An Examination of Factors Contributing to Resilience among Children and Youths in Out of Home Care in Ontario

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Abstract

Objective – Some of the most vulnerable children and youths in our country are those in out of home care, and these children demonstrate higher rates of psychopathology and fare more poorly in school and in social relationships than their peers. Typically, when studying at risk populations, negative outcomes are examined, thereby ignoring those who do well despite their vulnerability. These children, who demonstrate positive patterns of functioning and development despite their exposure to adversity, are considered resilient. The objective of this study was to identify factors associated with a resilient outcome among children and youths in out of home care.

Method – The study sample was comprised of 417 children 10 to 15 years old in Ontario who had been removed from their homes of origin and placed in out of home care. Predictor variables were selected based on previous research findings in the area of resilient outcome. In the cross-sectional study, a series of sequential logistic regression analyses were conducted to identify factors associated with a resilient outcome among children in out of home care. These children were then followed one year later. In the longitudinal study, another series of sequential logistic regression analyses were used to identify variables that were related to future resilient outcomes among the same children in out of home care.

Results – The findings showed that many of the independent variables predicted resilient outcome on the different dimensions. Furthermore, overall resilient outcome was best predicted by the foster parental report of high sociability.

Conclusion – The findings in the present study confirmed that there exists a subset of resilient children among children in out of home care. The findings allowed for the identification of some factors related to resilient outcome among this population. The practical implications of these findings are discussed.

Background and Introduction

For many years the Canadian government has been trying to find ways of improving the health of Canadians. Many research and community groups have declared the importance of various components of health, with developmental specialists stressing the importance of healthy child development. The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2002). Furthermore, the importance of mental health and wellness on physical health outcome was highlighted in a World Health Organization report:

> Mental health may be considered as an integral component of health through which one realizes one's own cognitive, affective and relational abilities. With a balanced mental disposition, one is more effective in coping with the stresses of life, can work productively and fruitfully, and is better able to make a positive contribution to the community. Mental and brain disorders, by affecting mental health, impede or diminish the possibility to reach all or part of the above. Preventing and treating them clears the road to achieving one's full potential (WHO, 2002, p. 26).

In 2002, the Canadian Institutes of Health Research (CIHR) introduced a separate institute to fund and address specific health related issues for children and adolescents, the Institute of Human Development, Child and Youth Health (CIHR, 2005). Together, the WHO and CIHR clearly define a need for research on mental health and wellness issues affecting children and youths.

2.1. Children and Youths in Out of Home Care

To insure general normal development children require that a number of basic needs be met. Vital basic physical needs include shelter, safety, food, etc. Emotional and behavioural needs, the development of a positive sense of self, and interpersonal skills generally fall onto the hands of parents (Bolger & Patterson, 2003). Good parenting and the recognition of the importance and the ability to foster mastery in these areas typically leads to success in adulthood (Lord, Eccles, & McCarthy, 1994; Raver, 1996). However, among families where abuse or neglect exists some or all of the necessary components for thriving development are missing or damaged. In these cases, the child's basic developmental needs are not met through parental care and the development of necessary strengths with regards to "physical sustenance and protection, emotional security, and social interaction" (Bolger & Patterson, 1993, p. 7) are absent. The vast majority of children in out of home care have been removed from their families of origin as a result of abuse or neglect (Trocme, MacLaurin, Fallon, Daciuk, Tourigny, & Billingsley, 2001). The primary goal of child protective services (CPS) is to protect children or youth from harm in their home environment. Once it is determined that a child or youth is at risk of maltreatment or neglect in his or her own home, the family either receives services from CPS or, if necessary, the child or youth is removed from the home and placed in out of home care.

According to the Ontario Association of Children's Aid Societies, in 2003 there were 18,126 children in foster care or group care in Ontario, which is a 56% increase since 1998. Most of the children and youths in foster care are placed in long-term care because of severe physical abuse, sexual abuse, or neglect suffered in their families of origin (Trocme et al., 2001). The notable increases are described in the research literature as having occurred as a result of the passing of Ontario's Bill 6 and amendments to the Child and Family Services

Act (King, Leschied, Whitehead, Chiodo, & Hurley, 2003). However, the greatest increase has come from the number of reports of neglect since Bill 6 was passed (Trocme, Fallon, MacLaurin, & Neves, 2005). According to Marquis, Leschied, Chiodo, & O'Neill (2008), children in Ontario that are exposed to domestic physical or emotional abuse within the home of their primary caregiver are not necessarily deemed to require intervening from child protection; however, since the implementation of the new Bill 6, exposure to domestic physical or emotional abuse within their home of origin can require the need for protection under the neglect provision.

Trocme and colleagues (2010a) compared rates of maltreatment investigations in the Canadian Incidence Study Of Reported Child Abuse and Neglect (CIS) from 1998, 2003, and 2008. The rate of child maltreatment investigations had increased in 2003 from 21.47 per 1,000 children in 1998 to 38.33 per 1,000 children. The rate has remained similar in 2008 at 39.16 per 1,000 children in Canada. According to the 2010 report, 235, 842 child maltreatment investigations were conducted in 2008 in Canada. Of these, 74% of investigations were related to allegations of abuse or neglect and 26% of investigations were related to concerns of future maltreatment (Trocme et al., 2010a). Of all of the cases investigated in 2008, 36% of cases were substantiated, in 8% there was insufficient evidence but high suspicion of maltreatment by the worker, and in 30% investigations were unfounded. Trocme and colleagues (2010a) note that 24% of reported cases of maltreatment were by school personnel, 11% of reported cases by custodial or non-custodial parent, and 22% of reported cases by police.

Based on the CIS data reported by Trocme et al. (2010b), the placement status of children after child maltreatment investigations was broken down as follows: 92% of children remained at home,4% entered informal kinship care, 4% entered foster care, and

less than 1% entered group home care. In 2008, there were a total of 85, 440 substantiated cases of child maltreatment in Canada (Trocme et al., 2010b). Of those cases, 20% were for physical abuse, 3% were for sexual abuse, 34% were for neglect, 9% were for emotional maltreatment, and 34% were for exposure to intimate partner violence (Trocme et al., 2010b).

According to the Commission to Promote Sustainable Child Welfare (2010), in 2009/2010, more than 26, 700 children and youth received in care services from CAS in Ontario. Of these children, 20% were children aged 0 to 5, 24% were children aged 6 to 12, 23% were children 13 to 15 and 33% were children 16 and older. In Ontario, CAS support was largely in the form of family based out of home care (66%) and group care (14%).

A national review of foster care statistics conducted in the United States suggests that there have been dramatic increases in the use of foster home placement in all states. In fact, the American study showed a 60% increase in the foster care population since 1980 (Curtis, Dale, & Kendall, 1999). Data from the Centre for Excellence in Child Welfare (CECW) indicate that the increase has been even more dramatic in Canada, with a 90% increase in physical maltreatment from 1993 to 1998 and a 102% increase in substantiated reports of neglect (CECW, 2003).

Children and youths in out of home care are consistently identified as a vulnerable population that demonstrate higher rates of psychopathology, and fare more poorly in school and in social relationships than their non-fostered peers (Offord, 1995; Bolger & Patterson, 2001a; Bolger & Patterson, 2001b; Lynch & Cicchetti, 1998; Minnis, Pelosi, Knapp, & Dunn, 2001; Bolger, Patterson, & Kupersmidt, 1998; Flynn & Biro, 1998). Masses of empirical evidence show that children in out of home care exhibit increased rates of behavioural problems such as aggression and delinquency (Herrenkohl, Egolf, & Herrenkohl,

1997), emotional problems such as depression and anxiety (Lynch & Cicchetti, 1998; McGee, Wolfe, & Wilson, 1997; Toth, Manly, & Cicchetti, 1992), academic problems such as learning difficulties (Flynn, Ghazal, Legault, Vandermeulens, & Petrick, 2004), low self-esteem (Egeland, Sroufe, & Erickson, 1983), and interpersonal relationship difficulty (Cicchetti, Lynch, Shonk, & Manly, 1992; Rogosch, Cicchetti, & Aber, 1995; Salzinger, Feldman, Hammer, & Rosario, 1993). A review of the literature in this area resulted in prevalence estimates of emotional and behavioural problems among foster children to be three to four times greater than among children in the general population (Stein, Rae-Grant, Ackland, & Avison, 1994; Costello, 1987). In 2009, Marquis & Flynn compared children in out of home care in Ontario to children in the general British population and found higher rates of conduct problems, hyperactivity-inattention problems, peer problems, and prosocial behaviour problems. Moreover, there is consensus among researchers that children and youths in out of home care represent a high risk group in need of research and policy reform. Researchers postulate that the individual history of exposure to abuse or neglect significantly predisposes children and youths in out of home care to high risks of internalizing, externalizing, and interpersonal problems.

One of the first steps involved in identifying the factors that affect positive outcome among children and youths in out of home care involves identifying the factors that affect wellness among children and youths in the general population. A review of 34 family studies by Orme and colleagues (2001) suggested that parenting style, the family home environment, family functioning, marital functioning, parent mental health, and social support are key factors affecting the mental health of children and youths in the general population. Children and youths in out of home care are exposed to the same factors that are known to affect the mental health of children and youths in the general population; however,

children and youths in out of home care are further taxed by their changing home environment, possible history of abuse, possible loss of main attachment figure, and other stressors. These findings strongly suggest that children and youths in out of home care are at increased risk of mental health disorders and overall poor adjustment as a result of the long list of distressing variables and obstacles that are likely present in their young lives (Hass & Graydon, 2009).

The healthy development of children and youths in out of home care is jeopardized by the enormous burden of stress that each child and youth faces, which is often coupled with a traumatic personal history of maltreatment or neglect (Cicchitti & Lynch, 1995). The distress experienced by many children and youths in out of home care is not only the result of abuse or neglect they may have undergone but can include the following: removal from the home environment, placement in a new home environment, placement in a new school environment, reduced contact with primary attachment figure, possible separation from siblings, the subsequent inability or difficulty in forming new primary attachments, and the experience of multiple out of home placements due to the unstable nature of the foster care system (Steinhauer, 1998).

The majority of child and youth researchers suggest that the greater number of mental health problems and overall poor outcome among the foster care population are due to at least one of three key factors that differentiate children and youths in foster care from children and youths in the general population. The first is history of physical or sexual abuse or of neglect by a caregiver during childhood or adolescence (Landsverk & Garland, 1999). The second is the removal of the child from his or her home, coupled with the adjustment to a new foster care environment (Landsverk & Garland, 1999; Bruskas, 2008). Although many children are relieved to be removed from an abusive home, in many cases the abuser is

also the main caretaker to whom the child has formed an attachment, and the separation from the major attachment figure will typically result in considerable anguish as the child mourns the loss of his or her primary attachment figure (Steinhauer, 1998). The third major contributor to poor child and adolescent mental health is the presence of parental mental health problems (Hipwell, Goosens, Melhuish, & Kumar, 2000). The study of the effects of parental mental illness and the subsequent development or etiology of mental illness among children in their care is complex. On one hand, it is thought that the child is at increased risk of developing a mental health disorder because of their biological predisposition inherited genetically from the parent(s). The increased prevalence of mental health disorders among natural parents of children and youths in foster care compared to natural parents of children and youths in the general population lends support to the theory of genetic predisposition (Hipwell et al., 2000). On the other hand, it is difficult to separate the environment from genetics entirely. The neglected children may also be left in environments where they must fend for themselves if their parent(s) are unable to care for them, or often even for themselves, due to their mental illness (Steinhauer, 1998).

Some developmental specialists believe that exposure to the maladaptive lifestyle of a parent with significant mental health illness alone could contribute to the development of a mental health disorder in the child (Biederman, Faraone, Keenan, & Tsuang, 1991; Grigoroiu-Serbanescu et al., 1991). Parental mental health also appears to be a significant predictor influencing both placement and discharge into the foster care system (Isaac, Minty, & Morrison, 1986). Others believe that the intricate combination of both genetic predisposition and poor family environment is responsible for the development of mental illness (Plomin, 1994). Results from combined genetic and environment studies suggest that heritability or genetic predisposition estimates for behaviour disorders among children and

youths can only account for approximately 50% of the contribution towards the development of a disorder, indicating that the environment also plays a major role in the etiology of mental health among children and youths (Plomin, 1994; Plomin, 1995).

Prevalence estimates of emotional and behavioural problems among children and youths in out of home care are as high as 48–80%, whereas prevalence estimates range from approximately 14–22% among children and youths in community samples (Stein et al., 1994; Costello, 1987; McEwan et al., 2007). Flynn & Biro (1998) compared the well-being and adjustment of 43 youth in out of home care in Ontario to 1600 youths not in out of home care using a variety of health, mental health, educational, and relationship variables, including the needs assessment and outcome monitoring instrument the Assessment and Action Record (AAR) and the National Longitudinal Survey of Children and Youth (NLSCY) (Ward, 1995; Statistics Canada, 1995). The study results suggested that rates of hyperactivity and inattention, emotional disorder and anxiety, conduct disorder, physical aggression, indirect aggression, and property offences were significantly higher for children and youths in out of home care than for those not in out of home care (Flynn & Biro, 1998). In addition to having more mental health problems than children in the general population, children in out of home care displayed significant difficulty in school related performance. More specifically, Flynn & Biro (1998) found that youth in out of home care were more likely to repeat a grade and to receive special education compared to their non-fostered peers. Rosenfeld & Richman (2003) have found that children in out of home care do not perform as well academically as children who are not in out of home care. Furthermore they found that children in out of home care that are not experiencing academic difficulty reported receiving less support than all other students (Rosenfeld & Richman, 2003).

The notion that children and youths in out of home care have greater mental health and well-being problems than children in the general population prompted investigators in Canada to look more closely at the psychiatric profiles of both foster and non-fostered children. The purpose of the Canadian study was to investigate whether the psychiatric profile of children in out of home care was more similar to clinical or community child psychiatric profiles (Stein, Evans, Mazumdar, & Rae-Grant, 1996). Psychiatric symptomatology was measured using both parent and teacher versions of the Standardized Clinical Information System (SCIS). The SCIS takes items from the Achenbach Child Behaviour Checklist (CBCL) and uses that information to assess the diagnostic criteria present for the six most common psychiatric disorders of children and adolescents (Boyle et al., 1993; Stein et al., 1996). Data was collected from three groups: children in foster care, children in the community, and children assessed at a local children's mental health centre. The foster care sample consisted of children (N = 248) who had been in foster care for at least two months. The community sample consisted of children (N = 1751) previously identified in a community health study, the Ontario Child Health Measurement Study (Boyle et al., 1993). The clinical sample (N = 654) was drawn from a local mental health centre. All participants were between the ages of four and 16. The major study finding was that the psychiatric profiles of children in foster care are statistically more similar to the profiles of the clinical sample than to the community sample, which suggests that children in out of home care represent an at risk population in need of treatment programmes tailored to their specific needs and sensitive to their family and placement histories. Stein and colleagues (1996) also noted associations between the risk of poor mental health outcome for the children in out of home care and four other factors. The first was the presence of a learning disability. The second factor was yielding an Intelligence Quotient total score less than 80

(IQ < 80) using standardized testing by a qualified professional. The third factor was a history of active maltreatment versus a history of neglect (passive maltreatment). The final factor contributing to poor child outcome was an out of home placement for at least three months prior to the age of three (Stein et al., 1996).

Likewise, the results of a study of 1,034 families reported to CPS for child abuse or neglect in Baltimore suggest that three major factors affect referral of the child or youth to foster care. The three factors found to statistically predict child or youth foster care placement were: mother's age less than 19 for firstborn child, maternal mental health problems, and previous occurrence and type of abuse (Zuravin & DePanfilis, 1999).

Some researchers have speculated that being placed in inappropriate out of home care itself may be responsible for the development of poor outcome among youth in out of home care (Steinhauer, 1998). Yet others insist that it is not the foster home itself but the lifestyle changes that influence outcome (Orme & Buehler, 2001). In 2001, Orme and Buehler conducted a review of all published empirical family studies to determine the specific family factors influencing foster child outcome. More specifically, the purpose of the review was to determine the factors related to out of home care that influence child and adolescent social and emotional adjustment, by comparing outcome studies of children in out of home care to children in the general population. The major findings from the review were that good socio-emotional adjustment was related to the following environmental factors: having fewer children in the foster home (Smith, 1994), higher level of foster maternal education (Smith, 1994), greater income (Smith, 1994; Simms & Horwitz, 1996), and being married (Simms & Horwitz, 1996). Although these factors appear to be associated with better outcomes, it could also be hypothesized that foster parents with these attributes are more selective in the children they bring in to their home.

Although slightly dated, the results of the following studies from the 1970s and 1980s are worth reporting. A notable longitudinal study suggested that intellectual qualities may be strong correlates of mental health outcome. Fanshel and Shinn (1978) found that the greater the intellectual capacity of the foster children, the greater their adjustment in foster care and the fewer emotional problems they had, even after controlling for factors such as time in care and number of placements. The Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1984) is an instrument widely used by researchers to make observations in the home and measure the quality of the home environment (Orme et al., 2001). Social worker ratings of child and youth adjustment and ratings by foster parents were used to determine whether number of years of foster parent experience was related to foster child outcome (Cautley & Aldrige, 1975). The results corroborate previous findings, which show that years of foster parent experience correlate positively with child and youth mental health outcome, possibly suggesting that having had previous experience with foster children enables foster parents to better cope with new foster children placed in their care. It could also be that caregiver experience may be confounded by the success of more competent caregivers increasing the likelihood of continuation in the foster care program.

Only very recently has there been research aimed specifically at determining the underlying factors related to a successful foster care experience. Researchers in Australia sought to investigate which factors contribute to both successful and unsuccessful transition to foster care during the first four months in care (Barber, Delfabbro, & Cooper, 2001). A successful transition was defined as having a single foster care placement or one out of foster home assignment over the four-month study period. An unsuccessful transition was defined as two or more placements during the four-month study period. The final sample contained 121 boys and 114 girls with a mean age of 10.8 years. Results from the Australian study

showed that children placed in foster care due to neglect were 4.7 times more likely to achieve placement stability compared to children placed in foster care for other reasons. Furthermore, children with a mental health problem were 15 times less likely to achieve foster care stability. In particular, conduct disorder, hyperactivity, emotionality, and low social adjustment were identified as key factors contributing to poor foster home stability (Barber et al., 2001). The mean number of placements for children or youth with unstable placements was 5.7 (SD = 4.2) over the four-month study period (Barber et al., 2001). The results of the Australian study suggest that the most significant predictors of unstable placement are conduct disorder and placement in foster care due to abuse. Barber and colleagues (2001) have indicated that the results of their study show that foster care is best suited for younger children because a statistically significant difference in age at the critical $p < .05$ level was found between children in stable care versus children in unstable care. The mean age for the stable group was 10.16, SD = 3.5, compared to the unstable group mean age = 11.19, SD = 3.3. Although statistically significant, the difference in age is not clinically meaningful as the distributions between both groups overlap so drastically. In this study the evidence presented was not strong enough to conclude that age and placement stability are related, regardless of statistical significance.

Placement history of 419 children in out of home care were examined for associations with attachment disorders, severity of behavioural problems, and breakdowns of subsequent foster care placements (Strijker, Knorth, & Knot-Dickscheit, 2008). An investigation into the association between replacement and age, duration of care, and problem behaviour was done. The sample was based on all children aged zero to 18 who were admitted to foster care during the specified study period. The results showed that the greater the child's age and the longer the duration in foster care, the greater number of placements the child would

encounter. As expected, the children with high scores on externalizing behaviour problems, as measured by the behavioural problems questionnaire (Barber & Delfabbro, 2002), were more likely to experience replacement into the foster care system during the study period. This study was limited by the restricted number of predictor variables selected for investigation. An expansive investigation of the factors related to foster care placement would be beneficial.

Researchers in the area of attachment have indicated that difficulties with attachment—more specifically the lack of ability to form new attachments because of past experiences of separation and loss—among children in foster care have been identified as major contributors to the mental health of children and youths in foster care (Kufeldt, Armstrong, & Dorosh, 1995; Minnis et al., 2001; Steinhauer, 1998). With this in mind, researchers in Scotland employed a randomized controlled trial to study the effects of a training program for foster care parents, focused on increasing communication skills and fostering attachment between child and caregiver among 182 children in foster care. The results of the study did not yield statistically significant increases in child attachment or a reduction in behaviour problems upon completion of the program.

Research studies reporting on the long-term effects of child abuse on adult functioning are not common. As previously reported, many children and youths are in out of home care because of severe physical abuse, sexual abuse, or neglect suffered in their families of origin. Therefore, the long-term effects of abuse warrant reporting in this discussion on mental health and wellness among youth in out of home care. The purpose of a notable longitudinal community study was to examine the psychosocial effects of childhood abuse among a sample of adults (N = 375) aged 21 using face-to-face interviews (Silverman, Reinherz, & Giaconia, 1996). Participants were asked if at any time during their

lives they had been physically or sexually abused, and were then placed in the history of abuse group or no history of abuse group. Self-reported cases of abuse were confirmed using additional reports. In the community sample, 11% of the young adults reported one or more cases of abuse during their lifetime (Silverman et al., 1996). The major findings from the study were that both boys and girls who had been physically abused were more likely to have internalizing or externalizing disorders, to have considered or attempted suicide, and to be functioning more poorly as rated by an interviewer using the Global Assessment of Functioning (GAF) score than their non-abused peers. Eighty percent of the physically abused men and 58% of the physically abused women in the study met DSM-III-R criteria for at least one active disorder at age 21. Seventy percent of the physically abused girls had suicidal ideation compared to 29% of non-abused young women. In fact, the young women who had been physically abused as children were six times more likely to have made at least one suicide attempt compared to their non-abused peers. Of the young women who had been sexually abused, 70% met DSM-III-R criteria for at least one active disorder and were three times more likely than their non-abused peers to be diagnosed with a psychiatric disorder. The young women who had been sexually abused were 10 times more likely to attempt suicide than their non-abused peers. In addition to the greater risk of a diagnosis of a psychiatric disorder and high risk of suicide, the young women who had been sexually abused also reported significantly more internalizing, externalizing, emotional-behavioural problems, and lower GAF scores than their non-abused peers. Although the young adults had been abused at different ages during their lives, the effects of the abuse were still apparent into young adulthood compared to their non-abused counterparts, suggesting that the effects of childhood abuse are not only damaging to victims in childhood or adolescence but are long-term and carry over into adulthood to disrupt adult functioning.

The majority of mental health and well-being research conducted with children in out of home care is cross-sectional and therefore demonstrative of a snapshot of mental health. A major problem with one point in time studies on mental health is that mental health problems and overall well-being may change over time. Furthermore, depending on what stage of a mental illness some of the participants are at during the study period, the true prevalence rates of mental health problems can become significantly skewed. More specifically, the difficulty with cross-sectional studies is classification of mental health status (Kelsey, Whittemore, Evans, & Thompson, 1996). For example, mental health status can be transient, in that an adolescent may be prone to depression and move in and out of depressive episodes during his or her lifetime. A cross-sectional study will only capture the mental health status or well-being of the study participants once, which may not be accurate. Classification is especially tedious with participants who are recovered from a mental health problem or those who are in treatment. Such participants may not be classified as having had the disorder; further, participants in treatment may not show signs of a mental health disorder and thus may also be classified as having no mental health problems, which would be false.

Regardless of research study design, all studies that identify mental health or well-being outcome among children and youths in out of home care share one commonality: they all show increased rates of psychopathology and heightened psychological distress among children and youths in out of home care compared to children and youths in the general population (Orme & Buehler, 2001; Heflinger, Simpkins, & Combs-Orme, 1997; Pilowsky, 1995; Flynn & Biro, 1998). Cross-sectional studies show that many children and youths have significant behavioural and emotional problems, while longitudinal studies show that children and youths in out of home care are at risk of continued mental health problems into their adult lives. The long-term effects of the abuse or neglect that many youths and children

in out of home care have experienced in their lives are little studied (Silverman, Reinherz, & Giaconia, 1996).

For many children and youths placed in out of home care, the experiences leading up to their placement are unsettling and as a result their ability to adjust to an out of home placement is both complex and arduous. Previous research suggests that children and youths in out of home care are plagued with attachment disorders and psychological distress resulting from parental separation, breakdown of their family unit, and in many cases histories of abuse or neglect. Often, youth are faced with moving from placement to placement before a stable living arrangement can be made, making it difficult for youth to begin the process of adjustment to their new living situations. According to the research literature, youths who have entered into out of home care after the age of 10 have a more difficult time adjusting and are less likely to mature into successful, productive adults (Steinhauer, 1998). In particular, researchers suggest that poor educational achievement, social adjustment, and unemployment are difficulties experienced by many young adults who come of age while in out of home care (Courtney & Barth, 1996; Minty, 1999).

