

Neglect, Educational Success, and Young People in Out-of-Home Care:
Cross-Sectional and Longitudinal Analyses

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Abstract

Maltreated young persons in out-of-home care often have poor educational outcomes, heightening their risk of long-term psychosocial disadvantage (Forsman, Brännström, Vinnerljung, & Hjern, 2016). In their systematic reviews, Romano, Babchishin, Marquis, and Fréchette (2014) and O'Higgins, Sebba, and Gardner (in press) found evidence that neglect was more often linked with low academic achievement, whereas abuse was more likely to be associated with behavioral difficulties. In large samples of young persons in out-of-home care in Ontario, Canada, who had experienced mainly neglect, we investigated risk and protective factors as predictors of educational success. In a cross-sectional hierarchical regression analysis ($N = 3,659$, aged 11-17 years), female gender, youth educational aspirations, caregiver educational aspirations for youth, time with current caregiver, internal developmental assets, and positive mental health were associated with better educational success. Neglect, grade retention, special educational needs, ethnic minority status, behavioral problems, and soft-drug use were associated with poorer educational outcomes. Gender significantly moderated caregiver educational aspirations and youth placement type. In a longitudinal analysis of a subsample ($N = 962$, aged 11-15 years at Time 1), covering three years, a large decline in educational success ($d = -0.80$) was observed. Female gender, internal developmental assets, and positive mental health positively predicted, and soft drug use negatively predicted, greater educational success at Time 2. These results point to factors that help or hinder educational success among young people in care and should inform new interventions or improved versions of existing ones that address educational success in the context of neglect.

Keywords: maltreatment, neglect, child welfare, education, mental health, children

Research over several decades has documented the poor educational outcomes of many children and youth in out-of-home care (hereafter, “in care”), in relation to their peers in the general population (Doyle, 2013; Scherr, 2007; Sebba et al. 2015; Stone, 2007; Trout, Hagaman, Casey, Reid, & Epstein, 2008). While some young people in care enjoy educational success (Jackson & Cameron, 2012), many leave school with few or no formal qualifications, which puts them at risk of long-term economic and social disadvantage. The latter includes poor physical and mental health, high unemployment, and criminality (Buehler, Orme, Post, & Patterson, 2000; Centre for Social Justice, 2015; Dregan, Brown, & Armstrong, 2011; Dregan & Gulliford, 2012; Forsman, Brännström, Vinnerljung, & Hjern, 2016; Vinnerljung & Hjern, 2011). Moreover, Forsman et al. (2016), using Rubin’s (1974) potential outcomes framework and national register data on 7,552 Swedish foster children, found causal evidence of the negative impact of poor school performance on psychosocial problems in adulthood at age 30-35 years, including economic hardship, illicit drug use, and mental health problems.

Supporting improved educational success by young people in care is an important strategy for interrupting negative life-course trajectories. To this end, a number of education-related interventions have been developed and evaluated, of which tutoring has shown the most consistently promising results to date (Brodie, 2009; Forsman & Vinnerljung, 2012; Flynn, Marquis, Paquet, Peeke, & Aubry, 2012; Harper & Schmidt, 2016; Liabo, Gray, & Mulcahy, 2012; Mooney, Winter, & Connolly, 2016). In their discussion of the limited effectiveness of these interventions, Liabo et al. (2012) suggest that future programs should use a strong theory of change that targets known risk and protective factors. A recent systematic review, however, found that the evidence on risk and protective factors for educational outcomes of young people in care was mixed, with few variables providing clear guidance for interventions (O’Higgins,

Sebba, & Gardner, in press). The present paper aims to provide further evidence regarding risk and protective factors in education for large cross-sectional and longitudinal samples of young people in care in Ontario, Canada. In doing so, it hopes to inform the development and fine-tuning of future interventions to improve the educational success of young people in care.

The purpose of the systematic review by O'Higgins et al. (in press) was to identify factors associated with educational outcomes for young people in foster or kinship care and contribute to research on risk and protective factors and underlying mechanisms explaining the frequently poor outcomes of this population. The review included 39 studies and identified 20 categories of factors associated with educational outcomes. The findings revealed significant heterogeneity in the research literature, such that it was not possible to carry out a meta-analysis. Moreover, the review found little consensus on whether factors were associated with a range of educational outcomes, with only male gender and ethnic minority status consistently predicting lower educational attainment. There was also some evidence to suggest that neglect was linked to worse educational outcomes, whereas experience of abuse was more often associated with behavioral problems. This mirrors evidence from another review (Romano, Babchishin, Marquis, & Fréchette, 2014), which indicated that young people who had experienced mainly neglect rather than abuse had poorer academic achievement. (In the present paper, we define *neglect* as follows: failure by the caregiver to provide the child's basic needs, such as adequate food, sleep, safety, education, clothing, medical treatment, supervision, or leaving the child alone. Ontario Association of Children's Aid Societies, 2015.)

The primary purpose of the present study was to test the often mixed predictive validity of the risk and protective factors of educational success of children in care identified in the systematic review (O'Higgins et al., in press), using a large sample and longitudinal design (as

recommended by Stone, 2007). Table 1 shows the 15 of the 20 conceptual categories identified by O'Higgins et al. (in press) for which we had operational measures, and the 19 risk and protective predictors corresponding to these 15 categories (some of which had multiple indicators).

Educational success is a resilience-oriented outcome. Among the various conceptual approaches to resilience available in the literature, we chose Ann Masten's (2014). She is a major contributor to child development and resilience research, with over 170 publications in the field (Masten, 2014), and her 20-year Project Competence Longitudinal Study is a particularly important contribution. She has also written extensively on different models of resilience as well as on topics directly related to the present study, namely, resilience in the spheres of education, foster care, and the international Looking After Children approach to child welfare reform (Masten, 2006, 2014). We therefore chose to use Masten's model of resilience as especially pertinent to the present study, with its emphasis on risk and protective factors and its inclusion of education as an adaptive system associated with resilience in young people facing threats to their healthy development. Adopting Masten's (2014) definitions of risk and protective factors as predictors, respectively, of undesired versus desired outcomes, we grouped our 19 contextual and individual predictors into four conceptual blocks (see Table 1): *contextual risk*, *individual risk*, *contextual protective*, and *individual protective* factors.

Our first hypothesis was that each block of predictors, when entered into a hierarchical regression model, would account for a statistically significant increment in the amount of variance explained in our dependent variable, educational success. Our second hypothesis was that within each block, each contextual or individual risk factor would be significantly and negatively associated with educational success, whereas each contextual or individual protective

factor would be significantly and positively associated with educational success. In addition, we explored whether gender, which had emerged as a consistent factor in the review by O'Higgins et al. (in press), moderated the relationship between each of the other predictors and educational success.

