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The Stability of Residential and Family Foster Care in Quebec, Canada: A Propensity Weighted Analysis

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Abstract:

Objectives: This province-wide analysis examined factors most associated with changing out-of-home placements for 15,518 youth aged 10 to 17 at initial placement. This analysis allows the stability of residential and family foster care to be more precisely examined.

Methods: This analysis draws clinical administrative data from all of Quebec's child protection agencies and the 2006 Canadian Census. Applying a method of quasi-randomization using propensity weights that control for differences in the needs of youth placed in residential and family foster care at initial placement, multivariate logistic regression models were used to examine the risk of changing placements.

Results: At initial placement, youth manifesting severe behavioral problems are 431% more likely to be admitted to residential care and 113% more likely if they committed a crime prior to initial placement. While the analysis was weighted using propensity estimates, those placed in residential care are 15% more likely to experience a total of one placement change, 72% more likely to experience a total of two placement changes, and 87% more likely to experience at least three placement changes compared to their counterparts in family foster care. In addition, the risk of disruption increases in magnitude for those with multiple investigations, longer spells of out-of-home care, and who manifest high risk behaviors including youth criminality. Combined, these factors make these youth the most likely to experience placement disruption than any other youth placed in out-of-home care.

Implications: Given its' inherent instability, residential care should be used only when other alternatives, such as family foster care or in home services, are not possible.

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Keywords:

Out-of-home placement, placement stability, clinical-administrative data, census data, propensity analysis.

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Introduction

Residential care is a measure of last resort and can provide the safety, structure and stability needed when there is no family willing or able to care for the troubled youth. While it is assumed that family foster care is a more stable placement, it remains unclear as to what extent youth in residential care, compared to youth in family foster care, can successfully experience the stability needed to support their developmental needs. The association between initial placement type and later stability is difficult to understand primarily because of issues that disqualify the use of randomised control trials between placement types. As such, there is limited information controlling for the differences between youth entering residential care compared to those entering family foster care, and the effectiveness of the placement type in ensuring later stability (Barth 2002; Souverein, Van der Helm & Stams 2013; De Swart et al. 2011; 2012).

This paper builds on the longitudinal work of Esposito and colleagues (2014), which reports that close to one third (29.8%) of youth aged 10 to 17 years at initial placement in Quebec experience multiple placement disruptions. Esposito et al. (2014) reported that the increased risk of placement changes for these youth was primarily explained by a combination of multiple child protection investigations, behavioral problems, school difficulties, residential care, youth criminality, and socioeconomic disadvantages (Esposito et al. 2014). This paper builds on this analysis by examining the extent to which these factors continue to impact the likelihood of placement disruption after applying a method of quasi-randomization using propensity weights, which control for differences in the needs of youth placed in residential and family foster care at initial placement.

Background

Connell and associates (2006) note some inconsistency in the scholarly literature regarding factors leading to placement disruption due to variation in the types of out-of-home care studied. In their longitudinal study attempting to clarify some of these inconsistencies, Connell et al. (2006) examined all types of out-of-home care settings and

factors leading to placement disruption. The results of this study were more or less consistent with the literature suggesting that older age is the primary factor associated with disruption. Findings from Connell et al. (2006) differed somewhat from other scholarship centred on the unanticipated results that youth with identified behavioral difficulties are at no greater risk for placement disruption than youth experiencing neglect. However, Connell et al. (2006) later confirms in a post-hoc analysis that youth with behavioral problems have higher rates of placement change. Connell et al (2006) further suggested that youth placed in residential care are two-and-a-half to nine times - depending on degree of restrictiveness - more likely to experience placement changes when compared to children in relative foster homes. Lastly, the authors found that while one previous move had minimal effect on later stability, two or more removals significantly decreased the odds of placement stability; a finding that is also described elsewhere (Farmer et al., 2008, Park & Ryan 2009).