A major finding from reviewing the mental health and well-being research literature relevant to children and youths in out of home care was that there is a paucity of research pertaining to good outcomes among these children and youths, particularly among the Canadian population. The most reliable finding from the review was that children and youths in out of home care are at increased risk of mental health disorders, social problems, poor functioning, and increased distress levels. Overall, studies have consistently shown rates of measurable psychopathology among children and youths in out of home care compared to their peers in the general population (Minnis et al., 2001; Zima, Bussing, Yang, & Belin, 2000; Offord, 1995). The most significant conclusion drawn from reviewing the

literature is a consensus that children and youths in out of home care who manage to function at developmentally appropriate levels represent an at risk population of which we know very little.

The most prominent finding from this review was that according to researchers there exists a small population of children and youths who, despite their adversity, become successful, well-adjusted young adults (Bolger & Patterson, 2003; Egeland, Carlson, & Sroufe, 1993). For some, regardless of their past history of abuse or neglect or their time spent in out of home care, they manage to succeed. After reviewing the children in out of home care literature, one is left wondering why it is that some youths develop appropriately and successfully despite the adversity they are exposed to and their trajectory toward a poor outcome. The few children and youths in out of home care who are at such high risk for mental health and well-being problems yet adapt competently can only be described as resilient. An examination of the resilience literature is necessary to further understand the processes involved in positive adaptation among at risk groups, particularly among children and youths in out of home care.

2.2. Conceptual Framework: Resilience

2.2.1. Resilience theory.

For decades, epidemiologists have been studying "at risk" populations with the aim of estimating risk of disease and means of reducing odds of disease contraction. Psychologists and other mental health professionals have also adopted a similar model of investigating negative outcome, known as psychopathology. The emphasis in research that employs a psychopathological model is on symptoms and negative outcome, similar to the medical model of epidemiology. This mode of investigation is necessary and important. However, once an "at risk" population has been identified, researchers can become limited

when employing a psychopathological model, the reason being that only a negative outcome is typically studied, thereby ignoring the impact of factors that may have diverted members of an "at risk" group from the development of pathology. There remains the other side of the coin, the healthy or resilient side, that until recently has been largely ignored.

Resilience research began in the 1970s when a few astute investigators observed that some children seemed to develop soundly and some even seemed to excel despite significant developmental exposure to adversity such as parental psychopathology, psychosocial disadvantage, poverty, and loss (Garmezy & Rutter, 1985; Garmezy, 1974; Garmezy, 1987; Werner & Smith, 1980; Sameroff & Chandler, 1975). Pioneer resilience researchers then set out to identify and study further those children who were able to evade a poor outcome despite their risk. Researchers in this flourishing area recognized the significant impact that such findings would have for policy and reform among at risk groups. The most recent advances in resilience research encompass identifying resilient children and the factors that are protective to them, then going one step further to implement interventions or promote those factors in that specific at risk child population (Masten, 2005). Once researchers are able to identify protective factors within an at risk population that lead to successful adaptation then they can begin to implement change to promote these factors amongst those without such traits or benefits.

Since the inception of the resilience framework nearly 30 years ago, it has continued to gain acceptance, particularly in the field of development, and strengthen as an emerging theoretical structure (Masten, 2001). Within the field, controversies have arisen over operational definitions for specific resilience criteria; more specifically, the definition of good or positive outcome has varied across research studies. A review of the resilience

research literature shows that positive outcome may defined in a variety of different ways but that the current "gold standard" has been demarcated by Masten (2005):

> Resilience refers to positive patterns of functioning or development during or following exposure to adversity, or, more simply, to good adaptation in a context of risk. In behavioural studies, resilience is inferred from two judgements about how well an individual is doing, one concerning the quality of adaptive functioning or development and the other concerning the exposure to some kind of threat to functioning or development. (p. 20)

Given the broadness of the definition of resilience, operational definitions for competent functioning tend to vary somewhat across populations. For instance, in cases where exposure to adversity is extremely high, "doing okay" will be sufficient and measures such as outstanding achievement will not be accurate indicators of positive adaptation (Masten & Coatsworth, 1998). Therefore, competent functioning must be defined in relation to the population being studied. Simply being at an "at risk" group's higher end of functioning is not appropriate to warrant the label of positive adaptation. A resilient individual must be functioning within the average or lower average range of the general population (Luthar & Zelazo, 2003). It is not enough to be functioning better than peers but worse than the norm. In previous studies, positive adaptation has been defined as variables of pathology, social functioning, and academic achievement (Masten, 2005). Masten and Coatsworth (1998) refer to measures of progress on age-salient developmental tasks as good determinants of doing well when population norms are available. Other established indicators of positive adaptation may include other domains such as general health or mental health (Masten & Coatsworth, 1998).

Operational definitions for "doing okay" vary across research studies and disciplines, and over the years, such operational definitions for competent functioning have taken many forms (Luthar et al., 2000a). For example, researchers in the field of addictions might consider the avoidance of substance abuse a resilient outcome. For children and youths in out of home care, some may consider a resilient outcome to encompass the successful completion of high school, yet others may consider becoming law-abiding citizens or avoiding psychopathology as resilient outcomes. Regardless of how resilient outcome is defined among research studies, the similarity across definitions lies in the focus on positive adaptation. Moreover, the theoretical construct of resilience results in competency in any given area of functioning (Luthar, 2003). Furthermore, the "emphasis of positive adaptation in resilience does not imply rigid requirements of excellence but rather denotes a focus on trajectories that reflect unusually positive adaptation within the adversity under consideration" (Luthar, Cicchetti, & Becker, 2000b, p. 575).

A number of researchers have opted to define positive adaptation as the absence of a disorder or mental health problem given a high risk, but the true essence of resilience research involves a positive trajectory, not only the evasion of a negative one (Luthar, Cicchetti, & Becker, 2000). To fit with a resilience framework the focus must be on a positive outcome or lack of negative outcome instead of on pathology.

The construct of resilience is known to fluctuate moderately over time (Luthar et al., 2000b). There is evidence suggesting that resilience among children who have been maltreated or abused early in life and over a long period of time is subject to significant instability. In a recent study, the stability of a good outcome among maltreated children was as low as 5% of the sample over a three-year period (Bolger & Patterson, 2003). However, there is a paucity of research in this area. More specifically, it is not clear how much

maltreated children fluctuate over time with regards to a resilient outcome compared to non-maltreated children, nor is it clear what factors are likely to impact fluctuation in a positive or negative direction. More longitudinal work is needed in this area to delineate the impact of time on resilience (Masten et al., 1999). There are also fluctuations in terms of positive adaptation from an individual standpoint. Within the various areas of childhood development, it is possible to experience positive adaptation in one area of functioning, whereas adaptation in other areas is less satisfactory (Luthar et al., 2000b). Accordingly, if an individual functions effectively in one area, for example academia, he or she is not expected to show resilience all of the time, nor to show resilience in other areas of development.

As previously noted, an important tenet of resilience is the element of risk that must be present. Masten (2005) notes that children may be described as proficient or thriving in a given domain, but without the pairing of risk and adversity they are not identified as resilient. Within the resilience research literature, adversity is defined as a form of assault on development, be it in childhood or adulthood. Examples of adversity employed in previous studies on resilience include but are not limited to natural disaster, child abuse, neglect, the loss of a loved one, and poverty (Luthar, 2003). Populations are identified as being at high risk when the likelihood of a poor outcome is great. Evidence to support the assault on development and the trajectory towards poor outcome can be found by surveying the research literature on empirically based population studies (Luthar & Zelazo, 2003). The types and concentration of adversity experienced by different populations vary (Masten, 2005; Luthar, Ciccheti, & Becker, 2000; Rutter, 1999). Adversity may include a child's experience of divorce, the loss of a parent, war, neglect, abuse, or poverty. However, risk may not be limited to one event or experience. There may be a number of exposures to

adversity, each with varying levels of intensity. For example, children in foster care are considered to be at increased risk for a variety of poor outcomes, such as school performance, social skills, mental health issues, and the like (Landsverk & Garland, 1999; Boyle et al., 1993; Steinhauer et al., 1989; Offord, 1995). However, there is likely a cumulative effect over time, such as the number of times that a child has been placed in care and then returned home again or the number of times that a child in foster care was abused compared to his or her peers. In these cases, researchers have identified risk gradients in which risk levels may vary with problematic outcome (Masten, 2005). Variables are considered protective if they increase the odds of a good or a better outcome than would be expected among high risk populations. Resilience based models applied to children in out of home care have shown that high levels of protective factors can over power the impact of risk factors (Thomas, Chenot & Reifel, 2005). Thomas and colleagues (2005) showed that greater individual, familial, and environmental protective factors results in a reduced odds of re-entry into the child welfare system and greater successful reunification.

2.2.2. Variable-focused versus person-focused approaches to resilience.

There are two main ways to suitably analyze resilience variables (Masten, 2001; Masten & Coatsworth, 1998). The first is to use a variable-focused or dimensional approach. The variable-centered approach is generally engaged when study objectives involve the determination of levels of adjustment within a specific domain of functioning. An example would be to determine whether factors such as parenting influence school performance. This approach allows researchers to test moderator models of intervention and determine whether selected variables impact outcome in a specific domain of functioning. The second method of analyzing resilience research involves a person-focused approach. This categorical approach to resilience research encapsulates overall criteria for resilience within an at risk

group. Higher functioning individuals are identified and compared to their lower functioning peers exposed to the same adversity. This approach is noted to "better reflect the actual patterns of resilience occurring naturally" (Masten, 2001, p. 11; Masten & Coatsworth, 1998; Masten & Sesma, 1999). A drawback is that the generalizability of findings to other populations is low. In some cases, both approaches are used to elicit a greater understanding of resilience from more than one perspective (Masten & Powell, 2003).

2.2.3. Factors associated with a resilient outcome.

Across the empirical research literature a number of factors have been found to time and again increase the odds of a good outcome, regardless of the at risk group being studied. Masten & Reed (2002) put together a short list of variables that are consistently associated with behavioural resilience among children and youth. There are three major areas identified within the review. The first area involves relationships and parenting. Factors such as relationships with peers and parents, parenting, and the ability to bond or connect with peers are noted as important. The second area is individual differences. Individual traits such as intelligence, a positive outlook on life, a positive view of self, an internal locus of control, attractiveness, or specific talents are noted as protective within the resilience literature. The final area is community. The accessibility to good schools, socioeconomically advantaged environments, and availability of community resources and organizations all contribute to a good outcome among at risk groups.

Research on resilience suggests that major threats to physical or cognitive development or divergence from normative trajectories of the abovementioned systems leads to deficits in a child's natural ability to cope with adversity, thereby resulting in the absence of a resilient outcome (Masten & Reed, 2002; Flynn, Ghazal, Legault, Vandermeulen, & Petrick, 2004). Under circumstances where there is damage to or assault on the basic

developmental systems, such as attachment to caregiver, cognitive and learning systems, motivation, emotional and behavioural regulation, community resource accessibility, economic stability, and safety, the first line of intervention should be the prevention of further damage to these systems, then normative system restoration, and third, the enhancement of adaptive resources (Flynn et al., 2004).

In notable longitudinal studies such as The Kauai Longitudinal Study (Werner & Smith, 1992, 2002) and the Christchurch Health and Development Study (Fergusson & Horwood, 2003), where children were followed from infancy to adulthood, investigators have found that low distress levels among children were related to successful coping among high risk youth (Farber & Egeland, 1987). These two studies also showed that sociability of children was related to successful coping among high risk youth (Werner & Smith, 1992, 2002; Fergusson & Horwood, 2003; Losel & Bliesner, 1990).

The presences of factors such as prosocial behaviours and successful school experience have also been shown to increase the odds of resilient outcome among children at risk (Stein, 1996; Caldwell et al., 1998; Masten & Reed, 2002; Fergusson & Horwood, 2003; Hetherington et al., 1989; Anthony, 1987). The Lundby Study is a longitudinal study that investigated 590 children living in Sweden (Cederblad, 1996). Researchers found that for the children at risk, having a close bond with the primary caregiver made the largest impact on resilient outcome (Cederblad, 1996). Masten and Reed (2002) have since reported similar findings regarding the impact of close bonds on resilient outcome. The findings that a close bond with a primary caregiver is associated with resilient outcome among children at risk has been replicated in a few longitudinal studies (Fergusson & Horwood, 2003; Losel & Bliesner, 1990; Mednick, Parnas, & Schulsinger, 1987; Seifer, 2003; Werner & Smith, 1992, 2001).

The growth of and interest in resilience research has resulted in the development of programs geared towards promoting resilience in at risk populations. Efforts are now aimed towards facilitating a successful outcome, with a particular focus on positive language usage and striving towards positive goals (Luthar & Zelazo, 2003).

A randomized control trial of the impact of mentoring on mental health outcomes for maltreated children in out of home care found a notable affect on child functioning (Taussig & Culhane, 2010). Over the course of seven years children aged nine to 11 were recruited upon entering the foster care system and randomly assigned to the treatment or control group. Both groups were comparable, with 79 in the treatment group and 77 in the control group. The treatment group members were involved in a nine-month group manualized cognitive behavioural skills building program and one-on-one mentoring by a graduate student in social work. Mental health outcome was measured using the Child Behaviour Checklist, parent report, teacher report, and the Trauma Symptom Checklist for Children. This treatment program was found to be effective at reducing mental health symptoms, anxiety, and depression. More studies with a greater sample size are needed to replicate this study's findings. However, these findings are promising.

Evidenced based interventions, such as treatment in foster care to improve outcomes amongst children in foster care and promote resilient outcomes are gaining popularity within the system. However, there is a lack of evidence based programming. Fisher, Chamberlain, and Leve (2009) have extensively described how evidence based interventions should be implemented into the mainstream foster care system to enhance child outcomes. Fisher et al. (2009) suggest that specialized programming for children in foster care is limited by the lack of empirical research and implementation of policy and practice dissemination for children in foster care.

The major goals of intervention research stemming from the resilience framework are to reduce risk and enhance competency within a positive paradigm. Emphasis on strength building, change facilitation, and positive adaptation are key elements. The recent explosion of research interest within the field of resilience has led to the development of programs geared towards improving outcomes for children and youths at risk. The shift towards a positive approach to research and implementation of findings involves using positive language, mottos, missions, models, and measures (Masten, 2005). For example, "a program to prevent delinquency or reduce school dropout may state goals in terms of promoting positive school involvement, prosocial friendships, academic achievement, or increasing high school graduation rates" (Masten, 2005, p. 25).

2.2.4. Resilience and child welfare

Children who experience abuse or neglect generally come from families of origin that have failed to provide them the fundamental experiences needed for normal development (Cicchetti & Lynch, 1995). The lack of important developmental experiences poses a significant environmental threat to healthy development that goes above and beyond the negative impact of the abuse or neglect itself. Researchers suggest that it is this combination that predisposes children and youths in out of home care to veer away from a resilient trajectory.

Although there is a definite trend towards a maladaptive mental health outcome for children and youths in out of home care, some of these individuals overcome the odds and are therefore described as resilient. A small number of children and youths in out of home care manage to attain a positive mental health outcome through the evasion of serious mental health problems, despite the high risk of a poor outcome (Cicchetti et al., 1993; Flynn et al., 2004). In previous studies, various factors have been found to be associated with better

outcomes for children and youths in out of home care, such as placement stability and a child's report of placement satisfaction. These have included the number of children in the home (Smith, 1994), the level of foster parent education (Smith, 1994), the level of income within the foster home (Smith, 1994; Simms & Horwitz, 1996), number of years of foster parent experience (Cautley & Aldrige, 1975), being female (Daining & Depanfilis, 2007), lower perceived life stress (Daining & Depanfilis, 2007), the marital status of the foster parents (Simms & Horwitz, 1996), intelligence quotient (IQ) level (Stein, Evans, Mazumdar, & Rae-Grant, 1996), absence of a learning disability (Stein et al., 1996), being placed in care for active maltreatment versus for neglect (passive maltreatment) (Stein et al., 1996; Barber, Delfabbro, & Cooper, 2001), the number of placements (Steinhauer, 1998), contact with biological parent(s) (Wald, Carlsmith, & Leiderman, 1988; Maluccio & Fein, 1980), type of placement (family care versus group home) (Gaudin & Sutphen, 1993; Berrick, 1997), and the age of the child at first placement into out of home care (Stein et al., 1996; Barber, Delfabbro, & Cooper, 2001).

In 2005, Legault, Anawati & Flynn compared children in out of home care in Ontario to Children in the general population and found that higher self esteem among youths in out of home care was associated with lower levels of anxiety, having a good relationship with their primary caregiver, and having a greater number of close friendships. In addition Legault et al., 2005 found that children in out of home care with fewer caregivers, a good relationship with their primary caregiver, a greater number of close friendships, higher self-esteem and use of approach rather than avoidant coping strategies were associated with less frequent physically aggressive behaviours in youths in out of home care.

In their study, Hass & Graydon, 2009 identified ex-foster youth as "successful" upon exiting the foster care system if they had successfully completed a post-secondary or

vocational program, or at least maintained a junior standing in a four-year institution. The potential participant pool consisted of 157 foster youth identified by the Orangewood Children's Foundation (a non-profit community agency in Orange County, California) as being "successful". Of the 157 potential participants, 149 were contacted and 44 completed the three respective surveys: Gratitude Questionnaire-Six (GQ-6: 83 items, some Likert type and some open-ended), Sense of Coherence Scale (SOC: 29 Likert-type items), and California Healthy Kids Survey Resilience Module (CHKS: 65 Likert-type items). None of these surveys required the participant to respond to items about his or her past experiences of being in foster care.

Hass and Graydon reported such findings as: i) 84% of respondents cited persons who provided various forms of social support as something that "worked" in their lives: 38% were counsellors, 29% were biological family members, and 19% were foster family members; ii) 75% of the respondents agreed that they were happy at school; iii) 79% of the respondents agreed that there is a teacher or an adult who listens to them in their post-secondary institution; iv) 70% of respondents agreed that there was a supportive and caring adult outside of their home or school; v) there was no statistically significant difference between the participants' responses to the GQ-6 and those of other populations; and vi) there was a statistically significant difference between the participants' responses to the SOC and those of other populations.

In terms of the study's limitations, Hass and Graydon's (2009) findings revealed information about participants who were out of the foster care system. The mean age of participants was 22; they had been out of the system for years. The findings were indicative of what worked for these ex-foster children at a time when they were thriving in a post-secondary educational program. The findings cannot directly indicate which internal assets

or external sources of support during their foster care experiences resulted in better outcomes for these youths.

The problem investigated in Drapeau, Saint Jacques, Lepine, Begin, and Bernard's (2007) study was highlighted as the variations in the outcomes of foster children: some overcome the inherent difficulties and some do not. There were 66 foster children in the initial potential participant pool for this study, with 18 children deemed resilient. From the 18 resilient children, 12 were present for the data collection stage of this study. Drapeau et al. 2007) defined resilience as the "presence or maintenance of competencies in spite of a high-risk context" (Masten & Coatsworth, 1998, p. 978).

The objective of the study was to better understand the processes that contributed to the resiliency amongst 12 adolescent (14–17 years) foster children, with the research questions focusing on qualitative accounts/descriptions of their turning points. The focus of Drapeau et al.'s (2007) study was not so much on what variables led to resiliency, but rather, on how certain variables influenced the respective resilient children. This was accomplished by exploring the "turning points" where the resilient child's path changed and went in a new and better direction.

Drapeau et al. (2007) used a qualitative method of data collection and analysis in an effort to provide "more than a static portrait of the factors associated with resilience" (p. 981). They found three types of turning points for the resilient children: action (achievement with a sense of accomplishment), relationships (creating a significant new positive relationship with an adult), and self-reflection (a shift in self-awareness that led to an altered perspective in which the child put him/herself as an actor of change).

There are a few limitations to the generalizing of these findings. Although the authors made their findings-based claims about adolescent foster children, their research pool of

potential “foster children” participants included children in rehabilitation centers and group homes as well as foster homes. Of the 12 foster children deemed to be resilient and used for providing the data for this study, 10 were in rehabilitation centers, one was in a group home, and only one was actually in foster care. Further, to be a potential participant in their study a child had to be in foster care for at least three months.

Another limitation in the design of Drapeau et al.’s (2007) study is that during their process of selecting participants who were resilient, they interpreted the scores on their resiliency indicators to be indicative of resiliency if the participant performed better than their foster-care peers, not necessarily better than their aged-matched peers in the general population. Further, in their scoring on the resiliency indicator survey, Drapeau et al. (2007) commonly required subjective judgements to be made by the caseworkers (who actually completed the surveys for each potential participant). Two examples of very subjective indicators are: i) that the child “behaves well”; and ii) that the child “has relationships with socially acceptable friends” (p. 982). This required subjective judgement would have resulted in a compromise in the reliability (accuracy) of the resulting scores that ultimately deemed a child to be resilient or not, for the purposes of their study.

Edmond, Auslander, Elze, and Bowland (2006) sought to identify resilient outcomes among adolescent girls in the foster care system who had been sexually abused. The aim of that study was to specifically look at education, future orientation, family support, peer influence, and religion as promoting factors related to resilient outcome. The study included 351 youth, 15 to 18 years old in out of home placements, of which 54% were female. The final sample was then comprised of 190 female participants preselected by their social workers and referred to the research study. It is not clear what factors were associated with preselection. Resilience was defined as securing a cutoff score on the Youth Self-Report

(YSR) version of the Child Behaviour Checklist (CBCL, Achenbach, 1991). Results of this study showed that approximately half of the study sample met the criteria for resilience. Similar to previous research, education factors, positive outlook on the future and future orientation, and positive peer influences were found to be associated with resilient outcome. This study employed a fairly straightforward methodology. A notable limitation is that it is not clear what the impact of sample self-selection had on the study findings. In addition, the study's operational definition of resilience is pathology-based and does not emphasize a positivistic outlook.

A recent qualitative research paper by Gilligan (2008) emphasized the impact of recreation and social activities on youth in long-term care. In the article, Gilligan identified situations in which a positive outcome was achieved by introducing children in foster care to sporting recreation such as rugby and dance, and hobbies such as caring for exotic fish. Although this study is limited in terms of generalizability, the findings are consistent with quantitative research in this area.

A definite gap in the research literature exists with regards to resilient outcome while children are in out of home care. Much of the research has focused on the pathology and poor outcomes among children and youths in out of home care. Many studies do not operationally define resilient outcome thoroughly. For example, cutoff scores are defined arbitrarily without adherence to established resilience theory. Often, the operational definitions for resilience in research studies reflect the top tier of functioning within a dysfunctional group, such as in Hass and Graydon (2007), or above average standards of comparison. Masten and Powell (2003), among other researchers in the field of resilience, have noted that resilience is not simply the presence of good outcome among high risk groups. The argument could be made that graduating from high school does not necessarily

reflect a resilient outcome, even among those at high risk, and that a more comprehensive outcome such as ability to then acquire a job or get along with others, or continuing on to post-secondary training would best reflect a resilient outcome when compared to the general population norms. Resilience must reflect positive adaptation despite the risk of poor outcome (Masten & Powell, 2003).

Historically, resiliency was seen as an entity or personality trait that one either possessed or did not. More recent analysis of the concept has resulted in the notion that resilience is a combination of factors relating to specific characteristics of the child, his or her family, and the social environment (Luthar et al., 2000). Within the research literature, studies are beginning to view resiliency in a similar manner and undertake to evaluate a myriad of aspects contributing to resilient outcome, not simply the identification of personality traits. In theory, one may possess the characteristics related to a resilient trajectory; however, the environment within which one develops may be so harsh that a resilient outcome is never achieved. As indicated by Luthar et al. 2000, it remains very important to identify factors across all three domains that impact child development—the child, the family, and the social environment—within resilience research. This literature review has shown that research studies often do not investigate all three of the interactive factors related to resilient outcome.

2.3. Statement of the Problem

The difficulties faced by children and youths who are placed in out of home care and/or have been abused or neglected and then placed in out of home care are great and pose exceptional risk for behavioural, social, and developmental problems (Garmezy, 1993). Under these circumstances, many children and youths fall into severe patterns of maladjustment, and yet others appear to be protected from difficulties and bounce back to

adequate emotional and behavioural patterns. There are believed to be children and youths who overcome maltreatment and developmental distress, and sustain their competencies despite adversity, but these small populations have only just begun to be studied (Gilligan, 1999; Herrenkohl, Herrenkohl, & Egolf, 1994; Luthar, 1991; Cicchetti & Rogosch, 1997; Cicchetti et al., 1993).

In recent years the field of resilience research has grown, although at present very little research exists on resilience among children and youths in out of home care. As described earlier, previous epidemiological and community studies have shown that children and youths in out of home care are at enormous risk of mental health problems compared to their peers in the general population (Landsverk & Garland, 1999; Boyle et al., 1993; Steinhauer et al., 1989; Offord, 1995). It therefore seems particularly relevant to study those children and youths who have managed to avoid poor outcomes while in out of home care, despite the odds of doing so.

