Risk for Arrest: The Role of Social Bonds in Protecting Foster Youth Making the Transition to Adulthood

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Abstract

This study examines a sample of foster youth at the onset of the transition to adulthood and explores how social bonds are related to the risk of arrest during adulthood. Drawing from official arrest records, event history models are used to examine the time to arrest. Because individuals may be at risk for different types of crime, competing risk regression models are used to distinguish among arrests for drug-related, nonviolent, or violent crimes. Between the ages of 17–18 and 24, 46% of former foster youth experience an arrest. Arrests were evenly distributed across drug, nonviolent, and violent crimes columns. Although findings fail to support the significance of social bonds to interpersonal domains, bonds to employment and education are associated with a lower risk for arrest. Child welfare policy and practice implications for building connections and protections around foster youth are discussed.

Keywords

The challenges faced by foster youth making the transition from of out-of-home care[1] to independent adulthood are well documented (Barth, 1990; Collins, 2001; Cook, Fleishman, & Grimes, 1991; Courtney & Dworsky, 2006; Courtney, Piliavin, Grogan-Taylor, & Nesmith, 2001; Festinger, 1983; Goerge et al., 2002; Keller, Salazar, & Courtney, 2010; McDonald, Allen, Westerfelt, & Piliavin, 1996; Naccarato, Brophy, & Courtney, 2010; Zimmerman, 1982). Many foster youth approach adulthood with low educational status, few employment skills, unreliable sources of income, and a complex presentation of mental health needs. Foster youth additionally face the challenge of avoiding criminal justice system involvement during the transition to adulthood.

Numerous studies have identified high rates of arrest and legal system involvement among foster youth making the transition to adulthood (Barth, 1990; Courtney et al., 2001; Cusick

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[1]The term *out-of-home care* is used to describe all youth placed under the supervision of the child welfare system for reasons of abuse or neglect rather than delinquent behavior. This includes youth placed in relative or kinship care and nonrelative or foster home placements, group homes or residential treatment facilities, and independent living facilities.

& Courtney, 2007; Jones & Moses, 1984; Zimmerman, 1982). Barth (1990) reported nearly one-third of a convenience sample of former foster youth in California experienced an arrest since discharge from the child welfare system. In a longitudinal survey study following foster youth in Wisconsin for 12–18 months postdischarge, 18% of the sampled foster youth reported being arrested (Courtney et al., 2001). The highest rate of arrest has been reported in the study carried out by Reilly (2003), who discovered 45% of foster youth in Nevada had been involved in the criminal justice system postdischarge.[2]

High rates of arrest among foster youth are particularly striking when compared to that of same-aged youth in the general population. A recent study by Cusick and Courtney (2007) found that youth who reached the age of majority in the child welfare system reported higher rates of offending at ages 17 and 18 compared with national sample of same-aged peers. By age 19, 57% of male foster youth and 34% of female foster youth reported having an arrest compared with only 20% and 3% of males and females in the national sample. High rates of arrest persisted even after accounting for racial differences between the samples. A high rate of legal system involvement is concerning, given increased risk for recidivism.[3] When placed into the context of reaching the age of majority during foster care, criminal justice system involvement can alter the future life chances of foster youth. Identifying and understanding the influences that protect foster youth during the transition to adulthood has important implications for child welfare policy and practice.

Our current understanding of ways to build protections around foster youth and reduce risks remains limited. Although child welfare policy has shifted away from an exclusive focus on independence toward greater emphasis on interdependence (Propp, Ortega, & Newhart, 2003), few studies have closely examined the ways in which lasting bonds are developed during child welfare system involvement or the connections foster youth have as they make the transition to adulthood. What is known points to the multiple strains that are placed onto foster youth who are without permanent caregivers (Samuels, 2009; Samuels & Pryce, 2008) and the emotional wear and tear that occurs with cumulative instabilities in foster care (Hyde & Kammerer, 2009). Placing the connections surrounding foster youth into greater context may help increase understanding and guide the focus and timing of future interventions.

This study examines the social bonds foster youth have at the onset of the transition to adulthood. Social bonds theory, introduced by Hirschi (1969) and extended by Sampson and Laub (1990, 1992) to develop a theory of age-graded informal social control, focuses attention on the ways in which youth are connected to larger systems of support. Using official arrest information and longitudinal data drawn from the largest nationally representative study following foster youth as they make the transition to adulthood, this study examines the role of a wide range of social bonds in protecting foster youth from legal system involvement during adulthood.

Social Bonds, the Transition to Adulthood, and Crime Among Foster Youth

Hirschi's social bonding theory proposes that delinquent behavior stems from a weakened or broken bond to society (1969). Attachment to others, commitment to conventional institutions, participation in routine activities, and a belief in conventional values and norms represent the social bonds that prevent individuals from engaging in crime. Among general

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[2]Caution should be exercised when interpreting this collection of findings. Existing studies have suffered from serious methodological problems, including purposive sampling, sample attrition, and the lack of an adequate comparison group, which has limited our ability to effectively understand the common experiences of all foster youth making the transition to adulthood (McDonald et al., 1996).
[3]Studies find that between 30% and 60% of juvenile delinquents go on to have at least one adult offense (Brame, Bushway, & Paternoster, 2003; Farrington, 1987).

populations, support exists for social bonding theory in explaining the onset and persistence of criminal pathways. The bonds children have with their parents and schools, for instance, are found to discourage delinquency during adolescence (Cernkovich & Giordano, 1992; Felson & Staff, 2006; Hirschi, 1969; Sampson & Laub, 1993), while the bonds adults have with spouses discourage offending in adulthood (Horney, Osgood, & Marshall, 1995; Sampson, Laub, & Wimer, 2006). Studies find that employment may also be protective (Bushway & Reuter, 2002).

The relationship between social bonds and crime as young people approach adulthood remains poorly understood, particularly for vulnerable populations. In part, limited attention has focused on the salient bonds that emerge during the early transition years (Piquero, Brame, Mazerolle, & Haapanen, 2002; Sampson, Laub, & Wimer, 2006), or the ways in which changes in the transition to adulthood may influence the provision of support and structure. The time given to becoming an adult has lengthened and become less standardized than in previous decades (Furstenberg, Rumbaut, & Settersten, 2005), with college education becoming increasingly necessary to compete for basic entry-level positions. Although marriage is frequently associated with a wide range of positive health benefits, including desistance from crime (Sampson et al., 2006), these formal unions are taking place later in the life course (Fussel & Furstenberg, 2004). Families have become a major source of financial support (Schoeni & Ross, 2005). Policies, programs, and social institutions for adolescents and young adults have not responded effectively to these changing pathways to adulthood (Furstenberg et al., 2005). Youth who lack the connections and resources needed to match their interests and abilities with their environments may remain at a serious disadvantage from their peers during an extended transition (Schulenberg, Sameroff, & Cicchetti, 2004).