Leathers' (2006) study focused specifically on family foster care and the associations between a youth's externalized behavioral problems while in care and later stability, finding that behavioral problems was a strong predictor of future negative outcomes (residential treatment, imprisonment and runaway status). Leathers, (2006) suggested behavioral problems in youth leading to disruption and negative outcomes could be mitigated by good foster home integration. Although relevant to the present study, Leathers' study is limited in that the stability of the sample is not compared to the stability of youth in residential care.

Focusing on factors leading to placement in family foster care to more restrictive residential care, Farmer and associates (2008) found that a youth's difficulties at the time of placement influenced the restrictiveness of the placement. The study measured youth behavior using the Child Behavior Checklist (CBCL), and reported that youth with the highest CBCL scores were more likely to be placed in restrictive placement settings. Farmer et al. (2008) reported that on average, youth placed in more restrictive settings also experienced more placement disruption than those placed in less restrictive settings; findings in line with an earlier published meta-analysis by Oosterman and associates (2007), who reported a significant effect ($r = .18$) of placement in residential care with placement disruption. Factors leading to placement were also explored in Park and Ryan's (2009) study, which examined the stability of youth in both residential and non-residential care settings. The finding was that youth with a history of inpatient mental health treatments were more likely to experience residential care as a first out-of-home placement, be older, be frequently moved, and run away from out-of-home care. The study also indicated that there is an association between an increasing length of time youth were in out-of-home care and decreasing odds of placement stability.

In a more detailed examination of children placed in residential care, James and associates (2006) report that older males with clinically significant behavior problems were more likely to be placed in residential care settings. However, unlike Farmer et al. (2008) and Park & Ryan's (2009) study, James and associates found that youth who were placed in restrictive settings at first placement had less placement disruption. James and associates (2006) also report that multiple placements, irrespective of placement setting is a significant predictor of further disruption.

While these studies contribute to our understanding of factors associated to placement disruption, they do not lend themselves methodologically to understanding the effects of placement type on later stability. This is primarily because placement studies do not methodologically address differences in severity of behavioral difficulties and other associated vulnerabilities between those placed in residential and family foster care at initial placement, which together results in selection bias and confounds the associations often made on the effectiveness of placement type or primary factors leading to later disruption. The objective of this paper, therefore, is to understand the effect of out-of-home placement type on later stability and factors associated with disruption using propensity weighted models that more rigorously adjust for selection bias at initial placement.

Method

This study uses a multivariate research design and propensity weights to control for pre-placement differences between youth placed in residential care and youth placed in foster care. The study draws data from two sources: (1) clinical administrative data from Quebec's child protection agencies; and, (2) 2006 Canadian Census data. The first data source consists of anonymized longitudinal clinical administrative child protection data from all mandated child protection regions across the province of Quebec. These data were drawn from a common provincial information system used by every mandated child protection agency in Quebec and contain data on approximately 450,000 children dating back to 1989 (Esposito et al. 2015). All covariates used in this study – except for neighborhood socioeconomic disadvantages – were constructed using these clinical administrative data. The second data source is provincial data extracted from the 2006 Canadian Census public archive at McGill University, used to create a neighborhood socioeconomic disadvantage composite index.

Out-of-home placement changes includes moves in: (1) a formal subsidized placement in family-based care; and, (2) a formal subsidized placement in a structured group living setting or a therapeutic residential treatment facility. Each model is divided into two discrete groups: (1) youth who do not change placements; and, (2) youth who change placements a total of one time, two times, or at least three times. However, categorizing placement change sequences in distinct groups assumes that all the children in the cohort had completed their placement spells. While this is the case for the vast majority of children, the full history of placement changes is not accounted for some youth whose initial placement occurred at the tail end of the data coverage period (September 2011). To ensure that these cases did not bias our models, we reduced the cohort from 18,468 youth, 10-17 years of age, placed for the first time between April 2002 and September 2011 to 15,518 youth of the same age who exited their last placement and child protection services before June 2011.

Covariates

Covariates examined in this study include age at initial placement, gender, the reason for investigation at initial placement, the number of investigations, the source of referral at initial placement, request for youth criminal justice services, and the neighborhood socioeconomic disadvantages. These covariates were used in several multivariate logistic

regression models with propensity weights, in order to obtain the independent effect of each covariate on the risk of experiencing an out-of-home placement change.