Notwithstanding the evidence that very few children in out of home care are resilient, some such children do achieve developmentally appropriate levels of adaptation (Ciccheti & Rogosch, 1997; Bolger & Patterson, 2003). The splitting of outcome trajectory among children and youths in out of home care calls for investigation into the factors associated with a resilient outcome. Furthermore, there remains a significant information gap within the research literature regarding the use of established resilient theoretical frameworks from which to define resilient outcome. More specifically, operational definitions for at risk groups need to reflect adjustment comparable to peers within the general population and not simply to clinical populations, wait-list populations, or studies that employ cutoffs of the fiftieth percentile or higher. According to most researchers in the field of resilience, performance within the average or above average range is indicative of higher-level

functioning and does not reflect the true definition of resilience. Prior to Flynn et al., 2004 and the development and use of the AAR, very little research has been conducted that compares children in out of home care to children in the general population on a wide spectrum of dimensions of resilience (Masten, 2006). This is especially true for children in out of home care in Canada. The method of comparing children in out of home care to those in the general population is increasing in use amongst researchers, rather than the use of comparisons to other high risk youth or to clinical cutoff scores (Masten, 2006).

These information gaps block our understanding of the underlying mechanisms that influence a positive outcome. The identification and study of the children and youths in out of home care who succeed in terms of general population norms will enable an increase in our knowledge base and will allow for the cultivation of such factors in the child welfare system. Furthermore, population change and improvements in Canada will be brought about when we can learn how to equip the vulnerable children and youths in out of home care with the personal, social, and environmental factors that have helped to establish resilience among some of their peers.

2.4. Purpose of this Study

The specific problem addressed by this study was the need for research on the correlates associated with a resilient outcome among children and youths in out of home care in Canada, using theoretically based definitions of resilience and general population comparisons. This was accomplished by identifying some of the social, emotional, and environmental factors that contribute to resilience among children and youths in out of home care. Previously collected data were analyzed to identify these factors.

2.5. Importance of the Study

There is an overall lack of understanding of the underpinnings related to resilient outcome among children and youths in out of home care. To improve the current state of well-being among these individuals, government agencies and policy makers must be informed of factors that can influence a positive outcome for children and youths in Canada. It is therefore up to the research community to identify protective factors through population research, and disseminate such findings to stakeholders and policy makers responsible for children and youths in out of home care. By identifying protective factors related to resilient outcome among these children and youths, health professionals and policy makers can be armed with the necessary information to create programmes and strategies that will focus on the optimal development of protective factors among children and youths in care. The information gathered with the implementation of the Looking After Children (LAC) programme, described later in detail, is a first step towards improving the outcome for children and youths in out of home care.

It is crucial that new initiatives employ the data gathered on children and youth in out of home care in Ontario, and investigate specifically the factors that affect differential child and youth resilient outcomes. The cross-sectional component of the study addressed this need and went further by comparing children in out of home care to other Canadian children in the general population. Resilient cutoff scores based on general population functioning on a variety of dimensions rather than small clinical samples has been very rare prior to the analysis of the LAC data. In addition, tertile cutoff scores based on functioning within the general population were not used prior to the analysis of the LAC data. Use of tertile cutoffs allows for children in out of home care to be compared to children in the top 66% of the general population on specific variables and dimensions of functioning. In other words, in

this study children in out of home care were compared to children in the general population functioning within a low-average or greater range. This type of comparison is more consistent with resilience theory, which postulates that children can be defined as resilient when reaching a level of functioning that is "good" or "average" (Masten, 2006). At risk children need not be functioning at a higher than average range to meet resilience status. Previous research literature using population level "good enough" cutoff scores have not been found prior to investigation into the LAC data. Another limitation noted in the resilience literature was that resilience is often only measured at one point in time, and hence misses any factors associated with the change in resilience status over time. This important issue was investigated in the present study by the longitudinal component of the analysis.

2.6. Overview of the Study

The present study evaluated children and youth in out of home care in Ontario to identify factors associated with resilience, using both a variable-focused analysis and a person-focused analysis. Resilience among children and youths in out of home care was defined in terms of comparing measured outcomes with children and youths in the Canadian general population. The measured outcomes included: (a) prosocial behaviour, (b) relationships with friends, (c) self-esteem, and (d) educational performance. The primary analysis of the present study was a variable-focused approach to evaluate factors associated with resilience among children and youths in out of home care in Ontario with respect to each of the outcome measures listed above.

The impact of resilience across the individual adaptive functioning variables was also evaluated. Previous researchers have suggested that overall resilience among children in care is extremely low, at approximately 5% (Bolger & Patterson, 2003). Therefore, rates of resilience among youths in out of home care with an overall resilient outcome (resilience

across all variable outcome measures combined) was calculated and compared to previous studies. A cross-sectional analysis was used to identify factors associated with resilience, and a longitudinal analysis was used to identify factors associated with resilient outcome the following year.

Unfortunately, the independent variables selected for inclusion in this study were limited by the availability of variables within the previously gathered LAC data set. The independent variables that were analyzed included: current age, gender, distress level, presence of a learning problem, age of first placement, reason for first placement in out of home care, number of caregivers since birth, amount of time in current placement, type of home, marital status of the primary caregiver, close bond with primary caregiver, and child sociability. All of these variables have been shown in previous studies to impact resilient outcome among at risk populations, as described previously.

2.7. Hypotheses

The study hypotheses are summarized in Table 1. The independent variables were organized in four categories: *Child Variables*, such as current age, gender, current distress level, and presence of a learning problem; *Historical Context*, such as age at first placement, reason for placement, number of caregivers since birth; *Current Placement Variables*, such as amount of time in the current placement, type of home, and marital status of the primary caregiver; and *Social Variables,* such as close bond with primary caregiver and parent's report of child sociability.

2.7.1. Child variables.

Current age has been evaluated in previous studies of children in foster care. These studies have shown that older children placed in care have poorer outcomes than younger

children (Stein et al., 1996; Barber, Delfabbro, & Cooper, 2001). Therefore, it was hypothesized that younger children would be associated with resilient outcomes.

The contribution of gender to resilience was evaluated in the present study. In a previous study it was found that female children in care were more likely to be stable than male children in care (Barber & Delfabro, 2004). Although gender is a fixed variable that cannot be changed, determining the impact that gender may have on resilient outcome is useful with regards to program planning and identifying predictors of resilient outcome. For example, if one gender over the other exhibits a greater rate of resilient outcome then it is helpful for future researchers to conduct further studies looking into why a difference exists. Furthermore, from a program planning perspective, it is helpful to identify this subpopulation and bolster the resources allocated to that group. Based on previous research, it was hypothesized that female gender would be associated with resilience among children and youth in out of home care in Ontario.

Low distress level has been shown in previous resilience research to be associated with resilient outcome among children at risk (Farber & Egeland, 1987; Fergusson & Horwood, 2003; Werner & Smith, 1992, 2001). The eight questions within the AAR that indicate levels of emotional distress are within the Emotional and Behavioural Development section and can be seen in Appendix B. These questions are also included in the NLSCY-Cycle 3 (1998–1999) and will be described in detail later. It was hypothesized that children with lower distress levels would be associated with resilient outcomes.

It has previously been suggested that the absence of a learning disability is associated with a better functional outcome (Stein et al., 1996; Caldwell et al., 1984; Masten & Reed, 2002). As a result of limitations related to using retrospective data, a formal clinical diagnosis of a learning disability was not possible to establish for each youth in out of home

care. Therefore, a proxy variable for presence of a learning problem was developed based on the case worker or out of home care worker identifying a need or having previously identified a need to be on a waiting list for a cognitive assessment. This will be described in greater detail later. It was hypothesized that the absence of a learning problem based on the proxy variable would be associated with resilience among children and youth in out of home care in Ontario.

2.7.2. Historical variables.

Age of first placement into out of home care has been evaluated in previous studies of children in foster care. Based on research from both Stein et al. (1996) and Steinhauer (1998), children removed prior to the age of three generally experience a better outcome. When removed from their family of origin at an age too young to retain an attachment, the child is more likely to proceed to adoption and evade the out of home care system all together compared to children removed at an age where they are able to retain a strong attachment to their parent(s). For the present study, it was hypothesized that a younger age at first placement into out of home care would be associated with resilience.

Previous research has shown that if a child is placed in care due to maltreatment, he or she will be more likely to experience a negative outcome (Stein et al., 1996; Barber, Delfabbro & Cooper, 2001; Silverman et al., 1996). The reasons for placement into out of home care, including physical/sexual harm, harm by omission, emotional harm, abandonment/separation, and caregiver incapacity, were analyzed with respect to resilience. It was hypothesized that placement due to abandonment/separation or caregiver incapacity would be associated with an increased odds of being resilient.

A higher number of placements within the foster care system has been suggested to be associated with a poorer functional outcome than fewer placements (Steinhauer, 1998;

Barber et al., 2001). The number of caregivers since birth will be evaluated in the study population as a proxy for the number of placements since birth. It was hypothesized that fewer caregivers would be associated with increased odds of being resilient.

2.7.3. Current placement variables.

The length of time in the current placement has been shown to be related to resilient outcome. The greater the amount of time in the current placement, the greater the potential for a strong tie between the child in care and an adult in his or her life (Steinhauer, 1998). It was hypothesized that the longer the length of time that the child had been in the current placement, the more likely the child would be resilient.

The type of placement that a child in out of home care is in has been previously found to be associated with the child's outcome. Being placed in a group home setting was found to be associated with a poor outcome (Gaudin & Sutphin, 1993; Berrick, 1997). It was hypothesized that placement in a foster home or adoption probation would be associated with greater odds of being resilient.

The marital status of the primary caregiver has also been shown to contribute to the outcome of children in care within the foster home (Simms & Horwitz, 1996). In the present study, it was hypothesized that having married caregivers would be associated with a greater likelihood of being resilient.

2.7.4. Social variables.

A close bond with the primary caregiver has been shown to increase resilient outcome among at risk children (Masten & Reed, 2002; Cederblad, 1996; Fergusson & Horwood, 2003; Losel & Bliesener, 1990; Mednick et al., 1987; Werner & Smith, 1992, 2001). Close bond to the primary caregiver was measured using the relationship with female caregiver scale (NLSCY-Cycle 3, 1998–1999); this scale will be described later in detail. It

was hypothesized in the present study that the presence of a close bond with the primary caregiver would result in resilient outcomes amongst children and youth in out of home care.

Child sociability, more specifically the ability to get along with children, teachers, and caregivers, has been shown to increase the odds of resilient outcome among at risk children (Barber et al., 2001; Masten & Reed, 2002). Child sociability was measured by parent report responses to two questions using a five-point Likert scale that will be described in greater detail later. These questions can be seen in Appendix B. The primary caregiver completed the questions based on how they considered the child in out of home care to respond to social situations. It was hypothesized in the present study that a parent report of increased child sociability would result in increased odds of resilient outcome.

Table 1

Summary of Hypotheses for the Variable-Specific and Person-Specific Analyses.

	Child Variables			
Dependent Variable	Current Age	Female Gender	Distress	Presence of Learning Difficulties
Prosocial Behaviour	-	+	-	-
Relationships with Friends	-	+	-	-
Self-Esteem	-	+	-	-
Educational Performance	-	+	-	-

	Historical Variables		
Dependent Variable	Age of First Placement	Reason for First Placement (No Active Maltreatment)	Number of Caregivers Since Birth
Prosocial Behaviour	-	+	-
Relationships with Friends	-	+	-
Self-Esteem	-	+	-
Educational Performance	-	+	-

	Current Placement Variables		
Dependent Variable	Time in Current Placement	Home Type (Foster Care)	Marital Status of Primary Caregiver
Prosocial Behaviour	+	+	+
Relationships with Friends	+	+	+
Self-Esteem	+	+	+
Educational Performance	+	+	+

	Social Variables	
Dependent Variable	Close Bond with Primary Caregiver	Parent Report on Child Sociability
Prosocial Behaviour	+	+
Relationships with Friends	+	+
Self-Esteem	+	+
Educational Performance	+	+

(+) Refers to a hypothesis of a positive correlation between the corresponding variable and resilience
(-) Refers to a hypothesis of a negative correlation between the corresponding variable and resilience

Method

3.1. Participants

This study sample was collected from a larger parent study of children and youths in Ontario who had been legally removed from their homes of origin and placed in out of home care. The parent study consisted of children and youths zero to 20 years of age who were in the care of 23 Children's Aid Societies (CAS) in Ontario. These children and youths were part of a larger cohort who took part in the three-year study of the implementation and outcomes of the LAC programme in Ontario (Flynn, Angus, Aubry, & Drolet, 1999).

Twenty-three CASs participated either fully or partially to implement the LAC programme and use the Assessment and Action Record (AAR) to record and monitor youth well-being and general health formally, on a regular basis. The AAR is described in greater detail below. The larger study involved voluntary participation of the youths and their child welfare workers. There were 495 children and youths who participated in the study in the first year (2000–2001), 616 in the second year, and 569 in the third year. The decision of which children and youth in out of home care to include in the Looking After Children in Ontario was made by each participating CAS. Due to the longitudinal nature of this study, each CAS attempted to enrol youth who were likely to remain in out of home care for at least three years, resulting in a high proportion (89%) of children being permanent wards of the Province of Ontario (Flynn et. al., 2004).

Three years of data are available for analysis: 2001, 2002, and 2003. As the number of participants was the greatest in 2002 (N = 620), this year was selected as the baseline data for the cross-sectional component of this study. The data from year three was used in the longitudinal component, which is described later. Only children 10 to 15 years old were included in this study, with the exception of the two children who were nine years old and

turned 10 during the study period. The normative comparison group by which resilience is operationally defined is based on a sample of children not in out of home care in Canada who are also 10 to 15 years old, which will also be described later in detail. To maintain consistency across variables between groups, the same age has been selected for comparison.

Exclusion criteria for this sample included the following: children currently placed in a hospital or other mental health institution or in treatment facilities were not included. Both foster care homes and group homes used in this study were operated by a child welfare organization and those that are purchased care. In addition, children were required to have near complete responses to questionnaire items used in the analysis. Children whose identifier information was missing were not included in the analysis; for example, children who did not identify the number of years in the current placement were also excluded. The final baseline sample used in the cross-sectional component of this analysis consisted of 417 youths. The final sample employed in the longitudinal component of this study included the same children still in out of home care the following year who had also completed the AAR again. The longitudinal sample consisted of 223 youths.

3.2. Sources of Data

The measurement tool used in the LAC programme is the Assessment and Action Record (AAR; Parker, Ward, Jackson, Aldgate & Wedge, 1991; Ward, 1995); see Appendix A. The AAR serves three major purposes. First, it has the clinical function of aiding individuals working with children or youths in care to develop and implement individual plans of care. Second, the AAR has the managerial function of enabling managers and social workers to monitor the progress of an individual child or group of youths for quality of care on an on-going basis. Third, the AAR has the policy function of informing provincial decision makers of the overall well-being of the youth in out of home care, allowing for

specific areas of reform to be identified within the child welfare system (Kufeldt, McGilligan, Klein, & Rideout, 2006). The AAR allows front-line social workers the opportunity to work with children in out of home care by following the systematic framework of the questionnaire to investigate child well-being, as opposed to the crisis driven nature of interactions between children in out of home care and their social workers (Kufeldt et al., 2006). The AAR was used as the primary data source for this study.

The AAR was introduced in Ontario in 1998 when the Child Welfare Reform Agenda was initiated, partly in response to reports from six coroner's inquests into the deaths of children served by the Ontario child welfare system. Researchers at the University of Ottawa, in conjunction with the Ontario Ministry of Community and Social Services (MCSS), completed phase one of the reform by introducing a new program aimed at improving child protection policy and practice among 53 CASs in Ontario. The program implemented to address this issue was the Looking After Children: Good Parenting, Good Outcomes (LAC) initiative that was originally developed in the United Kingdom in 1987.

The first LAC program was designed between 1987 and 1991, as a developmental approach to child welfare services that originated in England and Wales as a response to concerns about the outcomes of young people in care (Parker, Ward, Jackson, Aldgate, & Wedge, 1991; Klein, Kufeldt, & Rideout, 2006). A major working tenet of the original program was the evaluation of outcomes for children and youths in out of home care (Parker et al., 1991). The original U.K. program is now being used in 92% of the local health authorities in England and Wales. Since 1995, adaptation of the LAC program to enhance and monitor the well-being of children and youth in out of home care has been done in Australia, Canada, Hungary, Scotland, and Sweden.

A "Canadianized" version of the LAC was needed to enable comparisons across different Canadian child populations using previously gathered data such as the National Longitudinal Survey of Children and Youth (NLSCY) and to ensure that measures included in the AAR were in fact reliable and valid tools relevant to Canadian children and youth (Flynn & Ghazal, 2001). After consulting with many experts in the field of child protection, the new Canadian version of the AAR changed in five ways: it is more directly linked with the plan of care for each child and youth in care, it uses a computer scannable form to increase efficiency in reporting data, it incorporates many standardized measures from the NLSCY, it incorporates information gathered from multiple informants (i.e. the foster child, foster parent, or CAS worker), and it incorporates a broader range of background information on the CAS worker, the foster home environment, and foster parents (Flynn & Ghazal, 2001).

The incorporation of elements from the NLSCY was fundamental in allowing comparisons between children in out of home care to children in the Canadian general public. The NLSCY was developed by a team of experts comprised of members of Statistics Canada and Human Resources Development Canada (now Social Development Canada) with the aid of provincial, federal, and academic contributors (Human Resources Development Canada, 1996). All of the instruments used in the NLSCY were tested in focus groups and pilot surveys prior to their inclusion (Statistics Canada, 2005). Data collection began in 1994 with 15,579 households selected to participate across Canada. A response rate of 86.3% was achieved, including 22,831 children aged zero to 11 years (Statistics Canada, Special Surveys Division, 2003). The NLSCY questionnaire is repeated every two years, and the number of participants increased to 30,800 in 2002. Within the NLSCY there are five measures of developmental behaviours: (1) hyperactivity-inattention, (2) prosocial

behaviours, (3) emotional disorder, (4) conduct disorder, and (5) indirect aggression. These scales showed high reliability, with the Cronbach alpha ranging from .77 to .84 (Statistics Canada, Special Surveys Division, 2003).

Validation procedures for the scale data used in the NLSCY that were also used in the AAR were developed in Cycle 1. As previously described, the specific scales used in this study from the AAR originated from the NLSCY. These scales are made up of questions or items that measure a specific concept when answers are considered together. In some of the NLSCY scales the items come from one or more sources. In some cases, parts of scales have been merged, while in other cases original scales have been shortened. The selection of the surveys and the subject areas within child development that were included in the NLSCY were conducted by the NLSCY expert advisory group, comprised of researchers in the area of child development and social sciences, federal departments, and representatives from the provinces responsible for child development programs (Statistics Canada, 2001–2002). According to Statistics Canada (2001), when feasible, scales were selected that had been used in previous empirical studies where the psychometric properties of the measures produced by the scale were considered to be very good. In an effort to maximize the similarity of psychometric properties between the original scales and the new NLSCY reconfigured scales, extensive evaluation of the new scales data was performed. According to Statistics Canada (2001), the maintenance of the psychometric properties of the scales employed in the NLSCY was confirmed using three different strategies (Statistics Canada, 2001). A new factor analysis was performed to establish the constructs in each scale. The scale scores were calculated based on this structure and then reliability measures were calculated. Only those scales with acceptable analysis were selected to move onto subsequent cycles, such as Cycle 3, the one used in the present study. As the AAR is heavily

based upon the NLSCY, it has been shown to have acceptable reliability and validity (Flynn et al., 2004).

Reliability measures for the NLSCY scales were estimated using Cronbach's alpha with the aim of measuring internal consistency of the items within each factor (Statistics Canada, 2001; Cronbach, 1951). In this study, only scales with a Cronbach alpha score of .73 or higher in the general population were used. Although the specific reliability and validity studies conducted on the original scale items incorporated into the NLSCY are no longer directly suitable as comparisons in all cases, they are described later to show the origins of their adaptation.

The AAR is the assessment tool used in the LAC program to assess needs, suggest interventions, and measure developmental outcomes in seven areas of child and adolescent development: health, education, identity, family and social relationships, social presentation, emotional and behavioural development, and self-care skills. This questionnaire is administered every year to children in out of home care in Ontario who are enrolled in the study, during an interview in which the youth in care, foster parent or group home worker, and child welfare worker participate.

The AAR also allows both researchers and CAS workers to monitor the child or youth's progress over time. Using the AAR enables CAS workers to identify children and youths' individual needs, enhance timeliness and relevance of services they receive, and therefore contribute to an improvement in developmental outcome. By 2000, phase two of the reform was underway via a three-year study to investigate child and youth progress longitudinally, by administering the AAR once per year to the same cohort from 2000 to 2003. This study is based on the data gathered from the phase two initiative. Data gathered

in a systematic manner such as the LAC allows both clinicians and researchers in a variety of fields to conduct empirical research using existing data.

Although this study employed data from phase two of the larger study due to data availability at the onset of this project, the LAC program has grown considerably across Canada since then. In 2006, a second Canadian adaptation of the AAR (AAR-C2-2006; Flynn et al., 2006) was implemented in Ontario and across Canada to the Eastern provinces and British Columbia. The revised version continues to assess the seven developmental domains described earlier, and is available in both English and French. Changes from the earlier version are slight. Prior to 2006, participation by the individual CAS workers to complete the AAR was voluntary. However, in 2006, the completion of the AAR for children in out of home care was mandated by the Ministry of Child and Youth Services. Participation and training for CAS agencies across Ontario has led to near 100% completion rates amongst the children and youth in out of home care in 2010 (User's Manual for AAR-C2-2006; Flynn, Vincent, & Legault, 2009). This data will be available for future studies in the near future.

3.3. Operational Definition of Resilience

As discussed earlier, the concept of resilience is founded on positive adaptation in the presence of adversity. In discussing the concept of resilience, Masten and colleagues (1999) stated: "To study resilience, investigators must specify the threat to development, the criteria by which adaptation is judged to be successful, and the features of the individual or the environment that may help to explain resilient outcomes" (p. 144). In this study, having been placed in out of home care is seen to indicate that a significant threat to development has occurred, both directly in the child or youth being removed from his or her home and adjusting to a new environment, and indirectly as it suggests for many children that

maltreatment or neglect has occurred. Children and youths in out of home care were considered to have "adapted successfully" if they were able to achieve an average outcome on the predetermined developmental dimensions compared to their non-in-care peers in the Canadian general population. In this study, children in out of home care are defined as the group of children in Ontario who have been placed and are currently living in kinship care, foster care, or group home care. Also included in the definition are those children who are currently in Adoption Probation.

Data obtained from the three-year longitudinal LAC study was used to derive a method of identifying resilience among children in out of home care in Ontario (Flynn et. al, 2004). This method involved comparing responses to the questions that were included in the AAR, derived from the questions in the NLSCY and completed by the youth in care, to the same questions in the NLSCY data completed by youths in the general Canadian population. As there is no overall measure of positive adaptation built into either the NLSCY or the AAR, such a measure cannot be used to compare children in care with children in the general public to identify those who are resilient. There are, however, sections of the NLSCY included in the AAR that evaluate age-salient developmental tasks, and some of these were used to calculate the normative distribution of scores among children in the general population sample. The four dimensions for which resilience was identified were selected based on their previously demonstrated notable relevance to resilience in a few of the previously discussed longitudinal studies (Werner, 2005) :

- Prosocial functioning/Required helpfulness
- Relationship with friends
- Self-esteem/ Self-concept

- Educational performance

These dimensions will be described in greater detail below.

Resilience was estimated using the tertile cutoff values for the domains listed above in the NLSCY-Cycle 3 (1998–1999) data gathered from the general population of Canadian youth. The cutoff scores were then applied to the same domains in the AAR data gathered from the children in out of home care. A vital component of the definition of resilient outcome is "the criteria by which adaptation is judged to be successful" (Masten et al., 1999, p. 144). In this study, the criterion for the children in out of home care to be defined as resilient is achieving scores in the same domains equal to the top two-thirds of the general population. The top two-thirds was selected as it encompasses a more holistic approach to resilient outcome. Although considered, a marker of the top 50% of the general population would represent a higher functioning group within the general population. An aim of this study was to investigate sufficient levels of functioning within the general population and apply those standards to the out of home care children. Using the general population of Canadian youths as comparators to identify resilience among children in care is in keeping with the conceptual framework of resilience outlined earlier, which states that resilience is the presence of an adequate level of functioning (comparable to that of the top two-thirds of Canadian youths) despite the presence of adversity (being in care). Therefore, the children defined as resilient obtained scores, on the developmental dimensions in the AAR listed above, equal to the top two-thirds of scores of their age-matched peers in the general population, as measured by the NLSCY data.