Method

Participants

Cross-sectional sample. The cross-sectional sample consisted of 3,659 young people in care, drawn from data collected in 2010-2011 in the Ontario Looking after Children (OnLAC) project and including 2,052 males (56.1%) and 1,607 females (43.9%). The participants ranged in age from 11.5 to 17.99 years ($M = 15.09$ years, $SD = 1.61$). Most resided in foster or kinship homes ($n = 2,935$; 80.2%), while the others ($n = 724$; 19.8%) were in group homes. The child welfare worker reported the following experiences of maltreatment the primary (but non-exclusive) reason for the young person's current admission into care: neglect (61.5%); emotional harm (38.5%); physical harm (29.2%); domestic violence (21.1%); abandonment/separation (19.7%); and sexual harm (10.2%). Excluded from the sample were 722 young people residing in other types of placements (e.g., independent living, mental health facilities, or correlational facilities) or who were outside the targeted age range of 11.5 to 17.99 years old.

Longitudinal sample. The longitudinal sample, a subsample of the cross-sectional sample, was composed of 962 young people in care, including 565 males (58.7%) and 397 females (41.3%). Their ages at Time 1 (in 2010-2011) ranged from 11.69 to 15.83 years ($M = 13.51$; $SD = 0.86$). Three years later, at Time 2 (in 2013-2014), their ages ranged from 14.27 to 17.98 years ($M = 16.48$, $SD = 0.84$). Most of the young people in the longitudinal sample were living in foster or kinship care homes ($n = 836$, 86.9%) at Time 1, with a minority in group

homes ($n = 126$, 13.1%). The child welfare worker reported the following experiences of maltreatment as the primary (but non-exclusive) reason for the young person's current admission into care: neglect (71.6%); emotional harm (40.4%); physical harm (29.9%); domestic violence (25.1%); abandonment/separation (16.7%); and sexual harm (9.1%). One-hundred and sixty-three young people were excluded from the longitudinal sample for the same reasons as for the cross-sectional sample.

Instrument

The instrument with which the annual OnLAC assessments were conducted at both time points was the 2010 revision of the second Canadian version of the Assessment and Action Record from Looking after Children (AAR-C2-2010, hereafter AAR; Flynn et al., 2011). The AAR included measures in the following developmental outcome domains: health, education, identity, family and social relationships, social presentation, emotional and behavioral development, self-care skills, and developmental assets. Many of the AAR items and multi-item scales had been drawn from the National Longitudinal Survey of Children and Youth (NLSCY; Statistics Canada, 2010). The AAR also incorporated several other validated measures (e.g., the Strength and Difficulties Questionnaire; Goodman, 1997). In our cross-sectional sample, 92.4% of the child welfare workers and 92.8% of the caregivers had completed two days of training on the philosophy of Looking after Children and the use of the AAR with young people in care.

Measure of Criterion (Dependent) Variable: Time 1 and Time 2 Educational Success

Based on a multi-informant example (Cheung, Lwin, & Jenkins, 2012), we created through triangulation a measure of educational success that combined seven ratings from the three informants involved in the AAR conversational interview, namely the young person (if in care for one year or more) and his or her caregiver and child welfare worker.

The information supplied by each informant was as follows. The *child welfare worker* provided two ratings from the AAR of the young person's educational experience: whether his/her performance matched (= 2), was somewhat below (= 1), or was seriously below (= 0) his/her ability; and whether he/she was acquiring many (= 3), some (= 2), few (= 1), or no (= 0) special skills and interests. Next, based on personal knowledge of the young person's school work, including report cards, the *caregiver* provided three ratings of how the young person was progressing in reading and other language arts (spelling, grammar, and composition), mathematics, and overall academic performance. Each rating was on a 3-point scale: very well or well (= 3), average (= 2), or poorly or very poorly (= 1). The *caregiver* also rated whether the young person, in comparison with his or her age group, was ahead by one or more grade levels (= 2), at grade level (= 1), or behind by one or more grade levels (= 0). Finally, the *young person* rated how well he/she was doing in his/her school work: well or very well (= 2), average (= 1), or poorly or very poorly (= 0).

After imputing missing data (with a multiple-imputation procedure described later), we created Time 1 (T1) and Time 2 (T2) measures of educational success, in several steps. To create the T1 measure, we standardized the seven T1 ratings just mentioned by converting them to z-scores, summing them, converting the sum to a new z-score, and finally converting this overall z-score to a T-score, which had a mean of 50 and a standard deviation of 10. We used the seven post-test ratings and a similar procedure to create the T2 measure of educational success. To make the T1 and T2 measures strictly comparable, such that we could assess the amount of change in educational success between T1 and T2, we standardized the seven T2 ratings on the basis of the means and standard deviations of the seven T1 ratings. (As noted in

Table 2, both the T1 and T2 measures of educational success had good levels of internal consistency, with Cronbach's alphas of .80 and .82, respectively.)

Measures of Predictor (Independent) Variables

Table 1 lists the 15 conceptual categories that had been identified by O'Higgins et al. (in press) and for which we had operational measures in our OnLAC data set. As mentioned earlier, several of their categories had more than one indicator, such that we had a total of 19 operational measures corresponding to their 15 categories. We now define our 19 measures, grouped into four blocks: contextual risk, individual risk, contextual protective, and individual protective predictors.

Contextual risk factors. *Age of first entry into care:* The child welfare worker indicated how old the young person had been when placed into care for the very first time, at the current or another child welfare agency (See Tessier, 2015, for this and other details.). *Neglect as a reason for entry into care:* Neglect (yes = 1, no = 0), the most frequently reported type of maltreatment in Canada (Trocmé, Fallon, MacLaren, Hélie, & Turcottte, 2010), the United States (US Department of Health and Human Services, 2011), and in our cross-sectional and longitudinal samples, was recorded by the child welfare worker as the primary (but non-exclusive) reason for the young person's current entry into care. *School instability:* The number of the youth's school changes since birth, except those for natural progression through the school system, could range from none (= 0) to 8 or more (= 5). *Caregiver instability:* The number of changes in the young person's caregivers since birth was highly skewed and therefore transformed to a log10. (Prior to transformation, the mean number of caregiver changes since birth was 4.59 [$SD = 3.9$] and 4.22 [$SD = 3.38$] in the cross-sectional and longitudinal samples, respectively). *Grade*

retention: Caregivers answered the question, “Has (the youth) repeated a grade at school (including kindergarten)?” with a Yes (= 1) or No (= 0).