Age at initial placement is a nominal variable with youth aged 10 to 13 acting as a reference group for 14 to 17 year olds. Gender is a nominal variable with female acting as the reference group for male. Reason for investigation prior to initial placement includes the following dichotomous constructs: (1) psychological and emotional abuse, which includes rejection, denigration, exposure to intimate partner violence and exploitation; (2) physical, material, and health neglect, which includes physical neglect, medical neglect and material deprivation; (3) parents' high risk lifestyle resulting in a failure to supervise or protect the youth, including substance use, abandonment due to parental absence, refusal to assure care, and risk of neglect; (4) school truancy and school neglect, which includes failure to attend school or failure to ensure the youth attends school; (5) risk of, or actual physical abuse — reference category; (6) risk of, or actual sexual abuse; and, (7) behavioral problems such as harming behavior, violence towards self and others, youth substance abuse, running away and destruction of property. Youth criminal justice service request is a nominal variable measuring whether youth received a request for services under the Quebec Youth Criminal Justice Act (LSPJA — Loi sur la justice pénale des adolescents) prior to the first placement change. Number of investigations is a continuous variable calculated by examining the number of times youth are investigated by child protection prior to the placement change or case closure. Source of referral at initial placement includes the following nominal variables: (1) community health and social services clinic (CLSC); (2) child protection agency—includes investigations by the same agency resulting from new allegations; (3) extended family and neighbors—reference category; (4) school staff; (5) police; (6) hospital staff; (7) other professional institutions; and, (8) unknown. Initial placement type is a nominal variable measured at initial placement with family foster care acting as the reference group for residential or group care. Given that the clinical-administrative data used in this study does not allow us to differentiate between residential placement settings or between relative and non-relative care, residential care includes youth initially placed in either a structured group living setting or a therapeutic residential facility and, family foster care refers to those initially placed in a subsidized relative or non-relative family. Cumulative time in out-of-home care represents the sum of all out-of-home care spells for the clinical population studied.

Poverty plays a particularly important role in the stress experienced by youth. The stress of living in high poverty environments create additional psychological demands that aggravate the challenges these troubled youth face, and affects their decision making abilities. As such, it is particularly important to control for neighborhood socioeconomic vulnerabilities in predicting the propensity to initial placement type. A neighborhood socioeconomic index was created using six socioeconomic indicators for each census dissemination area in Quebec. They are: (1) total population 15 years and over who are unemployed or not in the labor force; (2) median income in 2005 for the population 15 years and over; (3) total persons in private households living alone; (4) total population 15 years and over who were separated, divorced or widowed; (5) family median income in 2005; and, (6) median household income in 2005. A principal components analysis with varimax rotation was performed on all the transformed and normalized census-based indicators in order to construct a single index representing the

socioeconomic neighborhood disadvantages for each dissemination area. This composite index was then merged with the child protection clinical-administrative data matched by children's postal codes at initial investigation. The index has a minimum score of –3.37 representing the lowest socioeconomic risk and a maximum score of 3.51 representing the highest socioeconomic risk.

Analytic model

The analysis is composed of several steps. First, descriptive analyses were performed between all independent covariates and number of placement changes (see Table 1). Ordinary least squares linear regression was conducted in order to determine the variance inflation factor (VIF), which ensures that there is no linearity among independent covariates. If the values of VIF exceed 5, they are regarded as indicating multi-collinearity (O'Brien, 2007).

