History of Foster Care as a Risk Factor for Recidivism in Justice Involved Youth

by

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Ethics Statement

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

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Abstract

Although prior research suggests that history of foster care is linked to an increased risk for recidivism, few studies have examined this relationship. The current study examined the association between foster care and reoffending at a 3.94-year follow-up in a sample of Canadian juvenile offenders on probation (*n* = 156). Findings indicate that among youth with a history of foster care, number of placements and age of first placement did not predict any or violent recidivism. Hierarchical logistic regression models revealed that over and above gender, Aboriginal ethnicity, well-established risk factors and abuse, having a history of foster care significantly increased risk for any recidivism, but not for violent recidivism. Also, survival analysis revealed that youth with a history of foster care reoffend faster. Thus, although many believe that removing children from unsafe environments will reduce recidivism, this assumption appears incorrect. Implications for future research, policy, and practice are discussed.

Keywords: recidivism; risk factors; foster care; probation

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Chapter 1. Introduction

Foster care is viewed and utilized as a means of protecting vulnerable children who are being maltreated, are in danger or are not able to be cared for by their parents (Jonson-Reid & Barth, 2000). Foster children and youth must then cope with two kinds of traumatic experiences: the trauma they experienced which brought them into care and the adjustment to their new home environments (Goodkind, Shook, Kim, Pohlig, & Herrig, 2013), especially if they have difficulty forming stable attachments in their new homes (DeGue & Widom, 2009). Foster care includes the actual experience of living with caregivers who are not one's parents and the trauma of being separated from one's birth family. A study that examined youths' experiences before, during and after foster care found that these youth continued to experience abuse, neglect, disruption and trauma both during and after their placements in foster care (Riebschleger, Day, & Damashek, 2015). The experience of foster care can be traumatic to children and youth both because of separation from their families and possible abuse they may experience in their foster homes.

Many people believe that removing children from unsafe environments should reduce delinquency risk but research shows that children in foster care are more likely to be delinquent (Ryan & Testa, 2005). It is likely that the total experiences both before and within foster care can elevate risk of future youth justice involvement. For example, Ryan and Testa found that American youth (ages 10 to 16) with a history of foster care intervention have almost 50% higher rates of delinquency. Rates of violent offending are also high in youth with histories of foster care. In British Columbia (BC), 44% of charges for the most serious violent offenses (homicide, attempted murder, arson, and sexual assault) were held by youth who have a history of foster care (British Columbia, 2009). Almost half of the most serious violent crimes were committed by only 27% of the BC youth justice clients who have a history of foster care (British Columbia, 2009). Foster care involvement also decreases the age of first entry into the justice system in BC. Youth with a history of foster care have a mean age of first justice involvement of 14.5

years compared to 15.3 years (British Columbia, 2009). Overall, the present study aims to examine how foster care in and of itself is a risk factor for recidivism in a Canadian probation population and address some of the mixed findings in prior research.

1.1. Factors that May Impact Links between Foster Care and Reoffending

Various factors may impact the link between foster care and reoffending. These factors can affect the relationship between foster care and delinquency by strengthening the link between them. These factors include gender, the age of first placement and level of placement instability.

1.1.1. Age of First Placement

A developmental concern that seems to moderate delinquency risk is age of foster care placement. Ryan and Testa (2005) found that being placed in foster care at an older age increased the risk of delinquency for that individual. Similarly, Jonson-Reid and Barth (2000) found that being first placed in foster care from age 12 to 14 increases youth justice involvement risk, specifically for incarceration for a serious or violent offense that occurs in adolescence. These authors hypothesized that there are two possible reasons for higher risk: lack of social supports (specifically around school) and that these youth may have greater developmental social stressors than their younger peers. Another consideration is that youth entering care later may have more problematic behaviors that developed (and may be more entrenched) because they have likely suffered extended maltreatment, particularly neglect (Malvaso & Delfabbro, 2015).

1.1.2. Placement Instability

Multiple foster care placements can increase the risk for delinquency. While the majority of children and youth in foster care have only one or two different placements, many have multiple placements. For example, one third of children in care in British Columbia had between four and fifteen placements (British Columbia, 2013) while for an American sample, children in foster care are moved at least one time while in care while

one quarter experienced three or more moves (Doyle, 2007). While Ryan and Testa (2005) found that placement instability only increased delinquency risk for male foster children, a more recent study found that as number of placements increased, time to justice system involvement decreased for both male and female foster youth (Yampolskaya & Chuang, 2012).

Placement instability itself may compound pre-existing problems (Malvaso & Delfabbro, 2015). Frequent changes in foster homes, schools, service providers, neighbourhoods, having increased anxiety or anger resulting from losing multiple caregivers or access to siblings could cause and intensify trauma and compound existing problems with behavior, which in turn could cause an increase in offending risk over time (Riebschleger et al., 2015; DeGue & Widom, 2009). Jakobsen (2013) noted that behavioral problems (which are often blamed on the youth) are the strongest predictor for instability of placements and argued that behavioral problems are a symptom and not an explanation of why placement instability occurs.

1.2. Why is Foster Care Associated with Offending? Possible Explanatory Variables

Foster care may explain or contribute to the link between abuse and reoffending. In addition, foster care may increase the likelihood of other risk factors for offending, including substance use, delinquent peers and prior charges, which could in turn increase risk of offending. Thus, the relationship between foster care and offending may be indirect, and operate via these additional risk factors for offending. In this study, foster care will be examined as a possible mediator in the relationship between abuse and offending.

1.2.1. History of Maltreatment

Youth are often placed in foster care because of substantiated reports of maltreatment and this maltreatment itself is associated with increased risk of offending. Maltreatment does not necessarily end when a child is placed in care. Pecora and colleagues (2006) found that one-third of youth who had been in care reported maltreatment occurring during foster care itself. Youth in care who had a substantiated

report of any form of maltreatment had an almost 50% higher delinquency rate compared to youth with no history of maltreatment and further, youth who had three or more such reports had the highest rates of delinquency (Ryan & Testa, 2005).

As well, multiple forms of maltreatment lead to more violent offenses compared to youth with no abuse histories (van der Put, Lanctôt, De Ruiter, & Van Vugt, 2015). Abuse that is compounded (i.e., more than one type) and having been exposed to a greater severity of abuse seem to increase the risk of later youth violence (Maas, Herrenkohl, & Sousa, 2008). Bender (2010) noted that overall, there is a positive association between physical abuse, neglect and other forms of maltreatment and offending.

There appear to be gender differences when examining how maltreatment affects offending. For instance, females with investigated maltreatment had three times the entry rate into the justice system compared to non-investigated female youth while investigated maltreated males had only double the entry risk compared to non-investigated males (Postlethwait, Barth, & Guo, 2010). Alternatively, there is evidence that the association between abuse in childhood and offending may be stronger in male youth than in female youth (Asscher, van der Put, & Stams, 2015). There seem to be differences in how maltreatment can affect male and female youth, but there are mixed results in the research.

One proposed pathway from maltreatment to delinquent behavior is that abused children experience survival coping (the belief that distrust and deviance are necessary for self-protection) which in turn contributes to aggressive or defiant behavior (Ford, 2002). Maltreatment seems to be a particularly strong predictor of offending among youth with a history of care but this is likely because foster care youth have experienced more abuse overall. In this study, because of low sample numbers, abuse (including either physical, emotional, sexual, or neglect) has been collapsed into a dichotomous variable and specific forms of abuse (e.g., physical abuse) will not be analyzed separately.

Besides abuse, there are other well-established risks for youth recidivism in the literature. Andrews and Bonta (2010) list eight risk factors for criminal behavior in their Central Eight risk/need factors. These eight include “The Big Four”: History of Antisocial

Behavior; Antisocial Personality Pattern; Antisocial Cognition; and Antisocial Associates. Their "Moderate Four" include: Family/Marital Circumstances; School/Work; Leisure/Recreation; and Substance Abuse. Looking at these Central Eight risk/need factors, substance abuse, Antisocial Associates (delinquent peers) and History of Antisocial Behavior (measured in the current study as charges prior to index offense) were assessed as prior research found both substance use and peer delinquency to be higher risk factors youth with a foster care history. Interesting, although prior research has found that youth with a history of foster care have higher rates of offending, there is limited research focusing on prior charges adding recidivism risk for youth with a history of foster care within adolescence.

1.2.2. Substance Use

Substance use may be higher among justice-involved youth with a history of foster care. Postlethwait et al. (2010) found gender differences when they studied self-report delinquency for youth with a history of foster care and found that for males, level of substance use increased level of justice involvement. Another recent study found that both male and female offenders who had a history of care (compared to non-offenders who also had a history of care) scored higher on substance use (Malvaso & Delfabbro 2015). Higher substance use may be due to history of maltreatment (Goodkind et al., 2013). When looking at youth currently in care, another study found that peer associations and substance use were also important predictors of recidivism (Ryan, Williams, & Courtney, 2013).