Individual risk factors. *Age:* We calculated the young person’s age by subtracting the date of birth from the date on which the T1 AAR had been started, or completed, or else signed by the child welfare worker’s supervisor. *Special educational needs:* We computed from the AAR a 5-item index of special educational needs, based on our previous research (Flynn & Tessier, 2011; Flynn, Tessier, & Coulombe, 2013). For the first 3 items, the child welfare worker indicated which of three cognitively-related long-term health conditions, diagnosed by a health professional and of direct relevance to educational outcomes, applied to the young person in care. These were attention deficit/hyperactivity disorder, learning disability, and developmental disability (Yes = 1, No = 0). For the other 2 items, the young person rated his/her difficulties with memory or problem-solving. To the first item, “How would you describe your usual ability to remember things?”, the young person provided a rating from “able to remember most things” (= 0) to “unable to remember anything at all” (= 3). Similarly, to the second item, “How would you describe your usual ability to think and solve day-to-day problems?”, the young person’s rating could range from “able to think clearly and solve problems” (= 0) to “unable to think or solve problems” (= 3). To form the overall index of special educational needs, the scores from the three long-term health-condition items and the scores from the two items assessing memory and problem-solving difficulties were added together (prior to multiple imputation). The score could range from 0 to 9, with a higher score indicating more special educational needs. *Ethnic minority status:* In our cross-sectional sample, the two largest ethnic minority groups were First Nations, Métis, and Inuit (FNMI, 17.5%) and African-Canadian (11.2%, to use the term recommended by the Ontario Association of Children’s Aid Societies,

2016). Each was operationalized as a dichotomous variable (Yes = 1, No = 0). *Behavioral problems*: On the AAR, the caregiver assesses the youth's behavioral problems on the 20-item Total Difficulties scale of the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997). Total scores could range from 0 to 40, with a higher score reflecting a greater level of behavioral problems. *Soft-drug use*: Alcohol consumption, cigarette smoking, and marijuana use were all measured in terms of a 4-point frequency scale, from "not at all" (= 0) to "daily" (= 3). The three soft-drug use scores were combined to create an index of soft-drug use, ranging from "no soft-drug use" (= 0) to "daily use of all three soft drugs" (= 9). Because the total score on the index was highly skewed in both the cross-sectional and longitudinal samples, we dichotomized the total score (soft-drug user = 1, non-user = 0). *Suicide risk*: The young person in care responded to 3 AAR suicide-related items: in the last 12 months, did the young person: attempt self-harm (Yes = 1, No = 0)? Seriously consider suicide (Yes = 1, No = 0)? Or, after attempting suicide, need to receive professional treatment (2 = Yes, 1 = No, 0 = no suicide attempt)? We combined the 3 scores to form an index of suicide risk. As the total score was highly skewed, we dichotomized it as "suicide risk endorsed by the youth" (= 1) versus "no suicide risk endorsed by the youth" (= 0).

Contextual protective factors. *Caregiver educational aspirations*: Caregivers were asked how far they hoped the young person would go in school. The responses (e.g., secondary school, apprenticeship program, or university degree) were coded into a scale corresponding to the number of years of formal schooling required to complete the degree or diploma in question in Ontario (e.g., secondary school = 12 years). *Placement stability*: The child welfare worker indicated how long the young person had been living with his/her current caregiver (in years and months). A square root transformation was used because this variable was highly

skewed. *Placement type:* The young person's current placement type was coded as either a foster/kinship home (= 1) or group home (= 0).

Individual protective factors. *Internal developmental assets:* In the AAR, the child welfare worker assesses the presence or absence of 20 internal developmental assets (Scales, Benson, Leffert, & Blythe, 2000), which we used as our measure of child well-being (O'Higgins et al., in press). Internal developmental assets are defined as acquired resilience-promoting resources that are grouped into four categories: commitment to learning, positive values, social competencies, and positive identity (Scales et al. 2000). In the AAR operationalization of developmental assets, the child welfare worker rated the attainment of each internal asset by the youth (yes = 1, no = 0, uncertain = 0). A square root transformation, with reflections, was used because the total number of internal developmental assets was highly skewed. A higher transformed score signified more internal assets. *Gender:* The child welfare worker identified the gender of the young person in care (1 = female, 0 = male). *Positive mental health:* The AAR included another measure of well-being, the Mental Health Continuum - Short Form (MHC-SF; Keyes, 2002). The young person in care rated each of the 14 items (e.g., "During the past month, how often did you feel that you liked most parts of your personality?") on a 6-point scale (never = 0, every day = 5). Because the total score was highly skewed, a square root transformation was used, with reflections, with a higher transformed score corresponding to a higher level of positive mental health. *Young person's educational aspirations:* The young person answered the AAR item about how far he/she hoped to go in school (i.e., "high school graduation" to "more than one university degree"). These responses were coded to reflect the number of years of formal schooling required in Ontario to attain the diploma or degree in question (e.g., "a university degree" = 16).

Procedure

Data Collection

The data that we used to evaluate the predictive capacity of those factors identified by O'Higgins et al. (in press) for which we had operational measures were taken from the database of the Ontario Looking After Children (OnLAC) project (e.g., Bell, Romano, & Flynn, 2013; Bell, Romano, & Flynn, 2015; Flynn, Dudding, & Barber, 2006; Flynn, Vincent, & Miller, 2011). These data were collected between 2010 and 2014 from 41 of 46 local Children's Aid Societies (CASs) in Ontario. These 41 CAS participated in regular annual OnLAC project assessments, whereas the other five CASs were small, geographically remote First Nations ([i.e., Indigenous]) CASs in northern Ontario). The present study was formally approved by the Office of Research Ethics and Integrity of the University of Ottawa as a research project based on the secondary use of data.

Mandated since 2006 by the Ontario Ministry of Children and Youth Services (MCYS), the OnLAC project carries out annual assessments of the service needs and developmental outcomes of approximately 6,500 infants, children, adolescents, and young adults, aged 0-21 years, who have been in care for one year or more. The informants in the annual assessments are the young person in care (if 10 years of age or older), the young person's caregiver (i.e., foster parent, kinship parent, or group home staff member), and the young person's child welfare worker. The assessments take the form of conversational interviews, spread over 1-3 sessions, and are most frequently conducted in the young person's place of residence.

Data Analysis

As mentioned previously, we grouped our 19 predictors into four conceptual blocks: contextual risk, individual risk, contextual protective, and individual protective factors. We

entered these four blocks of predictors, in the order just mentioned, in cross-sectional and longitudinal hierarchical regression models. (In the longitudinal model, we added T1 educational success as an additional, initial block.) In accordance with Masten's (2014) conceptualization of resilience as presupposing the existence of risk or adversity, we entered the two blocks of risk predictors before the two blocks of protective predictors. We also entered the more distal contextual risk block before the more proximal individual risk block and, similarly, the contextual protective block before the individual protective block.

For the moderation analyses (and prior to the multiple imputation procedure for missing data, described immediately below), we formed 18 multiplicative terms by multiplying each predictor by the gender variable. We added each multiplicative term, one at a time, as an additional fifth block to our four-block cross-sectional hierarchical regression model or as an additional sixth block to our five-block longitudinal hierarchical regression model. With its components thus partialled out, the multiplicative term became a statistical interaction (Aiken & West, 1991). Also, we used separate multiple imputation (MI) procedures to replace missing data in the cross-sectional and longitudinal samples, following Graham's (2012) recommendations. (Details of the MI procedures may be found in Tessier, 2015.)