The hypothesis that social bonds could deter crime is particularly interesting when applied to foster youth. Among existing studies, it has been a challenge to identify the supportive relationships surrounding foster youth during the transition to adulthood (Collins, Paris, & Ward, 2008). Contrary to what negative outcomes might suggest, many studies find former foster youth report having high levels of social support (Courtney et al., 2001; Festinger, 1983). Few of these investigations, however, have examined the association between the strength of social ties and outcomes during the transition to adulthood. A notable exception is a study that examined the relationship between social ties, social support, and material hardship of foster youth making the transition to adulthood. Drawing from the sample of 316 former foster youth in Los Angeles who left foster care and were followed up to age 20 as part of the Chaffee Independent Living Program Evaluation Project (Courtney et al., 2008), findings suggest that increased contact with a biological caregiver during foster care decreased the likelihood of experiencing material hardship during the transition to adulthood. In addition, youth who developed extensive networks while in foster care and maintained these networks after leaving foster care were less likely to experience material hardship (Won, 2008).

That one form of support may come from connections with biological parents and extended families during the transition to adulthood is striking, given that these youth are by definition not reunified with their parents during child welfare system involvement. Studies consistently find foster youth seek out contact with their biological parents and extended families during the transition to adulthood (Barth, 1990; Cook et al., 1991; Courtney & Dworsky, 2006; Festinger, 1983; Frost & Jurich, 1983; Jones & Moses, 1984; McCoy, McMillen, & Spitznagel, 2008; McMillen & Tucker, 1999; Zimmerman, 1982). The benefits and costs that come with these relationships have not been extensively studied (Collins et al., 2008). There is some evidence to suggest that these relationships may not be as strong as

those of same-aged peers in the general population (Perry, 2006), and the complex nature of these relationships may require additional support to navigate (Samuels, 2009).

To inform knowledge in this area, the current study takes a closer look at social and institutional contexts surrounding foster youth as they reach the onset of the transition to adulthood. Moving beyond singular conceptions of family, dimensions of attachment include closeness to both biological caregivers and substitute caregivers. The bonds foster youth have with institutional supports such as education, employment, and the child welfare system are also included. The sample comes from the Midwest Evaluation of the Adult Functioning of Former Foster Youth, hereafter referred to as the Midwest study (Courtney et al., 2007). It is hypothesized that having a strong bond to biological parents, substitute caregivers, postsecondary institutions, employment, and the child welfare system will reduce the risk of arrest during the transition to adulthood.

Method

Data and Sample

Data for this study were drawn from the Midwest study, a longitudinal panel study following foster youth as they made the transition to adulthood across three states including Illinois, Wisconsin, and Iowa. Individuals were eligible for inclusion into the Midwest study if they were at least 17 years of age during foster care placement, in care for at least 1 year, and had a first entry into the child welfare system for child maltreatment as opposed to delinquency. Baseline or wave 1 interviews were conducted throughout 2002 and early 2003, when the respondents were between 17 and 18 years of age. Four respondents among the original 732 sample did not provide consent to access their arrest records, making the sample in this study total 728.

In addition to self-reported information gathered during the interviews, official arrest data from each state served as the dependent variable. A decision to use official arrest data as a measure of offending rather than convictions was based on two reasons. First, arrest is a more proximate measure of criminal behavior than conviction data (Wright et al., 2008). Arrest typically occurs at the scene of the criminal event or immediately thereafter, whereas the vast majority of convictions are subject to plea bargaining where the potential for extra-legal variables may enter into the trial process (Wright et al., 2008).

Second, arrest data in this study were also more complete than conviction data and provided a more reliable measurement source. It is nevertheless important to note that not all arrests result in convictions, nor do all arrests represent serious crimes. Forty-two of the respondents in this study, for instance, were arrested for minor offenses, such as traffic offenses (e.g., speeding or driving without a valid license) or public order offenses (e.g., disorderly conduct). Because of the varying ways in which these offenses are recorded across the three states, this study did not include arrests for such minor offenses. All other criminal arrests occurring between the baseline interview and August 31, 2007 were included. The observation period was selected to maximize the amount of time in which to measure the arrests that were available in the data.

Analytic Technique

The analyses presented in this study focus on the timing of arrests. Event history models are useful for examining time to event data because they allow for censoring of observations for individuals who do not experience the event (Allison, 1995). To examine the relationship between the bonds that foster youth bring to the transition to adulthood and the risk, or hazard, of arrest, we estimated Cox proportional hazards models. A Cox proportional hazards model is semiparametric and does not require specification of a baseline hazard

function. The hazard can be thought of as the instantaneous risk of experiencing an arrest at time t, given that an arrest has not already occurred prior to time. In this study's analyses, $t = 0$ represents the time at which the baseline interview was conducted. The general form of the Cox proportional hazard regression equation is:

$$h(t_i) = h_0(t) \exp(\beta_1 \chi_{1_i} + \beta_2 \chi_{2_i} + \ldots + \beta_k \chi_{k_i}),$$

and the hazard rate for the ith individual is:

$$h_i(t) = h_0(t) \exp(\beta' x),$$

where $h_0(t)$ is the baseline hazard function. Once an individual experiences an arrest, he or she is removed from the risk set.

Although our primary interest lies in understanding how social bonds are related to time to arrest, individuals may be arrested for different types of crimes. Because social bonds may be differentially related to the risk of certain types of arrest, we analyzed competing risks regression models to distinguish among three types of failure: An arrest for drugs, an arrest for a nonviolent crime, or an arrest for a violent crime. An individual can experience failure from any of several event types, but the time to failure is observed for the first event or the last time if the event has not occurred. The principal estimable quantity in competing risk is the cause-specific hazard function, which can heuristically be thought of as a probability of failure specifically resulting from cause K in a small interval of time, given that no failure of any kind has occurred (Dignam & Kocherginsky, 2008).

In this study, we used competing risks regression analysis to identify predictors for each competing risk. Data were imported into STATA 11 for analyses, and the *stcrreg* procedure was used to implement a competing risks regression based on the proportional subhazards model (Fine & Gray, 1999; StataCorp, 2009). The focus of a competing risks regression is on the cumulative incidence function, which indicates the probability of the event of interest happening before a given time. Competing risks regression is semiparametric; in that, the baseline subhazard of the event of interest is left unspecified, and the effects of the covariates are assumed to be proportional. Competing risks regression works by keeping subjects who experience the competing event at risk so that he or she can be adequately counted as having no chance of failing. Doing so requires a form of sample weighting that invalidates the usual model-based standard errors. Standard errors are as a result listed as robust. In addition, the hazard ratio is presented as a subhazard for the failure event of interest.[4] These ratios are interpreted similarly to a hazard ratio in a Cox regression. For instance, if the estimated subhazard ratio (SHR) for gender is >1 when predicting a drug-related arrest, this suggests that being male is associated with higher incidence of drug arrests controlling for all covariates and the fact that nonviolent and violent risks can also occur.