More specifically, youths in care were considered to be resilient in any of these four dimensions if their score in that dimension fell within the upper two tertiles of the scores of youths in the Canadian general public (Figure 1). It was possible to be resilient in one of the

dimensions and not resilient in the others. In addition, it was possible to not be resilient in any of the dimensions. Therefore, resilient outcome was explored within each of the dimensions. In addition, an overall resilient outcome was considered. Children who were resilient in all four of the dimensions were defined as overall resilient.

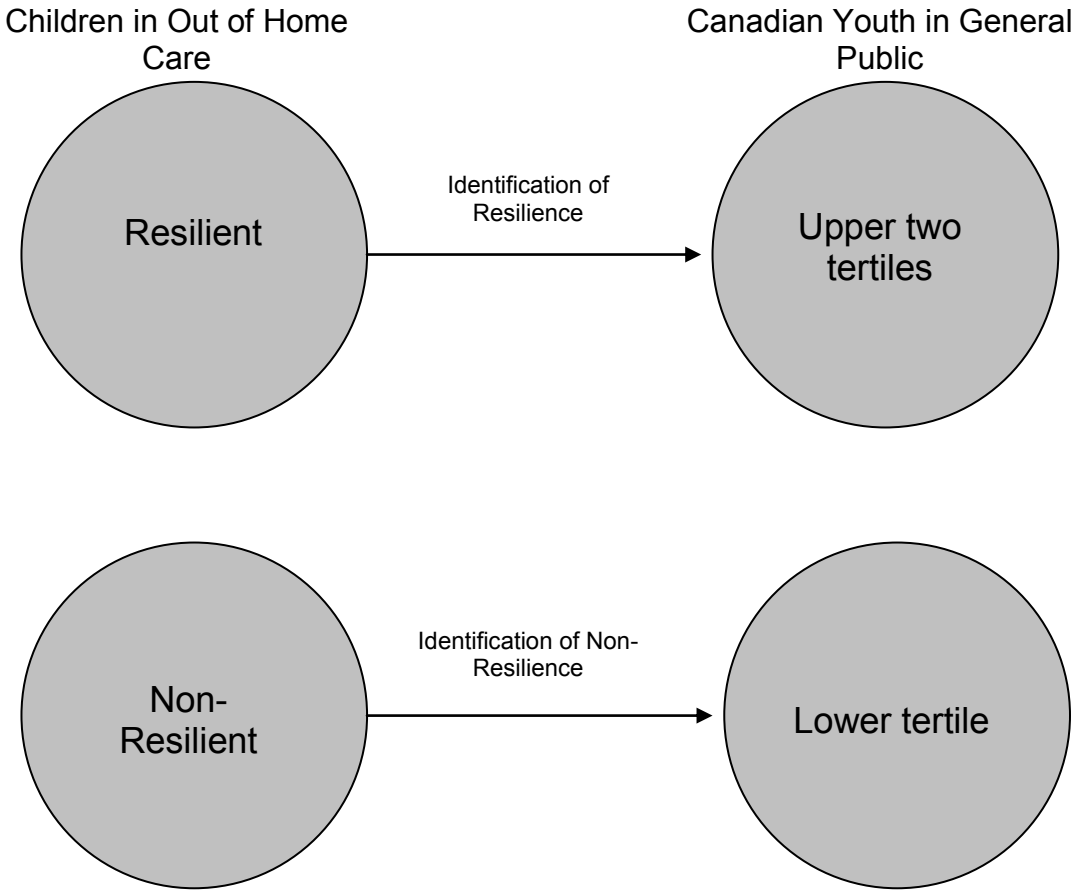

Figure 1. Method for the identification of children and youths in out of home care who displayed resilience, by comparing their scores on NLSCY questions included in the AAR to the tertiles of Canadian youths in the general public.

3.4. Outcome Measures for Each Dimension

3.4.1. Prosocial behaviour.

This dimension has included required helpfulness and general normative behavioural expectations across various social situations. Prosocial behaviour was indicated by questions within the Emotional and Behavioural Development section of the AAR, which can be seen in Appendix A. These questions are also included in the NLSCY-Cycle 3, 1998–1999, and were available for comparison to Canadian norms. The scale was comprised of 10 Likert scale items with three possible choices: never or not true, sometimes or somewhat true, often or very true. At the time of original data entry, these were scored as never or not true = 1, sometimes or somewhat true = 2, and often or very true = 3. The scores were then tabulated to achieve a total score for the prosocial behaviour dimension. The identical NLSCY questions at the time of data entry were entered in the following manner: never or not true = 0, sometimes or somewhat true = 1, and often or very true = 2 for each answer. For simplicity of comparison and to maintain scoring equivalence, the prosocial questions in the AAR were re-entered to incorporate the identical scoring scheme as in the NLSCY. Therefore, 1 was subtracted from the score of each question from the AAR. These scores in the AAR then changed from 3 to 2, from 2 to 1 and from 1 to 0. Scores could therefore range from 0 to 20, with higher scores denoting good prosocial behaviour, as is the case in the NLSCY.

This measure of prosocial behaviour has been found to have a Cronbach's alpha of 0.82 among the sample of children and youth in out of home care, and of 0.85 in a general Canadian comparison sample (Flynn et. al, 2004). This scale is made up of questions from three other notable scales. The first five questions come from the Ontario Child Health

Study (Boyle et al., 1993). The last five questions come from the Montreal Longitudinal Survey (Tremblay, Vitaro, Nagin, Pagani, & Seguin, 2003).

3.4.2. Relationships with friends.

Relationships with friends are contained within the AAR in the Family and Social Relationships section. The relationships with friends scale comprises four questions and is derived from the Marsh friendship scale (Marsh & O'Neill, 1984; NLSCY-Cycle 3, 1998–1999) which is comprised of four questions assessing how well the child gets along with peers. These questions can be seen in Appendix A. They are also included in the NLSCY, and were available for comparison to Canadian norms to identify children in care who were resilient. The scale was comprised of four Likert scale items with five possible choices: not at all, a little, sometimes, pretty often, almost all or all of the time. At the time of original data entry, these were scored as not at all = 1, a little = 2, sometimes = 3, pretty often = 4, and almost all or all of the time = 5. The scores were then tabulated to achieve a total for the relationships with friend dimension. The identical NLSCY questions, at the time of data entry, were entered in the following manner: not at all = 0, a little = 1, sometimes = 2, pretty often = 3, and almost all or all of the time = 4, for each answer. For simplicity of comparison and to maintain scoring equivalence, the friendship questions in the AAR were re-entered to incorporate the identical scoring scheme as in the NLSCY. Therefore, 1 was subtracted from the score of each question in the AAR. These scores in the AAR then changed from 5 to 4, from 4 to 3, from 3 to 2, from 2 to 1, and from 1 to 0. Scores could therefore range from 0 to 20, with a higher score denoting greater peer relationships and interactions, as is the case in the NLSCY. This measure of relationships with friends has been found to have a Cronbach's alpha of 0.86 among the sample of children and youths in out of home care, and of 0.78 in a general Canadian comparison sample (Flynn et. al, 2004;

Statistics Canada, 2001). The questions in this scale originate from the Ontario Child Health Study (Boyle et al., 1993).

3.4.3. Self-esteem/self-concept.

The self-esteem and self-concept dimension questions found in the Identity and Social Presentations section of the AAR and can be seen in Appendix A. These questions are also included in the NLSCY (NLSCY-Cycle 3, 1998–1999), and were available for comparison to Canadian norms for identification of children in care who are resilient. The self-esteem scale was comprised of four Likert scale items evaluating the child's self-concept, with five possible choices: false, mostly false, sometimes false/sometimes true, mostly true, and true. At the time of data entry, these were scored as false = 1, mostly false = 2, sometimes false/sometimes true = 3, mostly true = 4, and true = 5. The scores were then tabulated to achieve a total score for the self-esteem dimension. The identical NLSCY questions at the time of data entry were entered in the following manner: false = 0, mostly false = 1, sometimes false/sometimes true =2, mostly true = 3, and true = 4, for each answer. For simplicity of comparison and to maintain scoring equivalence, the self-esteem questions in the AAR were re-entered to incorporate the identical scoring scheme as in the NLSCY. Therefore, 1 was subtracted from the score of each question on the AAR. These scores in the AAR then changed from 5 to 4, from 4 to 3, from 3 to 2, from 2 to 1, and from 1 to 0. Scores could therefore range from 0 to 16, with higher scores indicating greater levels of self-esteem, as is the case in the NLSCY.

This measure of self-esteem has been found to have a Cronbach's alpha of 0.82 among the sample of children and youths in out of home care, and of 0.73 in a general Canadian comparison sample (Flynn et. al, 2004). This scale was comprised of questions from the

General Self-Scale and the Physical Appearance Scale of the Marsh Self-Description Questionnaire (Marsh & O'Neill, 1984).

3.4.4. Educational performance.

The final dimension of resilience involves educational performance. The Education scale comprises three questions pertaining to school success in each of the following areas: reading, math, and overall academics. These questions can be seen in Appendix A; they were also included in the NLSCY-Cycle 3, 1998–1999, and were available for comparison to Canadian norms for identification of children in care who are resilient. The scale was comprised of three Likert scale items with five possible choices: very well, well, average, poorly, and very poorly. At the time of original data entry, these were scored as very well = 1, well = 2, average = 3, poorly = 4, and very poorly = 5. The scores were then tabulated to achieve a total score for the educational performance dimension. The identical NLSCY questions at the time of data entry were entered in the following manner: very well = 0, well = 1, average = 2, poorly = 3, and very poorly = 4, for each answer. For simplicity of comparison and to maintain scoring equivalence, the educational performance questions in the AAR were re-entered to incorporate the identical scoring scheme as in the NLSCY. Therefore, 1 was subtracted from the score of each question from the AAR. These scores in the AAR then changed from 5 to 4, from 4 to 3, from 3 to 2, from 2 to 1, and from 1 to 0. Total scores could therefore range from 0 to 12, with higher scores denoting poorer school performance, as is the case in the NLSCY. This measure of educational performance has been found to have a Cronbach's alpha of 0.91 among the sample of children and youths in out of home care, and of 0.88 in a general Canadian comparison sample (Flynn et. al, 2004).

3.5. Cross-sectional Study

3.5.1. Design.

This component of the study employed a nested case-control design to answer the research question: What factors are associated with a resilient outcome among children and youths in out of home care? Using a nested case-control study design has the advantage of minimizing selection bias, as the cases and controls come from the same well defined population (Oleckno, 2002). The cohort from which the sample was derived is the group of children and youths, 10 to 15 years old, that had participated in the Looking After Children in Ontario program, which was described in detail earlier. The cases in this study will be those children and youths in out of home care identified as resilient, while the controls will be the remainder of the children and youth in the cohort.

3.5.2. Procedure.

The aim of the cross-sectional analysis was to identify factors associated with resilient outcome among children and youth in out of home care within each of the defined outcome domains. Factors associated with an overall resilient outcome—that is, being resilient across all four outcome domains—were also investigated. Children and youth in out of home care were defined as resilient or not resilient in each of the four domains as per the operational definition of resilience described in section 3.3.

3.5.3. Independent variables/predictor variables.

After considering the previous research in the area of resilience as it relates to children and youths in out of home care, and the data available in the AAR, the following predictor variables were selected for investigation. Refer to Table 2 for a complete list of the predictor variables used to predict resilient outcome.

3.5.3.1. Personal variables.

Gender.

This variable was treated as a nominal variable as either male or female in the analysis.

Age.

This variable was treated as a continuous variable in the analysis.

3.5.3.2. Historical placement variables.

Age of first placement into out of home care.

This variable refers to the age at which the child in out of home care was removed from his or her family of origin and legally placed in out of home care for the first time. Age of first placement into out of home care is collected as part of the AAR questionnaire. This variable was treated as a continuous variable in the analysis.

Reason for first placement.

This variable refers to the reason defined by the CAS for legal removal of the child from the family of origin. The AAR collects this information as one of six categories. These categories include Physical/sexual harm by commission, Harm by omission, Emotional harm, Abandonment/separation, Caregiver capacity, and Other. These categories were dichotomized into presence of harm and absence of specified harm. Moreover, category one included physical/sexual harm by commission, harm by omission, and emotional harm. Category two included abandonment/separation, caregiver incapacity, and other. Two "other" cases were lumped into category two. Of these cases, one was defined as "not getting along with biological mother" and the other was listed as "orphaned".

Number of caregivers since birth.

A main caregiver is defined in the AAR as a person who has acted as a main caregiver to the child or youth for one month or more. This information is collected in the AAR, but may only represent a best estimate from the child and case worker. This variable was analyzed as a continuous variable.

3.5.3.3. Current placement variables.

Length of time in the current placement.

The length of time that the child spent in the current placement is reported in years in the AAR. This variable was analyzed as a continuous variable.

Type of home.

This variable was collected as six categories in the AAR: Foster Home operated by child welfare organization, Group Home operated by child welfare organization, Foster Home – outside purchased care, Group Home – outside purchased care, Kinship Care, and Adoption Probation. These variables were dichotomized into foster homes and group homes. Kinship care and adoption probation were lumped into the foster home category for analysis. This variable was entered as nominal data.

Marital status of primary caregiver.

This information was collected indirectly in the AAR by obtaining the relationship to the primary caregiver of all adults living in the dwelling. If there was a spouse or common-law partner of the caregiver in the dwelling, they were considered "Married"; if not, they were considered "Single". This binomial variable was entered into the analysis as categories married and single.

3.5.3.4. Social variables.

Close bond with primary caregiver.

Close bond to the primary caregiver was measured using the relationship with female caregiver scale (NLSCY-Cycle 3, 1998–1999). This scale is contained in the AAR and can be seen in Appendix B. The relationship with female caregiver scale was comprised of four questions evaluating the child's perception of closeness with his or her primary caregiver. The child answered each of these questions using the five-point Likert scale with five possible choices: very well, quite well, pretty well, not too well, and not well at all. At the time of original data entry, these were scored as very well = 1, quite well = 2, pretty well = 3, not too well = 4, and not well at all = 5. The scores were then tabulated to achieve a total score for the close bond with primary caregiver variable. The identical NLSCY questions at the time of data entry were entered in the following manner: very well = 5, quite well = 4, pretty well = 3, not too well = 2, and not well = 1 for each answer. For simplicity of comparison, the close bond to primary caregiver questions in the AAR were re-entered to incorporate a more comprehensive scoring scheme. It was preferable to have higher scores reflect a greater relationship with the primary caregiver and lower scores reflect a poorer relationship with the primary caregiver. Therefore, data entry was redone to reverse the initial Likert scheme. These scores in the AAR then changed from 5 to 1, from 4 to 2, 3 remained the same, from 2 to 4, and from 1 to 5. Total scores could therefore range from 4 to 20, with higher scores denoting a greater level of closeness with the primary caregiver. The close bond variable was then dichotomized into two categories: presence of a close bond and absence of a close bond. Children with scores of 8 or greater responded that their relationship with the primary caregiver was "quite well" or "very well" for all questions, and were then defined as having a close bond with the primary caregiver. Children with scores

below 8 were defined as having an absence of close bond with the primary caregiver. These data were analyzed as nominal data.

Primary caregiver report of child sociability.

Child sociability was measured by parent report responses to two questions using a five-point Likert scale. These questions can be seen in Appendix B. The primary caregiver completed these questions based on how she or he considered the child in out of home care to respond to social situations. The primary caregiver answered using the five-point Likert scale responses: very well, quite well, pretty well, not too well, and not well at all. At the time of original data entry, these were scored as very well = 1, quite well = 2, pretty well = 3, not too well = 4, and not well at all = 5. For simplicity of comparison, the primary caregiver report of child sociability questions in the AAR were re-entered to incorporate a more comprehensive scoring scheme. It was preferred to have higher scores reflect greater sociability and lower scores reflect a poorer sociability. Therefore, data entry was redone to reverse the initial Likert scheme. These scores in the AAR then changed from 5 to 1, from 4 to 2, 3 remained the same, from 2 to 4, and from 1 to 5. Total scores could therefore range from 2 to 10, with higher scores denoting a greater level of sociability as measured by the primary caregiver. These data were analyzed as a continuous variable. The questions originated from the Ontario Child Health Study (OCHS) (Boyle et al., 1993). Cronbach's alpha for this measure cannot be reported as this scale was broken down to include only parent report of child sociability, rather than to merge child and parent reports, as had been done in the original OCHS.

3.5.3.5. Current difficulties.

Presence of a learning problem.

The AAR gathers data on whether a child has been identified as having had a previous learning assessment, or whether they are currently waiting for an assessment for learning difficulties. This variable was dichotomized into (1) children with learning problems, children who have had an assessment, or children who are on a waiting list for an assessment, and (2) children without identified learning problems. This binomial variable was analyzed as a nominal variable.

Distress.

The eight questions within the AAR that indicate levels of emotional distress are within the Emotional and Behavioural Development section and can be seen in Appendix B. These questions are also included in the NLSCY-Cycle 3 (1998–1999), and focus on the child's report of anxiety and emotional distress. Each of these questions has three possible choices: never or not true, sometimes or somewhat true, or often or very true. At the time of original data entry, these were scored as never or not true = 1, sometimes or somewhat true = 2, and often or very true = 3. The scores were then tabulated to achieve a total score for the current distress variable. The identical NLSCY questions at the time of data entry were entered in the following manner: never or not true = 0, sometimes or somewhat true = 1, and often or very true = 2 for each answer. For simplicity of comparison and to maintain scoring equivalence, the distress questions in the AAR were re-entered to incorporate the identical scoring scheme as in the NLSCY. Therefore, 1 was subtracted from the score of each of these questions in the AAR. These scores then changed from 1 to 0, from 2 to 1, and from 3 to 2. Scores could therefore range from 0 to 24, with higher scores indicating a greater level of distress. This variable was analyzed as a continuous variable.

This measure of general distress has been found to have a Cronbach's alpha of 0.82 among the sample of children and youths in out of home care, and of 0.79 in a general Canadian comparison sample (Flynn et. al, 2004; Statistics Canada, 2001). This scale was comprised of questions taken from the Ontario Child Health Study (Boyle et al., 1993) and the Montreal Longitudinal Survey (Tremblay et al., 2003).

Table 2

Independent Variables Included in the Model to Predict Resilient Outcome.

Personal Variables
Current Age
Gender
Historical Placement Variables
Age at First Placement
Reason for First Placement
Number of Caregivers Since Birth
Current Placement Variables
Time in Current Placement
Home Type
Marital Status of Primary Caregiver
Social Variables
Close Bond with Primary Caregiver
Parent Report of Child Sociability
Current Difficulties
Presence of Learning Difficulties
Distress

3.5.4. Analysis.

The outcome variable for this analysis is the binomial variable "Resilience", which can take the value "Resilient" or "Non-Resilient", as previously defined within each of the outcome dimensions described earlier. The predictor variables include those factors described above that have been shown previously to impact resilient outcomes amongst children and youths in out of home care. Descriptive statistics were performed on all independent variables. Logistic regression analysis was used to identify the independent variables that contributed to a resilient outcome among children and youths in out of home care. In addition, odds ratios were obtained to describe the strength of the association

between the statistically significant predictor variables on the resilient outcome variables for each dimension.

The referent group for each dichotomous variable, in other words, the code entry values indicating values entered into the logistic regression as 1 or 0 for each variable, are displayed in Table 3.

Table 3

Referent Categories for Dichotomous Variables

	Category Code	
Variable	1	0
Resilient Prosocial Outcome	Resilient	Non-Resilient
Resilient Friendship Outcome	Resilient	Non-Resilient
Resilient Self-Esteem Outcome	Resilient	Non-Resilient
Resilient Education Outcome	Resilient	Non-Resilient
Overall Resilient Outcome	Resilient	Non-Resilient
Gender	Male	Female
Home Type	Foster Home	Group Home
Presence of Learning Difficulties	Present	Absent
Marital Status of Primary Caregiver	Married	Other
Close Bond with Foster Parent	Present	Absent
Reason for Placement	Other	Physical/Sexual Harm

All logistic regression analyses in this study were forward entry sequential logistic regression. The sequential logistic regression method was selected over the direct or the stepwise logistic regression methods to enable specific order and groupings of the variables at the time of entry into the logistic regression model. The use of a theoretically driven method of variable entry as opposed to the computer generated stepwise method of variable entry was more appropriate with this data. More recently, the consensus within the research field has been to veer away from the stepwise approach to logistic regression when feasible. Concerns surrounding a theoretically driven approach to analysis, inflated R-squared values

associated with the stepwise approach, and the capitalization of chance with stepwise models have been described in the research literature (Cohen, Cohen, West, & Aiken, 2003; Malek, Berger, & Coburn, 2007).

A proximal to more distal variable framework was used in the development of the variable entry process. The predetermined set of variables was entered into each logistic regression equation in blocks. The logistic regression equation and corresponding model were assessed after each variable block entry. The model's statistical significance was evaluated each time. Block 1 included age and gender as these variables were personal and most concrete, therefore, they were entered into the models first. This resulted in Model 1 of the logistic regression equation for the resilient outcome variable being tested. The second set of predictors entered into the model in Block 2 is the historical placement variables: age at first placement, reason for first placement, and the number of caregivers since birth. This resulted in Model 2 of the logistic regression equation for the resilient outcome variable being tested. The third set of predictors entered into the model in Block 3 are the current placement variables: the length of time in the current placement, home type, and marital status of primary caregiver. This resulted in Model 3 of the logistic regression equation for the resilient outcome variable being tested. The fourth set of predictors entered into the model in Block 4 are social variables: close bond with primary caregiver and parent report of child sociability. This resulted in Model 4 of the logistic regression equation for the resilient outcome being tested. The final set of predictors entered into the model in Block 5 are current difficulties—learning difficulties and distress level. This resulted in Model 5 of the logistic regression equation for the resilient outcome variable being tested.

The selection criteria for variable entry and removal from the logistic regression equations were specified as follows. P*in* represents the minimum p-value that is acceptable

for variables to be entered into the regression equation. To develop an equation in which all independent variables met the traditional $p < .05$ criterion for statistical significance, P*in* was set at .05 (Glantz & Slinker, 2001; Hosmer & Lemeshow, 1989). Investigators often set P*out* to .10 or higher to ensure that no potentially important variables are missed (Glantz & Slinker, 2001). Hosmer & Lemeshow (1989) consider setting P*out* at .20 as a more inclusive value. The aim with a P*out* value set at .20 is to reduce the odds of a variable being "bumped out" prematurely by another variable. Reducing the odds of premature removal of variables is especially important for first-time exploratory analysis of regression models. Therefore, the exclusion of a predictor variable was set at P*out* = .20 for each variable in the logistic regression equations in this study. With this setting, a variable is required to be statistically significant at the $p < .05$ level to enter the equation, and must remain at the $p < .20$ level to stay in the equation at subsequent steps.

The logistic regression analyses provide an odds ratio for each predictor variable in the equation. An odds ratio in this study represented the odds of the presence of an independent variable among resilient children and youths to the odds of an independent variable being present among children and youths who are not resilient. For example, an odds ratio associated with male gender of greater than 1 would suggest that being a male is protective from a resilience perspective. In the case of nominal variables, an odds ratio will represent the odds compared to a reference category. In the case of ordinal and interval variables, the odds ratio will represent the incremental change in odds with each unit change in the variable of interest.

The Nagelkerke R-squared was used to approximate the traditional R-squared value in multiple regression. The Nagelkerke R-squared was selected over the Cox and Snell R-squared as it adjusts to be able to achieve a value of 1 and therefore be more meaningful in

describing each model in the logistic regression equation (Tabachnick & Fidell, 2001). Analysis was performed using PASW Statistics, version 17.0.

3.5.5. Sample size calculation & justification.

As the analysis was logistical regression, the recommended sample size to obtain $\alpha = 0.05$ and $\beta = 0.20$ is $N \geq 40m$, where m is the number of independent variables (Tabachnik & Fidell, 2001). There were 12 independent variables in this analysis, so the recommended sample size was 480. For the cross-sectional component, even though the year with the greatest number of children for whom data was available was used, once the data was cleaned, the final sample size was 417. Although this study is slightly underpowered, the decision was made to accept this power level for analysis and interpret the findings with caution.

3.6. Longitudinal Study

3.6.1. Design.

This component of the study also employed a nested case-control design to answer the research question: What factors are associated with a future resilient outcome among children and youth in out of home care over time? The same children from the original cross-sectional cohort were studied one year later to determine whether the same factors predict resilient outcome when controlling for resilience status in year one. The cases in this study were those children and youths in out of home care identified as resilient, while the controls will be the remainder of the children and youths in the cohort in year two. In addition, the longitudinal study explored factors associated with highly resilient youth, defined as children and youths who were resilient overall in year one and continued to be resilient overall in year two.