1.2.3. Delinquent Peers

There has been much research examining the association between delinquent peers and recidivism, but there is also more specific research on youth who have a history of foster care and delinquent peers. For instance, a sample of youth ageing out of foster care that had high levels of deviant peers were found to report higher levels of being arrested than youth who had medium or low levels of deviant peer associations (Shook, Vaughn, Litschge, Kolivoski, & Schelbe, 2009). This study also noted that these youth had many opportunities to come into contact with delinquent peers because of the experiences they have had in foster care, group homes and in the justice system. A

study by Herrenkohl, Huang, Tajima, and Whitney (2003) examined pathways to violence for children that had been abused and found that abuse led to violent attitudes, which led to delinquent peer association, which in turn led to violence. Another more direct pathway to justice system involvement is when these youth respond to trauma by increasing their association with delinquent peers (Maschi, Bradley, & Morgan, 2008). Delinquent peer relationships for youth with a history of care stem from a history of maltreatment and having greater access to delinquent peers and this, in turn, puts them at higher risk for violence.

1.2.4. Prior Charges

When looking at prior charges in the research, studies reported prior charges differently e.g. looking at self-report of prior charges versus official charges. For example, one study examined self-report data from youth who were aging out of foster care and found that those youth that reported having highly delinquent peers were both more likely to have been arrested and to have higher rates of substance use (Shook et al., 2009). Although Cusick, Havlicek, and Courtney's (2012) study examined first arrest in adulthood in a sample of youth ageing out of foster care, they found that over half of these youth reported having prior involvement with the juvenile justice system. In another study, youth with charges prior to entry into child protection were removed from the study (Baskin & Sommers, 2011). Other studies operationalized prior justice system involvement as prior detention in a sample of detained youth with a history of abuse (Kingree, Phan, & Thompson, 2003).

1.2.5. Aboriginal Ethnicity

In British Columbia, nearly a third of the youth involved with youth justice are Aboriginal and more than one in five Aboriginal youth have a history of foster care compared to less than one in 30 non-Aboriginal youth with a history of care (British Columbia, 2009). Aboriginal youth are over-represented in both systems. In the current study, a small sample size and low power for Aboriginal youth prevented directly examining them, but Aboriginal ethnicity was controlled for.

1.2.6. Gender

In the research, there appear to be many differences regarding gender, foster care and youth justice involvement. For instance, one study found that being in foster care had a stronger effect on justice involvement for females than for males (Goodkind et al., 2013). But other studies did not find any differences for males and females in that for both groups, foster care doubled the risk of justice involvement (Ryan & Testa, 2005). These researchers noted that for male youth, it is placement instability that increases the risk of delinquency (Ryan & Testa, 2005). But for female youth, placement itself increases risk of justice involvement (Ryan & Testa; Goodkind et al., 2013) although females were still less likely to offend than male youth (Grogan-Kaylor, Ruffolo, Ortega, & Clarke, 2008). In the current study, the sample size for females was small which was why gender was not examined directly but instead, used as a control variable.

1.3. Limitations in Prior Research

Although there is evidence that foster care may be linked with heightened risk, a number of aspects of this link are unknown specifically when looking at recidivism within adolescence.

One limitation in prior research is lack of research around timing of recidivism (i.e. how quickly youth reoffend), particularly when comparing youth with a history of foster care to those youth with no foster care history. Other studies look at the rate of reoffending for foster care youth occurring in early adulthood only (Cusick et al., 2012) while this study looked at recidivism that occurred both in adolescence and into early adulthood.

The current study examined if certain aspects of foster care history are particularly detrimental, particularly when looking at both violent and any recidivism. The majority of the research examined only a general category of any recidivism. In one rare example of breaking down the types of recidivism, Postlethwait et al. (2010) used mild (e.g., status offenses etc.), moderate (e.g., drunk in public or property damage), or high (e.g., having a concealed weapon, gang-fighting or sexual assault). In the present study,

it was hypothesized that youth with a history of foster care would be more likely to engage in any recidivism.

Another area where there are limitations in the literature concerns how recidivism data was collected. The dependent variable in the majority of studies operationalized recidivism differently. This was likely due to the limitations of the data that they had access to such as self-report data (Postlethwait et al., 2010) but also due to differences in how youth involvement in the justice system is mandated in different states, provinces, or countries. Some examples of how recidivism was defined included filing a delinquency petition (Ryan & Testa, 2005), or having a second placement in a detention or juvenile justice facility during the study period (Yampolskaya & Chuang, 2012; Goodkind et al., 2013). In the current study, recidivism was measured using charges from official records. As well, prior research has focused more on initial risk for offending as opposed to recidivism (Ryan, Hernandez, & Herz, 2007).

And finally, after controlling for other well-known risk factors, the current study examined if having a history of foster care still increased risk for violent or any recidivism in adolescence. Here, it was hypothesized that above and beyond prior charges, delinquent peers, and substance abuse, that having a history of foster care still increased risk for violent and any recidivism. And more specifically, when looking at just the foster care group, will number of placements and age at first placement add incremental validity to three well-established risk factors? Prior research often focused on foster care as a predictive risk for youth either aging out of care (Ryan et al., 2007) or as a risk for adult criminality (i.e., Lindquist & Santavirta, 2014) while this study looked at risk for recidivism in youth up to early adulthood. As well, prior charges in the literature were based on self-report data and often, on youth ageing out of care (Shook et al., 2009; Cusick et al., 2012).

Bender (2010) noted that few studies have explained the maltreatment-delinquency association and that one possible reason for this is that two bodies of research have separately examined this. One body was child welfare research and the other focus of research was youth delinquency. Prior recent in this area was predominantly done in the field of social work where the data was more focused on official foster care records.

1.4. Current Study

This study looked at reoffending in youth already involved in the justice system (on probation) with a history of foster care compared to justice involved youth with no history of foster care. It also looked at how and if specific kinds of recidivism were associated with specific variables (such as history of abuse) in youth that have a history of foster care. Further, this study looked at whether different variations of foster care history (i.e., age of first placement and number of placements) were associated with a greater elevation in risk for violent and any reoffending.

The current study addressed these questions:

Question 1: Do foster care experiences predict violent or any reoffending and a quicker time to reoffending for youth?

Question 2: In the foster care group, does age at first placement or number of placements predict reoffending above and beyond the well-established risk factors of prior charges, substance use and delinquent peers?

Question 3: Does foster care add incremental predictive validity above and beyond well-established risk factors for offending (substance use, peer delinquency, prior charges) and abuse history? Foster care youth have greater abuse victimization histories but is there something else besides abuse history that contributes to risk of reoffending?

Question 4: Does foster care mediate the relationship between abuse and offending? Does having a history of foster care account for some of the variance in the relationship between abuse and recidivism?

Chapter 2. Methods

2.1. Participants

Data for the current study comes from the Mental Health, Risks and Strengths Study that was completed in the Lower Mainland in British Columbia, Canada (Principal Investigator: Dr. Jodi Viljoen, Co-Investigator; Dr. Kevin Douglas). The participants were recruited from community probation offices and youth justice sites. Overall, 508 youth were approached, 325 agreed to hear about the study. Of these 325, 163 youth were enrolled in the study with the remainder having closed files, not being interested, parents declining etc. As seven of these youth did not have recidivism data, they were also dropped from the study. The data for this study were collected from September 2008 to May 2011 and the youth were contacted at 3-month, 6-month, 9-month and 12-month follow-ups. Only baseline data were used in the current study. The purpose of the Mental Health, Risks and Strengths study was to examine adolescent offenders' mental health and the relationships between mental health and adverse outcomes as well as examining youths' broader risks and protective factors.

The sample included 156 youth (107 males; 49 females) in the youth criminal justice system who were actively involved in probation with an average age of 15.96 (*SD* = 1.15; ages 12 to 18). Forty-five youth (28.8%) were Aboriginal or mixed Aboriginal while 111 (71.2%) were non-Aboriginal. In this sample, 50 youth (32.1%) had charges prior to their index offense. The mean age of first arrest was 14.05 years old (*SD* = 1.71) Forty-seven (30.1%) participants violently reoffended while 79 (50.6%) were charged or convicted of any recidivism (both violent and nonviolent). In total, 90 (57.7%) did *not* have any history of foster care placements while 66 (42.3%) were taken out of the home and placed in foster care at some time in their life, including currently.

Of the youth with foster care involvement, (*n* = 66) the minimum age for being removed was the first year of life with maximum age being removed being age 17. The

mean for first removal age is 8.88 (*SD* = 5.22). The minimum number of foster care placements (*n* = 58) was one and the highest number of placements was 26 with the average number of placements being 5.03 (*SD* = 5.92).

2.2. Procedure

The study included probation file review, assessment tools and interviews. The criterion for inclusion for youth were being ages 12 to 18, having been adjudicated in the youth criminal justice system, on probation and able to speak English. Parents or guardians had to provide consent and youth had to provide assent. Once this was done, the youth completed an initial assessment, which comprised a semi-structured interview and self-report questionnaires that were designed to evaluate the youth's risks, strengths and activities. Information from youth probation files was also collected and used in conjunction with interview information. Baseline interviews were approximately two hours long. At the baseline interview, youth were compensated with a $20 gift card.