Measures

Dependent variable—The outcome of interest is the first arrest that occurs during the transition from adolescence (age 17–18) to adulthood (age 24). All of the respondents were considered at risk for arrest at the time of their baseline interview. Only criminal arrests occurring in the state where a respondent resided at the baseline interview were included,

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[4]The subhazard suggests that there is a 1:1 correspondence between the subhazard and the cumulative incidence function for respective event types (Pintilie, 2007).

although an out-of-state arrest is possible, such as in the case of an individual moving across states. As noted by Schmidt and Witte (1988), covariates that correlate positively with mobility may have a spurious correlation with the outcome. Given that data limitations for such analyses do not permit an easy solution, relying on arrest data from one state in event history analyses is common (see recidivism studies by Bottcher & Ezell, 2005; Schmidt & Witte, 1988; Visher, Lattimore, & Linster, 1991).[5] For the competing risks regression analysis, the dependent variable is the time to the cause-specific arrest.

Independent variables

<u>Social bonds:</u> The substantive covariates in this study reflected social bonds with biological parents, substitute caregivers, educational and employment institutions, and independent living activities, which are typically services that are intended to assist foster youth in making the transition to adulthood. Building on Ryan, Testa, and Zhai (2008b), social bond measures were extended to include closeness to both foster caregivers and biological parents. Parental closeness was measured as the degree of closeness toward a biological or stepparent(s), based on a 4-point ordinal scale 1 (*not at all close*), 2 (*not very close*), 3 (*somewhat close*), 4 (*very close*). Separate measures were included for closeness to mother (biological or stepmother) and closeness to father (biological or stepfather).[6] Closeness to a substitute caregiver included any nonrelative foster parent, kinship care provider, or congregate care provider, and was coded on the same f4-point ordinal scale. It is possible that the measure of closeness used in this study did not effectively capture traditional conceptions of attachment in social bonding theory. For each of these questions, interviewers were nevertheless instructed to probe the respondent for the closest attachment.[7] The nature of reaching the age of majority during foster placement may also increase the chances of having a caregiver who is deceased or who is missing. For respondents who reported being without a living mother or father, closeness to mother or closeness to father was coded as being *not at all close*. Two indicator variables were included for missing a maternal mother or father, coded 1 if the respondent was without a living mother or without a living father. These variables were coded 0 if otherwise.

Bonds with educational and employment institutions were measured through three variables. First, a dichotomous variable for school enrollment was coded 1 if the respondent was enrolled in any type of school at baseline, such as high school, vocational school, or college, and was coded 0 if otherwise. Second, employment was measured through employment status at baseline and was similarly coded.[8] Last, commitment to education was measured by a dichotomous variable of educational aspirations that was coded 1 if the respondent reported having plans to graduate from college or beyond and was coded 0 if otherwise.

<u>Informal and formal supports:</u> Several measures of social support were measured, including informal support from both friends and family, as well as formal support from the child welfare system. The Midwest study included a global measure of perceived social support that captured emotional, tangible, affectionate, and positive social interaction support (Sherbourne & Stewart, 1991). Respondents were asked to indicate on a 5-point

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[5]In the current study, out-of-state mobility is low. Survey data indicate that only 30 individuals in the study sample of 728 foster youth moved out of state after their first interview. Analyses excluding these individuals resulted in no differences across event history models, thereby suggesting that our substantive results are not impacted by unobserved out-of-state arrests.

[6]The effect of closeness to grandparents was not significant in any models and was excluded in the final model.

[7]Following Hirschi's (1969) conception of attachment through affectionate ties, a measure of general affectionate support is examined in the current study. Though this measure is not distinguished by any particular person providing the support in the Midwest study data, this factor is examined as another possible indictor of attachment to others. The variable was found not to be significant and was excluded from the models presented here.

[8]Although the effect of working more than 20 hr per week may be related to a decreased risk of offending among adolescents, no relationship between hr worked and the risk for arrest was identified in the current study.

scale how often each type of support was available, that is, 1 (*none of the time*), 2 (*a little of the time*), 3 (*some of the time*), 4 (*most of the time*), 5 (*all of the time*). Nineteen items were summed and converted to a score on a scale of 0–100, with higher scores indicating greater social support.[9] The alpha reliability score for these items is 0.96. A measure of connection to the child welfare system was based on youths' report of turning to the system for assistance in the future. Respondents were asked how likely they are to turn to the child welfare system for help with any of seven areas, including personal support and help with housing and employment.[10] Respondents were asked to indicate on a 4-point ordinal scale how likely they were to return to the child welfare system for assistance, that is, 1(*very unlikely*), 2 (*unlikely*), 3 (*likely*), 4 (*very likely*). An overall scale of the likelihood of turning to the child welfare system for assistance was created by taking the average across all items. The alpha reliability score was 0.91.

A measure of formal support provided by the child welfare system was also included. Respondents were asked about receipt of any training or services in preparation for independent living. The domains of independent living included education (eight items), employment (11 items), financial management (seven items), housing (nine items), health education (nine items), and youth development (three items). These items were summed to create a measure of any receipt of an independent living service (alpha reliability = .96). There was a small amount of missing data on the independent living service items. For missing items, an individual's mean score was imputed within the relevant domain. If all items in a domain were missing, the sample mean was imputed.

<u>Demographic and background control variables:</u> This study controlled for several demographic characteristics, background risk factors, and out-of-home care placement experiences of respondents. Gender was coded as 1 for males and 0 for females. The race of respondents was reflected in a series of dummy variables, with African American and Other racial groups each compared with a reference category of White respondents. To account for age and potential differences in the timing of the baseline interview, a variable measuring respondents' age in years at baseline was included.

Three background risk measures that are associated with crime were included in the analyses. First, any prior arrest was coded as 1 if respondents reported an arrest prior to the baseline interview and was coded 0 if otherwise.[11] This study also included two measures of psychiatric disorder. This information was measured at baseline using the Composite International Diagnostic Interview (CIDI; World Health Organization, 1998).[12] Assessments for major depression, panic disorder, social phobia, generalized anxiety disorder, post-traumatic stress disorder, alcohol abuse, alcohol dependence, drug abuse, and drug dependence were completed for each respondent. In these analyses, variables were created for any mental health diagnosis in the past year and any past-year alcohol or drug abuse or dependence diagnoses.[13]

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[9]In addition to this global measure, the effect of each social support subscale is measured. Similar effects are found for each subscale on the outcome, which lead to a decision to include the global measure in the final model.

[10]The circumstances under which foster youth may receive formal supports from child welfare agencies post-discharge from the child welfare system vary considerably across and within states. With regards to re-entering the child welfare system during the transition to adulthood, a case, for instance, may be reopened in IL if a former foster youth is found to lack basic resources, while in IA youth may re-enter supervised apartment living to obtain a high school diploma or if homeless (Dworsky & Havlicek, 2008).