3.6.2. Procedure.

The aim of the longitudinal analysis was to identify factors associated with resilient outcome among children and youths in out of home care within the defined outcome domains and overall one year after the initial cross-sectional analysis was completed. Children and youths in out of home care were defined as resilient or not resilient on each of the four dimensions as per the operational definition of resilience described earlier.

3.6.3. Analysis.

The analysis was performed similarly to the cross-sectional analysis; however, the previous year's resilient outcome was included in the logistic regression model to assess for change from the previous year. In addition, only those variables found to be statistically significant predictors were used in the longitudinal analysis. Again, the sequential logistic regression was used rather than direct logistic regression and stepwise logistic regression to enable specific order and groupings of the variables at the time of entry into the logistic regression model. The use of a theoretically driven method of variable entry as opposed to the computer generated stepwise method of variable entry was again more appropriate with this data. The same proximal to more distal variable framework was used in the development of the variable entry process. The predetermined set of variables was entered into each logistic regression equation in blocks. The logistic regression equation and model were assessed after each variable block entry and the model statistical significance was evaluated. Block 1 controlled for the previous year's resilient outcome in the domain being tested. For example, Education Resilience for year one was included in Block 1 as a predictor of Education Resilience for year two. Block 2 included age and gender, if they were statistically significant in the year one model, as these variables were felt to be the most personal and most concrete; therefore, they were entered into the models next. This resulted

in Model 2 of the logistic regression equation for the resilient outcome variable being tested. If they were statistically significant in year one, the third set of predictors entered into the model in Block 3 were the historical placement variables, which are: age at first placement, reason for first placement, and number of caregivers since birth. This resulted in Model 3 of the logistic regression equation for the resilient outcome variable being tested. If they were statistically significant in year one, the fourth set of predictors entered into the model in Block 4 were the current placement variables, which are: length of time in the current placement, home type, and marital status of the primary caregiver. This resulted in Model 4 of the logistic regression equation for the resilient outcome variable being tested. If they were statistically significant in year one, the fifth set of predictors entered into the model in Block 5 were the social variables, which are: close bond with primary caregiver and parent report of child sociability. This resulted in Model 5 of the logistic regression equation for the resilient outcome being tested. The final set of predictors entered into the model in Block 6 , if they were statistically significant in year one, were current difficulties, which are learning difficulties and distress level. This resulted in Model 6 of the logistic regression equation for the resilient outcome variable being tested. The referent group for each dichotomous variable, in other words, the code entry values indicating values entered into the logistic regression as 1 or 0 for each variable, are the same as they were for year one and are displayed in Table 3. Analysis was performed using PASW Statistics, version 17.0.

3.6.4. Sample size.

Upon cleaning the data and reviewing the sample for the longitudinal study, it was determined that if the same number of independent variables had been employed in the logistic regression equations, the analysis would have been drastically underpowered. Of the original 417 children, only 223 remained in out of home care the following year. Therefore,

to increase power given the limited sample size, the independent variables used in the analysis were cut down to include only those that were statistically significant predictors of resilience in year one. According to Tabachnik & Fidell (2001), as the analysis was logistic regression, the number of independent variables possible to obtain $\alpha = 0.05$ and $\beta = 0.20$, with a sample size of 223, using $N \geq 40m$, where m is the number of independent variables, an acceptable independent variable level was 5.6. To maintain the integrity of the analysis, care was taken to ensure that only five and in some cases six independent variables were used in the logistic regressions to predict resilient outcome within the longitudinal data set.

Results

4.1. Cross-sectional Study

4.1.1. Descriptive analysis.

Data were screened prior to analysis for missing values, outliers, and correlations among variables using various PASW Statistics version 17.0 programs. Of the 425 children 10 to 15 years old in the out of home care sample, 417 were selected for analysis in this study. Eight children were deleted from the overall study as their missing value rates were notably higher than those of the other participants on the questionnaires employed in this study. The deleted cases had total missing values of 65% or greater in some instances. With the exception of the eight deleted cases, missing value rates overall were low, ranging from 2–3% within each of the variables amongst the entire sample. The data were explored for deviation from randomness of responses and no significant deviation was observed. Schafer & Graham (2002) suggest using an EM (Expectation-Maximization) algorithm to address missing values in this type of data set, therefore, all remaining missing values were imputed using the EM, Missing Values Analysis, PASW program, version 15.0. No significant outliers were observed based on standardised residual pattern criteria of above 3.3 and below –3.3.

Prior to analysis, data were also reviewed to ensure acceptable fit between variable distributions and to make certain that the assumptions necessary for logistic regression were met. Preliminary analyses were performed to confirm that the assumption of multicollinearity among predictor variables was not violated. Collinearity Diagnostics were conducted using the PASW Statistics program. The results from this assessment indicated acceptable Tolerance and Variance Inflation Factor (VIF) values amongst variables. Therefore, the assumption of multicollinearity has not been violated with the current data set.

The relationships among the four outcome domains—prosocial behaviour, education, social relationships, and self-esteem—and the 12 predictor variables were investigated and the Pearson product-moment correlation coefficients were computed. The means and standard deviations of all variables are displayed in Table 4. The correlation coefficients are displayed in Table 5. The frequency and percentages of the categorical independent variables are displayed in Table 6.

Table 4

Means and Standard Deviations of All Variables

Variable	Mean	Standard Deviation
1. Resilient Prosocial	0.66	0.47
2. Resilient Friendship	0.59	0.49
3. Resilient Self-Esteem	0.73	0.45
4. Resilient Education	0.21	0.41
5. Child's Gender	0.55	0.50
6. Child's Age	12.8	1.68
7. Age at First Placement	6.81	3.44
8. Reason for First Placement	0.53	0.50
9. Number of Caregivers Since Birth	0.79	0.19
10. Time in Current Placement	1.62	0.80
11. Type of Home	0.89	0.31
12. Marital Status of Caregiver	0.70	0.46
13. Close Bond	0.50	0.50
14. Presence of Learning Difficulties	0.59	0.49
15. Distress	4.66	3.35
16. Parent Report Child Sociability	7.41	1.73

Table 5

Correlations of All Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Resilient Prosocial	-	.214**	.150**	.099*	.244**	-.160**	-.142**	-.065	-.078	.151**	.214**	.089	.167**	-.068	-.098*	.196**
2. Resilient Friendship		-	.298**	.144**	.050	.042	-.069	.008	.034	.128**	.158**	.173**	.106*	-.063	-.357**	.261**
3. Resilient Self-Esteem			-	.146**	-.061	-.111*	-.072	.009	-.059	.211**	.175**	.182**	.200**	.053	-.360**	.269**
4. Resilient Education				-	.087	-.043	.015	.045	-.017	.069	.044	.136**	-.020	-.219**	-.119*	.238**
5. Child's Gender					-	.033	-.015	-.065	.011	.011	.123*	.082	.026	-.224**	.066	-.041
6. Child's Age						-	.296**	.136**	.032	.020	-.111*	-.129**	-.055	-.073	-.006	-.071
7. Age at First Placement							-	.174**	.039	-.335**	-.051	-.087	-.065	-.079	.110*	-.043
8. Reason for First Placement								-	-.027	-.077	-.014	.023	-.074	-.042	-.024	-.012
9. Number of Caregivers Since Birth									-	-.278**	-.099*	-.014	-.040	-.047	.141**	-.118*
10. Time in Current Placement										-	.192**	.118*	.124*	.058	-.242**	.180**
11. Type of Home											-	.386**	.138**	-.125*	-.217**	.225**
12. Marital Status of Caregiver												-	.047	-.033	-.159**	.155**
13. Close Bond													-	.038	-.242**	.162**
14. Presence of Learning Difficulties														-	.020	-.141**
15. Distress															-	-.353**
16. Parent Report Child Sociability																-

* $p < .05$.
** $p < .01$.

As predicted by the collinearity diagnostic outcome data, all of the statistically significant correlations were in the small to low-medium range in strength, therefore all variables were included in the analysis.

Further evaluation of assumptions resulted in a transformation of two of the variables. These transformations were conducted to reduce skewness and improve the normality, linearity, and homoscedasticity of the raw data. A square root transformation was used on the variable "length of time in current placement". A logarithmic transformation was used on the variable "number of caregivers since birth".

Although participants in this study were limited to 10- to 15-year-olds, two nine-year-olds were not deleted as they turned 10 during the course of this study period. The operational definition criteria for resilient outcome, as previously described, were applied to the study sample and the resilient children were identified. The frequency and percentages of the categorical independent variables, broken down into overall resilient children and overall non-resilient children in out of home care, that were included in this study are displayed in Table 6. These results indicate that the resilient and non-resilient children were comparable on many dimensions. However, using the Chi-square test, a statistically significant difference exists between the groups regarding marital status of primary caregiver ($p<0.008$), and the presence of a learning disability ($p=0.001$).

Table 6

Frequency and Percent of Categorical Independent Variables

	Frequency (%)		
Independent Variable	Overall	Non-Resilient	Resilient
Child Gender			
Male	229 (54.9)	211 (56.1)	18 (43.9)
Female	188 (45.1)	165 (43.9)	23 (56.1)
Reason for Placement			
Physical or Sexual Harm	198 (47.5)	181 (48.1)	17 (41.5)
Abandonment or Caregiver Incapacity	219 (52.6)	195 (51.9)	24 (58.5)
Type of Home			
Foster	373 (89.4)	333 (88.6)	40 (97.6)
Group	44 (10.6)	43 (11.4)	1 (2.4)
Marital Status of Primary Caregiver			
Married	291 (69.8)	255 (67.8)	36 (87.8)
Other	126 (30.2)	121 (32.2)	5 (12.2)
Close Bond with Primary Caregiver			
Yes	207 (49.6)	181 (48.1)	26 (63.4)
No	210 (50.4)	195 (51.9)	15 (36.6)
Learning Difficulty			
Yes	248 (59.5)	235 (62.5)	13 (31.7)
No	169 (40.5)	141 (37.5)	28 (68.3)

The mean and standard deviation of the continuous independent variables broken down into overall resilient children and overall non-resilient children in out of home care included in this study are displayed in Table 7. These results indicate that the resilient and non-resilient children were again comparable on many dimensions. However, using the unpaired t-test, the two groups were different regarding distress ($p<0.001$) and parent report child sociability ($p<0.001$).

Table 7

Mean and Standard Deviation of Continuous Independent Variables

	Mean (SD)	
	Non - Resilient	Resilient
Current Age	12.8 (1.7)	12.4 (1.6)
Age First Placed in Out of Home Care	6.9 (3.4)	6.3 (3.3)
Number of Caregivers Since Birth (log)	5.9 (3.4)	6.1 (4.4)
Number of Years in Current Placement (sqrt)	3.2 (2.9)	3.9 (3.2)
Distress	4.9 (3.3)	2.8 (2.8)
Parent Report Child Sociability	7.3 (1.7)	8.6 (1.5)

Both screening of the data and results of the evaluation of assumptions successfully negotiated an acceptable sample of 417 children in out of home care ranging in age from nine to 15 years old. These findings prompted further exploration of the study sample at the multivariate level.

4.1.2. Multivariate analysis.

A forward entry sequential logistic regression was performed to assess the impact of the 12 independent variables on each of the four resilient—resilient prosocial outcome, resilient friendship outcome, resilient self-esteem outcome, resilient education outcome, and overall resilient outcome.

4.1.2.1. Resilient prosocial outcome.

A forward entry sequential logistic regression was performed to assess the impact of the 12 independent variables on a resilient prosocial outcome. Table 8 shows regression coefficients, Wald statistics, odds ratios, Nagelkerke R-squared, and 95% confidence intervals for odds ratios in the sequential model. Of the 417 youth in out of home care, 275 were resilient on the prosocial outcome (66% of the entire sample).

Table 8

Hierarchical Multiple Regression Analyses Predicting Resilient Prosocial Outcome (N = 417)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio		R^2
					Lower	Upper	
1							0.12
	Current Age	-.23	12.05*	.80	.70	.91	
	Gender	-1.14	25.48*	.32	.20	.50	
	(Constant)	4.29	23.32				
2							0.14
	Current Age	-.19	7.38*	.83	.72	.95	
	Gender	-1.16	25.39*	.32	.20	.49	
	Age at First Placement	-.06	3.43	.94	.88	1.00	
	Reason for First Placement	-.09	.17	.91	.59	1.41	
	Number of Caregivers Since Birth	-.90	2.57	.41	.14	1.22	
	(Constant)	4.98	24.24				
3							0.18
	Current Age	-.20	7.57*	.82	.71	.94	
	Gender	-1.13	22.91*	.32	.20	.51	
	Age at First Placement	-.04	1.31	.96	.89	1.03	
	Reason for First Placement	-.07	.10	.93	.60	1.45	
	Number of Caregivers Since Birth	-.45	.58	.64	.20	2.03	
	Time in Current Placement	.31	3.81*	1.37	1.00	1.87	
	Type of Home	1.06	7.62*	2.89	1.36	6.15	
	Marital Status of Caregiver	-.14	.26	.87	.52	1.47	
	(Constant)	3.25	8.17				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.

* $p < .05$.

(*table continues*)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	Upper	R^2
4							0.22
	Current Age	-.20	7.01*	.82	.71	.95	
	Gender	-1.15	22.82*	.32	.19	.51	
	Age at First Placement	-.04	1.41	.96	.89	1.03	
	Reason for First Placement	-.05	.04	.95	.61	1.50	
	Number of Caregivers Since Birth	-.38	.39	.69	.21	2.24	
	Time in Current Placement	.25	2.29	1.28	.93	1.77	
	Type of Home	.83	4.39*	2.29	1.05	4.95	
	Marital Status of Caregiver	-.17	.39	.85	.50	1.44	
	Close Bond	.53	5.28*	1.70	1.08	2.67	
	Parent Report Child Sociability	.17	6.26*	1.19	1.04	1.36	
	(Constant)	1.99	1.23				
5							0.22
	Current Age	-.20	7.08*	.82	.71	.95	
	Gender	-1.14	21.13*	.32	.20	.52	
	Age at First Placement	-.04	1.43	.96	.89	1.03	
	Reason for First Placement	-.05	.05	.96	.60	1.50	
	Number of Caregivers Since Birth	-.38	.40	.68	.21	2.24	
	Time in Current Placement	.25	2.31	1.29	.93	1.78	
	Type of Home	.81	4.10*	2.24	1.03	4.91	
	Marital Status of Caregiver	-.17	.39	.85	.50	1.44	
	Close Bond	.53	5.11*	1.70	1.07	2.71	
	Parent Report Child Sociability	.17	5.41*	1.18	1.03	1.36	
	Presence of Learning Difficulties	-.08	.11	.92	.57	1.49	
	Distress	.00	.00	1.00	.93	1.08	
	(Constant)	2.12	2.43				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.
* $p < .05$.

A test of Model 1 was statistically reliable, χ^2 (2, $\underline{N}$ = 417) = 38.14, $p < .05$, indicating that these two predictors together reliably differentiated between children who

were resilient on prosocial behaviour compared to children who were not. Overall, this model correctly classified 70.5% of cases, correctly predicting 38.7% of the children who were not resilient on prosocial outcome and 86.9% of those who were.

In this model, the stronger predictor of resilient prosocial outcome was gender, with an odds ratio of .32. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds ratio can be interpreted as follows. The odds of female children in out of home care being resilient on prosocial outcome were 3.1 times (1/.32) greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for other variables in the model. The odds ratio for the variable current age was .80. Given that this is again less than 1, the inverse has been calculated for ease of reporting. This indicates that for each incremental increase in years of age, the odds of a resilient prosocial outcome decreases by 1.3 times (1/.80), when controlling for other variables in the model.

A test of Model 2 was statistically reliable, χ^2 (5, $\underline{N}$ = 417) = 44.77, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on prosocial behaviour and children who were not. However, the block itself was not statistically reliable, χ^2 (3, $\underline{N}$ = 417) = 6.63, $p > .05$, as the addition of the three new predictor variables together did not add to the reliability of the model to differentiate between children who were resilient on prosocial behaviour compared to children who were. Overall, this model correctly classified 70.0% of cases, correctly predicting 32.4% of the children who were not resilient on prosocial outcome and 89.5% of those who were. Based on the Wald criterion, both current age and gender continued to reliably predict resilient prosocial outcome.

In this model, the strongest predictor of resilient prosocial outcome continued to be gender, with an odds ratio of .32. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds of female children in out of home care being resilient on prosocial outcome were 3.1 times (1/.32) greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for the other factors in the model. The odds ratio for the variable current age increased slightly to .83, indicating that for each incremental increase in years of age, the odds of a resilient prosocial outcome decreases by 1.2 times (1/.83), when controlling for other the other factors in the model.

A test of Model 3 with the eight independent variables was statistically reliable, χ^2 (8, $\underline{N}$ = 417) = 59.27, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on prosocial behaviour and children who were not. The block itself was also statistically reliable, χ^2 (3, $\underline{N}$ = 417) = 14.50, $p < .05$, as the addition of the three new predictor variables together contributed to reliably differentiate between children who were resilient on prosocial behaviour compared to children who were not. Overall, this model correctly classified 71.0% of cases, correctly predicting 33.1% of the children who were not resilient on prosocial outcome and 90.5% of those who were. The Wald criterion showed that, of the new variables entered into the model, type of home reliably predicted resilient prosocial outcome, and both current age and gender continued to reliably predict resilient prosocial outcome.

In this model, the strongest predictor of resilient prosocial outcome continued to be gender, with an odds ratio of .32. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds of female children in out of home care

being resilient on prosocial outcome were 3.1 times (1/.32) greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for the other factors in the model. The second strongest predictor was type of home, which closely followed with an odds ratio of 2.9. This indicated that children with a resilient prosocial outcome were almost 3 times more likely to reside in a foster home compared to children residing in a group home. The odds ratio for the variable current age was .82, indicating that for each incremental increase in years of age, the odds of a resilient prosocial outcome decreases by 1.2 times (1/.82), when controlling for the other factors in the model.

A test of Model 4 with the 10 independent variables was statistically reliable, χ^2 (10, $\underline{N}$ = 417) = 72.32, $p < 0.05$, indicating that the overall model continued to reliably differentiate between children who were resilient on prosocial behaviour outcome and children who were not. The block itself was also statistically reliable, χ^2 (2, $\underline{N}$ = 417) = 13.04, $p < .05$, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient on prosocial behaviour compared to children who were not. Overall, this model correctly classified 71.9% of cases, correctly predicting 38.0% of the children who were not resilient on prosocial outcome and 89.5% of those who were.

The Wald criterion showed that the two new variables entered into the model, foster parent report of child sociability and the presence of a close bond between child and foster mother, reliably predicted resilient prosocial outcome. Based on the Wald criterion, current age, gender, and type of home continued to reliably predict resilient prosocial outcome.

In this model, the strongest predictor of resilient prosocial outcome continued to be gender, with an odds ratio of .32. Given that this is less than 1, the inverse has been

calculated for ease of reporting. Therefore, the odds of female children in out of home care being resilient on prosocial outcome were 3.1 times (1/.32) greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for the other factors in the model. The second strongest predictor was type of home, with an odds ratio of 2.3. This indicated that children with a resilient prosocial outcome were 2.3 times more likely to reside in a foster home compared to children residing in a group home. The third strongest predictor was the presence of a close bond between the foster child and foster mother; the odds ratio was 1.7, which suggests that children with a resilient prosocial outcome were 1.7 times more likely to have a close bond with their foster mother compared to children who did not, when controlling for the other variables in the model. The final two predictors in this model were one of the new predictor variables entered into this block, parent report of child sociability, and current age, both with an odds ratio of 1.2. This indicated that children with a resilient prosocial outcome were 1.2 times more likely to have higher scores on the parent report compared to children whose foster parent scored them lower on sociability. The odds ratio for current age was .82, indicating that for each incremental increase in years of age, the odds of a resilient prosocial outcome decreases by 1.2 times (1/.82), when controlling for the other variables in the model.

A test of Model 5, the final block with the 12 independent variables, was statistically reliable, χ^2 (12, $\underline{N}$ = 417) = 72.43, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on prosocial behaviour and children who were not. However, the block itself was not found to be statistically reliable, χ^2 (2, $\underline{N}$ = 417) = .12, $p > .05$, as the addition of the two new predictor variables together did not contribute to reliably differentiate between children who were

resilient on prosocial behaviour compared to children who were not. Furthermore, this model on the whole did not predict any greater variance in resilient prosocial outcome compared to the previous model, as the same 22% of the variance in resilient prosocial outcome was found using the Nagelkerke R-squared for both models. Overall, this model correctly classified 72.2% of cases, correctly predicting 38.7% of the children who were not resilient on prosocial outcome and 89.5% of those who were.

The Wald criterion showed that, of the new variables entered into the model, neither played a statistically significant role in predicting resilient prosocial outcome among these data. Furthermore, the amount of explained variance, as determined by the Nagelkerke R-squared, did not change from the previous model. Foster parent report of child sociability continued to reliably predict resilient prosocial outcome, as did the presence of a close bond between the child and foster mother, and type of home. Both current age and gender also continued to reliably predict resilient prosocial outcome.

In this model, the strongest predictor of resilient prosocial outcome continued to be gender, with an odds ratio of .32. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds of female children in out of home care being resilient on prosocial outcome were 3.1 times (1/.32) greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for the other factors in the model. The second strongest predictor was for type of home, with an odds ratio of 2.2. This indicated that children in a foster home were 2.2 times more likely to have a resilient prosocial outcome compared to children residing in a group home. The third strongest predictor was the presence of a close bond between the foster child and foster mother. The odds ratio for close bond was 1.7, which suggests that children who

experienced a close bond with their foster mother were 1.7 times more likely to have a resilient prosocial outcome compared to children who did not, when controlling for the other variables in the model. Another predictor of resilient prosocial behaviour was foster parent reported of child sociability, with an odds ratio of 1.2. This indicated that children whose foster parent gave them higher scores on the parent report sociability index were 1.2 times more likely to experience a resilient prosocial outcome compared to children whose foster parent gave them lower scores. The final predictor in this model was current age. The odds ratio for current age was .82, indicating that for each incremental increase in years of age, the odds of a resilient prosocial outcome decreases by 1.2 times (1/.82), when controlling for the other variables in the model.

After considering all of the models, more specifically, the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 4 showed the "best fit" for predicting prosocial outcome. Therefore, the model with the greatest amount of explained variance for prosocial outcome was best predicted by the following variables: child's gender, type of placement, close bond with foster mother, current age, and foster parent assessment of sociability.

4.1.2.2. Resilient friendship outcome.

A forward entry sequential logistic regression was performed to assess the impact of the 12 independent variables on the resilient friendship outcome. Table 9 shows regression coefficients, Wald statistics, odds ratios, Nagelkerke R-squared, and 95% confidence intervals for odds ratios in the sequential model. Of the 417 youths in out of home care, 246 were resilient on the friendship outcome (59% of the entire sample).

Table 9

Hierarchical Multiple Regression Analyses Predicting Resilient Friendship Outcome (N = 417)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio		R^2
					Lower	Upper	
1							.01
	Current Age	-.05	.68	1.05	.94	1.18	
	Gender	-.20	.98	.82	.55	1.22	
	(Constant)	-.15	.04				
2							.02
	Current Age	.08	1.57	1.08	.96	1.22	
	Gender	-.20	.94	.82	.55	1.22	
	Age at First Placement	-.06	3.18	.95	.89	1.01	
	Reason for First Placement	.08	.15	1.08	.72	1.62	
	Number of Caregivers Since Birth	.37	.52	1.45	.53	4.02	
	(Constant)	-.49	.32				
3							.08
	Current Age	.10	2.27	1.11	.97	1.26	
	Gender	-.10	.23	.90	.60	1.36	
	Age at First Placement	-.03	.83	.97	.91	1.04	
	Reason for First Placement	.07	.10	1.07	.71	1.61	
	Number of Caregivers Since Birth	.79	2.00	2.21	.74	6.62	
	Time in Current Placement	.26	3.20	1.30	.98	1.74	
	Type of Home	.68	3.36	1.97	.95	4.06	
	Marital Status of Caregiver	.58	5.88*	1.79	1.12	2.85	
	(Constant)	-2.72	6.74				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.

* $p < .05$.