Results

Descriptive and Psychometric Results

Table 2 displays the means (or percentages, for dichotomous variables), standard deviations, Cronbach's alphas, theoretical range, and skewness for all study variables. We note that only 20.6% and 19.4%, respectively, of the cross-sectional and longitudinal samples reported no special educational needs at T1. Also, the mean age for the young people in the longitudinal sample at T2 was 16.48 years ($SD = 0.84$).

The young people in the longitudinal subsample differed significantly from those in the cross-sectional sample in several ways, at T1. They were younger, had entered care at a younger age, were more likely to have entered care because of neglect, had more special educational needs, were more likely to be in foster or kinship care homes, had had fewer unplanned school changes since birth, were less likely to have ever repeated a grade, had had fewer caregiver changes, had been with their current caregivers for a longer time, had caregivers with higher educational aspirations for them, had higher educational aspirations for themselves, were less likely to be soft-drug users, had a lower risk of suicide, had more internal developmental assets, had a higher level of positive mental health, but also had greater behavioral difficulties.

Decline in Educational Success from Time 1 to Time 2

In the longitudinal sample, over the 3-year period between T1 and T2, the educational success of the 962 young people in care underwent a large and statistically significant decline, from a mean T-score of 50.00 ($SD = 10.00$) to a mean T-score of 41.62 ($SD = 11.11$, $t[961] = 21.80$, $p < .001$), Cohen's $d = -0.80$. Moreover, this effect size was conservative, as we took into account the correlation between the T1 and T2 educational success scores by using the formula for dependent groups, $d = t_c[2(1 - r/n)]^{1/2}$, from Dunlap, Cortina, Vaslow, and Burke (1996).

Inter-correlations

Tables 3 and 4 display the correlation matrices for all the variables in the cross-sectional and longitudinal samples, respectively. In the large cross-sectional sample, educational success was significantly correlated with 16 of the 19 predictor variables, with the strongest correlations involving internal developmental assets, behavioral problems, T1 special educational needs, T1 caregiver educational aspirations for the youth, T1 positive mental health, and T1 youth

educational aspirations. The single strongest correlation in the matrix was between T1 age and soft-drug use.

In the longitudinal sample, T2 educational success was significantly correlated with 14 of 20 predictor variables, with the strongest correlations being with T1 internal developmental assets, T1 behavioral problems, T1 special educational needs, T1 educational success, and T1 positive mental health. The single strongest correlation in the matrix was between T1 behavioral problems and T1 internal developmental assets.

Hierarchical Regression Analyses

Cross-sectional hierarchical regression. As shown in Table 5, each step in the model accounted for a statistically significant increment in the amount of variance explained in educational success at T1. The overall amount of the total variance accounted for was 38.2%, with the individual risk and individual protective blocks each explaining larger proportions of the variance than the respective contextual blocks. Keeping in mind that the two risk-factor blocks entered the model before the two protective-factor blocks, it was not surprising that the former accounted for a larger proportion of the variance (25.2%) than the latter (13.0%). Of the 19 predictors, 15 were statistically significantly related to educational success at one or more steps in the model. At the final step, 12 of the 19 predictors were statistically significant. The single strongest predictor was internal developmental assets ($\beta = .314$), followed by behavioral problems ($\beta = -.129$), special educational needs ($\beta = -.122$), and caregiver educational aspirations ($\beta = .106$). Three risk factors (age at first entry, school instability, and caregiver instability) were significant predictors when their respective blocks were first entered but were no longer significantly predictive at step 3, after the contextual protective factors had been added to the model. Neglect, on the other hand, emerged as a significant predictor of lower educational

success only after the contextual protective factors had been included, and it remained significant in the final model.

Longitudinal hierarchical regression. As displayed in Table 6, T1 educational success was added as an initial step in the hierarchical regression predicting T2 educational success. In this model, the risk and protective factors were accounting for *change* in the young people's educational success between T1 and T2 (Cohen, Cohen, West, & Aiken, 2014). Except for step 1, in which T1 educational success was the sole predictor, the other four steps accounted for relatively small but still statistically significant increments in the amount of variance in T2 educational success. The model as a whole accounted for 20.9% of the variance, with most explained by T1 educational success (13.4%). Eight of the 20 predictors were significant predictors of T2 educational success at one or more stages in the regression model, with 5 predictors significant at the final step. Except for T1 educational success, internal developmental assets, as in the cross-sectional regression, had the largest association with change in educational success ($\beta = .117$).

Gender as a moderator of other predictor variables. Gender significantly moderated T1 caregiver educational aspirations in the cross-sectional regression model ($F(1, 3638) = 16.88, p < .001$), with T1 caregiver educational aspirations more strongly related to T1 educational success among girls than among boys. Gender also significantly moderated T1 placement type in the cross-sectional regression ($F(1, 3638) = 7.66, p = .006$): girls experienced greater educational success than boys in foster or kinship homes, but there was no gender difference in group homes. In the longitudinal regression model, gender did not significantly moderate any of the other predictors.

Discussion

The results of the present study supported our first hypothesis, namely, that each block of predictors, in both the cross-sectional and longitudinal samples, would account for a statistically significant increment in the amount of variance accounted for in our dependent variable, educational success. The results also provided partial support for our second hypothesis, that within each block, the various individual predictors would be significantly associated with educational success, in the expected direction. Specifically, we found that of the 19 predictors in the cross-sectional sample that we used to operationalize 15 of the conceptual categories identified by O'Higgins et al. (in press), 15 predictors (79%) were statistically significantly related to the educational success of young people in care at one or more stages of the hierarchical regression model. In our longitudinal regression, conducted on a smaller sample and over a three-year period, 8 of 20 predictors (40%) were significantly related to change from T1 to T2 in educational success.

Among the predictors of educational success that were statistically significant in both the cross-sectional and longitudinal models, the strongest was internal developmental assets. This result, confirming a similar finding by Flynn et al. (2013) in a different OnLAC sample, suggests that a focus by practitioners on building young people's developmental assets from year to year—an intervention strategy promoted by the OnLAC project—may indeed lead to more positive educational progress (Scales et al., 2000; Scales & Leffert, 2004). Practitioners and policy makers should also attend to the other factors that were consistently predictive, in both our cross-sectional and longitudinal regression models. Among the risk factors, soft drug use was especially problematic, as Shin (2003) found vis-à-vis poor literacy skills. For its part, caregiver instability was associated with weaker educational performance, similar to the finding by

Petrenko et al. (2012) that youths in care with greater caregiver instability had more academic delays. Greater behavioral difficulties were also linked to a higher level of educational difficulties, consistent with similar findings by Cheung et al. (2012) and Flynn et al. (2013). Regarding protective factors, female gender, caregiver educational aspirations for the young person in care, and the young person's positive mental health were consistently predictive in both the cross-sectional and longitudinal regressions. These findings, which are directly related to practice and policy, agree with other research. O'Higgins et al. (in press) found in their systematic review that girls often do better academically than boys. Flynn et al. (2013) discovered that higher caregiver academic aspirations are associated with better educational achievement. Finally, Keyes (2002) and Keyes, Eisenberg, Perry, Dube, Kroenke, and Dhingra (2011) have shown, respectively, that positive mental health is more than simply the absence of mental disorder and is also protective against educational difficulties as well as mental health problems.