Table 1: Descriptive Factors

Individual Factors	Youth in out-of-home care 10-17 (N=15,518)	Youth in family foster care 10-17 (N=6,401)	Youth in residential care 10-17 (N=9,117)
Age at initial placements:			
10-13	25.8%	36.0%	18.6%
14-17	74.2%	64.0%	81.4%
Gender:			
Male	51.3%	41.0%	58.7%
Female	48.6%	49.0%	41.3%
Reason for initial placement:			
Psychological & emotional abuse	4.2%	7.3%	2.0%
Physical, material & health neglect	1.6%	2.3%	1.0%
Parent high risk lifestyle	16.6%	27.2%	9.2%
School truancy & neglect	3.1%	3.1%	3.2%
Risk of or sexual abuse	4.0%	6.4%	2.4%
Behavioural problems	58.6%	33.1%	76.4%
Risk of or physical abuse	11.9%	20.7%	5.8%
Source of referral at initial placement:			
CLSC	9.4%	10.6%	8.6%
Youth protection agency	9.1%	9.7%	8.5%
Police	23.8%	21.4%	25.4%
Other professional institutions	4.5%	4.6%	4.4%
School	16.3%	18.9%	14.5%
Hospital staff	4.7%	3.5%	5.5%
Unidentified	2.1%	2.9%	1.5%
Family	30.1%	28.2%	31.4%
Request for youth criminal justice services:	21.4%	11.0%	28.7%
	Mean (S.D.)	**Mean (S.D.)**	**Mean (S.D.)**
Number of placement changes	2.08(2.74)	1.91(2.66)	2.19(2.79)
Cumulative time in out-home care	447(503)	504(574)	407(442)
Number of investigations	1.61(.95)	1.67(1.02)	1.56(.90)
Socioeconomic disadantage	.22(93)	.34(.90)	.15(.95)

The VIF estimates ranged from a low of approximately 1.026 to a high of 2.891, indicating no issues of linearity between covariates. Next, a multivariate logistic regression model was used to reduce conceptually related indicators representing possible differences between youth in residential and family foster care (age at initial placement, gender, behavioral problems, youth criminal justice service request prior to placement, number of investigations prior to placement, and socioeconomic disadvantages) to a predicted propensity score of residential placement (see Table 2). The propensity score is defined as the probability of placement in residential care based on the measured covariates listed above. Based on the explanation given by Thoemmes, F. (2012), the propensity score is specified as:

$$\hat{e}(x) = P(Z=1 \mid X)$$

where ê(x) is the notation for propensity score, P a probability, Z=1 is the placement type with values 0 for family foster care and 1 for residential care, conditional on "|" the covariates used to compute the propensity (X). Therefore the propensity score expresses the probability that a youth is to be placed in residential care. Propensity weights were then developed based on the propensity score. As suggested by Guo & Fraser (2010), the propensity weight for youth in residential care is 1/ê(x) and the propensity weight for youth in family foster care is [1/ (1-ê(x))], inflating the propensity weight to predict placement changes for youth in family foster care. The inverse propensity weight is then normalized to sum to the clinical population studied. The normalized propensity weight is equal to the ratio of the size of the clinical population studied to the sum of the inverse propensity weights.

Multivariate logistic regressions with propensity weights were then used to examine the risk of changing placements. The multivariate models reported in Table 3 present the odds ratio adjusted using inverse propensity weights and Wald statistic which allows us to quickly consider whether the null hypothesis that the true coefficients equals zero. The dataset was constructed and analyzed using SPSS version 22 and statistical tests were conducted at 95% level of confidence.

Results

The data revealed that of the 15,518 youth aged 10 to 17 years at initial placement, 58.8% (N = 9,117) were placed in residential care and 41% were placed family foster care (N = 6,401). Of the youth initially placed in family foster care, 21.7% are placed in residential care at some point in their placement spell, while 7.7% of youth initially admitted to residential care change to family foster care. While it is assumed in this study that any placement change – except family reunification – is potentially harmful from a developmental perspective, moving from residential care to family foster care was considered to be a potentially positive move. As such, propensity weights and multivariate models excluding youth initially placed in residential care who moved to family foster care (N = 698) were used to examine the sensitivity to changes in predictors of placement changes – the significance and direction of estimates collate fully with those reported in tables 2 & 3.