[11]A self-report measure of prior arrest was selected because official arrest records for juveniles were not consistently available. Given the time point at which this item was measured, prior arrest is assumed to reflect a juvenile as opposed to an adult arrest.

[12]The CIDI is a structured interview that renders both a lifetime and a past year psychiatric diagnosis according to definitions and criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 2000).

To account for heterogeneity in histories of childhood maltreatment, a measure of physical abuse and a measure of neglect prior to entering care were included. Prior sexual abuse or a sexual assault was included as a dichotomous variable coded as 1 if the respondent reported experiencing either type of victimization and coded as 0 if otherwise. Also included was a variable indicating whether the respondent was a teen parent at baseline. This variable was coded 1 if the responded reported having any living children and was coded 0 if no children were reported.

In this study, measures of out-of-home care experiences reflected stability in living arrangements and type of placement at baseline. Placement stability was measured as the total number of out-of-home care placements reported by respondents at the baseline interview. Placement type at the baseline interview was measured with dummy variables for kinship care, group care, and independent living setting or other placements. The reference placement was traditional foster care. Age at first entry into out-of-home care was also included as a continuous variable.

Finally, two dummy variables were included in the analyses to reflect child welfare service provision in the states of Iowa and Wisconsin. The state of Illinois served as the reference category. This comparison was made for two main reasons. First, the majority of the sample in the Midwest study was from the state of Illinois. Second, the courts in Illinois may retain jurisdiction of wards up to age 21. The courts in the other two states typically discharge youth from substitute care on the 18th birthday and almost never past the age of 19. As such, these analyses provided a provisional examination of the relationship between child welfare policy that extends a safety net during the transition to adulthood and the risk for arrest during the transition.

Results

Descriptive statistics are presented in Table 1. On average, the vast majority of youth entered the child welfare system as middle-aged children (10.7 years) and experienced a high rate of movement in the child welfare system, changing placements almost six times on average. At baseline, the overwhelming majority of foster youth was enrolled in some type of school. Nearly three quarters of foster youth reported having plans to graduate from college. Just over one-third of the sample was employed at baseline (35%). On average, respondents reported receiving 13.6 of 47 independent living services. This suggests that the foster youth in this sample received limited preparation for independence. Thirty percent of the sample reported experiencing sexual victimization, and over half of the sample reported prior involvement with the juvenile or criminal justice system. In addition, nearly one quarter of youth had a psychiatric disorder. A sizeable portion (14%) of the sample reported being a parent at baseline.

Conditional Hazard Probabilities

Between the ages of 17–18 and 24, 46% of foster youth experienced an arrest. The mean time to first arrest among those experiencing an arrest was 591 days or approximately 1.6 years. The median time to first arrest, among those experiencing an arrest, was 482 days or approximately 1.3 years. Figure 1 illustrates the Kaplan–Meier survival curve of estimates of first arrest for all foster youth following the baseline interview. A survival curve plots the

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[13]Programming errors generated missing information about diagnostic assessments for major depression ($n = 330$) and substance abuse ($n = 338$). Call-back interviews were completed with 78% of cases for major depression and 70% for cases of substance abuse, meaning that complete assessment data are available for approximately 90% of the baseline sample on depression and for 86% of the baseline sample on substance abuse. Estimates for these categories are based on imputed values of reinterviewed respondents, limiting the confidence regarding actual rates of major depression and substance abuse.

percentage of foster youth surviving as a function of time. Time 0 indicates time at entry into the Midwest study. Each time an arrest occurs, the percentage surviving decreases. Over the observed range of 1927 days or about 5.3 years, the probability of being arrested did not reach .50.

Figure 2 illustrates the conditional hazard probabilities of first arrest following the baseline interview, which is divided into 3-month intervals. The conditional probability is expressed as the proportion of individuals at risk who were arrested during each time point. At age 17–18, the estimated risk of arrest was approximately 6%. By the end of the observation period, the estimated risk for arrest dropped to 2%.

Multivariate Results

Next, we examined the relationship of covariates to the timing of first arrest. Results of the Cox proportional hazards model for the full sample are presented in Table 2. A significant coefficient indicates the covariate is predictive of the time to first arrest. Positive coefficients were associated with earlier time to first arrest or an earlier failure, while negative coefficients were associated with later time to first arrest or a longer survival. Hazard, or risk, ratios indicate how the risk of arrest varied with a change in the value of a covariate relative to a reference value (for categorical covariates) or with increasing values of a continuous covariate. Values over 1 indicate an increase in the hazard rate. Values <1 indicate a decrease in the hazard rate. If 1 is subtracted from the hazard ratio, and the remainder is multiplied by 100, the result is equal to the percentage change in the hazard of arrest.

The results suggest some support for the hypothesis that social bonds reduce the risk of arrest. Having aspirations to graduate from college and being employed at baseline reduced the hazard rate of arrest by 24% and 32%, respectively. Those with commitments to college and workforce participation at baseline survived longer without experiencing an arrest during the transition to adulthood than those participants who were not employed or were without college aspirations. Being enrolled in any school just prior to the transition was not significantly related to the timing of arrest.

With respect to the measures of bonds with family and caregivers, the results suggest there is no relationship between closeness to one's mother, father, or substitute caregiver and the risk for arrest. Not having a biological mother was associated with a higher hazard rate. Foster youth without a living mother experienced a 64% increase in the risk for arrest.

The results found a statistically significant, albeit small, relationship between perceived social support and the risk for arrest. The relationship is such that higher levels of perceived social support were associated with a higher hazard rate. All else being equal, foster youth who reported higher levels of perceived social support were arrested sooner than those without support. Neither measure of informal nor formal support from the child welfare system was predictive of the risk for arrest.

In terms of demographic factors, being male versus female and African American versus White increased the hazard rate for arrest by 100% and 95%, respectively. Although the risk of arrest is higher for males than for females, nearly one-third of females experienced an arrest.[14] The relationship of the independent variables to the time to arrest did not significantly differ by gender. [15]

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[14] Given the high rate of arrests for females, Cox proportional hazards models were analyzed separately by gender. Because we did not find evidence that the relationships between the covariates and the hazard of arrest vary by gender, we do not present these models here.

We found the time to first arrest was significantly shorter among those with a prior arrest and those with an alcohol or drug abuse diagnosis. Placement in a group home at baseline versus a nonrelative foster home was related to significantly higher hazard rates. Placement in a group home resulted in a 58% increase in the hazard rate as compared to placement in a foster home. Foster youth who experienced multiple placements also had a higher hazard rate for arrest. Each additional placement resulted in a 4% increase in the hazard rate. This finding is particularly salient, given that over half of the respondents reported having four or more placements during foster care.

Competing Risks Cox Regression

Table 3 displays the model fit, parameter estimates, and significance along with the hazard ratios for each variable. As can be seen, first arrests were evenly distributed across drug (columns 2–4), nonviolent (columns 5–7), and violent crimes columns (8–10).