Other predictors were statistically significant at one or more steps of the hierarchical regression model in our cross-sectional but not our longitudinal sample, perhaps because the latter was smaller and there was a three-year time lag between the T1 predictors and T2 educational success. These predictors, although less consistent, have some support in the research literature. Regarding age at first entry into care, McClung and Gayle (2010) found that children who entered care after the age of 12 had poorer educational outcomes than those who had come into care before 12. With respect to reasons for coming into care, Romano et al. (2014) and Evans (2001) found that neglect was associated with lower educational achievement than was abuse or behavior problems. Concerning school instability, Conger and Rebeck (2001) noted a small but significant relationship between school changes and lower scores in math,

although not in reading. Grade retention, according to Flynn et al. (2013), predicted worse educational outcomes. Sebba et al. (2015) found that children in care with special educational needs had a more negative relationship with educational outcomes than those in the general population. With regard to ethnic minority status, Flynn, Vincent, and Miller (2014) discovered few significant differences between Indigenous and other children in care of the same gender and age, whereas Hegar and Rosenthal (2009) found that African-American children in care had poorer educational outcomes than their Caucasian peers. Concerning the protective factor of placement stability, the Department for Education in England found that the longer a young person had been in care, the greater the number of GCSEs (General Certificates of Secondary Education, in different subject matters) he or she obtained (Sebba et al., 2015). Finally, with regard to the educational aspirations of young people in care, Shin (2003) found that those with higher aspirations experienced greater educational success.

In our exploratory test of gender as a moderator in the cross-sectional sample, caregivers' educational aspirations moderated youths' educational success, with caregiver aspirations more strongly associated with educational success among girls than boys. This finding, which adds to the limited research on the topic in child welfare, is consistent with other research. Kirk, Lewis, Brown, Nilsen, and Colvin (2012) found that girls in foster care had a higher grade-point average than boys, higher self-perceived educational expectations for themselves for obtaining a bachelor's or graduate degree, and a higher grade-point average. Courtney et al. (2011) discovered that among former foster youths, women were more than twice as likely as men to have obtained a 2- or 4-year academic degree by the age of 26. From a practice or policy perspective, these results suggest that while girls and women in care merit continued financial

support and academic encouragement, boys and men in care appear to be in even greater need of such.

Gender moderated the relationship between T1 placement type and T1 educational success. Girls achieved greater educational success than boys if they resided in foster or kinship homes rather than in group homes, whereas there was no gender difference in group homes. This result adds a gender nuance to previous research that has found young people in group care to obtain poorer grades and lower levels of education than those in foster care (Ryan, Marshall, Herz, & Hernandez, 2008). Again, practice and policy needs to take note of our finding that group care may be even more educationally problematic for girls than boys.

An important finding from the present research was the large decline ($d = -0.80$) in educational success during the three-year period between T1 (T-score $M = 50$), when the participants were aged 11.7 to 15.8 years and T2 (T-score $M = 41.62$), when they were aged 14.3 to 18.0. This decrease was similar to declines in educational achievement seen in administrative data gathered on national samples of children in care and in the general population in England (Sebba et al., 2015). At age 11, only 48% of the children in care, compared with 79% in the general population, had reached the expected academic level in English and mathematics. Moreover, as the children in care got older, their educational attainment declined, in both absolute and relative terms, compared with that of children in the general population. A decline similar to that in England, in a study also based on administrative data, was reported recently in Canada, in the province of Manitoba (Brownell, Chartier, Au, MacWilliam, Schultz, Guenette et al., 2015). The data were from standardized assessments in reading and math that had been carried out with children who had either ever been in care and else were in the general population. When in grade 8 (at roughly age 13), of the children who had ever been in care, 49%

had been assessed as competent in reading and writing, whereas in grade 12 (when aged about 17), only 10% were assessed as competent. In math, when in grade 7 (at roughly age 12), 38% of the children ever in care had been assessed as competent, compared to only 8% when they were in grade 12. Moreover, as in the study in England by Sebba et al. (2015), the decline observed in children who had ever been in care was considerably sharper than in children in the general population. Sebba et al. (2015) and Brownell et al. (2015) concluded that many young people in care lack basic skills in reading and math and become increasingly unable to cope with the demands of a more abstract and difficult curriculum as they proceed through secondary school. Once again, an adequate response by schools, child welfare organizations, and government policy-makers is required, a topic to which we now turn.

We clearly need more evidence-based educational interventions to be created, evaluated, and implemented to minimize the educational decline that we found in our longitudinal sample and to improve educational outcomes. The last decade has seen a modest degree of progress in this regard, compared with previous periods. In an earlier review of US research on the academic status of young people in care during 1940-2006, Trout, Hagaman, Casey, Reid, and Epstein (2008) found only 9 published studies on interventions, a mere 4 of which had been published in the previous decade (1996-2006). These intervention studies were too few for Trout et al. (2008) to maintain their original intent of including an evaluation of educational intervention studies as part of their review. Encouragingly, however, Forsman and Vinnerljung (2012) were able to provide some initial grounds for cautious optimism in a scoping review of interventions aimed at improving the educational achievements of children in care. They identified a total of 11 studies that met their inclusion criteria, with most carried out within the last three years (4 in the UK, 3 in the USA, 3 in Canada, and 1 in Sweden). Forsman and

Vinnerljung (2012) found that 9 of the 11 studies had reported positive outcomes and that 4 out of the 5 studies of academic tutoring, the most frequently evaluated intervention, had yielded positive results. They concluded that the limited research they had uncovered had suggested that the educational success of children in care can indeed be improved.

Evans, Brown, Rees, and Smith (2016) provided further grounds for optimism in their systematic review of randomized evaluations of educational interventions for young people in care. Their review included 15 randomized controlled trials (RCTs) that had reported on 12 different educational interventions, with 13 of the 15 trials published within the last decade. According to Evans et al. (2016), 9 of the 12 interventions had had tentative positive impacts: 5 improved academic skills, 3 enhanced school attendance, suspension, or drop-out, 1 increased homework completion, and 1 improved teacher-student relationships. Three had had no effect on any of the educational outcomes assessed. Despite these promising results, Evans et al. (2016) noted that the 15 RCTs and 12 interventions had shown considerable variability in terms of the quality of their implementation and reporting, thereby precluding the drawing of definitive conclusions about their effects. Evans et al. (2016) argued in favour of increased use of RCTs in educational settings, while also advocating greater attention to the care with which they were conducted and evaluated.