2.3. Measures and Recidivism Variables

The psychometric properties (e.g., mean, standard deviation, internal consistency) of the major study variables for the sample as a whole are provided in Table 2.1. For reference, Cronbach's alpha values of .91 and greater are considered excellent; values between .80 and .90 are considered good; values between .69 and .79 are considered fair; and values of .68 and less are considered poor (Nunnally & Bernstein, 1978).

Table 2.1. Psychometric Properties of Major Study Variables (from Baseline Data)

Scale	alpha	*M (SD)*	Min – Max	Skew (SE)	Kurtosis (SE)
MAYSI Alcohol and Drug Scale	.84	4.5 (2.65)	0 – 8	-.38 (.19)	-1.18 (.39)
Delinquent Peer Scale	.91	2.09	1.79 – 2.86	.51 (.20)	-.57 (.39)

2.3.1. Demographic Information

Youth reported their age and gender in various self-report measures. Youth reported Aboriginal Ethnicity in interviews. If youth noted that they were of mixed heritage (i.e., chose another ethnicity and Aboriginal ethnicity), they were collapsed into the Aboriginal variable.

2.3.2. Foster Care

Information regarding the youth's foster care history was provided in the youth interview that was developed for this study. In particular, youth were asked about the instability of their living situations. For example, youth were asked if they had ever been in foster care, at what age they had first been removed from their home, and how many different foster homes they had been in. History of foster care was a dichotomous yes/no variable. Currently living in foster care is considered having a history of foster care. The number of placements variable and age at first placement variables were both continuous variables.

2.3.3. Peer Delinquency

The Delinquent Peers Scale is originally from the Rochester Youth Study (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994). For the present study, the Peer Delinquency scale was eight questions (e.g., Do you have a friend who has attacked someone with a weapon to hurt them?) (See Appendix 1) The answer key was a four point Likert scale with 1 = *none of them*; 2 = *very few of them*; 3 = *some of them*; and 4= *most of them*. As such, the highest score obtainable is 32 with a higher score indicating more delinquent peers and the lowest score of 8, which denotes no delinquent peer friendships. The internal consistency of this scale is alpha = .91.

2.3.4. Substance Use

Substance use information was collected using the Alcohol/Drug Use (AD) scale from the Massachusetts Youth Screening Instrument- Version 2 (Grisso & Barnum, 2006). There are eight items on the scale with five items concerned with negative consequences of use and three looking at substance use characteristics that represent

risk for abuse. Examples of questions include, “Have you ever done anything you wish you hadn’t, when you were drunk or high?” Or “Have you used alcohol or drugs to help you feel better?” The questions are scored with zero equalling “no” and one equalling “yes” with the highest score being eight. Higher scores indicate higher risk of abuse.

2.3.5. Prior Charges

This information was taken from official probation records in CORNET. Prior charges are any charges before the index probation offense and were dichotomously coded as present or not.

2.3.6. History of Abuse

This data was collected from official probation records in CORNET. History of physical abuse, sexual abuse, emotional abuse and/or neglect was taken from youth probation files. Each form of abuse was dichotomously coded (yes/no) from either yes, possibly, or no answers. “Possibly” and “don’t know” were added to the no distinction. All forms of abuse were also collapsed into one dichotomous overall abuse variable. A dichotomous polyabuse variable was also created (if the youth reported two or more types of abuse). As a result of low sample sizes for specific forms of abuse, only overall abuse will be examined in the current study. Another reason that abuse variables were not looked at separately was the lack of specific information available. For instance, even though two youth may have reported physical abuse, there was no qualifying information for the physical abuse e.g. one youth may have experienced the abuse one time at age 10 while the other youth experienced chronic physical abuse for their entire childhood.

2.3.7. Age of First Arrest

This information was collected from Corrections Network (CORNET). CORNET is an integrated software system that tracks all offenders in provincial institutions within the province of British Columbia.

2.3.8. Dependent Variables

Official information of charges was collected from Corrections Network (CORNET) files. Official data was cumulatively collected from the start of the baseline assessment from CORNET. The collected data included the number of total charges incurred over the follow-up period, the specific charge, the type of charge, the total number of that type of charge and the date of the offense. Violent and Any recidivism were dichotomously coded (yes/no). Violent charges included offenses such as murder and assault, unlawful confinement, robbery and uttering threats. Any recidivism includes both violent and all other types of offenses.

2.3.9. Time-at-risk

The time-at-risk (days) was calculated for violent and any recidivism as the number of days between the date of baseline data collection and one of two following dates: the date of the offense (violent or any) or the end of the follow-up interval. This was done because the youth in the study entered and remained in observation for differing lengths of time and therefore, their risk exposure differed.

2.4. Data Analysis

2.4.1. Missing Data

For the regression analyses, if the dependent variable was missing, respondents were excluded. Thus, seven participants were excluded from the original sample of 163 youth. Analyses were conducted using SPSS Version 19. In question two, which examined the subsample of foster, care youth, if either age of first placement or number of placements was missing, that participant was also excluded.

2.4.2. Preliminary Analyses and Diagnostics

Assumption checks were done for each of the statistical tests run. In order to look at the assumption of correct specification of the independent variables, a literature review was done to support both the theory being investigated and that the proper

techniques were used to measure each variable. The no measurement error in the independent variables assumption will be met by using assessment tools that are validated. Regression model outliers were assessed using deviance and standardized Pearson residuals. If these values exceeded critical values, they were deemed to be influential.

2.4.3. Analyses

For the first question, chi square analyses were used to look at the relationships between foster care status and types of reoffending. Logistic regressions were then run for both types of offending. In addition, Kaplan Meier regression was run to analyze the time to reoffense. Kaplan Meier (Kaplan & Meier, 1958) is a non-parametric statistical procedure in which the outcome is the time until the event occurs (the survival time) (Kleinbaum & Klein, 2012). Censoring occurs when participants "survive" until the end date (i.e. youth do not recidivate in the given time period) (Singer & Willett, 1993). Kaplan Meier allows for the calculation of the odds of a particular event (recidivism) occurring (Ryan, Hong, Herz, & Herndandez, 2010).

For question two, only the youth with a history of foster care were examined using hierarchical logistic regression. Here, age of first placement and number of placements were analysed to see if they predicted reoffending. For question three, hierarchical logistic regressions were run to determine if foster care added incremental predictive validity above and beyond well-established risk factors and abuse history. Finally, in question four, hierarchical logistic regression was used to examine whether or not there was a mediation effect.

For all of the regressions, Cox and Snell R^2 values, Nagelkerke R^2 and odds ratios (OR) were calculated to provide measures of effect size. Also, for all of the logistical regression analyses that were run, each factor's relative strength and contribution in the overall model were measured by the odds ratio, the Wald statistic and significance test. The model's overall goodness of fit was interpreted with the model chi-square and degrees of freedom, the goodness of fit measure and the -2log likelihood. Recidivism was coded into two dichotomous variables (violent and any recidivism) for binary logistic regression where "0" indicated no recidivism and "1" indicated recidivism since the baseline assessment. Odds ratios below 1 were interpreted as a decrease in

risk for recidivism or, if they are above 1.00, odds ratios were interpreted as an increase in risk for recidivism (Herrenkohl, Lee, & Hawks, 2012). For the other dichotomous variables used in logistic regression, “0” represented no while “1” represented yes (e.g., foster care status, Aboriginal ethnicity, recidivism).

2.4.4. Power

Based on a general rule of at least 20 participants per independent variable in the regression analysis, a sample size of 60 is sufficient to run the planned analysis with up to three predictors in the model. Long (1997) stated that a minimum sample size for logistic regression is at least 10 observations per predictor. As well, post hoc power analyses were conducted using G*Power 3.1 to determine the observed power in the study. Cohen (1988) recommends an observed medium effect size of 0.15 (see Table 2.2).

Because the power for both female participants and Aboriginal participants was low, gender and Aboriginal ethnicity were only controlled for in the regressions.

Table 2.2. Post hoc Power Analyses

Group	*n* =	Predictor Variables	alpha	Effect size	Observed power
Whole sample	156	Eight	.05	.15	.94
Foster Care	69	Four	.05	.15	.70
Gender	51	Three	.05	.15	.59
Aboriginal Ethnicity	49	Three	.05	.15	.57
Any Abuse	80	Three	.05	.15	.82

Chapter 3. Results

3.1. Comparison of Youth With and Without a Foster Care History on Demographic Variables

As shown in the demographics table (Table 3.1), there were no significant differences on t-tests between those with a history of foster care (the foster care group) and those with no history of care when looking at age, age at first arrest, substance use and peer delinquency.