Drug arrests—Drug arrests included any arrest for possession or sale of a controlled substance. Of the 337 youth with an arrest following the baseline interview, 31.7% experienced a first arrest for a drug crime. The strongest predictors of a first drug arrest were being male (SHR = 3.57) and having a drug or alcohol abuse or dependence diagnosis (SHR = 2.45). In addition, youth who reported a likelihood of returning to the child welfare system for help were approximately 30% less likely to experience this outcome. There was no difference in risk of drug arrest, however, for any of the other institutional or relational bond measures.

Nonviolent arrests—Types of nonviolent arrests ranged from property crimes to petty theft. Nonviolent arrests accounted for 35.6% or 120 of those experiencing a first arrest. The strongest predictors at baseline of having a first arrest for a nonviolent crime were having a prior arrest (SHR = 1.83), last placement in a group care setting (SHR = 1.89), and having children (SHR = 1.89). Those youth with aspirations to enroll in college were 38% less likely to have a nonviolent arrest.

Violent arrests—Violent arrests included any arrest having to do with crimes against a person(s), such as armed robbery, battery, sexual assault, and so forth. Of those youth arrested, 32.6% experienced a first arrest for a violent crime. The strongest predictors of having an arrest for a violent crime were being of Other race (SHR = 2.46), having a previous arrest (SHR = 2.26), having a last placement in group care (SHR = 1.29), and being a victim of sexual abuse or assault (SHR = 1.73). The risk of a violent arrest was greater for foster youth who reported being more likely to turn to the child welfare system for help as compared to foster youth who reported being less likely.

Discussion

This study is the first to examine the extent to which social bonds at the onset of the transition to adulthood reduce the risk of arrest among foster youth during adulthood. Placing bonds into greater social and temporal context provides an initial understanding of the safety net surrounding foster youth and sheds light on the places to direct efforts aimed at building protections. This study's findings suggest that greater efforts are required to build strong and lasting social bonds in adulthood. This is particularly true in light of the high rate of arrest experienced by this sample. Nearly one of every two foster youth was arrested. This rate is four times higher than the rate of arrest for young adults who come from lower-income families (Klein & Forehand, 1997) and twice as high as the rate of

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[15]These results are not shown.

criminal system involvement of a high-risk sample of youth with psychiatric impairment (Vander Stoep et al., 2000). The findings of this study suggest the need to focus efforts in three main areas.

To strategically reduce risks and promote assets of foster youth making the transition to adulthood, the focus that is typically placed on the transition years and beyond should be extended to include the events leading up to the transition to adulthood. Study findings demonstrated low levels of human capital and high levels of risk at the onset of the transition when foster youth are still under state supervision. That foster youth in this study entered the child welfare system as older-aged children (10.7 years, on average) points to possible missed opportunities to address needs, promote adaptation, and prepare youth for adulthood.

Given the high baseline rates of criminal system involvement, substance abuse and dependence, psychiatric impairment, and victimization, one conclusion of this study is the need to develop and test prevention strategies that circumvent risks and promote protections before and during adulthood. Although public health strategies exist for promoting strengths and preventing antisocial behaviors among children exposed to chronic adversity, empirical studies and anecdotal evidence suggest that the majority of communities and systems of care implement untested and ineffective strategies (Jensen, 2010). In part, the unhelpful dichotomies that pit the benefits of early intervention against investments made later in life represent a significant barrier to targeting at-risk adolescents and young adults in more comprehensive ways (Cmiel, 1995; Duncan & Magnuson, 2004). In contrast to the significant need suggested by community prevalence (Davis & Vander Stoep, 1997; Vander Stoep et al., 2000) and epidemiological investigations in both at-risk and normative transition-aged populations (Cuffe et al.,1998; Newman, Moffitt, Caspi, & Silva, 1998; Tolin & Foa, 2006), there have 7 been few interventions specifically designed to promote the age salient developmental tasks of older adolescents and transition-aged young people (Weisz & Hawley, 2002).

To improve the chances of foster youth in adulthood, there is a need to understand what makes a difference. The finding of the increased time to first arrest for participants who report employment at the onset of the transition or those who have future educational aspirations points to the importance of institutional structure and real-world experiences in reducing the risk for arrest in adulthood. Employment experiences may alter exposure to risk environments that perpetuate risk and reconstruct developmental pathways by increasing available social opportunities, providing new skills, enhancing a sense of personal efficacy, and compelling individuals to engage in social comparisons with new people and possibilities (Caspi, 1993). That only 35% of foster youth in this study were employed at the onset of the transition suggests a need for in-depth understanding of the barriers to employment and the ways in which the services and experiences offered to foster youth strategically nurture their potential for success, motivation, and goal attainment.

The finding of a positive, albeit small, relationship between perceived social support and the risk for arrest for both males and females suggests that social support itself may not be enough to set the most vulnerable foster youth on a successful pathway into adulthood. This finding is contrary to the hypothesis that greater social support serves as a protective factor against crime (Cullen, 1994). Several possible explanations are worth mentioning, although the data do not provide any definitive answers. One explanation may be that those who provide social support to the respondents are not prosocial influences. An alternative explanation may be that young adults who age out of the child welfare system are exposed to high levels of chronic adversity, and relationships, even those that are positive and prosocial, may not be potent enough to offset risks (Sameroff, Bartko, Baldwin, Baldwin, &

Seifer, 1998). In other words, building supportive and protective relationships should be a part of any comprehensive approach that targets multiple domains surrounding foster youth.

The finding of no relationship between closeness to one's mother, father, or substitute care provider and risk for arrest supports findings from a handful of qualitative studies that speak to the relational complexities of foster youth who are without permanent families (Hines, Merdinger, & Wyatt, 2005; Hyde & Kammerer, 2009; Samuels, 2009; Samuels & Pryce, 2008; Unrau, Seita, & Putney, 2008). One reason the relationship domains in the current study may not offer enough protective benefit may be related to the inherent structure of child welfare services provided to older adolescents in the child welfare system who do not return to their families. For instance, at the onset of the transition, over one quarter of foster youth were residing in a placement setting that congregate challenged youth together. One of the major pathways to criminal engagement is through interaction with other deviant peers (Dodge, Dishion, & Lansford, 2006), typically through the delivery of services provided to at-risk populations, such as special education, detention, residential treatment, and other community groups. That emerging research in neuroscience suggests that underdeveloped parts of the brain make adolescents highly attuned to thrill seeking and risk taking (Steinberg, 2007), and risky behaviors increase in the presence of peers (Gardner & Steinberg, 2005), suggests a need to carefully rethink child welfare service provision for at-risk adolescents. Trajectories that are set in adolescence can lead to increased difficulties in adulthood. Preventing youth from heading down a troubling road before adulthood can have a greater impact than interventions targeting individuals later in the life course (Dahl, 2004).