We believe that the present study has made an important contribution to the literature on the educational success of young people in care. We found that 15 of the 19 variables suggested by a systematic review had displayed significant predictive power vis-à-vis the outcome of educational success in a cross-sectional hierarchical regression model, with 12 of the variables remaining statistically significant at the final step. In a longitudinal hierarchical regression model, carried out on a smaller sample, 7 of the same 19 variables were significantly predictive

over a three-year period, with four remaining significant at the final step in the model. We suggest that our results be taken into account both by researchers in their future observational or experimental studies and by practitioners or policy-makers in their real-world work. Gender, for example, should be considered as a routine protective or control variable, given its consistent relationship here and in the broader literature with educational outcomes. The role of neglect and other forms of maltreatment needs more systematic study and clarification, in terms of their relationship to education. Increasing young people's developmental assets and positive mental health would also be promising targets for focused interventions and evaluations, given their consistent links here with educational success. Efforts to enhance young people's educational aspirations and those of their caregivers seem like useful, low-cost targets of intervention. Finally, soft drug use, behavioral problems, and special educational needs are consistent risk factors that would benefit from preventive or remedial efforts by researchers, child welfare personnel, and policy-makers. The overall context for higher-quality, more targeted, and more effective research and interventions to improve the educational outcomes of young people in care has become more promising. As Evans et al. (2016) remark, however, only more rigorous investigations will enable us to draw firm conclusions about what works, with whom, and under what conditions.

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Table 1

The predictors of educational success identified by O'Higgins et al. (in press) for which we had a total of 19 operational measures, grouped into four blocks: contextual risk, individual risk, contextual protective, and individual protective.

	Systematic Review (O'Higgins et al., in press)	Present Study
Contextual Risk Factors <i>associated with poorer educational outcomes</i>	Age of entry into care Reason for entry into care School changes/# educ. placements # of placements / placement instability School functioning	Age of first entry into care Neglect as a reason for entry into care School instability Caregiver instability Grade retention
Individual Risk Factors <i>associated with poorer educational outcomes</i>	Age Special educational needs Ethnicity (minority) Behavioral problems Mental health (negative)	Age Special educational needs Ethnic minority status: FNMI Ethnic minority status: African-Canadian Behavioral problems Soft drug use Suicide risk
Contextual Protective Factors <i>associated with better educational outcomes</i>	Characteristics of kin/foster carers Placement type	Caregiver educational aspirations Placement stability Placement type
Individual Protective Factors <i>associated with better educational outcomes</i>	Well-being Gender (female) Aspirations for education (youth)	Internal developmental assets Positive mental health Gender Youth educational aspirations

Note: FNMI = First Nations, Métis, Inuit.

Table 2

Means (or percentages), standard deviations, Cronbach's alphas, theoretical range, and skewness statistics for study variables.

Variable	Cross-Sectional Sample (N = 3,659)					Longitudinal Subsample (n = 962)				
	Mean (or %)	SD	Cronbach's alpha	Theoretical Range	Skewness	Mean (or %)	SD	Cronbach's alpha	Theoretical Range	Skewness
Outcomes										
T1 Educational success (<i>T</i> -score)	50.00	10.00	0.80	22 – 72	-.189	50.00	10.00	0.79	22 – 72	-.165
T2 Educational success (<i>T</i> -score)	--	--	--	--	--	41.62	11.11	0.82	7 – 65	-.355
Contextual Risk Factors										
Age of first entry into care (years)	7.99	4.14	--	0 – 17	-.019	6.17	3.33	--	0 – 17	.114
T1 Neglect as a reason for entry into care (1 = Yes; 0 = No)	61.5 %	--	--	0 – 1	--	71.6 %	--	--	0 – 1	--
T1 School instability	1.95	1.16	--	0 – 4	-.053	1.75	1.12	--	0 – 4	.080
T1 Caregiver instability ^a	0.69	0.22	--	0 – 2	-.084	0.67	0.22	--	0 – 2	-.222
T1 Grade retention (1 = Repeat; 0 = No)	14.8 %	--	--	0 – 1	--	12.1 %	--	--	0 – 1	--
Individual Risk Factors										
T1 Age (years)	15.09	1.61	--	11.5 – 17.99	-.205	13.51	0.86	--	11.69 – 15.83	-.002
T1 Special educational needs	1.98	1.57	0.53	0 – 9	.599	2.16	1.65	0.56	0 – 9	.505
Ethnic minority status: FNMI (1 = Yes; 0 = No)	17.5 %	--	--	0 – 1	--	19.5 %	--	--	0 – 1	--
Ethnic minority status: African- Canadian (1 = Yes; 0 = No)	11.2 %	--	--	0 – 1	--	10.4 %	--	--	0 – 1	--
T1 Behavioral problems	12.64	7.34	0.87	0 – 40	.371	13.08	7.50	0.86	0 – 40	.351
T1 Soft drug use (1 = User; 0 = Non-User)	56.1 %	--	--	0 – 1	--	18.7 %	--	--	0 – 1	--
T1 Suicide risk (1 = Yes; 0 = No)	19.2 %	--	--	0 – 1	--	13.9 %	--	--	0 – 1	--
Contextual Protective Factors										
T1 Caregiver educational aspirations	14.03	1.55	--	9 – 18	.495	14.16	1.61	--	9 – 18	.349
T1 Placement type (1 = Kinship & foster care; 0 = Group)	80.2 %	--	--	0 – 1	--	86.9 %	--	--	0 – 1	--
T1 Placement stability ^b	1.72	0.91	--	0 – 4.12	.349	1.86	0.85	--	0 – 4.12	.004
Individual Protective Factors										
T1 Internal developmental assets ^c	2.39	0.96	0.88	0 – 4.47	-.056	2.52	0.91	0.88	0 – 4.47	-.129
Gender (1 = Female; 0 = Male)	43.9 %	--	--	0 – 1	--	41.3 %	--	--	0 – 1	--
T1 Positive mental health ^c	5.30	1.54	0.89	0 – 8.37	-.138	4.55	1.45	0.91	0 – 8.37	-.216
T1 Youth educational aspirations	14.18	1.75	--	9 – 18	.509	14.36	1.81	--	9 – 18	.327

Notes: T1 = data collected in 2010-2011; T2 = data collected in 2013-2014. Transformations due to skewness: ^a log(10) transformation; ^b Square root transformation; ^c Square root transformation, reflected, then re-reflected with higher scores indicating higher levels of the variables. Except for outcome variables, all Cronbach's alpha coefficients were calculated prior to imputation. FNMI = First Nations, Métis, Inuit.