(*table continues*)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	Upper	R^2
4							.15
	Current Age	.12	2.92	1.12	.98	1.43	
	Gender	-.07	.10	.94	.61	1.29	
	Age at First Placement	-.04	1.09	.96	.90	1.03	
	Reason for First Placement	.09	.16	1.10	.71	1.67	
	Number of Caregivers Since Birth	1.01	3.01	2.74	.88	8.57	
	Time in Current Placement	.18	1.34	1.20	.89	1.61	
	Type of Home	.41	1.15	1.51	.71	3.21	
	Marital Status of Caregiver	.54	4.79*	1.71	1.06	2.78	
	Close Bond	.25	1.40	1.29	.85	1.97	
	Parent Report Child Sociability	.28	18.90*	1.33	1.17	1.51	
	(Constant)	-4.91	16.83				
5							.23
	Current Age	.10	1.87	1.10	.96	1.27	
	Gender	-.19	.68	.83	.53	1.30	
	Age at First Placement	-.02	.46	.98	.91	1.05	
	Reason for First Placement	.02	.01	1.02	.66	1.59	
	Number of Caregivers Since Birth	1.30	4.51*	3.70	1.11	12.24	
	Time in Current Placement	.10	.36	1.10	.81	1.50	
	Type of Home	.22	.30	1.25	.56	2.78	
	Marital Status of Caregiver	.47	3.38	1.60	.97	2.65	
	Close Bond	.04	.04	1.04	.67	1.63	
	Parent Report Child Sociability	.20	7.70*	1.22	1.06	1.40	
	Presence of Learning Difficulties	-.10	.18	.91	.57	1.44	
	Distress	-.20	27.75*	.82	.76	.88	
	(Constant)	-2.74	4.27				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.
* $p < .05$.

A test of Model 1 , χ^2 (2, $\underline{N}$ = 417) = 1.72, p > .05, indicated that these two predictors together, current age and gender, did not reliably differentiate between children who were resilient on the friendship outcome compared to children who were not. Moreover, this model correctly classified 59.0% of cases, correctly predicting 0% of the children who were not resilient on the friendship outcome and 100% of those who were.

A test of Model 2 was again not statistically reliable, χ^2 (5, $\underline{N}$ = 417) = 5.38, p > .05, indicating that the overall model continued to unreliably differentiate between children who were resilient on the friendship outcome and children who were not. The block itself was also not statistically reliable, as the addition of the three new predictor variables together did not add to the reliability of the model to differentiate between children who were resilient on friendship outcome compared to children who were not, χ^2 (3, $\underline{N}$ = 417) = 3.66, p > .05. Moreover, this model correctly classified 60.4% of cases, correctly predicting 7.0% of the children who were not resilient on friendship outcome and 97.6% of those who were.

A test of Model 3 was statistically reliable, χ^2 (8, $\underline{N}$ = 417) = 25.67, p < .05, indicating that the overall model was able to reliably differentiate between children who were resilient on the friendship outcome and children who were not. The block itself was also statistically reliable, as the addition of the three new predictor variables together contributed to reliably differentiate between children who were resilient on the friendship outcome compared to children who were not, χ^2 (3, $\underline{N}$ = 417) = 20.29, p < .05. Overall, this model correctly classified 62.8% of cases, correctly predicting 29.2% of the children who were not resilient on the friendship outcome and 86.2% of those who were.

The Wald criterion showed that of the new variables entered into the model, marital status of the primary caregiver reliably predicted resilient friendship outcome. In this model, the marital status of the primary caregiver was the only predictor of resilient friendship outcome, with an odds ratio of 1.8. This indicated that children whose primary caregiver was married were 1.8 times more likely to be resilient on friendship outcome compared to children whose primary caregiver was not married, when controlling for other factors in the model.

A test of Model 4 was statistically reliable, χ^2 (10, $\underline{N}$ = 417) = 48.43, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the friendship outcome and children who were not. The block itself was also statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient on the friendship outcome compared to children who were not, χ^2 (2, $\underline{N}$ = 417) = 22.76, $p < .05$. This model as a whole predicted much more variance than the previous model at 15% of the variance in resilient friendship outcome being predicted using Nagelkerke R-squared. Overall, this model correctly classified 67.1% of cases, correctly predicting 45.0% of the children who were not resilient on the friendship outcome and 82.5% of those who were. The Wald criterion showed that of the new variables entered into the model, foster parent report of child sociability reliably predicted resilient friendship outcome. As indicated by the Wald criterion, the marital status of the primary caregiver continued to reliably predict resilient friendship outcome.

In this model, the strongest predictor of resilient friendship outcome was the marital status of the primary caregiver, with an odds ratio of 1.7. This indicated that children

whose primary caregiver was married were 1.7 times more likely to be resilient on the friendship outcome compared to children whose primary caregiver was not married, when controlling for other factors in the model. The other predictor in this model was foster parent report of child sociability, with an odds ratio of 1.3. This indicated that children with a resilient friendship outcome were 1.3 times more likely to have higher scores on the foster parent sociability report compared to children whose foster parent scored them lower, when controlling for other variables in the model.

A test of Model 5 was statistically reliable, χ^2 (12, $\underline{N}$ = 417) = 79.27, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the friendship outcome and children who were not. The block itself was also statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient on the friendship outcome compared to children who were not, χ^2 (2, $\underline{N}$ = 417) = 30.84, $p < .05$. Overall, this model correctly classified 68.1% of cases, correctly predicting 51.5% of the children who were not resilient on the friendship outcome and 79.7% of those who were.

The Wald criterion showed that, of the new variables entered into the model, current distress level played a statistically significant role in predicting resilient friendship outcome among these data. The Wald criterion also showed that, foster parent report of child's sociability and the number of caregivers since birth reliably predicted resilient friendship outcome.

In this model, the strongest predictor of resilient friendship outcome was the number of caregivers since birth, with an odds ratio of 3.7. This indicates that for each increment of 1 in the number of caregivers since birth, the odds of resilient friendship

outcome increases by 3.7 times, when controlling for other variables in the model. The second strongest predictor in this model was one of the new variables entered into the model, current distress level, with an odds ratio of .82. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, for each increment of 1 in distress level score that children in out of home care reported, the odds of a resilient friendship outcome decreased by 1.3 times (1/.82), when controlling for other variables in the model. The final predictor in this model was foster parent report of child sociability, with an odds ratio of 1.2. This indicated that children with a resilient friendship outcome were 1.2 times more likely to have higher scores on the foster parent sociability report compared to children whose foster parent scored them lower, when controlling for other variables in the model.

After considering all of the models, more specifically, the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 5 showed the "best fit" for predicting resilient friendship outcome. Therefore, the model with the greatest amount of explained variance for the resilient friendship outcome was best predicted by the following variables: number of caregivers since birth, current distress level, and foster parent's report of child sociability.

4.1.2.3. Resilient self-esteem outcome.

A forward entry sequential logistic regression was performed to assess the impact of the 12 independent variables on a resilient self-esteem outcome. Table 10 shows regression coefficients, Wald statistics, odds ratios, Nagelkerke R-squared, and 95% confidence intervals for odds ratios in the sequential model. Of the 417 youth in out of home care, 303 were resilient on the self-esteem outcome (73% of the entire sample).

Table 10

Hierarchical Multiple Regression Analyses Predicting Resilient Self-Esteem Outcome (N = 417)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio		R^2
					Lower	Upper	
1							.02
	Current Age	-.15	4.97*	.86	.75	.98	
	Gender	.26	1.39	1.30	.84	2.01	
	(Constant)	2.78	9.69				
2							.03
	Current Age	-.14	3.61	.87	.76	1.00	
	Gender	.26	1.33	1.29	.84	2.00	
	Age at First Placement	-.03	.79	.97	.91	1.04	
	Reason for First Placement	.12	.28	1.13	.72	1.76	
	Number of Caregivers Since Birth	-.62	1.18	.54	.18	1.65	
	(Constant)	3.23	10.39				
3							.13
	Current Age	-.14	3.31	.87	.75	1.01	
	Gender	.38	2.57	1.46	.92	2.32	
	Age at First Placement	.02	.18	1.02	.95	1.09	
	Reason for First Placement	.13	.28	1.13	.71	1.81	
	Number of Caregivers Since Birth	.05	.01	1.05	.31	3.55	
	Time in Current Placement	.60	12.85*	1.82	1.31	2.53	
	Type of Home	.55	2.19	1.74	.84	3.62	
	Marital Status of Caregiver	.60	5.30*	1.83	1.09	3.05	
	(Constant)	.53	.21				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.

* $p < .05$.

(*table continues*)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	Upper	R^2
4							.22
	Current Age	-.14	3.07	.87	.75	1.02	
	Gender	.42	2.92	1.52	.94	2.46	
	Age at First Placement	.02	.20	1.02	.94	1.10	
	Reason for First Placement	.21	.69	1.23	.76	2.00	
	Number of Caregivers Since Birth	.20	.10	1.22	.34	4.37	
	Time in Current Placement	.52	8.81*	1.68	1.19	2.36	
	Type of Home	.18	.20	1.20	.55	2.61	
	Marital Status of Caregiver	.56	4.20*	1.75	1.03	2.98	
	Close Bond	.74	8.86*	2.09	1.29	3.40	
	Parent Report Child Sociability	.29	15.64*	1.34	1.16	1.55	
	(Constant)	-1.60	1.49				
5							.28
	Current Age	-.17	4.24*	.85	.72	.99	
	Gender	.24	.88	1.28	.77	2.12	
	Age at First Placement	.03	.67	1.03	.96	1.11	
	Reason for First Placement	.19	.57	1.21	.74	2.01	
	Number of Caregivers Since Birth	.42	.37	1.52	.40	5.82	
	Time in Current Placement	.43	5.62*	1.53	1.08	2.18	
	Type of Home	.02	.00	1.02	.46	2.31	
	Marital Status of Caregiver	.49	2.96	1.63	.94	2.83	
	Close Bond	.57	4.82*	1.77	1.06	2.93	
	Parent Report Child Sociability	.23	8.20*	1.26	1.07	1.47	
	Presence of Learning Difficulties	.28	1.16	1.33	.79	2.22	
	Distress	-.19	20.58*	.83	.76	.90	
	(Constant)	.30	.04				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.
* $p < .05$.

A test of Model 1 was statistically reliable, χ^2 (2, $\underline{N}$ = 417) = 6.62, p < .05, indicating that these two predictors together reliably differentiated between children who were resilient on the self-esteem outcome compared to children who were not resilient on the self-esteem outcome. Although this model was statistically significant, overall, this model correctly classified 72.7% of cases, correctly predicting 0% of the children who were not resilient on the self-esteem outcome and 100% of those who were.

Based on the Wald criterion, only current age, $\underline{z}$ = 4.97, $\underline{p}$ < .05 reliably predicted resilient self-esteem outcome. The odds ratio for current age was .86. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds ratio can be interpreted as follows: for each incremental increase in years of age, the odds of a resilient self-esteem outcome decreases by 1.2 times (1/.86), when controlling for other variables in the model.

A test of Model 2 was not statistically reliable, χ^2 (5, $\underline{N}$ = 417) = 8.84, p > .05, indicating that the overall model did not reliably differentiate between children who were resilient on the self-esteem outcome and children who were not. This block itself was also not statistically reliable, as the addition of the three new predictor variables together did not add to the reliability of the model to differentiate between children who were resilient on the self-esteem outcome compared to children who were not, χ^2 (3, $\underline{N}$ = 417) = 2.22, p > .05.

A test of Model 3 was statistically reliable, χ^2 (8, $\underline{N}$ = 417) = 38.75, p < .05, indicating that the overall model reliably differentiated between children who were resilient on the self-esteem outcome and children who were not. The block itself was also statistically reliable, as the addition of the three new predictor variables together

contributed to reliably differentiate between children who were resilient on the self-esteem outcome compared to children who were not, χ^2 (3, $\underline{N}$ = 417) = 29.92, $p < .05$. Overall, this model correctly classified 74.3% of cases, correctly predicting 17.5% of the children who were not resilient on the self-esteem outcome and 95.7% of those who were. The Wald criterion showed that, of the new variables entered into the model, marital status of the primary caregiver reliably predicted resilient self-esteem outcome, as did years in current placement.

In this model, one of the predictors of resilient self-esteem outcome was the marital status of the primary caregiver, with an odds ratio of 1.8. Therefore, the odds of children with a primary caregiver who was married being resilient on the self-esteem outcome is 1.8 times greater than for children whose primary caregiver was not married, when controlling for other factors in the model. The other predictor was the number of years in the current placement, also with an odds ratio of 1.8. This suggests that for each incremental increase in years that the child has lived in the current placement, the odds of a resilient self-esteem outcome increase by 1.8 times, when controlling for the other factors in the model.

A test of Model 4 was statistically reliable, χ^2 (10, $\underline{N}$ = 417) = 67.05, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the self-esteem outcome and children who were not. The block itself was also statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient on the self-esteem outcome compared to children who were not, χ^2 (2, $\underline{N}$ = 417) = 28.30, $p < .05$. Overall, this model correctly classified 76.5% of cases, correctly predicting 31.6% of the children who were not resilient on the self-esteem outcome and 93.4% of those who were. The Wald

criterion showed that, of the new variables entered into the model, both foster parent report of child sociability and close bond with primary caregiver reliably predicted resilient self-esteem outcome. The number of years in the current placement continued to reliably predict resilient self-esteem outcome.

In this model, the strongest predictor of resilient self-esteem outcome was close bond with foster mother, with an odds ratio of 2.1. This indicated that children who reported having a close bond with their foster mother were 2.1 times more likely to be resilient on the self-esteem outcome than children who did not, when controlling for other factors in the model. The next strongest predictor was the marital status of the primary caregiver, with an odds ratio of 1.7. This indicated that children whose primary caregiver was married were 1.7 times more likely to be resilient on the self-esteem outcome than children whose primary caregiver was not married. Similarly, another predictor of resilient self-esteem outcome was the number of years in the current placement, with an odds ratio of 1.7, which suggests that for each incremental increase in years that the child has lived in the current placement, the odds of a resilient self-esteem outcome increase by 1.7 times, when controlling for the other factors in the model. The final predictor was one of the new predictor variables entered into this block, parent reported child sociability, with an odds ratio of 1.3. This indicated that children with a resilient self-esteem outcome were 1.3 times more likely to have higher scores on the parent report sociability index compared to children whose foster parent scored them lower, when controlling for other variables in the model.

A test of Model 5 was statistically reliable, χ^2 (12, $\underline{N}$ = 417) = 90.51, $p < .05$, indicating that the overall model continued to reliably differentiate between children who

were resilient on the self-esteem outcome and children who were not. This block was also found to be statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient on the self-esteem outcome compared to children who were not resilient the self-esteem outcome, χ^2 (2, $\underline{N}$ = 417) = 23.46, $p < .05$. Overall, this model correctly classified 76.3% of cases, correctly predicting 35.1% of the children who were not resilient on the self-esteem outcome and 91.7% of those who were.

Of the new variables entered into the model, current distress level played a role in predicting resilient self-esteem outcome. Foster parent report of child sociability continued to reliably predict resilient self-esteem outcome, as did the presence of a close bond between the child and foster mother, current age, and number of years in the current placement.

In this model, the strongest predictor of resilient self-esteem outcome was again close bond with foster mother, with an odds ratio of 1.8. This indicated that children who reported having a close bond with their foster mother were 1.8 times more likely to be resilient on the self-esteem outcome than children who did not, when controlling for other factors in the model. The next strongest predictor of resilient self-esteem was number of years in the current placement, with an odds ratio of 1.5, which suggests that for each incremental increase in years that the child has lived in the current placement, the odds of a resilient self-esteem outcome increases by 1.5 times, when controlling for the other factors in the model. Foster parent report of child sociability was found to reliably predict resilient self-esteem outcome, with an odds ratio of 1.3. This indicated that children with a resilient self-esteem outcome were 1.3 times more likely to have higher scores on foster parent

report of sociability compared to children whose foster parent scored them lower, when controlling for other variables in the model. Another predictor of resilient self-esteem outcome in this model was current age. The odds ratio for current age was .85. Given that this is less than 1, the inverse has been calculated for ease of reporting. This shows that for each incremental increase in years of age, the odds of a resilient self-esteem outcome decreases by 1.2 times (1/.85), when controlling for other variables in the model. The final predictor in this model was one of the new predictor variables entered into this block, current distress level, with an odds ratio of .83. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, for each increment of 1 in distress level score that children in out of home care reported, the odds of a resilient self-esteem outcome decreased by 1.2 times (1/.83), when controlling for other variables in the model.

After considering all of the models, more specifically, the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 5 showed the "best fit" for predicting self-esteem outcome. Furthermore, a review of the classification table for all models showed that although Model 1 reached statistical significance, the sensitivity of the model to accurately identify resilient children, the true positives, was 0%. A closer look at this table suggests that although statistically significant, this model ought not to be considered acceptable. Therefore, the model with the greatest amount of explained variance for the self-esteem outcome was best predicted by the following variables: close bond with the foster mother, the number of years the child has been in the current placement, the foster parent assessment of child sociability, current age, and current distress level.

4.1.2.4. Resilient education outcome.

A forward entry sequential logistic regression was performed to assess the impact of the 12 independent variables on a resilient education outcome. Table 11 shows regression coefficients, Wald statistics, odds ratios, Nagelkerke R-squared and 95% confidence intervals for odds ratios in the sequential model. Of the 417 youth in out of home care, 88 were resilient on the education outcome (21% of the entire sample).

Table 11

Hierarchical Multiple Regression Analyses Predicting Resilient Education Outcome (N = 417)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio		R^2
					Lower	Upper	
1							.02
	Current Age	-.07	.87	.94	.81	1.08	
	Gender	-.43	3.22	.65	.40	1.04	
	(Constant)	-.24	.07				
2							.02
	Current Age	-.09	1.41	.91	.79	1.06	
	Gender	-.46	3.57	.63	.39	1.02	
	Age at First Placement	.02	.25	1.02	.95	1.10	
	Reason for First Placement	.27	1.19	1.31	.81	2.14	
	Number of Caregivers Since Birth	-.21	.11	.81	.24	2.80	
	(Constant)	-.05	.00				
3							.06
	Current Age	-.10	1.54	.91	.78	1.06	
	Gender	-.43	2.97	.65	.40	1.06	
	Age at First Placement	.05	1.54	1.05	.97	1.15	
	Reason for First Placement	.25	.97	1.28	.78	2.10	
	Number of Caregivers Since Birth	.07	.01	1.08	.29	3.94	
	Time in Current Placement	.29	2.64	1.34	.94	1.91	
	Type of Home	-.34	.47	.71	.27	1.87	
	Marital Status of Caregiver	.80	5.85*	2.23	1.16	4.28	
	(Constant)	-1.12	.94				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.

* $p < .05$.

(*table continues*)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	Upper	R^2
4							.14
	Current Age	-.10	1.56	.90	.77	1.01	
	Gender	-.38	2.17	.69	.42	1.13	
	Age at First Placement	.05	1.49	1.05	.97	1.15	
	Reason for First Placement	.25	.90	1.28	.77	2.13	
	Number of Caregivers Since Birth	.25	.14	1.29	.34	4.90	
	Time in Current Placement	.21	1.37	1.24	.87	1.77	
	Type of Home	-.63	1.52	.53	.19	1.45	
	Marital Status of Caregiver	.75	4.70*	2.11	1.07	4.15	
	Close Bond	-.34	1.72	.71	.43	1.18	
	Parent Report Child Sociability	.37	19.84*	1.45	1.23	1.71	
	(Constant)	-3.59	6.49				
5							.18
	Current Age	-.12	2.14	.89	.75	1.04	
	Gender	-.20	.56	.82	.48	1.39	
	Age at First Placement	.05	1.24	1.05	.96	1.15	
	Reason for First Placement	.19	.50	1.21	.72	2.03	
	Number of Caregivers Since Birth	.19	.07	1.21	.31	4.72	
	Time in Current Placement	.25	1.73	1.28	.89	1.84	
	Type of Home	-.85	2.61	.43	.15	1.20	
	Marital Status of Caregiver	.75	4.55*	2.11	1.06	4.19	
	Close Bond	-.34	1.55	.71	.42	1.22	
	Parent Report Child Sociability	.31	12.49*	1.37	1.15	1.63	
	Presence of Learning Difficulties	-.97	12.90*	.38	.22	.64	
	Distress	-.04	.81	.96	.88	1.05	
	(Constant)	-2.02	1.66				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.
* $p < .05$.

A test of Model 1 was not statistically reliable, χ^2 (2, $\underline{N}$ = 417) = 3.98, p > .05, indicating that these two predictors together did not reliably differentiate between children who were resilient on the education outcome compared to children who were not.

A test of Model 2 was also not statistically reliable, χ^2 (5, $\underline{N}$ = 417) = 5.73, p > .05. The block itself was not statistically reliable either, as the addition of the three new predictor variables together did not add to the reliability of the model to differentiate between children who were resilient on the education outcome compared to children who were not resilient, χ^2 (3, $\underline{N}$ = 417) = 1.75, p > .05.

A test of Model 3 was not statistically reliable at the critical p < .05 level; however, it was very close, at χ^2 (8, $\underline{N}$ = 417) = 15.49, p = .05, indicating that the overall model was close to reliably differentiating between children who were resilient on the education outcome and children who were not. The block itself was statistically reliable, as the addition of the three new predictor variables together contributed to reliably differentiate between children who were resilient on the education outcome compared to children who were not resilient on the education outcome, χ^2 (3, $\underline{N}$ = 417) = 9.76, p < .05. Overall, this model correctly classified 78.9% of cases, correctly predicting 100% of the children who were not resilient on the education outcome and 0% of those who were. In this model, a review of the classification table showed that although it nearly reached statistical significance, p = .05, the sensitivity of the model to accurately identify resilient children, the true positives, was 0%. A closer look at this table suggests that although nearly statistically significant, this model ought not to be considered acceptable.

The Wald criterion showed that, of the new variables entered into the model, marital status of the primary caregiver reliably predicted resilient education outcome. Marital

status of the primary caregiver was the only statistically significant predictor of resilient education outcome, with an odds ratio of 2.2. This indicated that children in out of home care whose primary caregiver was married were 2.2 times more likely to achieve a resilient education outcome compared to children whose primary caregiver was not married, when controlling for the other factors in the model.

A test of Model 4 was statistically reliable, χ^2 (10, $\underline{N}$ = 417) = 37.93, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the education outcome and children who were not. The block itself was also statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient on the education outcome compared to children who were not, χ^2 (2, $\underline{N}$ = 417) = 22.44, $p < .05$. Overall, this model correctly classified 79.4% of cases, correctly predicting 99.4% of the children who were not resilient on the education outcome and 4.5% of those who were.

The Wald criterion showed that, of the new variables entered into the model, foster parent report of child's sociability reliably predicted resilient education outcome. The other reliable predictor of resilient education outcome was marital status of the primary caregiver.

In this model, the strongest predictor of resilient education outcome continued to be the marital status of the primary caregiver, with an odds ratio of 2.1. This indicated that children in out of home care whose primary caregiver was married were 2.1 times more likely to achieve a resilient education outcome compared to children whose primary caregiver was not married, when controlling for the other factors in the model. The other predictor in this model was parent report of child sociability, with an odds ratio of 1.5.

This indicated that children whose foster parent gave them higher scores on sociability were 1.5 times more likely to achieve a resilient education outcome compared to children whose foster parent scored them lower, when controlling for other variables in the model.

A test of Model 5 was statistically reliable, χ^2 (12, $\underline{N}$ = 417) = 52.19, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the education outcome and children who were not. The block itself was also statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient on the education outcome compared to children who were not, χ^2 (2, $\underline{N}$ = 417) = 14.26, $p < .05$. Overall, this model correctly classified 81.1% of cases, correctly predicting 97.3% of the children who were not resilient on the education outcome and 20.5% of those who were.

The Wald criterion showed that of the new variables entered into the model, presence of a learning problem played a statistically significant role in predicting resilient education outcome among these data. The Wald criterion also showed that foster parent report of child's sociability continued to reliably predict resilient education outcome, as did the marital status of the primary caregiver.

In this model, the strongest predictor of resilient education outcome was presence of a learning problem, with an odds ratio of 2.5. This indicated that children in out of home care who do not currently have an identified learning problem are 2.5 times more likely to be resilient on the education outcome than those who currently do have an identified learning problem, when controlling for other variables in the model. A predictor that continued to predict resilient education outcome was the marital status of the primary caregiver, with an odds ratio of 2.1. This indicated that children in out of home care whose

primary caregiver was married were 2.1 times more likely to achieve a resilient education outcome compared to children whose primary caregiver was not married, when controlling for the other factors in the model. The final predictor in this model was parent reported child sociability, with an odds ratio of 1.4. This indicated that children whose foster parent gave them higher scores on sociability were 1.4 times more likely to achieve a resilient education outcome compared to children whose foster parent scored them lower, when controlling for other variables in the model.

After considering all of the models, more specifically, the classification tables, the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 5 showed the "best fit" for predicting resilient education outcome. Therefore, the model with the greatest amount of explained variance for the resilient education outcome was best predicted by the following variables: presence of an identified learning issue, marital status of the primary caregiver, and foster parent's report of sociability.

