). *Adoption and Foster Care Analysis and Reporting System (AFCARS), Foster Care File 2014*. National Data Archive on Child Abuse and Neglect. <https://doi.org/10.34681/E3CC-JC75>
- Children's Bureau, Administration for Children and Families, U.S. Department of Health and Human Services. (2019). *National youth in transition database (NYTD)—Outcomes survey, cohort age 17 in FY 2014, Waves 1–3 (Complete)*. National Data Archive on Child Abuse and Neglect. <https://doi.org/10.34681/H8QZ-PX91>
- Courtney, M. E., Dworsky, A., Brown, A., Cary, C., Love, K., & Vorhies, V. (2011). *Midwest evaluation of the adult functioning of former foster youth: Outcomes at age 26*. Chapin Hall Center for Children at the University of Chicago.
- Courtney, M. E., Dworsky, A., Cusick, G. R., Havlicek, J., Perez, A., & Keller, T. (2007). *Midwest evaluation of the adult functioning of former foster youth: Outcomes at age 21*. Chapin Hall Center for Children at the University of Chicago.
- Courtney, M. E., Dworsky, A., Lee, J. S., & Raap, M. (2010). *Midwest evaluation of the adult functioning of former foster youth: Outcomes at age 23 and 24*. Chapin Hall Center for Children at the University of Chicago.
- Courtney, M. E., Dworsky, A., Ruth, G., Keller, T., Havlicek, J., & Bost, N. (2005). *Midwest evaluation of the adult functioning of foster youth: Outcomes at age 19*. University of Chicago Press.
- Courtney, M. E., & Heuring, D. H. (2005). The transition to adulthood for youth “aging out” of the foster care system. In D. W. Osgood, E. M. Foster, C. Flanagan, & G. R. Ruth (Eds.), *On your own without a net: The transition to adulthood for vulnerable populations*. University of Chicago Press.
- Courtney, M. E., Hook, J. L., & Lee, J. S. (2012). Distinct subgroups of former foster youth during young adulthood: Implications for policy and practice. *Child Care in Practice*, 18(4), 409–418. <https://doi.org/10.1080/13575279.2012.718196>
- Courtney, M. E., Okpych, N. J., Park, K., Harty, J., Feng, H., Torres-Garcia, A., & Sayed, S. (2018). *Findings from the California youth transitions to adulthood study (CalYOUTH): Conditions of youth at age 21*. Chapin Hall at the University of Chicago.
- Crawford, B., Pharris, A. B., & Dorsett-Burrell, R. (2018). Risk of serious criminal involvement among former foster youth aging out of care. *Children and Youth Services Review*, 93, 451–457. <https://doi.org/10.1016/j.childyouth.2018.08.027>
- Danziger, S., & Rouse, C. E. (2007). Introduction: The price of independence: The economics of early adulthood. In S. Danziger & C. E. Rouse (Eds.), *The price of independence: The economics of early adulthood* (pp. 1–23). Russell Sage Foundation.
- Davidson, R. D., Morrissey, M. W., & Beck, C. J. (2019). The Hispanic experience of the child welfare system. *Family Court Review*, 57(2), 201–216. <https://doi.org/10.1111/fcre.12404>
- Davis, L. J. (2013). *The disability studies reader*. Routledge.
- Day, A., Dworsky, A., Fogarty, K., & Damashek, A. (2011). An examination of post-secondary retention and graduation among foster care youth enrolled in a four-year university. *Children and Youth Services Review*, 33(11), 2335–2341. <https://doi.org/10.1016/j.childyouth.2011.08.004>
- Dworsky, A., Napolitano, L., & Courtney, M. (2013). Homelessness during the transition from foster care to adulthood. *American Journal of Public Health*, 103(S2), S318–S323. <https://doi.org/10.2105/AJPH.2013.301455>
- Ehring, T., & Quack, D. (2010). Emotion regulation difficulties in trauma survivors: The role of trauma type and PTSD symptom severity. *Behavior Therapy*, 41(4), 587–598. <https://doi.org/10.1016/j.beth.2010.04.004>
- Erickson, W., Lee, C., & von Schrader, S. (2020). *2018 Disability Status Report: United States*. Cornell University Yang-Tan Institute on Employment and Disability.