Table 3
Correlation matrix for cross-sectional sample variables ($N = 3,659$)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Outcome: T1 Educational success	--																			
2 Age of first entry into care	-.058[‡]	--																		
3 T1 Neglect as a reason for entry into care (1 = Yes; 0 = No)	.027	-.292[‡]	--																	
4 T1 School instability	-.132[‡]	.116[‡]	-.061[‡]	--																
5 T1 Caregiver instability	-.142[‡]	-.078[‡]	-.037*	.439[‡]	--															
6 T1 Grade retention (1 = Repeat; 0 = No)	-.172[‡]	.043*	.011	.099[‡]	.069[‡]	--														
7 T1 Age	-.066[‡]	.280[‡]	-.125[‡]	.125[‡]	.086[‡]	.103[‡]	--													
8 T1 Special educational needs	-.345[‡]	-.107[‡]	.048[†]	.022	.093[‡]	.118[‡]	-.066[‡]	--												
9 Ethnic minority status: FNMI (1 = Yes; 0 = No)	-.033	-.069[‡]	.051[†]	.025	.083[‡]	.048[†]	-.053[‡]	.001	--											
10 Ethnic minority status: African-Canadian (1 = Yes; 0 = No)	.005	.042*	-.097[‡]	.004	.007	-.048[†]	.024	-.095[‡]	-.092[‡]	--										
11 T1 Behavioral problems	-.426[‡]	-.007	-.078[‡]	.129[‡]	.164[‡]	.114[‡]	-.062[‡]	.456[‡]	.016	-.077[‡]	--									
12 T1 Soft drug use (1 = User; 0 = Non-User)	-.144[‡]	.260[‡]	-.123[‡]	.175[‡]	.148[‡]	.089[‡]	.666[‡]	-.033	.013	.012	.033	--								
13 T1 Suicide risk (1 = Yes; 0 = No)	-.125[‡]	.072[‡]	-.108[‡]	.097[‡]	.106[‡]	.041*	.065[‡]	.069[‡]	.060[†]	-.038*	.191[‡]	.107[‡]	--							
14 T1 Caregiver educational aspirations	.305[‡]	.052[†]	-.003	-.048[†]	-.079[‡]	-.115[‡]	-.061[‡]	-.291[‡]	-.025	.150[‡]	-.239[‡]	-.041*	-.077[‡]	--						
15 T1 placement type (1=Kinship/Foster care; 0=Group)	.180[‡]	-.110[‡]	.149[‡]	-.186[‡]	-.214[‡]	-.058[†]	-.117[‡]	-.108[‡]	-.014	-.037*	-.261[‡]	-.166[‡]	-.188[‡]	.115[‡]	--					
16 T1 Placement stability	.178[‡]	-.395[‡]	.216[‡]	-.381[‡]	-.399[‡]	-.023	-.059[‡]	.019	-.016	-.038*	-.168[‡]	-.197[‡]	-.184[‡]	.008	.324[‡]	--				
17 T1 Internal developmental assets	.530[‡]	-.115[‡]	.095[‡]	-.190[‡]	-.171[‡]	-.104[‡]	-.066[‡]	-.300[‡]	-.018	.030	-.523[‡]	-.194[‡]	-.176[‡]	.223[‡]	.268[‡]	.289[‡]	--			
18 Gender (1 = Female; 0 = Male)	.111[‡]	.050[†]	-.009	-.018	.000	-.027	.036*	-.100[‡]	.037*	.010	-.061[‡]	.011	.129[‡]	.057[‡]	.101[‡]	-.017	.130[‡]	--		
19 T1 Positive mental health	.304[‡]	-.109[‡]	.081[‡]	-.125[‡]	-.129[‡]	-.059[†]	-.089[‡]	-.133[‡]	-.030	-.005	-.326[‡]	-.177[‡]	-.183[‡]	.061[‡]	.203[‡]	.215[‡]	.439[‡]	-.051[†]	--	
20 T1 Youth educational aspirations	.301[‡]	.012	-.013	-.001	-.042*	-.082[‡]	-.104[‡]	-.267[‡]	-.032	.094[‡]	-.172[‡]	-.068[‡]	-.032	.550[‡]	.094[‡]	-.010	.229[‡]	.108[‡]	.091[‡]	--

Notes: Bolded = significant correlations; ‡ Correlation significant at .001 level (2-tailed); † Correlation significant at .01 level (2-tailed); * Correlation significant at .05 level (2-tailed); T1 = data collected in 2010-2011.

Table 4
Correlation matrix for longitudinal subsample variables ($N = 962$)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 Outcome: T1 Educational success (Wave 10)	--																				
2 Outcome: T2 Educational success (Wave 13)	.355[‡]	--																			
3 Age of first entry into care	-.073[*]	-.054	--																		
4 T1 Neglect as a reason for entry into care (1 = Yes; 0 = No)	-.026	.011	-.102[†]	--																	
5 T1 School instability	-.104[†]	-.133[‡]	.160[‡]	-.062	--																
6 T1 Caregiver instability	-.071[*]	-.130[‡]	-.071[*]	-.034	.415[‡]	--															
7 T1 Grade retention (1 = Repeat; 0 = No)	-.151[‡]	-.103[‡]	-.039	.058	.040	.030	--														
8 T1 Age	.026	-.018	.169[‡]	-.003	.075[*]	.011	.042	--													
9 T1 Special educational needs	-.426[‡]	-.182[‡]	-.104[†]	-.022	-.005	.071[*]	.133[‡]	-.044	--												
10 Ethnic minority status: FNMI (1 = Yes; 0 = No)	.012	-.058	-.037	.012	.021	.109[†]	-.022	.033	-.018	--											
11 Ethnic minority status: African-Canadian (1 = Yes; 0 = No)	.062	.057	.051	-.081[*]	-.048	.019	-.044	-.011	-.125[‡]	-.082[*]	--										
12 T1 Behavioral problems	-.460[‡]	-.242[‡]	-.022	-.084[*]	.094[†]	.108[†]	.125[‡]	-.041	.513[‡]	-.032	-.052	--									
13 T1 Soft drug use (1 = User; 0 = Non-User)	-.107[†]	-.159[‡]	.187[‡]	-.031	.154[‡]	.100[†]	.028	.249[‡]	.009	.013	-.033	.082[*]	--								
14 T1 Suicide risk (1 = Yes; 0 = No)	-.049	-.036	.080[*]	-.075[*]	.088[‡]	.070[*]	.026	.017	.050	.051	-.021	.125[†]	.058	--							
15 T1 Caregiver educational aspirations	.324[‡]	.199[‡]	.020	-.000	-.128[‡]	-.101[†]	-.139[‡]	-.084[*]	-.326[‡]	.012	.177[‡]	-.250[‡]	-.050	-.083[*]	--						
16 T1 placement type (1=Kinship/Foster care; 0=Group)	.116[‡]	.103[†]	-.086[†]	.132[‡]	-.158[‡]	-.198[‡]	.032	-.054	-.107[†]	-.008	-.082[*]	-.185[‡]	-.123[‡]	-.114[†]	.126[‡]	--					
17 T1 Placement stability	.137[‡]	.143[‡]	-.426[‡]	.180[‡]	-.419[‡]	-.372[‡]	.070[*]	-.031	.032	.005	-.012	-.112[‡]	-.222[‡]	-.151[‡]	.043	.275[‡]	--				
18 T1 Internal developmental assets	.486[‡]	.325[‡]	-.118[‡]	.059	-.113[‡]	-.097[†]	-.085[*]	-.094[†]	-.351[‡]	.016	.047	-.512[‡]	-.191[‡]	-.070	.229[‡]	.183[‡]	.215[‡]	--			
19 Gender (1 = Female; 0 = Male)	.120[‡]	.122[‡]	-.062	.078[*]	-.054	.001	-.071[*]	-.011	-.113[‡]	.002	-.003	-.078[*]	-.036	.049	.053	.113[‡]	.069[*]	.119[‡]	--		
20 T1 Positive mental health	.207[‡]	.215[‡]	-.055	.030	-.069	-.092[*]	-.031	-.011	-.156[‡]	.020	.001	-.310[‡]	-.157[‡]	-.112[†]	.092[*]	.158[‡]	.163[‡]	.341[‡]	.000	--	
21 T1 Youth educational aspirations	.309[‡]	.173[‡]	.019	.009	.000	-.030	-.073	-.081[*]	-.317[‡]	-.049	.059	-.235[‡]	-.016	-.032	.488[‡]	.170[‡]	-.056	.224[‡]	.106[†]	.110[†]	--