Chi-square tests were performed and there were significant associations found with all types of abuse (except for sexual abuse) and foster care group status. Physical abuse (χ^2 [1, n = 156] = 23.12; p < .001), emotional abuse (χ^2 [1, n = 156] = 5.80, p = .02) and neglect (χ^2 [1, n = 156] = 26.84, p < .001) all showed a significant relationship with foster care group status. Both any abuse (χ^2 [1, n = 156] = 27.85; p < .001) and poly abuse (two or more types of abuse experienced) (χ^2 [1, n = 156] = 17.36 p < .001) were also significantly associated with foster care group status. There were significant differences between the foster care group and non-foster care group on all types of abuse except for sexual abuse, which makes sense as these youth were placed in care as a result of abuse or neglect. Noteworthy here is the low numbers of youth in the whole group who reported emotional abuse, which may indicate under-reporting of emotional abuse.

Table 3.1. Demographics for Full Sample, Foster Care and Non-Foster Care Groups

	Full Sample *n* = 156	Foster Care *n* = 66	Non-Foster Care *n* = 90	Differences between Foster & Non-Foster Care
Age	*M* = 15.96, *SD* = 1.15	*M* = 15.92 *SD* = 1.15	*M* = 15.98, *SD* = 1.15	*t* (154) = .29, *p* = .78
Gender	Male *n* = 107; 68.6% Female *n* = 49; 31.4%	Male *n* =45; 68.2% Female *n* =21; 31.8%	Male *n* = 62; 68.9% Female *n* =28; 31.1%	χ^2 (1, *n*= 156) = 0.009 *p* = .93
Aboriginal or Mixed	28.8% Aboriginal; 71.2% non-Aboriginal	36.4% Aboriginal; 63.6% non-Aboriginal	23.3% Aboriginal; 76.7% non-Aboriginal	χ^2 (1, *n* = 156) = 3.15 *p* = .07
Prior Charges	*n* =50; 32.1%	*n* =21; 31.8%	*n* =29; 32.2%	χ^2 (1, *n* = 156) = .003, *p* = .96
Peer Delinquency	*M* = 16,75 *SD* = 6.33	*M* = 16.51 *SD* = 6.79	*M* = 16.92 *SD* = 6.01	*t* (151) = .40, *p* = .69
Age at First Arrest	*M* = 14.05 *SD* = 1.71	*M* = 13.94 *SD* = 1.93	*M* = 14.14 *SD* = 1.54	*t* (152) = .74, *p* = .46
Any Abuse	*n* =75; 48.1%	*n* = 48; 72.7%	*n* =27; 30%	χ^2 (1, *n* = 156) = 27.85, *p* < *.001*
Physical Abuse	*n* = 50; 32.1%	*n* =35; 53%	*n* =15; 16.7%	χ^2 (1, *n* = 156) = 23.12 *p* < .001
Sexual Abuse	n = 16; 10.3%	*n* =9; 13.6%	*n* =7; 7.8%	χ^2 (1, *n* = 156) = 1.42, *p* = .23
Emotional Abuse	*n* = 23; 14.7%	*n* =15; 22.7%	*n* =8; 8.9%	χ^2 (1, *n* = 156) = 5.80 *p* = .02
Neglect	*n* = 44; 28.2%	*n* =33; 50%	*n* =11; 12.2%	χ^2 (1, *n* = 156) = 26.84 *p* < .001
Poly Abuse	*n* = 34; 21.8%	*n* = 25; 37.9%	*n* = 9; 10%	χ^2 (1, *n* = 156) = 17.36, *p* < .001
Substance Use	*M* = 4.5 *SD* = 2.65	*M* = 4.61 *SD* = 2.60	*M* = 4.26 *SD* = 2.69	*t* (154) = -.82, *p* = .42

3.1.1. Post-Baseline Recidivism

Youth completed a baseline assessment and were followed for an average of 3.94 years (*SD* = 1.05) with a range from a minimum of 1.66 years to a maximum of 5.6 years. There was a significant association between any recidivism and foster care status group with χ^2 (1, *n* = 156) = 11.75, *p* = .001 but no significant association was found for violent recidivism and foster care history status (χ^2 [1, *n* = 156] = 2.11, *p* = .15). In the foster care sample, 64% had recidivated while only 37.2% of youth with no history of foster care had recidivated (see Table 3.2).

Table 3.2. Outcome Variables for Full Sample, Foster Care and Non-Foster Care Group

	Full Sample (*n* = 156)	**Foster Care *n* = 66**	**Non-Foster Care *n* = 90**	**Differences between Foster & Non-Foster Care**
Violent Recidivism	*n* = 47; 28.8% Males *n* = 36 Females *n* = 11	*n* =24; 34.8% Males *n* = 19; 40.4% Females *n* = 5; 22.7%	*n* =23; 24.5% Males *n* = 17; 26.2% Females *n* = 6; 20.7%	χ^2 (1, *n* = 156) = 2.11, *p* = .15
Any Recidivism	*n* =79; 48.5%	*n* =44; 63.8% Males *n* = 33; 70.2% Females *n* =11; 50%	*n* =35; 37.2% Males *n* = 26; 41.9% Females *n* = 9; 32.1%	χ^2 (1, *n* = 156) = 11.75, *p* = .001

3.2. Question 1

Do foster care experiences predict violent or any reoffending and a quicker time to reoffending for youth?

The full sample was examined. First, chi-square correlations were used to look at the simple associations between foster care status (no history of foster care versus youth with a history of foster care) and reoffending (violent recidivism and then for any recidivism). Logistic regression was used to examine both the individual and combined influences of independent variables on recidivism. Violent and any reoffending were each the dichotomous dependent variable with the predictor variable being foster care history. Gender, Aboriginal ethnicity and foster care history were entered at the same time to see whether foster care history explained additional risk for reoffending. Finally, Kaplan Meier was run to determine if youth with a history of foster care reoffended more quickly than youth with no history of care.

3.2.1. Foster Care History and Violent Recidivism

There was no significant association between the foster care status and violent recidivism (χ^2 [1, n = 156] = 2.11, p = .146). For probation youth with a history of foster care, 24 (34.8%) reoffended violently while 23 (24.5%) probation youth with no history of foster care recidivated violently.

A logistic regression was performed to determine if foster care status, gender and being Aboriginal affected the likelihood that participants were charged with violent recidivism. The model was not statistically significant with χ^2 (3) = 6.61, p = .09 (see Table 3.3). Foster care history was not a significant predictor of violent recidivism when controlling for gender and Aboriginal ethnicity.

Table 3.3. Logistic Regression Predicting Likelihood of Violent Recidivism and Foster Care Status controlling for Gender and Aboriginal Ethnicity

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Gender	-.59	.41	2.15	1	.14	0.55	0.25	1.22
Aboriginal Ethnicity	.59	.38	2.41	1	.12	1.81	0.86	3.83
Foster Care status	.45	.36	1.52	1	.22	1.56	0.77	3.16
			$\chi^2(3) = 6.61$, $p = .09$					

Final Model: Cox and Snell R^2 =.04; Nagelkerke R^2 = .06

Finally, a Kaplan Meier survival analysis was run (see Figure 3.1). The mean time to first charge for violence was 418 days or approximately 1.1 years. The median time to first violent charge for those experiencing a charge was 217 days or approximately .6 years.

A log rank test determined that there were no differences in the survival distributions for youth with a history of foster care versus youth with no history of foster care for violent recidivism (χ^2 [1] = 2.92, p = .08). Both youth with a history of foster care and youth with no history of foster care generally seem to offend at the same rate.

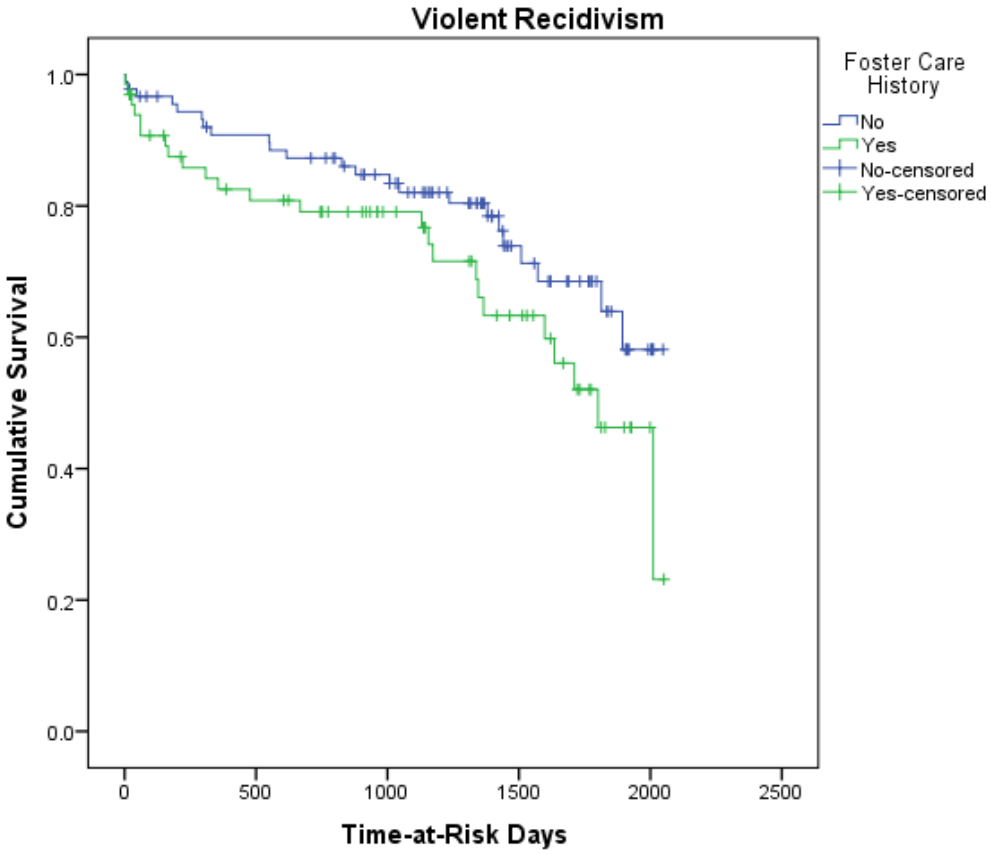

Figure 3.1. Kaplan Meier Survival Analysis for Youth With and Without a History of Foster Care and Violent Recidivism

3.2.2. Foster Care History and Any Recidivism

There was a significant association between foster care status and any recidivism (χ^2 [1, n = 156] = 11.75; p = .001). Forty-four youth (63.8%) with a history of foster care had reoffended either violently or non-violently while only 35 youth (37.2%) with no history of foster care had displayed any recidivism.