The average cumulative placement duration for youth in foster family care was 504 days, while the average cumulative placement duration for youth in residential care was 407

Table 2: Logistic model predicting generalized propensity to placement in residential care (N=15,518)

Individual Factors	Beta	S.E.	Wald	Exp(b)
Age at initial placement	.111	.012	93.59	1.118***
Male (female ref)	.468	.038	153.1	1.597***
Behavioral problems	1.670	.044	1909.2	5.313***
Police	.009	.057	.045	1.009
Request for youth criminal justice prior to placement	.756	.023	173.2	2.130***
Number of intestigations prior to placement	.012	.020	.255	1.012
Socioeconomic disadvantage	-.142	.169	49.98	.868***
Cox and Snell (R^2)	**.208**			

* p < .05 ** p < .01 *** p < .001

days. A third of youth did not experience a placement change (33%), while 24% changed placements a total of one time, 14% a total of two times, and 29% changed placements 3 or more times. As shown in Table 1, the majority of youth were aged 14 to 17 years at initial placement, with a higher proportion of that cohort placed in residential care at initial placement. There is a relatively equal proportion of male and female youth placed out-of-home; however female youth were more likely to be placed in family foster care), whereas male youth were more likely to be placed in residential care. Close to two-thirds of youth placed in out-of-home care were investigated for severe behavioral problems (58.6%), followed by 16.6% investigated because of parents' high risk lifestyle. Among youth placed in family foster care, 33.1% were investigated for behavioral problems, 27.2% for parents' high risk lifestyle, and 20.7% investigated for physical abuse. For youth placed in residential care, 76.4% were investigated for severe behavioral problems, 9.2% for parents' high risk lifestyle and less than 6% for physical abuse; a notable difference compared to youth placed in family foster care.

Overall, the highest proportions of placed youth were reported by a family member (30.1%), followed by the police (23.8%), and then school staff (16.3%); figures that represent an overall tendency that remains consistent for youth placed in family foster care and residential care. However, there is a higher proportion of youth placed in residential care reported by the police. Close to one in five youth placed out-of-home had a request for youth criminal justice services prior to placement; a rate that drops for youth placed in family foster care, but increases for youth placed in residential care. The average number of placement changes for all youth, irrespective of placement setting is 2.08 (std. 2.74), an average that decreases for youth in family foster care but increases to 2.19 (std. 2.79) for youth in residential care. The average count of child protection investigations is 1.61 (std. 95) per youth, an average which increases slightly for youth placed in family foster care and decreases slightly for youth placed in residential care. Similarly, the average cumulative time spent in out-of-home care was 447 (std. 503) days, an average that increases for youth placed in family

Table 3: Multivariate logistic regression with inverse propensity weights predicting placement for youth aged 10 to 17 years.

A total of 1 placement change			
Total	Event	No Move	%Event
8,792	3,720	5,072	42.3%
A total of 2 placement changes			
Total	Event	No Move	%Event
7,304	2,232	5,072	30.5%
3 or more placement changes			
Total	Event	No Move	%Event
9,566	4,494	5,072	46.9%