The finding of a negative relationship between not having a biological mother and the timing to first arrest during the transition to adulthood warrants careful interpretation. This finding is somewhat puzzling, given that it could be argued that all foster youth in this sample experienced a major disruption in their relationship with a biological parent. It may be that having a mother or father, even if they are not in a position to provide adequate parenting, may offer emotional or concrete benefits to youth. Replication of findings may help in understanding whether foster youth who are truly without a biological parental figure are at greater risk for crime or other adverse outcomes during the transition to adulthood or whether the findings are explained by alternative phenomena.

Study Limitations

The findings from this study and any interpretation of these findings should be considered carefully in light of study limitations. First, we hypothesized that having strong bonds with parents and caregivers, education, employment, and the child welfare system would reduce the risk of first arrest during the transition to adulthood. It could, however, be that ties to social controls vary as youth make the transition to adulthood. New ties or the loss of bonds during the transition to adulthood may be more closely associated with the timing of criminal system involvement than with events occurring earlier in the life course. Additionally, there are a number of factors that may influence both social bonds at the onset of the transition and the time to arrest that cannot be measured using the Midwest study data, including early childhood attachment to parental figures, childhood exposure to poverty, the number and quality of social services provided to children and families, the quality of substitute care giving, and foster youth motivation and choice to engage in criminal activities.

Our measures of closeness to others are also limited. These measures may not adequately capture the inherent complexity associated with being in long-term foster care without permanence (Samuels, 2009), let alone provide a valid measure of an individual's bonds with society. The high rate of placement instability experienced by our sample nevertheless

suggests missed opportunities to build social bonds. It is also possible that as the onset of the transition to adulthood approaches and the meaning of impermanence becomes heightened, biological parents may represent the last hope for family, which may bias any report of closeness.

The study reports findings from a large, population-based sampling approach. The sample is, however, not entirely representative of all youth who reach the age of majority in the child welfare system because of exclusionary criteria. Reported findings may actually underestimate the prevalence of criminal system involvement, given the omission of incarcerated youth, runaways, and youth placed in psychiatric settings at the time of the baseline interview. Relative to other studies, the findings are nevertheless more representative of the overall population of foster youth making the transition to adulthood because of the study's larger population size and broader sampling frame.

Lastly, our dependent variable—the timing of first arrests after our baseline interview—presented a limited measure of crime during the transition to adulthood. By examining only first arrests in adulthood, we did not capture the relationship between our measures of social bonds and criminal persistence or desistance. This is particularly important, given that over half of our sample reported an arrest prior to our baseline interview. For most of our respondents, the arrests that we used to construct our dependent variable were subsequent to a prior arrest, largely as juveniles.

Conclusion

In more ways than one, foster children are society's children. The burden of raising children who are removed from their families by state protective systems and then never permanently returned to their families of origin or placed into alterative permanent homes will inevitably fall upon communities. The findings of this study suggest the need to focus efforts in three main areas. To systematically improve prospects, there is a need to widen the view of child welfare policy from a focus on the transition or just beyond to include the events leading up to the transition to adulthood. Second, high-quality prevention interventions that aim to decrease risks and increase protections should be developed and tested. Third, moving beyond singularly focused interventions to include the social ecology surrounding foster youth may be particularly instrumental in developing a comprehensive approach to building protections.

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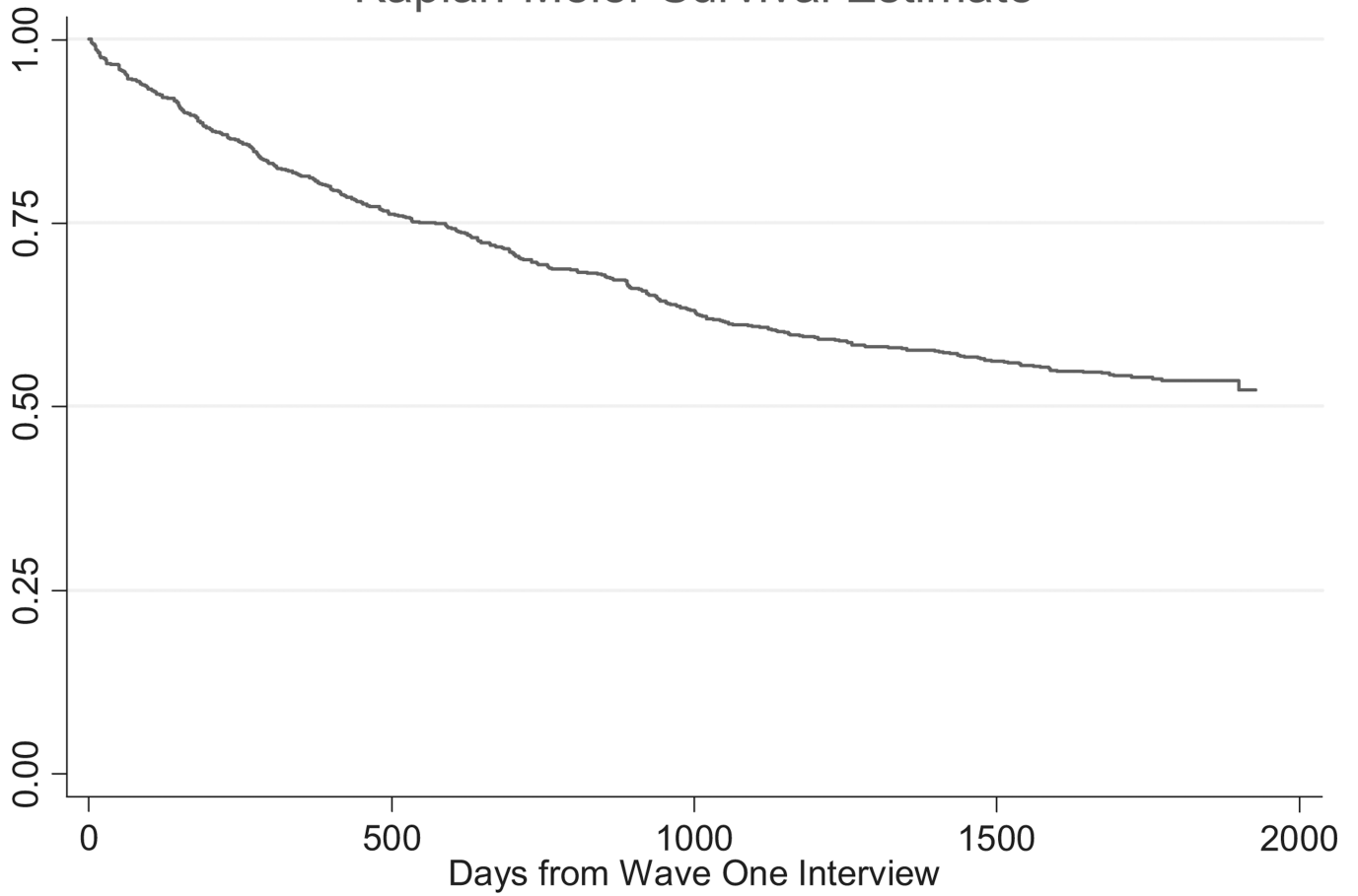
Kaplan-Meier Survival Estimate