A logistic regression was carried out to determine how gender, Aboriginal ethnicity and foster care status affected the risk prediction of any recidivism. The model was significant with χ^2 (3) = 18.53, p < .001. The Hosmer and Lemeshow test showed a good fit with χ^2 (4) = 3.03, p = .55 (see Table 3.4). History of foster care was the only significant predictor of any recidivism after controlling for gender and Aboriginal ethnicity.

Youth on probation with a history of foster care were three times more likely to reoffend either violently or nonviolently than youth on probation with no history of foster care.

Table 3.4. Logistic Regression Predicting Likelihood of Any Recidivism based on Gender, Aboriginal Ethnicity and Foster Care Status

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Aboriginal Ethnicity	.71	.39	3.43	1	.06	2.04	0.96	4.33
Gender	-.67	.370	3.28	1	.07	0.51	0.25	1.06
Foster Care Status	1.11	.349	10.17	1	.001	3.04	1.54	6.02
			χ^2 (3) = 18.53, p < .001					

Final Model: Cox and Snell R^2 = .11. Nagelkerke R^2 = .15.

A Kaplan-Meier survival analysis was then run. The mean time to first charge for was 337 days or approximately .9 years. The median time to first charge for those experiencing a charge was 155 days or approximately .4 years. The log rank test determined that there was a difference in the distribution for youth with a history of foster care versus youth with no history of foster care when looking at any recidivism as the outcome. The survival distributions for the two groups were statistically significantly different with χ^2 (1) = 13.25, p < .001. Plots of the Kaplan-Meier curve are shown in Figure 3.2. Here, the KM curve for the foster care group is consistently lower and drops faster than for the non-foster care group which indicates that youth with a history of foster care reoffend quicker and reoffend more than their non-foster care peers.

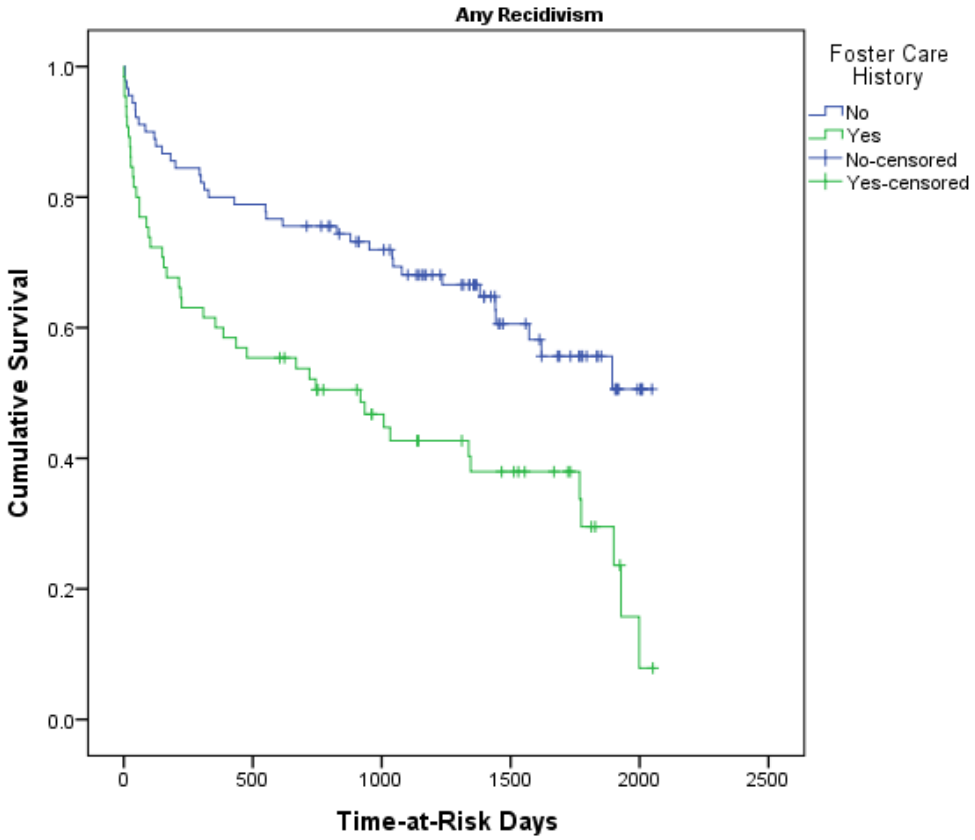

Figure 3.2. Kaplan Meier Survival Analysis for Youth With and Without a History of Foster Care and Any Recidivism

3.3. Question 2

In the foster care group, does age at first placement or number of placements predict reoffending above and beyond the well-established risk factors of prior charges, substance use and delinquent peers?

Aboriginal ethnicity and gender were not examined here because of low power issues.

3.3.1. Age of Placement

A hierarchical logistic regression was run with prior charges, substance use and delinquent peers entered into the first block and age of first placement entered into the

second block for the foster care group only. This model was associated with increased risk for violent recidivism in the foster care group with χ^2 (4, n = 47) = 22.06, p < .001 (see Table 3.5). The Hosmer and Lemeshow Test indicates a good fit with χ^2 (7, n = 47) = 5.5, p = .60. Prediction was driven by having prior charges, substance use issues and delinquent peers while placement age itself was not a significant predictor. Foster care youth with a history of prior charges had an 11.51 times greater chance of violent recidivism and 2.67 greater odds of violent recidivism if youth had greater substance use issues. Having delinquent peers appears to lessen these youth's propensity towards violent offending with an *OR* = 0.82.

Table 3.5. Logistic Regression Predicting Likelihood of Violent Recidivism based on Prior Charges, Substance Use, Delinquent Peers and Age of First Foster Care Placement

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Block 1								
Prior Charges	2.44	1.05	5.38	1	.02	11.51	1.46	90.69
Substance Use	.98	.39	6.21	1	.01	2.67	1.23	5.79
Delinquent Peers	-.20	.08	5.77	1	.02	0.82	0.70	0.97
			χ^2 (3, n = 47) = 18.79, p < .001					
Block 2								
Placement Age	-.15	.09	2.90	1	.09	0.86	0.72	1.02
			χ^2 (1, n = 47) = 3.27, p = .07					

Final Model: Cox and Snell R^2 = .16. Nagelkerke R^2 = .22

For any recidivism, hierarchical logistic regression revealed that although age of foster care placement itself was not a significant predictor, the model was significant with χ^2 (4, n = 49) = 9.53, p = .049. The Hosmer and Lemeshow test showed a good fit with χ^2 (8, n = 49) = 5.5, p = .70. All predictive power in this model was driven by higher substance use, which increased the risk of any recidivism for foster care youth by 1.36 times and prior charges which increased risk of recidivism by 1.61 times (see Table 3.6).

Table 3.6. Logistic Regression Predicting Likelihood of Any Recidivism based on Prior Charges, Substance Use, Delinquent Peers and Age of First Foster Care Placement

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Block 1								
Prior Charges	.47	.74	.41	1	.52	1.61	0.38	6.82
Substance Use	.31	.14	5.29	1	.02	1.36	1.05	1.77
Delinquent Peers	.04	.06	.54	1	.46	1.04	0.93	1.17
			χ^2 (3, n = 49) = 8.64, p = .04					
Block 2								
Placement Age	-.06	.07	.88	1	.35	0.94	0.82	1.07
			χ^2 (1, n = 49) = .90, p = .34					

Final Model: Cox and Snell R^2 = .18 Nagelkerke R^2 = .25

3.3.2. Number of Placements

Hierarchical logistic regression was run with prior charges, substance use and peer delinquents entered into block one and with number of foster care placements entered into block two. With an outcome of violent recidivism, this model was significant with χ^2 (4, n = 57) = 11.93 p = .02, although number of placements did not significantly add to prediction of risk for violent recidivism (see Table 3.7). The model has a good fit with Hosmer and Lemeshow test results of χ^2 (7, n = 57) = 4.95, p = .67. In this model, foster care youth with a history of prior charges are 4.5 times more likely to reoffend violently.