- Farmer, G. L., Heyman, J. C., Kelly, P. L., & Leaman, T. L. (2021). Prevalence of risk and protective factors for homelessness among youth in foster care. *Child Welfare*, 99(1), 24.
- Fowler, P. J., Toro, P. A., & Miles, B. W. (2009). Pathways to and from homelessness and associated psychosocial outcomes among adolescents leaving the foster care system. *American Journal of Public Health*, 99(8), 1453–1458. <https://doi.org/10.2105/AJPH.2008.142547>
- Goyat, R., Vyas, A., & Sambamoorthi, U. (2016). Racial/ethnic disparities in disability prevalence. *Journal of Racial Ethnic Health Disparities*, 3(4), 635–645. <https://doi.org/10.1007/s40615-015-0182-z>
- Guldi, M., Page, M. E., & Stevens, H. (2007). Family background and children's transitions to adulthood over time. In S. Danziger & C. E. Rouse (Eds.), *The price of independence: The economics of early adulthood* (pp. 261–277). Russell Sage Foundation.
- Han, X., Nguyen, B. T., Drope, J., & Jemal, A. (2015). Health-related outcomes among the poor: Medicaid expansion vs non-expansion states. *PLoS ONE*, 10(12), e0144429. <https://doi.org/10.1371/journal.pone.0144429>
- Harwick, R. M., Lindstrom, L., & Unruh, D. (2017). In their own words: Overcoming barriers during the transition to adulthood for youth with disabilities who experienced foster care. *Children and Youth Services Review*, 73, 338–346. <https://doi.org/10.1016/j.childyouth.2017.01.011>
- Herbert, S., & Beckett, K. (2010). 'This is home for us': Questioning banishment from the ground up. *Social & Cultural Geography*, 11(3), 231–245. <https://doi.org/10.1080/14649361003637661>
- Huang, H., Li, Y., & Campbell, J. M. (2021). Do independent living services protect youth aging out foster care from adverse outcomes? An evaluation using national data. *Child Maltreatment*. <https://doi.org/10.1177/1077559521992119>
- Kelly, P. (2020). Risk and protective factors contributing to homelessness among foster care youth: An analysis of the National Youth in Transition Database. *Children and Youth Services Review*, 108, 104589. <https://doi.org/10.1016/j.childyouth.2019.104589>
- Lee, J. S., & Ballew, K. M. (2018). Independent living services, adjudication status, and the social exclusion of foster youth aging out of care in the United States. *Journal of Youth Studies*, 21(7), 940–957. <https://doi.org/10.1080/13676261.2018.1435854>
- Lee, J. S., Courtney, M. E., Harachi, T. W., & Tajima, E. A. (2015). Labeling and the effect of adolescent legal system involvement on adult outcomes for foster youth aging out of care. *American Journal of Orthopsychiatry*, 85(5), 441–451. <https://doi.org/10.1037/ort0000090>
- Lee, J. S., Courtney, M. E., & Hook, J. L. (2012). Formal bonds during the transition to adulthood: Extended foster care support and criminal/legal involvement. *Journal of Public Child Welfare*, 6(3), 255–279. <https://doi.org/10.1080/15548732.2012.683336>
- Lee, J. S., Courtney, M. E., & Tajima, E. (2014). Extended foster care support during the transition to adulthood: Effect on the risk of arrest. *Children and Youth Services Review*, 42, 34–42.
- Lee, J. S., & Patton, J. (2017). The social exclusion of dually-involved youth: Toward a sense of belonging. *The Journal of Sociology and Social Welfare*, 44(1), 41–64.
- Lightfoot, E., Hill, K., & LaLiberte, T. (2011). Prevalence of children with disabilities in the child welfare system and out of home placement: An examination of administrative records. *Children and Youth Services Review*, 33(11), 2069–2075. <https://doi.org/10.1016/j.childyouth.2011.02.019>
- National Data Archive on Child Abuse and Neglect. (2019). *AFCARS foster care annual file: Codebook*. National Data Archive on Child Abuse and Neglect.