4.1.2.5. Resilient overall outcome.

A forward entry sequential logistic regression was performed to assess the impact of the 12 independent variables on resilient overall outcome. A resilient overall outcome was calculated based on the child in out of home care reaching a resilient outcome across all four previously described resilient outcome measures: prosocial behaviour, friendship development, self-esteem, and educational outcomes. Table 12 shows regression coefficients, Wald statistics, Nagelkerke R-squared, odds ratios, and 95% confidence intervals for odds ratios in the sequential model. Of the 417 youth in out of home care, 41 were resilient overall (10% of the entire sample).

Table 12

Hierarchical Multiple Regression Analyses Predicting Overall Resilient Outcome (N = 417)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio		R^2
					Lower	Upper	
1							.03
	Current Age	-.17	2.88	.85	.70	1.03	
	Gender	-.52	2.41	.60	.31	1.15	
	(Constant)	.15	.01				
2							.04
	Current Age	-.17	2.55	.85	.69	1.04	
	Gender	-.55	2.70	.58	.30	1.11	
	Age at First Placement	-.04	.55	.96	.87	1.07	
	Reason for First Placement	.44	1.61	1.55	.79	3.05	
	Number of Caregivers Since Birth	-.10	.01	.91	.17	4.95	
	(Constant)	.23	.03				
3							.08
	Current Age	-.16	2.12	.86	.69	1.06	
	Gender	-.46	1.82	.63	.33	1.23	
	Age at First Placement	-.01	.02	.99	.88	1.12	
	Reason for First Placement	.40	1.31	1.49	.75	2.94	
	Number of Caregivers Since Birth	.31	.11	1.36	.23	8.25	
	Time in Current Placement	.27	1.19	1.31	.81	2.13	
	Type of Home	.84	.61	2.31	.28	18.87	
	Marital Status of Caregiver	.93	3.29	2.52	.93	6.86	
	(Constant)	-2.41	1.66				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.

* $p < .05$.

(*table continues*)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	95% Confidence Interval for Odds Ratio Upper	R^2
4							.16
	Current Age	-.16	2.09	.85	.69	1.06	
	Gender	-.34	.90	.72	.36	1.43	
	Age at First Placement	-.01	.04	.99	.88	1.11	
	Reason for First Placement	.46	1.63	1.58	.78	3.20	
	Number of Caregivers Since Birth	.65	.48	1.91	.30	11.97	
	Time in Current Placement	.16	.41	1.17	.72	1.91	
	Type of Home	.45	.17	1.57	.19	13.29	
	Marital Status of Caregiver	.86	2.72	2.37	.85	6.61	
	Close Bond	.37	1.06	1.45	.71	2.94	
	Parent Report Child Sociability	.45	13.26*	1.56	1.23	1.98	
	(Constant)	-5.89	7.51				
5							.22
	Current Age	-.19	2.82	.83	.67	1.03	
	Gender	-.14	.14	.87	.42	1.80	
	Age at First Placement	-.01	.05	.99	.87	1.11	
	Reason for First Placement	.34	.84	1.41	.68	2.92	
	Number of Caregivers Since Birth	.69	.53	1.99	.31	12.66	
	Time in Current Placement	.15	.37	1.17	.71	1.91	
	Type of Home	.14	.02	1.15	.13	9.93	
	Marital Status of Caregiver	.81	2.32	2.24	.79	6.33	
	Close Bond	.34	.79	1.40	.67	2.93	
	Parent Report Child Sociability	.32	6.27*	1.38	1.07	1.77	
	Presence of Learning Difficulties	-1.13	8.52*	.32	.15	.69	
	Distress	-.13	3.36	.88	.77	1.01	
	(Constant)	-3.19	1.88				

Note. Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0; Close Bond = 1, No Close Bond = 0; No Harm By Commission = 1, Harm By Commission = 0.
* $p < .05$.

A test of Model 1 was not statistically reliable, χ^2 (2, $\underline{N}$ = 417) = 5.11, p > .05, indicating that these two predictors together did not reliably differentiate between children who were resilient overall compared to children who were not.

A test of Model 2 was also not statistically reliable, χ^2 (5, $\underline{N}$ = 417) = 7.11, p > .05, indicating that the overall model did not reliably differentiate between children who were resilient overall and children who were not. This block itself was not statistically reliable either, as the addition of the three new predictor variables together did not add to the ability of the model to differentiate between children who were resilient overall compared to children who were not, χ^2 (3, $\underline{N}$ = 417) = 2.00, p > .05.

A test of Model 3 was again not statistically reliable, χ^2 (8, $\underline{N}$ = 417) = 15.45, p > .05, indicating that the overall model did not reliably differentiate between children who were resilient overall and children who were not. Of note was that the p-value for this model was p = .051, just over the acceptable p < .05 value. The block itself was statistically reliable as the addition of the three new predictor variables together contributed to reliably differentiate between children who were resilient overall compared to children who were not, χ^2 (3, $\underline{N}$ = 417) = 8.34, p < .05.

This model correctly classified 90.2% of cases, correctly predicting 100% of the children who were not resilient overall and 0% of those who were. In this model, a review of the classification table showed that although it nearly reached statistical significance, p = .051, the sensitivity of the model to accurately identify resilient children, the true positives, was 0%. Examination of this table therefore suggests that although nearly statistically significant, this model ought not to be considered acceptable. The Wald criterion further confirmed this, as it showed that no variables reliably predicted resilient overall outcome.

A test of Model 4 was statistically reliable, χ^2 (10, $\underline{N}$ = 417) = 33.50, $p < .05$, indicating that the overall model reliably differentiated between children who were resilient overall and children who were not. The block itself was also statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient overall compared to children who were not, χ^2 (2, $\underline{N}$ = 417) = 18.05, $p < .05$. This model correctly classified 90.2% of cases, correctly predicting 100% of the children who were not resilient overall and 0% of those who were. A review of the classification table showed that although it was statistically significant, the sensitivity of the model to accurately identify resilient children, the true positives, was 0%. Therefore, examination of this table would suggest that although statistically significant, this model ought to be interpreted with caution.

The Wald criterion showed that the only statistically significant predictor of resilient overall outcome was one of the new variables entered into the model, foster parent report of child sociability. The odds ratio for foster parent report of child sociability is 1.6, which indicates that children whose foster parent gave them higher scores on sociability were 1.6 times more likely to be resilient overall compared to children whose foster parent scored them lower, when controlling for other variables in the model.

A test of Model 5 was statistically reliable, χ^2 (12, $\underline{N}$ = 417) = 46.72, $p < .05$, indicating that the overall model reliably differentiated between children who were resilient overall and children who were not resilient overall. The block itself was also statistically reliable, as the addition of the two new predictor variables together contributed to reliably differentiate between children who were resilient overall compared to children who were not, χ^2 (2, $\underline{N}$ = 417) = 13.22, $p < .05$. This model correctly classified 90.2% of cases,

correctly predicting 99.7% of the children who were not resilient overall and 2.4% of those who were.

The Wald criterion showed that of the new variables entered into the model, presence of a learning problem played a statistically significant role in predicting resilient overall outcome. The Wald criterion also showed that foster parent report of child sociability continued to reliably predict resilient overall outcome.

In this model, the strongest predictor of resilient overall outcome was presence of a learning problem, with an odds ratio of .32. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds ratio can be interpreted as children in out of home care who do not currently have a learning problem are 3.3 times (1/.32) more likely to be resilient overall than children in out of home care who currently do, when controlling for other variables in the model. The other predictor in this model was parent reported child sociability, with an odds ratio of 1.4. This indicated that children whose foster parent rated them higher on sociability were 1.4 times more likely to achieve a resilient overall outcome compared to children whose foster parent rated them lower, when controlling for other variables in the model.

After considering all of the models, more specifically, the classification tables, with the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 5 showed the "best fit" for predicting resilient overall outcome. Therefore, the model with the greatest amount of explained variance for the resilient overall outcome was best predicted by the following two variables: presence of a learning issue and the foster parent's report of sociability.

4.2. Longitudinal Study

4.2.1. Descriptive analysis.

As with the cross-sectional data set, data were screened prior to analysis for missing values, outliers, and correlations among variables using two PASW programs, version 15.0 and version 17.0. Of the 417 children in the out of home care sample from year one, only 223 (53%) remained in out of home care and continued to participate in the study for year two. Of the 223 children, all were selected for analysis in this study. Missing value rates overall were comparable to those of the previous year's data collection, again ranging from 2–3% within each of the variables amongst the entire sample. The data were explored for deviation from randomness of responses and no significant deviation from randomness was observed. Schafer and Graham (2002) suggest using an EM (Expectation-Maximization) algorithm to address missing values in this type of data set, therefore all remaining missing values were imputed using the EM, Missing Values Analysis, PASW program, version 15.0. No significant outliers were observed based on standardised residual pattern criteria of above 3.3 and below –3.3.

Prior to analysis, data were also reviewed to ensure acceptable fit between variable distributions and to make sure that the assumptions necessary for logistic regression were met. Preliminary analyses were performed to ensure that the assumption of multicollinearity among predictor variables was not violated. Collinearity Diagnostics were conducted using the PASW program, version 17.0. The results from this assessment indicated acceptable Tolerance and Variance Inflation Factor (VIF) values amongst variables. Therefore, the assumption of multicollinearity has not been violated with the current data set.

The relationships among the four outcome domains—prosocial behaviour, education, social relationships, and self-esteem—and the predictor variables were investigated. In the larger cross-sectional part of this study, the Pearson product-moment correlation coefficients were computed. As the longitudinal dataset is a sample of the overall dataset, the correlation coefficients of the entire dataset are a more accurate estimate of the relationships among the variables. The correlations are displayed in Table 2. In the longitudinal component of this study, all of the predictor variables remained the same and were those used in year one, the cross-sectional part of this study. However, only predictors that were found to be statistically significant within each outcome domain in the cross-sectional component were used to predict outcome in the longitudinal part of this study. The means and standard deviations of the predictor and outcome variables for the longitudinal analysis are displayed in Table 13.

Table 13

Longitudinal Means and Standard Deviations of All Variables

Variable	Mean	Standard Deviation
1. Resilient Prosocial	0.66	0.47
2. Resilient Friendship	0.60	0.49
3. Resilient Self-Esteem	0.77	0.42
4. Resilient Education	0.18	0.38
5. Child's Gender	0.54	0.50
6. Child's Age	13.65	1.67
7. Age at First Placement	7.10	3.36
8. Reason for First Placement	0.52	0.50
9. Number of Caregivers Since Birth (log)	0.79	0.20
10. Years in Current Placement (sqrt)	1.60	0.79
11. Type of Home	0.90	0.30
12. Marital Status of Caregiver	0.70	0.46
13. Close Bond	0.49	0.50
14. Presence of Learning Difficulties	0.61	0.49
15. Distress	4.46	3.19
16. Parent Report Child Sociability	7.34	1.70

The operational definition for resilient outcome, as previously described, was applied to the second-year study sample and the resilient children were identified. Of the 223 children in year two, 20 (9%) met the criteria for overall resilience. The frequency and percentages of the categorical independent variables broken down into overall resilient children and overall non-resilient children in out of home care that were included in this study are displayed in Table 14.

Table 14

Frequency and Percentage of Categorical Independent Variables: Longitudinal

	Frequency (%)		
Independent Variable	Total	Non-Resilient	Resilient
Child Gender			
Male	121 (54.3)	117 (57.6)	4 (20.0)
Female	102 (45.7)	86 (42.4)	16 (80.0)
Reason for Placement			
Physical or Sexual harm	106 (47.5)	100 (49.3)	6 (30.0)
Abandonment or Caregiver Incapacity	117 (52.5)	103 (50.7)	14 (70.0)
Type of Home			
Foster	200 (89.7)	180 (88.7)	20 (100.0)
Group	23 (10.3)	23 (11.3)	0 (0.0)
Marital Status of Primary Caregiver			
Married	156 (70.0)	139 (68.5)	17 (85.0)
Other	67 (30.0)	64 (31.5)	3 (15.0)
Close Bond with Primary Caregiver			
Yes	110 (49.3)	101 (49.8)	9 (45.0)
No	113 (50.7)	102 (50.2)	11 (55.0)
Learning Difficulty			
Yes	135 (60.5)	129 (63.5)	6 (30.0)
No	88 (39.5)	74 (36.5)	14 (70.0)

There were three notable changes from the previous year's data. The first was that the percentage of resilient males went from 43.9% to 20%. The percentage of resilient children who were initially placed in out of home care due to physical or sexual harm in their home of origin went from 41.5% to 30%. The final change was that the percentage of resilient children who reported having a close bond with their primary caregiver went from 63.4% to 45.0%. Overall, these data show that the resilient and non-resilient children were

again comparable on many dimensions. However, using the Chi-square test, a statistically significant difference exists between the groups regarding gender ($p<0.001$), and the presence of a learning disability ($p=0.003$).

The mean and standard deviation of the continuous independent variables broken down into overall resilient children and overall non-resilient children in out of home care that were included in this study are displayed in Table 15. In comparison to the previous year, there were slight increases in the age at which the resilient children were first placed in out of home care, and a decrease in the number of caregivers since birth of the resilient children. On the whole, these data show that the resilient and non-resilient children were again comparable on many dimensions, with no statistically significant differences being detected regarding these factures between the two groups using the unpaired t-test. Nonetheless, on the average, children who were described as highly sociable by foster parent report and children with lower distress levels occurred in greater numbers within the overall resilient outcome group compared to children with the opposite circumstances.

Table 15

Mean and Standard Deviation of Continuous Independent Variables: Longitudinal

	Mean (SD)	
	Non-Resilient	Resilient
Current Age	12.7 (1.7)	12.7 (1.4)
Age First Placed in Out of Home Care	7.1 (3.3)	7.5 (3.6)
Number of Caregivers Since Birth	6.0 (3.6)	5.5 (4.0)
Number of Years in Current Placement	3.1 (2.8)	3.7 (2.7)
Distress	4.6 (3.2)	3.2 (3.2)
Parent Report of Child Sociability	7.3 (1.7)	8.0 (1.8)

Both screening of the data and results of the evaluation of assumptions successfully negotiated an acceptable data sample of 223 children in the year two sample. These

preliminary descriptive findings prompted further exploration of the year two study data at the multivariate level.

4.2.2. Multivariate analysis.

As with the cross-sectional study, a forward entry sequential logistic regression was performed to assess the impact of the previously identified independent variables in relation to the resilient outcomes: resilient prosocial outcome, resilient friendship outcome, resilient self-esteem outcome, resilient education outcome, and overall resilient outcome. Only the independent variables that had reached statistical significance in the cross-sectional component of this study were investigated within each outcome domain of the longitudinal component of the study. In addition, each model was controlled for the previous year's resilient outcome. All variables were entered into the logistic regression model using the same categories as in the cross-sectional analysis. For example, proximal variables such as age and gender were entered earlier into the models compared to more distal factors such as current distress level and learning difficulties.

4.2.2.1. Longitudinal resilient prosocial outcome.

Of the 12 independent variables investigated in the cross-sectional component of this study, five were identified as statistically significant predictors of resilient prosocial outcome: gender, type of placement, close bond with foster mother, current age, and foster parent report of sociability. A forward entry sequential logistic regression was performed to assess the impact of the five independent variables on the longitudinal data. In addition, to control for resilient prosocial outcome status from the previous year's data, the cross-sectional resilient prosocial outcome score was added as an independent variable. Table 16 shows regression coefficients, Wald statistics, Nagelkerke R-squared, odds ratios, and 95%

confidence intervals for odds ratios in the sequential model. Of the 223 youth in out of home care in year two, 148 were resilient on the prosocial outcome (66% of the entire sample).

Table 16

Hierarchical Multiple Regression Analyses Predicting Resilient Prosocial Outcome: Longitudinal (N = 223)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio		R^2
					Lower	Upper	
1							.13
	Resilient Prosocial Outcome yr 1	1.41	21.82*	4.11	2.27	7.44	
	(Constant)	-.18	.64				
2							.16
	Resilient Prosocial Outcome yr 1	1.30	16.30*	3.66	1.95	6.88	
	Current Age	.07	.55	1.07	.89	1.28	
	Gender	-.64	4.00*	.53	.28	.99	
	(Constant)	-.61	.24				
3							.16
	Resilient Prosocial Outcome yr 1	1.31	16.32*	3.72	1.97	7.03	
	Current Age	.07	.49	1.07	.89	1.28	
	Gender	-.66	4.10*	.52	.27	.98	
	Type of Home	-.16	.10	.85	.32	2.25	
	(Constant)	-.42	.09				
4							.18
	Resilient Prosocial Outcome yr 1	1.20	13.00*	3.33	1.73	6.40	
	Current Age	.07	.48	1.07	.89	1.28	
	Gender	-.71	4.60*	.49	.26	.94	
	Type of Home	-.29	.34	.75	.28	1.99	
	Close Bond	.50	2.61	1.65	.90	3.01	
	Parent Report of Child Sociability	.09	.96	1.10	.91	1.32	
	(Constant)	-1.12	.54				

Note. Resilient Prosocial Outcome yr 1 = 1, Not Resilient Prosocial Outcome yr 1 = 0; Male = 1, Female = 0; Foster Home = 1, Group Home = 0; Close Bond = 1, No Close Bond = 0.

* $p < .05$.

A test of Model 1 was statistically reliable, χ^2 (1, $\underline{N}$ = 223) = 22.64, $p < .05$, indicating that this predictor reliably differentiated between children who were resilient on prosocial behaviour compared to children who were not. Overall, this model correctly classified 69.5% of cases, correctly predicting 56.0% of the children who were not resilient on prosocial outcome and 76.4% of those who were.

Based on the Wald criterion, year one prosocial resilient outcome reliably predicted year two resilient prosocial outcome. In this model, the odds ratio for year one resilient prosocial outcome was 4.1. This indicates that children who were resilient on prosocial behaviour in year one were 4.1 times more likely to be resilient again in year two compared to children who were not resilient in year one.

A test of Model 2 was statistically reliable, χ^2 (3, $\underline{N}$ = 223) = 27.35, $p < .05$, indicating that these three predictors together reliably differentiated between children who were resilient on prosocial behaviour compared to children who were not. However, this block was not statistically reliable, as the addition of the two new predictor variables together did not add to the reliability of the model to differentiate between children who were resilient on prosocial behaviour compared to children who were not, χ^2 (2, $\underline{N}$ = 223) = 4.71, $p > .05$. Overall, this model correctly classified 72.2% of cases, correctly predicting 46.7% of the children who were not resilient on prosocial outcome and 85.1% of those who were.

Based on the Wald criterion, year one resilient prosocial outcome continued to reliably predicted year two resilient prosocial outcome. The Wald criterion also showed that the child's gender was a reliable predictor of resilient prosocial outcome. In this model, the strongest predictor of resilient prosocial outcome was resilient prosocial

outcome in year one, with an odds ratio of 3.7. This indicates that children who were resilient on prosocial behaviour in year one were 3.7 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model. The odds ratio for gender was .53. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds of female children in out of home care being resilient on prosocial outcome in year two were 1.9 times (1/.53) greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for the other factors in the model.

A test of Model 3 was statistically reliable, χ^2 (4, $\underline{N}$ = 223) = 27.45, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on prosocial behaviour and children who were not. However, the block itself was not statistically reliable, as the addition of the three new predictor variables together did not add to the reliability of the model to differentiate between children who were resilient on prosocial behaviour compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = .10, $p > .05$. Overall, this model correctly classified 72.2% of cases, correctly predicting 46.7% of the children who were not resilient on prosocial outcome and 85.1% of those who were.

Based on the Wald criterion, year one resilient prosocial outcome continued to reliably predicted year two resilient prosocial outcome. The Wald criterion also continued to show that the child's gender was a predictor for resilient prosocial outcome. In this model, the strongest predictor of resilient prosocial outcome was again resilient prosocial outcome from year one, with an odds ratio of 3.7. This indicates that children who were resilient on prosocial behaviour in year one were 3.7 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for

other variables in the model. The odds ratio for gender was .52. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds of female children in out of home care being resilient on prosocial outcome were 1.9 times (1/.52) greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for the other factors in the model.

A test of Model 4, the final model, was statistically reliable, χ^2 (6, $\underline{N}$ = 223) = 31.08, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on prosocial behaviour and children who were not. The block itself was again not statistically reliable, as the addition of the two new predictor variables together did not contribute to reliably differentiate between children who were resilient on prosocial behaviour compared to children who were not, χ^2 (2, $\underline{N}$ = 223) = 3.63, $p > .05$. Overall, this model correctly classified 70.9% of cases, correctly predicting 40.0% of the children who were not resilient on prosocial outcome and 86.5% of those who were.

Based on the Wald criterion, year one resilient prosocial outcome continued to reliably predicted year two resilient prosocial outcome. The Wald criterion also showed that the child's gender was again a reliable predictor for resilient prosocial outcome. In this model, the strongest predictor of resilient prosocial outcome was resilient prosocial outcome from year one, with an odds ratio of 3.3. This indicates that children who were resilient on prosocial behaviour in year one were 3.3 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model. The odds ratio for gender was .49. Given that this is less than 1, the inverse has been calculated for ease of reporting. Therefore, the odds of female children in out of home care being resilient on prosocial outcome were 2.0 times (1/.49)

greater than the odds of male children in out of home care being resilient on prosocial outcome, when controlling for the other factors in the model.

After considering all of the models, more specifically, the classification tables, with the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 4 showed the "best fit" for predicting prosocial outcome in year two. Therefore, the model with the greatest amount of explained variance for year two prosocial outcome was best predicted by the following variables: year one resilient prosocial outcome and child's gender.

4.2.2.2. Longitudinal resilient friendship outcome.

Of the 12 independent variables investigated in the cross-sectional component of this study, three were identified as statistically significant predictors of resilient friendship outcome: number of caregivers since birth, current distress level, and foster parent report of child sociability. A forward entry sequential logistic regression was performed to assess the impact of the three independent variables on the longitudinal data. In addition, to control for resilient friendship outcome status from the previous year's data, the cross-sectional resilient friendship outcome score was added as an independent variable. Table 17 shows regression coefficients, Wald statistics, Nagelkerke R-squared, odds ratios, and 95% confidence intervals for odds ratios in the sequential model. Of the 223 youth in out of home care in year two, 134 were resilient on the friendship outcome (60% of the entire sample).

Table 17

Hierarchical Multiple Regression Analyses Predicting Resilient Friendship Outcome: Longitudinal (N = 223)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	Upper	R^2
1							.09
	Resilient Friendship Outcome yr 1	1.12	15.23*	3.07	1.75	5.39	
	(Constant)	-.26	1.42				
2							.09
	Resilient Friendship Outcome yr 1	1.13	15.30*	3.08	1.75	5.42	
	Number of Caregivers Since Birth	-.36	.26	.70	.18	2.76	
	(Constant)	.02	.00				
3							.15
	Resilient Friendship Outcome yr 1	.922	9.53*	2.52	1.40	4.52	
	Number of Caregivers Since Birth	.05	.01	1.05	.25	4.41	
	Parent Report of Child Sociability	.28	9.51*	1.33	1.11	1.59	
	(Constant)	-2.22	5.54				
4							.17
	Resilient Friendship Outcome yr 1	.75	5.75*	2.12	1.15	3.93	
	Number of Caregivers Since Birth	.25	.11	1.29	.30	5.54	
	Parent Report of Child Sociability	.23	5.77*	1.26	1.04	1.52	
	Distress	-.10	3.39	.91	.82	1.01	
	(Constant)	-1.47	2.02				

Note. Resilient Friendship Outcome yr 1 = 1, Not Resilient Friendship Outcome yr 1 = 0.
* $p < .05$.

A test of Model 1 was statistically reliable, χ^2 (1, $\underline{N}$ = 223) = 15.68, $p < .05$, indicating that this predictor reliably differentiated between children who were resilient on friendship outcome compared to children who were not. Overall, this model correctly classified 65.0% of cases, correctly predicting 53.9% of the children who were not resilient on friendship outcome and 72.4% of those who were.

Based on the Wald criterion, year one friendship outcome reliably predicted year two resilient friendship outcome. In this model, the odds ratio for year one friendship outcome was 3.1. This indicates that children who were resilient on friendship outcome in year one were 3.1 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 2 was statistically reliable, χ^2 (2, $\underline{N}$ = 223) = 15.94, $p < .05$, indicating that these two predictors together reliably differentiated between children who were resilient on the friendship outcome compared to children who were not. However, this block was not statistically reliable as the addition of the new predictor variable did not add to the reliability of the model to differentiate between children who were resilient on the friendship outcome compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = .26, $p > .05$. Overall, this model correctly classified 65.0% of cases, correctly predicting 53.9% of the children who were not resilient on friendship outcome and 72.4% of those who were.