Table 3.7. Logistic Regression Predicting Likelihood of Violent Recidivism based on Prior Charges, Drug and Alcohol Use, Delinquent Peers and Number of Foster Care Placements

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Block 1								
Prior Charges	1.50	.66	5.25	1	.02	4.49	1.24	16.21
Substance Use	.24	.15	2.40	1	.12	1.27	0.94	1.72
Delinquent Peers	.01	.05	.07	1	.79	1.01	0.92	1.12
			$\chi^2(3, n = 57) = 10.08, p = .02$					
Block 2								
Placement Number	-.09	.07	1.56	1	.21	0.92	0.80	1.05
			$\chi^2(1, n = 57) = 1.86, p = .17$					

Final Model: Cox and Snell $R^2 = .19$ Nagelkerke $R^2 = .27$

Using hierarchical logistic regression, the next model examined whether number of placements predicts any recidivism while controlling for prior charges, substance use and having peers who are delinquent. Results revealed that this model was not significant with χ^2 (4, $n = 57$) = 7.95, $p = .09$ (see Table 3.8).

Table 3.8. Logistic Regression Predicting Likelihood of Any Recidivism based on Prior Charges, Drug and Alcohol Use, Delinquent Peers and Number of Foster Care Placements

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Block 1								
Prior Charges	.30	.67	.21	1	.65	1.35	0.37	5.00
Substance Use	.21	.12	3.07	1	.08	1.24	0.98	1.57
Delinquent Peers	.06	.05	1.25	1	.26	1.06	0.96	1.17
			$\chi^2(3, n = 57) = 7.95, p = .047$					
Block 2								
Placement Number	-.003	.06	.004	1	.95	0.99	0.89	1.11
			$\chi^2(1, n = 57) = .004, p = .95$					

Final Model: Cox and Snell $R^2 = .13$. Nagelkerke $R^2 = .18$

3.4. Question 3

Does foster care add incremental predictive validity above and beyond well-established risk factors for offending (substance use, peer delinquency, prior charges) and abuse history?

3.4.1. Violent Recidivism

Here, hierarchical logistic regression analyses were carried out to examine if foster care history added incremental validity above and beyond well-established risk factors and any abuse (at least one of physical, sexual, emotional abuse or neglect) to predict for violent recidivism in the whole group. Gender, Aboriginal ethnicity, substance use, peer delinquency and prior charges were added to block one. Any abuse was added to the second block followed by the foster care variables in the third block. This model was significant with χ^2 (7, n = 153) = 28.93 $p < .001$ but neither history of abuse

nor foster care history were significant predictors of violent recidivism. The Hosmer and Lemeshow Test revealed that the model was a good fit (χ^2 [8] = 7.83, p = .45). Having a history of past charges increased the odds by 2.82 times for risk of violent recidivism while greater substance use issues added 1.33 times the risk for violent recidivism (see Table 3.9).

Table 3.9. Associations between Violent Recidivism, Past Charges, Substance Use, Delinquent Peers, Any Abuse, and Foster Care History, Controlling for Gender and Aboriginal ethnicity

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Block 1								
Aboriginal Ethnicity	-.11	.44	.07	1	.80	0.89	0.38	2.11
Gender	-.68	.44	2.40	1	.12	0.51	0.21	1.20
Past Charges	1.04	.41	6.58	1	.01	2.82	1.28	6.24
Substance Use	.28	.10	8.54	1	.003	1.33	1.10	1.60
Delinquent Peers	.02	.03	.40	1	.53	1.02	0.96	1.08
			χ^2 (5, n = 153) = 27.27, p < .001					
Block 2								
Any Abuse	.04	.41	.007	1	.93	1.04	0.47	2.30
			χ^2 (1, n = 153) = .007 p = .93					
Block 3								
Foster Care	.55	.43	1.64	1	.20	1.73	0.75	3.99
			χ^2 (1, n = 153) = 1.65 p = .20					

Final Model: Cox and Snell R^2 =. 17 Nagelkerke R^2 = .24

3.4.2. Any Recidivism

A hierarchical logistic regression was run to see if foster care history added incremental validity when looking at any recidivism. The model was found to be significant with χ^2 (7, n = 153) = 41.75, p < .001. The Hosmer and Lemeshow Test revealed that the model was a good fit (χ^2 [8] = 6.47, p = 0.60). Being male, having past

charges, having higher rates of substance use and a history of foster care all contributed significantly to the model (see Table 3.10). Having a history of foster care increased the likelihood of reoffending violently or nonviolently by about 2.8 times. Having a history of any abuse also increased the odds of any recidivism by 2.8 times.

Table 3.10. Associations between Any Recidivism, Past Charges, Substance Use, Delinquent Peers, Any Abuse, and Foster Care History, Controlling for Gender and Aboriginal Ethnicity

	B	SE	Wald	*df*	*p*	Odds Ratio	95% CI For Odds Ratio	
							Lower	Upper
Block 1								
Aboriginal Ethnicity	.23	.42	.31	1	.58	1.26	0.56	2.89
Gender	-.83	.39	4.40	1	.04	0.44	0.20	0.95
Prior Charges	.46	.40	1.36	1	.24	1.59	0.73	3.45
Substance Use	.26	.08	10.34	1	.001	1.29	1.11	1.51
Delinquent Peers	.03	.03	1.24	1	.27	1.04	0.97	1.10
			$\chi^2(5, n = 153) = 28.15, p < .001$					
Block 2								
Any Abuse	1.02	.39	7.02	1	.01	2.78	1.31	5.93
			$\chi^2(1, n = 153) = 7.23, p = .01$					
Block 4 **Foster Care**	1.04	.42	6.17	1	.01	2.82	1.25	6.40
			$\chi^2(1, n = 153) = 6.37, p = .01$					

Final Model: Cox and Snell R^2 = .24. Nagelkerke R^2 = .32

3.5. Question 4

Does history of any abuse mediate the relationship between abuse and reoffending? Does having a history of foster care account for some of the variance in the relationship between abuse and recidivism?

Hierarchical logistic regression was used to examine whether or not there is a mediation effect. The test for mediation, introduced by Baron and Kenny (1986) is the

most frequently used test in psychology research. Another strategy that is becoming more popular was introduced by Preacher and Hayes (2004). The procedure follows these requirements: that X (the independent variable) significantly predicts Y (the outcome variable); that X significantly predicts M (the mediator variable); and that M significantly predicts Y when controlling for X. Finally, by testing the effect of X on Y when controlling for M, perfect mediation (the effect of X on Y is reduced to zero) or partial mediation can be determined.

This mediation model was run to test for both outcome variables: violent recidivism and any recidivism. The model estimated the following: 1) the total effect of abuse (independent variable) on recidivism (dependent variable) (see Figure 3.3, path c); 2) the direct effect of abuse on foster care (mediator) (see Figure 3.3, path a); 3) the direct effect of foster care (the mediator) while controlling for any abuse (the independent variable) (see Figure 3.3, path b); and 4) the direct effect of abuse (independent variable) on recidivism (dependent variable) while controlling for the mediator (foster care) (Figure 3.3, path c').