Note. Bold indicates significant correlations. FNMI = First Nations, Métis, Inuit.

[‡]Correlation significant at .001 level (2-tailed); [†]Correlation significant at .01 level (2-tailed); *Correlation significant at .05 level (2-tailed); T1 = Wave 10 (2009-2010); T2 = Wave 13 (2012-2013)

Table 5
Cross-Sectional Sample ($N=3,659$): Hierarchical regression of T1 educational success on T1 risk (contextual & individual) and protective (contextual & individual) variables.

Outcome variable: T1 Educational success	Step 1		Step 2		Step 3		Step 4	
Predictors	B	Standardized Beta	B	Standardized Beta	B	Standardized Beta	B	Standardized Beta
Contextual Risk Factors								
Age of first entry into care (years)	-0.123***	-.050	-0.130***	-.052	-0.064	-.022	-0.037	-.014
T1 Neglect as a reason for entry into care (1 = Yes; 0 = No)	0.125	.002	-0.509	-.030	-0.699*	-.040	-0.657*	-.039
T1 School instability	-0.549***	-.058	-0.316*	-.033	-0.160	-.012	-0.057	-.007
T1 Caregiver instability	-4.818***	-.110	-1.522*	-.034	0.101	.001	-0.290	-.007
T1 Grade retention (1 = Repeat; 0 = No)	-4.346***	-.162	-2.651***	-.099	-2.416***	-.092	-2.239***	-.084
Individual Risk Factors								
T1 Age (years)			0.038	.004	0.049	.004	0.014	.000
T1 Special educational needs			-1.255***	-.199	-1.038***	-.166	-0.750***	-.122
Ethnic minority status: FNMI (1 = Yes; 0 = No)			-0.598	-.025	-0.560	-.023	-0.459	-.023
Ethnic minority status: African-Canadian (1 = Yes; 0 = No)			-1.389**	-.046	-1.993***	-.064	-1.823***	-.059
T1 Behavioral problems			-0.422***	-.311	-0.378***	-.277	-0.174***	-.129
T1 Soft drug use (1 = User; 0 = Non-user)			-2.190***	-.109	-2.035***	-.101	-0.884*	-.043
T1 Suicide risk (1 = Yes; 0 = No)			-0.711	-.036	-0.356	-.024	-0.184	-.020
Contextual Protective Factors								
T1 Caregiver educational aspirations					1.181***	.180	0.669***	.106
T1 Placement type (1=Kinship/Foster care; 0=Group)					0.280	.010	-0.506	-.021
T1 Placement stability					1.026***	.101	0.437*	.044
Individual Protective Factors								
T1 Internal developmental assets							3.344***	.314
Gender (1 = Female; 0 = Male)							0.809**	.050
T1 Positive mental health							0.468***	.076
T1 Youth educational aspirations							0.589***	.092
ΔR^2		.055***		.197***		.035***		.096***

Note. * $p < .05$ (2-tailed); ** $p < .01$ (2-tailed); *** $p < .001$ (2-tailed); T1 = data collected in 2010-2011; FNMI = First Nations, Métis, Inuit.

Table 6

Longitudinal subsample ($N = 962$): Longitudinal hierarchical regression of T2 educational success on T1 risk (contextual & individual) and protective (contextual & individual) variables.

Outcome variable: T2 Educational success	Step 1		Step 2		Step 3		Step 4		Step 5	
Predictors	B	Standardized Beta	B	Standardized Beta	B	Standardized Beta	B	Standardized Beta	B	Standardized Beta
T1 Educational success	0.395***	.366	0.371***	.344	0.316***	.296	0.296***	.274	0.237***	.230
Contextual Risk Factors										
Age of first entry into care (years)			-0.091	-.022	-0.069	-.014	-0.023	.000	0.003	.010
T1 Neglect as a reason for entry into care (1 = Yes; 0 = No)			0.328	.015	0.169	.007	0.017	.000	-0.089	-.005
T1 School instability			-0.559	-.064	-0.451	-.056	-0.306	-.038	-0.351	-.037
T1 Caregiver instability			-4.251*	-.082	-3.401	-.064	-2.537	-.045	-2.706	-.049
T1 Grade retention (1 = Repeat; 0 = No)			-1.704	-.061	-1.512	-.056	-1.497	-.057	-1.397	-.058
Individual Risk Factors										
T1 Age (years)					0.106	.005	0.167	.010	0.335	.019
T1 Special educational needs					-0.051	-.022	-0.028	-.009	0.148	.009
Ethnic minority status: FNMI (1 = Yes; 0 = No)					-1.539	-.056	-1.627	-.060	-1.603	-.063
Ethnic minority status: African-Canadian (1 = Yes; 0 = No)					0.927	.000	0.610	-.009	0.664	-.009
T1 Behavioral problems					-0.123*	-.067	-0.114	-.061	-0.012	.007
T1 Soft drug use (1 = User; 0 = Non-user)					-2.923**	-.112	-2.826**	-.106	-2.240*	-.086
T1 Suicide risk (1 = Yes; 0 = No)					0.318	.015	0.552	.024	0.456	.025
Contextual Protective Factors										
T1 Caregiver educational aspirations							0.493*	.081	0.399	.070
T1 Placement type (1= Kinship/Foster care; 0=Group)							0.522	.023	-0.200	-.003
T1 Placement stability							0.527	.044	0.239	.029
Individual Protective Factors										
T1 Internal developmental assets									1.675***	.117
Gender (1 = Female; 0 = Male)									1.536*	.080
T1 Positive mental health									0.745**	.108
T1 Youth educational aspirations									0.183	.025
ΔR^2		.134***		.020***		.019**		.007*		.029***

Note. * $p < .05$ (2-tailed); ** $p < .01$ (2-tailed); *** $p < .001$ (2-tailed); T1 = data collected in 2010-2011; T2 = data collected in 2013-2014; FNMI = First Nations, Métis, Inuit.