Figure 1.
Kaplan–Meier survivor function.
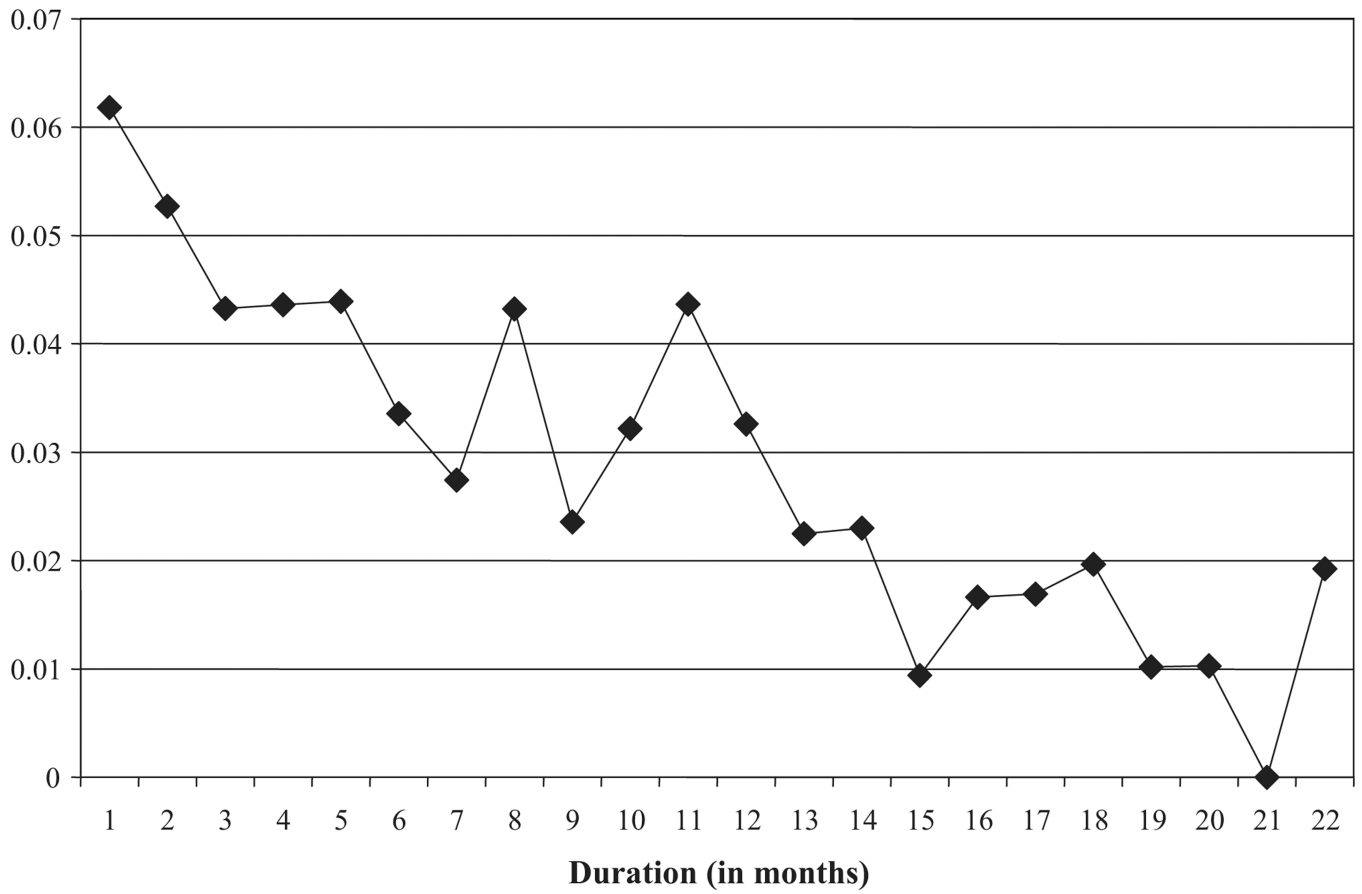
Figure 2.
Conditional probabilities estimating time to arrest.

Table 1

Descriptive Statistics of Foster Youth Making Transition to Adulthood

	Total (N = 728)		Males (n = 352)		Females (n = 376)		χ^2 **
	# or mean	% or s.d.	# or mean	% or s.d.	# or mean	% or s.d.	
Social bond variables							
Institutional bonds							
Enrolled in school	598	82.1	291	82.7	307	81.6	0.1
Employed	255	35.0	113	32.1	142	37.8	3.5
College aspirations	518	71.2	237	67.3	281	74.7	5.0
Likely to ask CWS for help	386	53.0	178	50.6			1.6
Mean # independent living services (0–47)	13.6	12.0	14.2	12.1	13.0	11.9	
Relational bonds							
Mean closeness to bio or step-mother (1–4)	2.67	1.19	2.65	1.2	2.69	1.2	6.1
No biological or step mother	87	12.0	53	15.1	34	9.0	6.2*
Mean closeness to bio or step-father (1–4)	2.12	1.18	2.12	1.2	2.11	1.2	5.3
No biological or step father	159	21.8	88	25.0	71	18.9	4.0*
Mean closeness to substitute caregiver (1–4)	3.03	1.17	3.10	1.1	2.95	1.2	6.4
Mean social support (0–100)	73.2	22.8	72.2	22.4	74.1	23.1	
Control variables							
Demographic							
African American	415	57.0	196	55.7	219	58.2	0.49
White	225	30.9	114	32.4	111	29.5	0.70
Other race	88	12.1	42	11.9	46	12.2	0.16
Mean age at wave 1 (17–18)	17.9	0.3	17.9	0.3	17.9	0.4	
Child maltreatment							
Mean # Physical abuse (0–7)	1.06	1.71	1.02	1.7	1.10	1.7	
Mean # Neglect (0–9)	1.74	2.06	1.65	2.0	1.84	2.1	
Any sexual abuse	219	30.1	51	14.5	168	44.7	78.8***
Child welfare							
Age at entry (0–16)	10.7	4.0	10.5	4.0	10.9	4.1	

	Total (N = 728)		Males (n = 352)		Females (n = 376)		χ^2 [**]
	# or mean	% or s.d.	# or mean	% or s.d.	# or mean	% or s.d.	
Total # placements (1–42)	5.82	5.9	6.36	6.4	5.31	5.4	
Last type of placement							
Foster care	261	35.9	127	36.1	134	35.6	0.01
Kinship care	223	30.6	102	29.0	121	32.2	0.9
Group care	130	17.9	74	21.0	56	14.9	4.7[*]
Independent living	63	8.7	25	7.1	38	10.1	2.1
Additional risks							
Teen parent	101	13.9	25	7.1	76	20.2	31.8[***]
Prior arrest	373	51.2	219	61.9	155	41.2	33.3[***]
Any psychiatric diagnosis	166	22.8	46	13.1	120	31.9	36.7[***]
Any alcohol or substance abuse diagnosis	143	19.6	81	23.0	62	16.5	4.9[*]
State							
Illinois	471	64.7	216	61.4	255	67.8	6.1[*]
Iowa	62	8.5	27	7.7	35	9.3	3.2
Wisconsin	195	26.8	109	31.0	86	22.9	0.6

Note. For all categorical variables, the frequency (#) and percentage are provided; for all count or scale variables, the mean and standard deviation (s.d.) are provided.