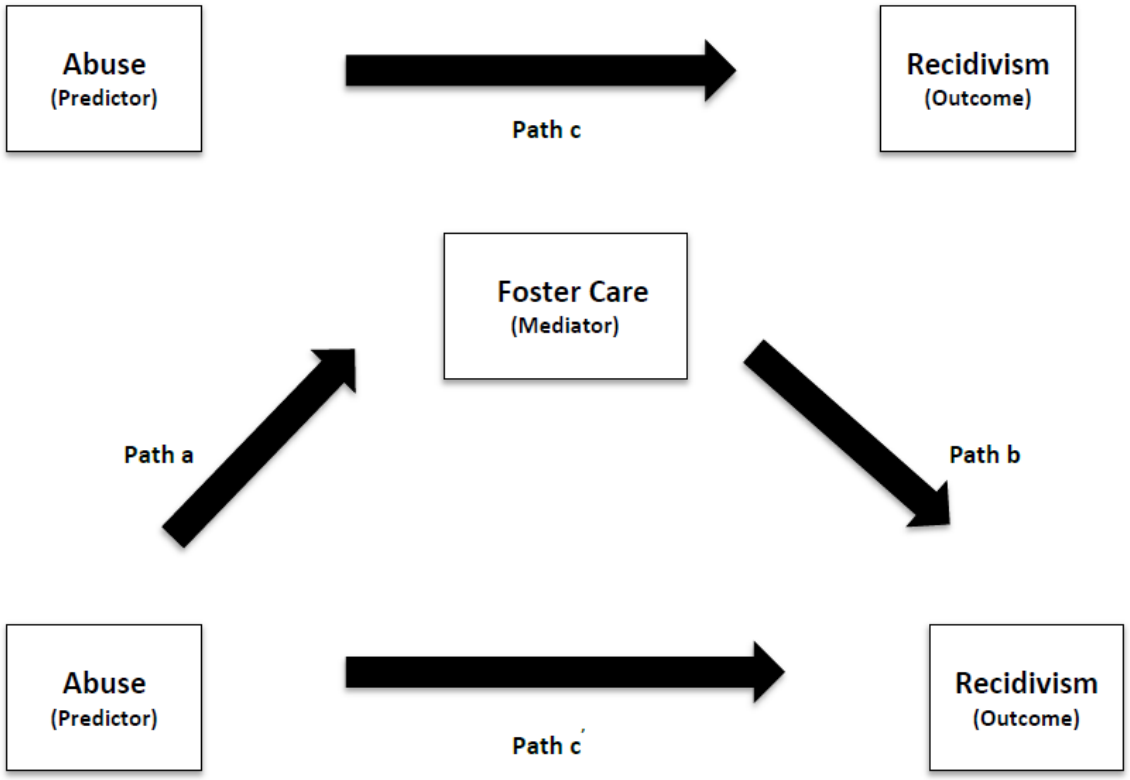

Figure 3.3. Mediation

Violent Recidivism. As abuse did not predict violent recidivism with χ^2 (1) = 1.41, p = .24, Step one for mediation was not met and thus, foster care did not mediate the relationship between abuse and violent recidivism.

Any Recidivism. For any recidivism, abuse significantly predicted any recidivism with χ^2 (1) = 12.65; p < .001, thus, Step one (path c) was fulfilled (see Figure 3.4). For Step two (path a) to be fulfilled, the predictor variable (abuse) must significantly predict foster care history. Step two was also fulfilled with χ^2 (1) = 25.85 p < .001. For Step 3, the direct effect of mediator on dependent variable controlling for the independent variable- outcome must be significant. Any recidivism was the outcome variable and abuse was entered in the first step and foster care was entered in the second step to estimate and test path b. Foster care significantly predicted any offending with χ^2 (1) = 4.88; p = .03 so Step three was met.

And finally, Step four looked to establish that the mediator, foster care, completely mediated the abuse – offending relationship. The effect of abuse on any

recidivism controlling for foster care should be zero. The relationship between any abuse and any recidivism was significant after foster care was included in the model (χ^2 [1] = 5.59; p = .02) (see Figure 3.4). Since this relationship was significant, full mediation was not indicated. But because Step three was fulfilled; there was a partial mediation effect. The relationship between abuse and any recidivism was partially mediated by foster care.

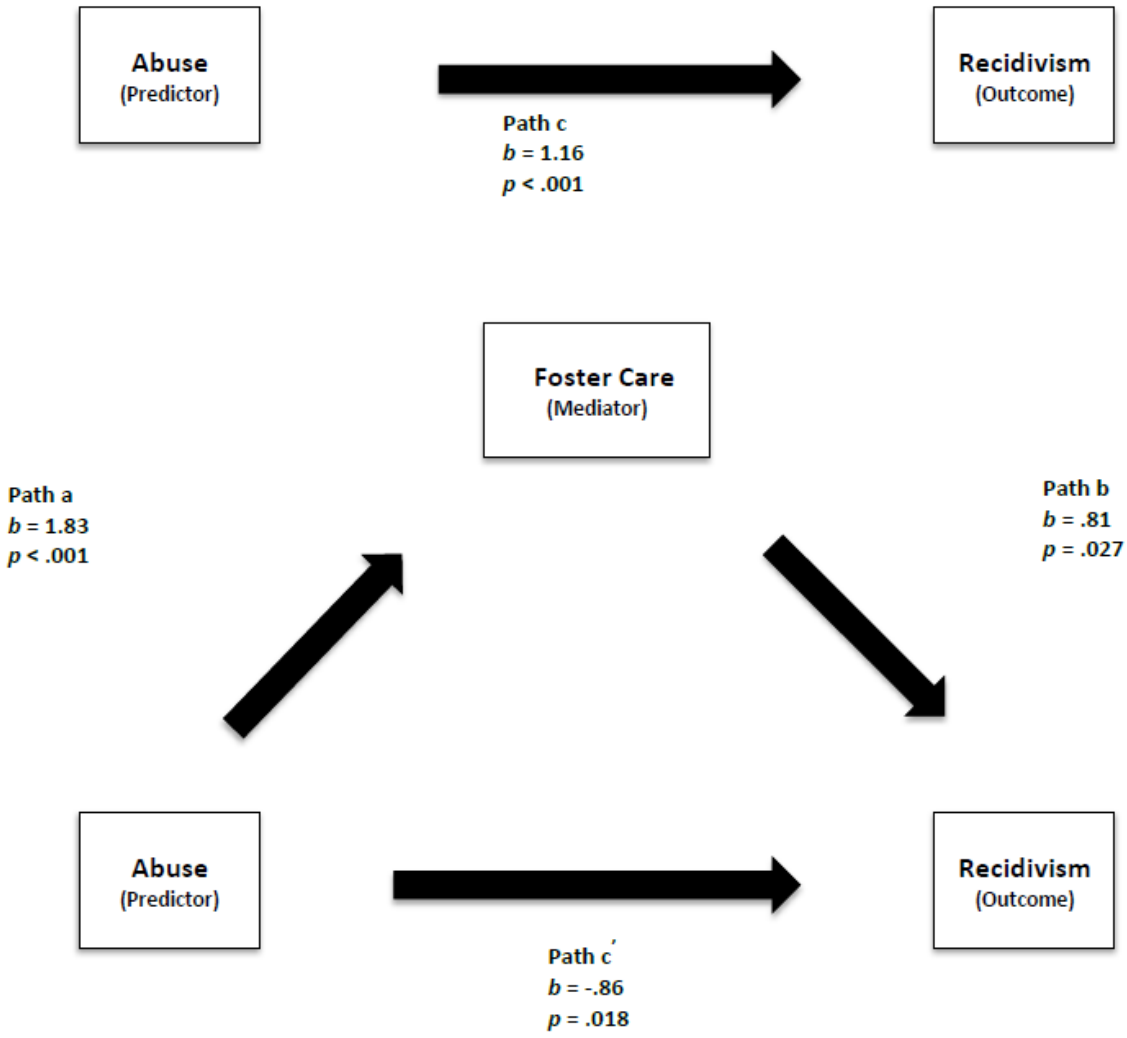

Figure 3.4. Mediation For Any Recidivism

Chapter 4. Discussion

Studying justice-involved youth who have a history of foster care is pertinent for many reasons. There is often a disconnect in terms of lack of integration of services between the justice and child protection systems (Ryan, Williams & Courtney, 2013; Bala, Finlay, De Filippis & Hunter, 2015). In Ontario, a single Ministry is responsible for youth justice and child protection even though these two arms operate entirely separately, even when they are dealing with the same youth whereas in Quebec, a single court deals with justice-involved foster youth (Bala et al., 2015). British Columbia is similar to Ontario in that the Ministry for Children and Families oversees both child protection and youth justice yet these two are separate arms.

Importantly, this sample of youth allows researchers to assess how child welfare services can moderate and perhaps better prevent the relationship between maltreatment and justice involvement (Ryan et al., 2013). This sample also allows us to see if currently, foster care adds to or reduces risk for youth. As well, looking more specifically at maltreatment in these youth allows us to better understand the role that trauma plays in their challenging behavior. The purpose of the current study was to examine if history of foster care added to risk prediction for recidivism in adolescents on probation.

When looking at analyses that had any recidivism as the outcome variable, this study's hypothesis (that youth on probation that had a history of foster care would be at higher risk to reoffend) was generally supported. This was not the case when violent recidivism was the outcome variable. This indicates that having a history of foster care increases risk for general criminality but does not increase risk for violent recidivism specifically.

Foster care experiences predict general recidivism and there is an association between foster care experiences and any recidivism. While prior research is mixed, the

current study found that having a history of foster care increased the odds of any type of recidivism by three times. Lemmon (2006) found that being placed in foster care reduced the odds of justice involvement by four times. Other research found that foster care may provide some protection against future criminality (DeGue & Widom, 2009) but these protective factors can be outweighed by disruptions in support and social relationships, which increases the risk for delinquency (DeGue & Widom; Ryan & Testa, 2005) particularly for females (DeGue & Widom, 2009). Other studies have found that being placed in foster care adds from 1.35 (Barrett, Katsiyannis, Zhang, & Zhang, 2013) to two times (Ryan & Testa, 2005) the risk for delinquency compared to youth who remain with their biological families and do not enter foster care at all. These mixed results may be explained by Jonson-Reid (2004) who postulated whether or not foster care actually had the intended effect of decreasing risk for recidivism may actually depend more on the characteristics of the child and family and also, the services that the child or youth received while in care and further, the quality of foster care itself.