	A total of 1 move			A total of 2 moves			3 or more moves		
Individual Factors	**Exp(B)**	**(95% CI)**	**Wald**	**Exp(B)**	**(95% CI)**	**Wald**	**Exp(B)**	**(95% CI)**	**Wald**
Age at initial placements:									
14-17 (10-13 ref)	1.085	(.961, 1.123)	1.74	1,307**	(1.107, 1.544)	9.95	1.702***	(1,405, 2.062)	29.5
Gender:									
Male (female ref)	1.030	(.935, 1.134)	.359	.929	(.817, 1,057)	1.24	1.052	(.817, 1,057)	.480
Reason for initial placement:									
Psychological & emotional abuse	1.052	(.807, 1,372)	.140	1.063	(.740, 1.527)	.110	.703	(.448, 1.103)	2.35
Physical, material & health neglect	.626*	(.431, .909)	6.04	.233***	(.119, .455)	18.2	.291***	(.153, .552)	14.2
Parent high risk lifestyle	.789*	(.660, .945)	6.66	.696**	(.540, .896)	7.88	.505***	(.376, .679)	20.6
School truancy & neglect	1.230	(.945, 1.601)	2.37	1.139	(.794, 1.633)	.498	.821	(.535, 1.260)	.814
Risk of or sexual abuse	.961	(.740, 1.248)	.090	.775	(.534, 1.124)	1.80	.734	(.479, 1.125)	2.01
Behavioural problems	1.176*	(1.010, 1.370)	4.33	1.308*	(1.057, 1.619)	6.07	1.532***	(1.203, 1.951)	11.9
Risk of or physical abuse (ref)									
Source of referral at initial placement:									
CLSC	.889	(.749, 1.055)	1.80	.878	(.698, 1.104)	1.24	.776	(.599, 1.004)	3.72
Youth protection agency	1.181	(.985, 1.415)	3.24	1.102	(.867, 1.401)	.628	1.133	(.866, 1.481)	.830
Police	1.064	(.940, 1.204)	.975	1.104	(.936, 1.301)	1.38	1.308**	(1.097, 1.560)	8.91
Other professional institutions	.933	(.743, 1.172)	.356	.685*	(.493, .951)	5.11	.807	(.571, 1.142)	1.46
School	1.050	(.908, 1.215)	.433	.908	(.741, 1.112)	.875	.863	(.689, 1.081)	1.64
Hospital staff	.972	(.784, 1.206)	.066	.797	(.591, 1.074)	2.22	.507***	(.353, .729)	13.4
Unidentified	.702	(.478, 1.031)	3.25	1.122	(.728, 1.729)	.272	.923	(.559, 1.523)	.099
Family (ref)									
Time in out-of-home care	1.003***	(1.002, 1.003)	694	1.005***	(1.004, 1.005)	1216	1.007***	(1.006, 1.007)	2306
Initial placement in residential care (family foster care ref)	1.154**	(1.053, 1.265)	9.46	1.723***	(1.522, 1.951)	73.6	1.872***	(1.632, 2.148)	79.9
Request for youth criminal justice services	1.378***	(1.225, 1.551)	28.3	1.490***	(1.277, 1.738)	25.6	1.457***	(1.233, 1.722)	19.5
Number of investigations	1.157***	(1.096, 1.222)	27.5	1.293***	(1.207, 1.384)	54.2	1.341***	(1.245, 1.444)	59.7
Socioeconomic disadvantages	.990	(.943, 1.040)	.148	1.017	(.952, 1.086)	.256	.963	(.897, 1.035)	1.05
Cox and Snell (R^2)	**.126**			**.280**			**.549**		

* p < .05 ** p < .01 *** p < .001

foster care versus those placed in residential care. The composite index of socioeconomic disadvantages for youth placed in out-of-home care is .22 (std. 93), an estimate that increases in socioeconomic disadvantages for youth placed in family foster care compared to those placed in residential care.

Given the noted differences in youth placed in residential care compared to those placed in family foster care, a propensity model was estimated using covariates, which are conceptually and methodologically most related to differences for youth placed in residential care versus family foster care (See Table 2). Table 2 presents the results of the multivariate logistic regression model used to predict the propensity weights to residential care at initial placement. Findings from the multivariate logistic model reflect those reported in part by Farmer and associates (2008) and Park & Ryan (2009), showing significant positive differences between increased age at initial placement, male gender, severe behavioral problems, and youth crime. The multivariate propensity model produced a Cox and Snell R2 of .208, indicating that close to 21% of the variance in placement in residential care is explained by the combination of age, male gender, behavioral problems and youth crime. In Quebec, youth manifesting severe behavioral problems are 431% more likely to be admitted to residential care and 113% more likely if they committed a crime prior to initial placement. Propensity findings also revealed that socioeconomic disadvantages statistically decreased youth chances to placement in residential care. In other words, the more socioeconomically disadvantaged the youth, the more likely they are to be placed in family foster care. This is primarily because the increased risk of initial placement in foster family care is explained by parent and family difficulties for which socioeconomic vulnerabilities plays a key role. These estimates were saved for each youth and propensity weights were then computed.