[*]
$p < .05$.

[**]
$p < .01$.

[***]
$p < .001$.

Table 2

Estimates from Cox Proportional Hazard Regression of Time to First Arrest on Covariates

	β	SE	Hazard ratio
Social bond variables			
Institutional bonds			
Enrolled in school	.036	0.153	1.04
Employed	−.378 **	0.126	0.68
College aspirations	−.270 *	0.123	0.76
Likely to ask CWS for help	−.048	0.078	0.95
Number of independent living services	.002	0.005	1.00
Relational bonds			
Closeness to biological or step mother	.098	0.061	1.10
No bio or step mother	.495 *	0.205	1.64
Closeness to biological or step father	−.017	0.058	0.98
No bio or step father	−.042	0.164	0.96
Closeness to substitute caregiver	.034	0.079	1.03
Perceived social support	.005 †	0.003	1.00
Control variables			
Demographic			
Male	.692 ***	0.133	2.00
African American	.719 ***	0.155	2.05
Other race	.322	0.197	1.37
Age at wave 1	−.053	0.200	0.95
Child maltreatment			
Physical abuse	.047	0.043	1.05
Neglect	−.005	0.035	1.00
Sexual abuse or assault	.025	0.153	1.02
Age at entry to foster care	.015	0.016	1.01
Child welfare experiences			
Number of placements	.035 ***	0.009	1.04
Last type of placement			
Kinship care	.194	0.154	1.21
Group care	.458 **	0.168	1.58
Independent living or other	.295	0.265	1.34
Additional risks			
Prior arrest	.814 ***	0.135	2.26
Mental health diagnosis	−.334 *	0.159	0.72
Substance abuse diagnosis	.425 **	0.139	1.53
Teen parent	.055	0.176	1.06
State			

	β	*SE*	**Hazard ratio**
IA	−.054	0.279	0.95
WI	−.107	0.155	0.90

†
p < .10.

*
p < .05.

**
p < .01.

***
p < .001 (two-tailed tests).

Table 3

Estimates from Competing Risks Regression Model

	Model 1: Drug arrest (Wald χ^2 = 104.13, df = 29, p < .0001)			Model 2: Nonviolent arrest (Wald χ^2 = 59.49, df = 29, p < .0007)			Model 3: Violent arrest (Wald χ^2 = 99.27, df = 29, p < .0001)		
	β	Robust SE	Hazard ratio	β	Robust SE	Hazard ratio	β	Robust SE	Hazard ratio
Social bond variables									
Institutional bonds									
Enrolled in school	−.022	0.266	0.98	.038	0.260	1.04	.024	0.316	1.02
Employed	−.192	0.229	0.83	−.210	0.220	0.81	−.380[†]	0.224	0.68
College aspirations	−.177	0.223	0.84	−.466[*]	0.203	0.63	.157	0.240	1.17
Likely to ask DCFS for help	−.351[*]	0.144	0.70	−.084	0.128	0.92	.312[*]	0.154	1.37
Number of independent living services	.002	0.009	1.00	.003	0.008	1.00	−.006	0.009	0.099
Relational bonds									
Closeness to biological or step mother	.055	0.110	1.06	.054	0.108	1.06	.128	0.108	1.14
No biological or step mother	.375	0.378	1.45	.204	0.354	1.23	.253	0.373	1.29
Closeness to biological or step father	.094	0.102	1.10	−.018	0.111	0.98	−.106	0.108	0.90
No biological or step father	.095	0.299	1.10	.102	0.280	1.11	−.328	0.289	0.72
Closeness to substitute caregiver	−.195	0.142	0.82	.098	0.134	1.10	.072	0.138	1.07
Perceived social support	.006	0.005	1.01	.003	0.005	1.00	−.002	0.005	1.00
Control variables									
Demographic									
Male	1.27[***]	0.288	3.57	.291	0.239	1.34	.145	0.221	1.16
African American	.468	0.285	1.60	.177	0.255	1.19	.730[**]	0.278	2.08
Other race	.055	0.386	1.06	−.395	0.366	0.67	.901[**]	0.330	2.46
Age at wave 1	.022	0.369	1.02	−.414	0.330	0.66	.473	0.371	1.61
Child maltreatment									
Physical abuse	−.126	0.092	0.88	.079	0.071	1.08	.065	0.073	1.07
Neglect	.024	0.065	1.02	−.029	0.061	0.97	−.013	0.067	0.99
Sexual abuse or assault	−.202	0.306	0.82	−.180	0.256	0.84	.549[*]	0.246	1.73

	Model 1: Drug arrest (Wald χ² = 104.13, df = 29, p < .0001)			Model 2: Nonviolent arrest (Wald χ² = 59.49, df = 29, p < .0007)			Model 3: Violent arrest (Wald χ² = 99.27, df = 29, p < .0001)		
	β	Robust SE	Hazard ratio	β	Robust SE	Hazard ratio	β	Robust SE	Hazard ratio
Age at entry to foster care	.021	0.030	1.00	.004	0.028	1.00	.005	0.029	1.00
Child welfare experiences									
Number of placements	−.023	0.018	0.98	.036*	0.015	1.04	.036**	0.014	1.04
Last type of placement									
Kinship care	.203	0.267	1.23	.026	0.275	1.03	.077	0.283	1.08
Group care	−.560	0.353	0.57	.609*	0.277	1.84	.581*	0.290	1.79
Independent living or other	−.316	0.460	0.73	.383	0.452	1.47	.312	0.451	1.37
Additional risks									
Prior arrest	.405	0.256	1.50	.605*	0.236	1.83	.819**	0.238	2.27
Mental health diagnosis	−.138***	0.322	0.87	−.283	0.268	0.75	−.335	0.278	0.72
Substance abuse diagnosis	.896***	0.257	2.45	−.050	0.253	0.95	.051	0.268	1.05
Teen parent	−.681†	0.374	0.51	.637*	0.296	1.89	−.221	0.333	0.80
State									
Iowa	−.582	0.578	0.56	.764†	0.402	2.15	−1.790†	0.999	0.17
Wisconsin	−.318	0.248	0.73	−.033	0.284	0.97	.265	0.283	1.30

† p < .10.

* p < .05.

** p < .01.

*** p < .001 (two-tailed tests).