Youth on probation with a history of foster care also reoffended faster than youth on probation with no history of care. This is consistent with the small amount of literature available. For example, one recent study found that within 1.5 years, 61% of youth with a history of care recidivated with the majority of this reoffending occurring before the youth is 18 (Ryan et al., 2013). Another study looked specifically at kinship foster homes where youth are placed with kin and found that youth in kin placements are significantly higher risk of reoffending but for both groups (in kin care and in general foster care), there was little difference in timing of recidivism (Ryan et al., 2010).

When looking specifically at the foster care group, age of first placement and number of placements were examined to see whether they added incremental validity to three other high-risk predictors (prior charges, substance use and delinquent peers). While the model that analyzed age of placement overall was significantly predictive for any recidivism, age of placement itself was not a significant predictor. In this case, the model's predictive power was driven by greater substance use (*OR* = 2.67). The current study does not uphold prior research when looking at age at first placement. The majority of prior research found that being placed in care for the first time at older ages puts them at greater risk for justice system involvement (Jonson-Reid & Barth, 2000;

Widom, 1991; Baskin & Sommers, 2011). Possible reasons that this study does not corroborate prior findings include lack of access to data around timing (e.g., how long placements were, at what age the child was returned to their birth parents, adoption etc.). The sample size for the foster care group was smaller which likely affected power.

When examining number of placements while controlling for prior charges, substance use and delinquent peers, only the violent recidivism outcome model was significant. But here as well, the number of foster care placements was not a significant predictor of risk. In this model, having prior charges was a very strong predictor for violence, adding 4.5 times the risk for youth with a history of foster care to reoffend violently. The model that examined number of placements and any recidivism was not significant. Malvaso and Delfabbro's (2015) study corroborates the current studies findings by noting that placement numbers did not differ between offenders and non-offenders but overall, the current study's findings around number of placements was not consistent with the majority of the literature. For example, an early study by Widom (1991) reported that having a higher number of foster care placements was associated with more arrests in adolescence. Ryan and Testa (2005) found gender differences in that male youth were more at risk for delinquency from placement instability whereas for female youth, simply be placed in care added to their risk for delinquency. Again, this lack of corroboration may be due to lack of access to timing (i.e., how long youth were in each placement). Lack of power may have been an issue as well.

The current study found that foster care partially mediated the relationship between abuse and recidivism. Thus, a history of foster care could account for some of the variance in the relationship between abuse and any recidivism. It is not just abuse that predicts recidivism, having a history of foster care adds to the overall variance accounted for in the model, but is not responsible for all of the predictive variance.

A major implication of this research is that there may well be a misconception that putting maltreated children and youth in foster care will simply "fix" them. The finding that foster care adds incremental validity for risk of any recidivism above and beyond being Aboriginal, gender, having past charges, substance use, having delinquent peers and having a history of maltreatment challenges that misconception.

Although there was no significant difference between those with a history of care and those without in terms of violent recidivism, just under double (63%) of the foster care group had any recidivism compared to of the youth with no foster care history (37%).

Having a history of foster care increased the odds of any form of recidivism by about 2.82 times. Being female, having higher substance use issues (*OR* = 1.30), experiencing any abuse (*OR* = 2.78) or having a history of foster care (*OR* = 2.94) all added predictive power. This research indicates that foster care itself adds to the risk for recidivism.

This finding is not consistent with some prior research. DeGue and Widom (2009) noted that placement alone is not a sufficient intervention for the prevention of recidivism and that it may be other effects from placement instability (less opportunity for attachment, trauma from losses etc.) that could actually compound already existing behavioral difficulties and increasingly add to risk for criminality. Conversely, an earlier study by Jonson-Reid (2002) found that non-white children who entered care had a higher risk for incarceration than did children who (instead of going into foster care) received in-home child welfare services. Given that foster care appears to add risk, what could be done to reduce this risk?

4.1. Implications for Practice

Jonson-Reid (2004) argued that foster care should meet three conditions: to prevent further maltreatment, to change the child's environment (i.e., help the birth parents make changes or to allow the child to build a strong attachment with another adult) and to leverage rehabilitative services from other systems to be set in place (i.e., physical health but hopefully, trauma and mental health as well).

Youth justice workers can also utilize information about history of foster care in similar ways: to prevent further harm/trauma, to change the youth's environment, and to leverage rehabilitative services. In terms of preventing further harm or trauma, the youth justice professional could endeavour to gather as much information as possible about the youth's foster care history and use this to inform the service plan. For example, the

youth justice worker could ensure, through communicating with other service providers (e.g., a social worker) and, if applicable, the youth's family, that the youth is currently living in a safe place. As the current study found that youth with a history of foster care recidivated faster than youth with no history of care, the youth probation officer should endeavour to set services in place more quickly for these higher risk youth.

When working with youth who have a history of foster care, noting greater substance use issues and prior charges and addressing these issues through intervention (i.e., substance use treatment or discussing criminogenic biases) could reduce risk for violent recidivism. Particularly striking here for youth justice workers is that youth with a history of foster care who have a history of prior charges are over 11 times more likely to have violently recidivated. Using this information to inform service plans could help prevent future offending.

Further, the youth justice worker could provide services for youth with a history of foster care with a "trauma-informed" practice. The current study showed that youth with a history of care had significantly more abuse experiences than youth with no history of foster care and thus, possibly more trauma. Trauma informed practice focuses on treating the underlying causes of trauma instead of focusing on the symptoms such as behavioral problems (Greeson et al., 2011). It includes screening for trauma exposure, using evidence-based practices for treatment and importantly, emphasizes care continuity across systems (i.e., youth justice and child protection) (Ko et al., 2008). Exposure to trauma may cause a youth to cope by being defiant, being indifferent, or being aggressive as a means of self-protection to try to feel safe and gain control (Ko et al.) This behavior can be misconstrued as callous indifference and thus, if not addressed may cause further recidivism (Ko et al.).

4.2. Limitations

One of the main limitations of this study is the small sample size, particularly with the foster care sample. This small sample affects power. Because the sample size of the foster care group is small, this study was unable to further subdivide into type of foster care placement (i.e., foster home, group home, being placed with kin etc.).

Another limitation is the small sample size for females and Aboriginal youth, which was the main reason that these two variables were controlled for in this study. The sample contains youth from British Columbia only and may not be generalizable to other areas in Canada or the world.

The issue of small sample size also comes up in the area of abuse. One current study noted that many researchers, in an attempt to deal with sample size problems, have combined the many forms of maltreatment in analysis, which may affect the results of this study as well (Asscher et al., 2015).

Differing amounts of time is another limitation. Youth in this study spent different amounts of time in care, came into care at different ages, and left care at different ages (e.g., aging out of foster care versus being in foster care for a weekend as an infant). These youth were all grouped together as having a history of foster care. This may be why there are more aging out studies as all of these youth have spent at least some time in care before they all aged out at a specific age and have a common reason for leaving care (Courtney, Piliavin, Grogan-Kaylor, & Nesmith, 2001). This study was also unable to look at when and why foster care files were closed or how long youth were in care as these domains were not available in the study data. Abuse variables were also not described as substantiated (by an investigation from child protection) or not because this data was not available.

And finally, in terms of measuring recidivism, using charges is a limitation because simply being charged with a crime does not imply guilt.

4.3. Strengths

This study looked at two different types of recidivism (violent and any), which gave us a better understanding of the patterns of recidivism in these youth. This study used a prospective study design that followed youth over a period of time. As well, interviews, youth justice records and self-report tools were used in the current study. Another strength of this study was using survival analysis to gain a better understanding of how quickly youth reoffended.

4.4. Future Research

In the current study, small sample sizes for certain subgroups made it difficult to examine these groups effectively. Groups that could be examined more fully in future research include females, youth with Aboriginal ethnicity and also, youth who have experienced specific kinds of abuse. Gender is an important issue because it appears that maltreatment and having a history of care seems to affect females differently. A larger sample size of Aboriginal youth in foster care would also be a useful future research area in order to see how different variables affect recidivism risk and also, which factors protect youth from recidivism.

Another interesting line of future research would be to look at why some youth with a history of foster care desist from offending while others go on to reoffend. Interviewing these youth to gain an understanding of why they believe that having a history of care affected their recidivism could be an interesting means of exploring this topic. Further, assessing quality of foster homes and looking to see if there is a relationship between better quality foster home and risk could highlight which factors in foster care placements could protect from or add risk for recidivism for youth.

In closing, the findings from this study revealed that for youth on probation, having a history of foster care increased both their risk for recidivism and the speed of reoffending. This is an important finding because it can assist youth justice professionals in identifying which youth may be at increased risk for recidivism, and thus can provide support and services more quickly to reduce this risk. As well, this study highlights the need for better communication within government and youth services to ensure that these youth are supported in an effort to reduce recidivism.

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Appendix.

Delinquent Peers

In the last couple of months, how many friends…

1. Use a weapon or force to get money or things from people?
2. Attacked someone with a weapon or with the idea of seriously hurting them?
3. Hit someone with the idea of hurting them?
4. Stole something worth more than $100?
5. Stole something worth more than $5 but less than $50?
6. Damaged or destroyed someone else's property on purpose?
7. Took a car or motorcycle for a ride or drive without the owner's permission?
8. Skipped classes without an excuse?