- National Data Archive on Child Abuse and Neglect, & White, T. (2019). *User's guide: NYTD outcomes survey FY 2014 cohort complete—3 Waves* (Dataset #228). National Data Archive on Child Abuse and Neglect.
- Okpych, N. J. (2015). Receipt of independent living services among older youth in foster care: An analysis of national data from the U.S. *Children and Youth Services Review*, 51, 74–86. <https://doi.org/10.1016/j.childyouth.2015.01.021>
- Oliver, M. (2013). The social model of disability: Thirty years on. *Disability & Society*, 28(7), 1024–1026. <https://doi.org/10.1080/09687599.2013.818773>
- Osgood, D. W., Foster, E. M., & Courtney, M. E. (2010). Vulnerable populations and the transition to adulthood. *The Future of Children*, 20(1), 209–229. <https://doi.org/10.1353/foc.0.0047>
- Prince, D. M., Vidal, S., Okpych, N., & Connell, C. M. (2019). Effects of individual risk and state housing factors on adverse outcomes in a national sample of youth transitioning out of foster care. *Journal of Adolescence*, 74, 33–44. <https://doi.org/10.1016/j.adolescence.2019.05.004>
- Rebbe, R., Nurius, P. S., Ahrens, K. R., & Courtney, M. E. (2017). Adverse childhood experiences among youth aging out of foster care: A latent class analysis. *Children and Youth Services Review*, 74, 108–116. <https://doi.org/10.1016/j.childyouth.2017.02.004>
- Rosenberg, R., & Kim, Y. (2018). Aging out of foster care: Homelessness, post-secondary education, and employment. *Journal of Public Child Welfare*, 12(1), 99–115. <https://doi.org/10.1080/15548732.2017.1347551>
- Ryan, J. P., & Testa, M. F. (2005). Child maltreatment and juvenile delinquency: Investigating the role of placement and placement instability. *Children and Youth Services Review*, 27(3), 227–249. <https://doi.org/10.1016/j.childyouth.2004.05.007>
- Schoeni, R. F., & Ross, K. E. (2005). Material assistance from families during the transition to adulthood. In R. A. F. F. R. G. Settersten/Furstenberg/Rumbaut (Ed.), *On the frontier of adulthood: Theory, research, and public policy* (pp. 396–416). University of Chicago Press.
- Sen, A. (1999). *Development as freedom*. Anchor Books.
- Shah, M. F., Liu, Q., Mark Eddy, J., Barkan, S., Marshall, D., Mancuso, D., Lucenko, B., & Huber, A. (2017). Predicting homelessness among emerging adults aging out of foster care. *American Journal of Community Psychology*, 60(1–2), 33–43. <https://doi.org/10.1002/ajcp.12098>
- Slyater, E. (2016). Youth with disabilities in the United States Child Welfare System. *Children and Youth Services Review*, 64, 155. <https://doi.org/10.1016/j.childyouth.2016.03.012>
- Stott, T. (2012). Placement instability and risky behaviors of youth aging out of foster care. *Child and Adolescent Social Work Journal*, 29(1), 61–83. <https://doi.org/10.1007/s10560-011-0247-8>
- Sullivan, P. M., & Knutson, J. F. (2000). Maltreatment and disabilities: A population-based epidemiological study. *Child Abuse & Neglect*, 24(10), 1257–1273. [https://doi.org/10.1016/S0145-2134\(00\)00190-3](https://doi.org/10.1016/S0145-2134(00)00190-3)
- Terzi, L. (2004). The social model of disability: A philosophical critique. *Journal of Applied Philosophy*, 21(2), 141–157. <https://doi.org/10.1111/j.0264-3758.2004.00269.x>
- Watson, N., & Vehmas, S. (2019). *Routledge handbook of disability studies*. Routledge.
- World Health Organization. (2002). *Towards a common language for functioning, disability and health: The international classification of functioning, disability and health (ICF)*. World Health Organization.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.