Using propensity scoring as model weights, three multivariate models were constructed to examine to the influence of covariates on placement changes. The results of the three multivariate logistic models are reported in Table 3. An adjusted odds ratio of more than 1 indicates increased chances of changing placements a total of one time, two times, or at least three times from initial placement. Accounting for differences in youth placed in family foster and residential care, the increased likelihood of changing placements was statistically explained by a combination of: older age; behavioral problems; police reporting; longer time in out-of-home care; increased number of investigations; youth criminality; and, residential care. While 14 to 17 year olds were statistically more at risk of experiencing 2 or more placement chances, age was not a significant predictor of changing placements once. Similarly, police reporting predicted 3 or more placement changes, but not less. All other mentioned covariates predict placement changes for older youth, from the first to last placement change. Aside from a request for youth criminal justice services whose magnitude of influence decreases with each placement change, all other mentioned covariates increase in magnitude of influence as the number of placement changes increase. Also, factors associated to neglect; specifically parents' high risk lifestyle and physical, material, and health neglect decreases the changes of experiencing multiple placement changes. Lastly, in predicting

multiple placement changes, the final multivariate model produced a Cox and Snell R2 of .549 indicating that close to 55% of the variance in multiple placement changes is explained by the model; a R2 increase from .126 for the multivariate model predicting a total of one placement change to .549 for the model predicting 3 or more placement changes.

Discussion

Using propensity weights to control for pre-placement differences between youth placed in residential care and youth placed in foster care, this study found that residential care is a significantly less stable placement setting than family foster care; youth in residential care are close 87% more likely to experience three or more placement changes compared to their counterparts in family foster care. While previous studies have found a similar association between residential care and placement instability, youth placed in residential were considered to be inherently at greater risk of placement breakdown because of their behavioural profile. Propensity score matching provides a level of statistical control similar to random assignment, such that the greater likelihood of placement disruption in this study can be attributed to the placement rather than to pre-placement differences.

Also, consistent with factors reported in Esposito et al (2014), and to a lesser degree Farmer et al. (2008), Park & Ryan (2009), Connell et al. (2006), and Ossterman et al. (2007), and contrary to those reported by James et al. (2004), this study finds that older youth admitted to out-of-home care with behavioral problems, youth criminality, increased number of investigations, and placed in residential care are the most likely to experience multiple placement changes. Contrary to Esposito et al. (2014), controlling for differences in the profile of youth placed in residential care versus family foster care, socioeconomic disadvantages did not significantly explain placement changes. In line with James et al. (2006), this study also found that the longer youth are placed the more chances they have to experience a change of placement. Together in a cumulative fashion, youth aged 14 to 17 years old (odds, 1.702), admitted to residential care (odds, 1.872), placed because of severe behavioral problems (odds, 1.532), reported by the police (odds, 1.308), and with a confirmed act of delinquency (odds, 1.457), are the most likely to experience placement disruption than any other youth in out-of-home care.

Practice implication

Residential care is the default out-of-home placement option for older youth placed in child protection care in Quebec; close to 80% of older youth who enter out-of-home care in Quebec are placed in residential care or end up being moving to residential care from family foster care. While for some youth residential care may in fact be the best placement option, findings from this study show that youth experience far less instability when placed in family foster care. The analytic methods used in this study show that the greater stability of family foster care could not simply be attributed to differences in the youth placed in foster

care compared to residential care. In fact, many of the youth placed in residential care have similar pre-placement profiles to youth entering family foster care. In light of these results, far more efforts should be made to develop family foster care alternatives for older youth being placed in care in Quebec.

Limitations

While the methodology is unique in allowing for a quasi-randomization treatment of residential and family foster care, it is not without limitations. One such limitation is that the clinical-administrative data underestimates the prevalence of placement changes as youth informal placement with kin are not captured here. Second, the study did not adjust for correlations that may exist because of siblings, nor is it able to unduplicated cases across child protection jurisdictions. A longitudinal replication balancing the data based on the propensity scores in order to match youth placed in residential care to family foster care – reducing the clinical population studied by an estimated 60% - may help confirm the strength and directions of estimates reported in this analysis. Also following the work of Ryan and Park (2008), further analysis will examine whether placement settings itself influences later youth crime using a propensity matched clinical population of youth admitted to family foster and residential care in Quebec.

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