Based on the Wald criterion, year one resilient friendship outcome continued to reliably predicted year two resilient friendship outcome, $\underline{z}$ = 14.76, $\underline{p} < .05$. The odds ratio for year one resilient friendship outcome was 3.0, which indicates that children who were resilient on friendship outcome in year one were 3.0 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 3 was statistically reliable, χ^2 (3, $\underline{N}$ = 223) = 25.88, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the friendship outcome and children who were not. The block itself was also statistically reliable, as the addition of the new predictor variable contributed to

reliably differentiate between children who were resilient on friendship outcome compared to children who were not, χ^2 (1, N = 223) = 9.94, p < .05. Overall, this model correctly classified 69.1% of cases, correctly predicting 49.4% of the children who were not resilient on the friendship outcome and 82.1% of those who were.

Based on the Wald criterion, year one resilient friendship outcome continued to reliably predicted year two resilient friendship outcome. The odds ratio for year one resilient friendship outcome was 2.5, which indicates that children who were resilient on the friendship outcome in year one were 2.5 times more likely to be resilient in year two than children who were not, when controlling for the other factors in the model. The Wald criterion also showed that the new variable, parent report of child sociability, was also a predictor for resilient friendship outcome. The odds ratio for parent report of child sociability was 1.3, which suggests that children with a resilient friendship outcome were 1.3 times more likely to have higher scores on the foster parent report of sociability compared to children whose foster parent scored them lower, when controlling for the other variables in the model.

A test of Model 4 was statistically reliable, χ^2 (4, N = 223) = 29.32, p < .05, indicating that the overall model continued to reliably differentiate between children who were resilient on the friendship outcome and children who were not. However, the block itself was not found to be statistically reliable, as the addition of the new predictor variable did not contribute to reliably differentiate between children who were resilient on friendship outcome compared to children who were not, χ^2 (1, N = 223) = 3.44, p < .05. Overall, this model correctly classified 68.6% of cases, correctly predicting 51.7% of the children who were not resilient on the friendship outcome and 79.9% of those who were.

Based on the Wald criterion, year one resilient friendship outcome continued to reliably predicted year two resilient friendship outcome. Similarly, parent report of child sociability also continued to reliably predict year two resilient friendship outcome. In this model, the strongest predictor of resilient friendship outcome was again resilient friendship outcome from year one, with an odds ratio of 2.1. This indicates that children who were resilient on the friendship outcome in year one were 2.1 times more likely to be resilient again on the friendship outcome in year two compared to children who were not resilient in year one, when controlling for other variables in the model. The odds ratio for parent report of child sociability was 1.3, which suggests that children with a resilient friendship outcome were 1.3 times more likely to have higher scores on the foster parent report of sociability compared to children whose foster parent scored them lower, when controlling for the other variables in the model.

After considering all of the models, more specifically, the classification tables, with the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 4 showed the "best fit" for predicting friendship outcome. Therefore, the model with the greatest amount of explained variance for year two resilient friendship outcome was best predicted by year one resilient friendship outcome and foster parent's rating of child sociability.

4.2.2.3. Longitudinal resilient self-esteem outcome.

Of the 12 independent variables investigated in the cross-sectional component of this study, five were identified as statistically significant predictors of resilient self-esteem outcome: close bond with foster mother, number of years in the current placement, foster parent report of sociability, current age, and current distress level. A forward entry

sequential logistic regression was performed to assess the impact of the five independent variables on the longitudinal data. In addition, to control for resilient self-esteem outcome status from the previous year's data, the cross-sectional resilient self-esteem outcome score was added as an independent variable. Table 18 shows regression coefficients, Wald statistics, Nagelkerke R-squared, odds ratios, and 95% confidence intervals for odds ratios in the sequential model. Of the 223 youth in out of home care in year two, 171 were resilient on the self-esteem outcome (77% of the entire sample).

Table 18

Hierarchical Multiple Regression Analyses Predicting Resilient Self-Esteem Outcome: Longitudinal (N = 223)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio		R^2
					Lower	Upper	
1							.11
	Resilient Self-Esteem Outcome yr 1	1.46	16.84*	4.28	2.14	8.58	
	(Constant)	.13	.19				
2							.11
	Resilient Self-Esteem Outcome yr 1	1.44	16.27*	4.23	2.09	8.46	
	Current Age	-.05	.21	.96	.79	1.16	
	(Constant)	.75	.29				
3							.11
	Resilient Self-Esteem Outcome yr 1	1.39	14.01*	4.01	1.94	8.29	
	Current Age	-.05	.22	.96	.79	1.16	
	Time in Current Placement	.10	.22	1.11	.72	1.70	
	(Constant)	.61	.20				
4							.19
	Resilient Self-Esteem Outcome yr 1	1.18	9.63*	3.27	1.55	6.91	
	Current Age	-.04	.12	.97	.79	1.18	
	Time in Current Placement	-.11	.21	.90	.57	1.43	
	Close Bond	.69	3.82	2.00	1.00	3.99	
	Parent Report of Child Sociability	.33	8.92*	1.39	1.12	1.73	
	(Constant)	-1.71	1.20				

Note. Resilient Self-Esteem Outcome yr 1 = 1, Not Resilient Self-Esteem Outcome yr 1 = 0; Close Bond = 1, No Close Bond = 0.

* $p < .05$.

(*table continues*)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	Upper	R^2
5							.20
	Resilient Self-Esteem Outcome yr 1	1.06	7.26*	2.89	1.34	6.27	
	Current Age	-.04	.12	.97	.79	1.18	
	Time in Current Placement	-.13	.30	.88	.55	1.40	
	Close Bond	.62	2.97	1.85	.92	3.75	
	Parent Report of Child Sociability	.29	6.32*	1.34	1.07	1.69	
	Distress	-.07	1.46	.93	.83	1.05	
	(Constant)	-.91	.29				

Note. Resilient Self-Esteem Outcome yr 1 = 1, Not Resilient Self-Esteem Outcome yr 1 = 0; Close Bond = 1, No Close Bond = 0.
* $p < .05$.

A test of Model 1 was statistically reliable, χ^2 (1, $\underline{N}$ = 223) = 16.53, $p < .05$, indicating that this predictor reliably differentiated between children who were resilient on self-esteem outcome compared to children who were not. Overall, this model correctly classified 76.7% of cases, correctly predicting 0% of the children who were not resilient on self-esteem outcome and 100.0% of those who were. In this model, a review of the classification table showed that although it reached statistical significance, the sensitivity of the model to accurately identify resilient children, the true positives, was 0%. Examination of this table therefore suggests that although statistically significant, this model ought not to be considered acceptable.

Based on the Wald criterion, year one self-esteem outcome reliably predicted year two resilient self-esteem outcome. In this model, the odds ratio for year two self-esteem outcome was 4.3. This indicates that children who were resilient on self-esteem in year one were 4.3 times more likely to be resilient again on the self-esteem outcome in year two

compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 2 was statistically reliable, χ^2 (2, $\underline{N}$ = 223) = 16.74, $p < .05$, indicating that these two predictors together reliably differentiated between children who were resilient on the self-esteem outcome compared to children who were not. However, this block was not statistically reliable as the addition of the new predictor variable did not add to the reliability of the model to differentiate between children who were resilient on the self-esteem outcome compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = .21, $p > .05$. Overall, this model correctly classified 76.7% of cases, correctly predicting 0% of the children who were not resilient on self-esteem outcome and 100% of those who were. In this model, a review of the classification table showed that although it reached statistical significance, the sensitivity of the model to accurately identify resilient children, the true positives, was 0%. Examination of this table therefore suggests that although statistically significant, this model ought not to be considered acceptable.

Based on the Wald criterion, only year one resilient self-esteem outcome reliably predicted year two resilient self-esteem outcome. The odds ratio for year one resilient self-esteem outcome was 4.2, which indicates that children who were resilient on self-esteem outcome in year one were 4.2 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 3 was statistically reliable, χ^2 (3, $\underline{N}$ = 223) = 16.96, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the self-esteem outcome and children who were not. However, the block

itself was again not statistically reliable, as the addition of the new predictor variable did not add to the reliability of the model to differentiate between children who were resilient on the self-esteem outcome compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = .22, p > .05. Overall, this model correctly classified 75.3% of cases, correctly predicting 0% of the children who were not resilient on the self-esteem outcome and 98.2% of those who were. In this model, a review of the classification table showed that although it reached statistical significance, the sensitivity of the model to accurately identify resilient children, the true positives, was 0%. Examination of this table therefore suggests that although statistically significant, this model ought not to be considered acceptable.

Based on the Wald criterion, year one resilient self-esteem outcome continued to reliably predict year two resilient self-esteem outcome. The odds ratio for year one resilient self-esteem outcome was 4.0, which indicates that children who were resilient on the self-esteem outcome in year one were 4.0 times more likely to be resilient on self-esteem outcome in year two compared to children who were not resilient in year one, when controlling for the other factors in the model.

A test of Model 4 was statistically reliable, χ^2 (5, $\underline{N}$ = 223) = 29.91, p < .05, indicating that the overall model continued to reliably differentiate between children who were resilient on the self-esteem outcome and children who were not. The block itself was also statistically reliable, as the addition of the two new predictor variables together reliably contributed to differentiate between children who were resilient on self-esteem outcome compared to children who were not, χ^2 (2, $\underline{N}$ = 223) = 12.96, p < .05. Overall, this model correctly classified 79.4% of cases, correctly predicting 23.1% of the children who were not resilient on the self-esteem outcome and 96.5% of those who were.

Based on the Wald criterion, both year one resilient self-esteem outcome and foster parent report of child sociability reliably predicted year two resilient self-esteem outcome. The odds ratio for year one resilient self-esteem outcome was 3.3, which indicates that children who were resilient on the self-esteem outcome in year one were 3.3 times more likely to be resilient in year two compared to children who were not resilient in year one, when controlling for the other factors in the model. The odds ratio for foster parent report of child sociability was 1.4, which suggests that children with a resilient self-esteem outcome were 1.4 times more likely to have higher scores on the parent report of sociability compared to children whose foster parent scored them lower, when controlling for the other factors in the model.

A test of Model 5 was statistically reliable, χ^2 (6, $\underline{N}$ = 223) = 31.38, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the self-esteem outcome and children who were not. However, the block itself was not statistically reliable, as the addition of the new predictor variable did not contribute to reliably differentiate between children who were resilient on the self-esteem outcome compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = 1.47, $p > .05$. Overall, this model correctly classified 79.4% of cases, correctly predicting 25.0% of the children who were not resilient on the self-esteem outcome and 95.9% of those who were.

Based on the Wald criterion, year one resilient self-esteem outcome continued to reliably predict year two resilient self-esteem outcome, as did foster parent report of child sociability. In this model, the strongest predictor of resilient self-esteem outcome was resilient self-esteem outcome from year one, with an odds ratio of 2.9. This indicates that children who were resilient on the self-esteem outcome in year one were 2.9 times more

likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model. The odds ratio for foster parent report of child sociability was 1.3. This indicates that children with a resilient self-esteem outcome were 1.3 times more likely to have higher scores on the parent report sociability index compared to children whose foster parent scored them lower, when controlling for the other variables in the model.

After considering all of the models, more specifically, the classification tables, with the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 5 showed the "best fit" for predicting self-esteem outcome. Therefore, the model with the greatest amount of explained variance for year two self-esteem outcome was best predicted by year one resilient outcome of self-esteem and foster parent's rating of child sociability.

4.2.2.4. Longitudinal resilient education outcome.

Of the 12 independent variables investigated in the cross-sectional component of this study, three were identified as statistically significant predictors of resilient education outcome: presence of a learning issue, marital status of the primary caregiver, and foster parent report of sociability. A forward entry sequential logistic regression was performed to assess the impact of the three independent variables on the longitudinal data. In addition, to control for resilient education outcome status from the previous year's data, the cross-sectional resilient education outcome score was added as an independent variable. Table 19 shows regression coefficients, Wald statistics, Nagelkerke R-squared, odds ratios, and 95% confidence intervals for odds ratios in the sequential model. Of the 223 youth in out

of home care in year two, 40 were resilient on the education outcome (18% of the entire sample).

Table 19

Hierarchical Multiple Regression Analyses Predicting Resilient Education Outcome: Longitudinal (N = 223)

					95% Confidence Interval for Odds Ratio		
Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	Lower	Upper	R^2
1							.17
	Resilient Education Outcome yr 1	1.89	24.17*	6.63	3.12	14.08	
	(Constant)	-2.07	76.36				
2							.17
	Resilient Education Outcome yr 1	1.93	24.29*	6.86	3.19	14.74	
	Marital Status of Caregiver	-.25	.36	.78	.35	1.75	
	(Constant)	-1.91	29.41				
3							.17
	Resilient Education Outcome yr 1	1.85	20.21*	6.37	2.84	14.28	
	Marital Status of Caregiver	-.26	.40	.77	.34	1.73	
	Parent Report of Child Sociability	.06	.29	1.07	.85	1.34	
	(Constant)	-2.35	6.81				
4							.18
	Resilient Education Outcome yr 1	1.72	16.70*	5.61	2.45	12.83	
	Marital Status of Caregiver	-.33	.61	.72	.32	1.63	
	Parent Report of Child Sociability	.05	.21	1.06	.84	1.33	
	Presence of Learning Difficulties	-.52	1.75	.60	.28	1.28	
	(Constant)	-1.93	4.09				

Note. Resilient Education Outcome yr 1 = 1, Not Resilient Education Outcome yr 1 = 0; Learning Difficulties = 1, No Learning Difficulties = 0; Married = 1, Other = 0.
* $p < .05$.

A test of Model 1 was statistically reliable, χ^2 (1, $\underline{N}$ = 223) = 23.84, $p < .05$, indicating that this predictor reliably differentiated between children who were resilient on

education compared to children who were not. Overall, this model correctly classified 82.1% of cases, correctly predicting 100% of the children who were not resilient on education outcome and 0% of those who were resilient. A review of the classification table for this model showed that although the model reached statistical significance, the specificity of the model to accurately identify non-resilient children, the true negatives was 0%. A closer look at this table suggests that although statistically significant, this model ought not to be considered acceptable.

Based on the Wald criterion, year one resilient education outcome reliably predicted year two resilient education outcome. In this model, the odds ratio for year two education was 6.6. This indicates that children who were resilient on education in year one were 6.6 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 2 was statistically reliable, χ^2 (2, $\underline{N}$ = 223) = 24.20, $p < .05$, indicating that these two predictors together reliably differentiated between children who were resilient on the education outcome compared to children who were not. This block was not statistically reliable, as the addition of the new predictor variable did not add to the reliability of the model to differentiate between children who were resilient on education outcome compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = .36, $p > .05$. Overall, this model correctly classified 80.7% of cases, correctly predicting 96.7% of the children who were not resilient on education outcome and 7.5% of the children who were.

Based on the Wald criterion, year one resilient education outcome and gender reliably predicted year two resilient education outcome. The odds ratio for year one resilient education outcome was 6.9, which indicates that children who were resilient on

education in year one were 6.9 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 3 was statistically reliable, χ^2 (3, $\underline{N}$ = 223) = 24.49, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the education outcome and children who were not. However, the block itself was not statistically reliable, as the addition of the new predictor variable did not add to the reliability of the model to differentiate between children who were resilient on the education outcome compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = .29, $p > .05$. Overall, this model correctly classified 81.2% of cases, correctly predicting 97.8% of the children who were not resilient on the education outcome and 5.0% of those who were.

Based on the Wald criterion, year one resilient education outcome reliably predicted year two resilient education outcome. The odds ratio for year one resilient education outcome was 6.4, which indicates that children who were resilient on education in year one were 6.4 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 4 was statistically reliable, χ^2 (4, $\underline{N}$ = 223) = 26.22, $p < .05$, indicating that the overall model continued to reliably differentiate between children who were resilient on the education outcome and children who were not. The block itself was not statistically reliable, as the addition of the new predictor variable did not contribute to reliably differentiate between children who were resilient on education outcome compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = 1.74, $p > .05$. Overall, this model correctly

classified 84.8% of cases, correctly predicting 98.4% of the children who were not resilient on the education outcome and 22.5% of those who were .

Based on the Wald criterion, year one resilient education outcome reliably predicted year two resilient education outcome. The odds ratio for year one resilient education outcome was 5.6, which indicates that children who were resilient on education in year one were 5.6 times more likely to be resilient again in year two compared to children who were not resilient in year one, when controlling for other variables in the model.

After considering all of the models, more specifically, the classification tables, with the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 4 showed the "best fit" for predicting education outcome. Therefore, the model with the greatest amount of explained variance for year two education was best predicted by year one resilient outcome of education.

4.2.2.5. Longitudinal resilient overall outcome.

Of the 12 independent variables investigated in the cross-sectional component of this study, two were identified as statistically significant predictors of resilient overall outcome: parent report of child sociability and presence of a learning issue. A forward entry sequential logistic regression was performed to assess the impact of the two independent variables on the longitudinal data. In addition, to control for resilient overall outcome status from the previous year's data, the cross-sectional resilient overall outcome score was added as an independent variable. Table 20 shows regression coefficients, Wald statistics, Nagelkerke R-squared, odds ratios, and 95% confidence intervals for odds ratios in the sequential model. Of the 223 youth in out of home care in year two, 20 were resilient overall (9% of the entire sample).

Table 20

Hierarchical Multiple Regression Analyses Predicting Overall Resilient Outcome: Longitudinal (N = 223)

Model	Variables	*B*	Wald Test (z-ratio)	Odds Ratio	95% Confidence Interval for Odds Ratio Lower	Upper	R^2
1							.21
	Resilient Overall Outcome yr 1	2.60	24.48*	13.50	4.82	37.85	
	(Constant)	-2.94	82.05				
2							.22
	Resilient Overall Outcome yr 1	2.51	20.27*	12.30	4.13	36.69	
	Parent Report of Child Sociability	.08	.23	1.08	.79	1.48	
	(Constant)	-3.49	8.10				
3							.25
	Resilient Overall Outcome yr 1	2.33	16.66*	10.23	3.35	31.25	
	Parent Report of Child Sociability	.04	.07	1.04	.76	1.43	
	Presence of a Learning Issue	-1.04	3.58	.36	.12	1.04	
	(Constant)	-2.71	4.54				

Note. Resilient Overall Outcome yr 1 = 1, Not Resilient Overall Outcome yr 1 = 0; Learning Difficulties = 1, No Learning Difficulties = 0.
* $p < .05$.

A test of Model 1 was statistically reliable, χ^2 (1, $\underline{N}$ = 223) = 22.70, $p < .05$, indicating that this predictor reliably differentiated between children who were resilient overall in year two compared to children who were not. This model correctly classified 91.0% of cases, correctly predicting 100% of the children who were not resilient overall and 0% of those who were. A review of the classification table for this model showed that although the model reached statistical significance, the specificity of the model to accurately identify non-resilient children, the true negatives, was 0%. A closer look at this

table suggests that although statistically significant, this model ought not to be considered acceptable.

Based on the Wald criterion, year one overall resilience reliably predicted year two overall resilience. In this model, the odds ratio for year two overall resilience was 13.5. This indicates that children who were resilient overall in year one were almost 14 times more likely to be resilient overall in year two compared to children who were not, when controlling for other variables in the model.

A test of Model 2 was statistically reliable, χ^2 (2, $\underline{N}$ = 223) = 22.93, $p < .05$, indicating that these two predictors together reliably differentiated between children who were resilient overall in year two compared to children who were not. This block was not statistically reliable, as the addition of the new predictor variable did not add to the reliability of the model to differentiate between children who were resilient overall compared to children who were not, χ^2 (1, $\underline{N}$ = 223) = .23, $p > .05$. This model correctly classified 91.0% of cases, correctly predicting 100.0% of the children who were not resilient overall and 0% of those who were resilient. A review of the classification table for this model showed that although the model reached statistical significance, the specificity of the model to accurately identify non-resilient children, the true negatives, was 0%. A closer look at this table suggests that although statistically significant, this model ought not to be considered acceptable.

Based on the Wald criterion, only year one resilient overall outcome reliably predicted year two overall resilience. The odds ratio for year one overall resilience was 12.3, which indicates that children who were resilient overall in year one were 12.3 times

more likely to be resilient overall again compared to children who were not resilient in year one, when controlling for other variables in the model.

A test of Model 3 was statistically reliable, χ^2 (3, N = 223) = 26.66, p < .05, indicating that the overall model continued to reliably differentiate between children who were overall resilient and children who were not. However, the block itself was not statistically reliable, as the addition of the new predictor variable did not add to the reliability of the model to differentiate between children who were resilient overall compared to children who were not, χ^2 (1, N = 223) = 3.73, p > .05. This model correctly classified 91.2% of cases, correctly predicting 98.0% of the children who were not resilient overall and 30.0% of those who were.

Based on the Wald criterion, year one resilient overall outcome was the only variable that reliably predicted year two overall resilience. The odds ratio for year one overall resilience was 10.2, which indicates that children who were resilient overall in year one were 10.2 times more likely to be resilient overall again compared to children who were not overall resilient in year one, when controlling for other variables in the model.

After considering all of the models, more specifically, the classification tables, with the greatest variance explained by each set of variables using the Nagelkerke R-squared and Wald criterion significance tests, Model 3 showed the "best fit" for predicting overall resilience. Therefore, the model with the greatest amount of explained variance for year two overall resilience was best predicted by year one overall resilient outcome.

4.3. Highly Resilient Youth

Data were further examined to determine which children in out of home care were resilient overall in year one and again in year two. Of the 417 children in the year one

sample, 41 (10%) were found to be resilient overall. Of the 223 children in the year two sample, 20 (9%) were found to be resilient overall. These findings are consistent with previous research showing that approximately 10% of children in out of home care are resilient from the person-focused perspective (Bolger & Paterson, 2003). Of the 223 children who remained in the study across both years, only 10 (4%) were found to be resilient overall for both years. This very small sample size prevented any analysis at the multivariate level. Analysis was therefore limited to descriptive techniques. The frequency and percentages of the categorical independent variables for children resilient overall in both years are displayed in Table 21.

Table 21

Frequency and Percentage of Categorical Independent Variables among Highly Resilient Children

	Frequency (%)
Independent Variable	
Child Gender	
Male	2 (20.0)
Female	8 (80.0)
Reason for Placement	
Physical or Sexual Harm	2 (20.0)
Abandonment or Caregiver Incapacity	8 (80.0)
Type of Home	
Foster	10 (100.0)
Group	0 (0.0)
Marital Status of Primary Caregiver	
Married	10 (100.0)
Other	0 (0.0)
Close Bond with Primary Caregiver	
Yes	6 (60.0)
No	4 (40.0)
Learning Difficulty	
No	9 (90.0)
Yes	1 (10.0)

Of the children who were resilient overall for both years, 80% were girls, 60% reported a close bond with their primary caregiver, 20% were placed in out of home care due to physical or sexual harm, 90% did not have a learning difficulty, 100% lived in foster homes, and 100% lived with a primary caregiver who was married. The mean and standard

deviations of the continuous independent variables for children resilient overall in both years are displayed in Table 22.

Table 22

Means and Standard Deviations of Continuous Independent Variables among Highly Resilient Children

Variable	Mean	Standard Deviation
Child's Age	12.6	1.71
Age at First Placement	6.30	3.77
Number of Caregivers Since Birth	4.70	3.37
Time in Current Placement	4.29	3.22
Distress	1.80	2.15
Parent Report of Child Sociability	8.60	1.65

The children who were resilient overall for both years also showed lower levels of current distress, their age of first placement in care was slightly lower, and their foster parent's report of sociability was slightly higher compared to children who were not overall resilient in both years. Due to the small sample size of this group of resilient children over both years, no statistical analyses of these observations was performed, therefore no interpretation or conclusions are made.

Discussion

5.1. Variable-Focused Resilience, Year One

The primary purpose of the present study was to determine what factors are associated with a resilient outcome among children in out of home care within the defined areas of prosocial functioning, friendships, self-esteem, and education. The results from the sequential logistic regression analyses showed notable support for many of the proposed hypotheses presented earlier. The factors found to be associated with the variable-focused outcomes are discussed below. A secondary purpose of the present study was to learn what factors might predict a resilient outcome over a one-year time period within each of the defined areas of functioning. The results of these longitudinal sequential logistic regression analyses are also discussed below.

5.1.1. Hypotheses related to current age

It was hypothesized that an increase in current age of the child in out of home placement would negatively impact the odds of a resilient outcome among the dimensions. More specifically, the ability to adjust to new environments and changes of friends in new schools or neighbourhoods would impact more negatively on the older youth compared to the younger youth, thereby resulting in decreased odds of a resilient outcome. The results supported this hypothesis in the areas of prosocial behaviour and self-esteem. These findings are consistent with previous research by Barber et al. (2001), who reported that foster care is best suited for younger children. Contrary to Barber et al. (2001), no statistically significant predictive association was found between current age and resilient relationships with friends outcome or resilient educational performance outcome in the present study. This finding suggests that educational performance and social relatedness

are stable and not impacted by age, regardless of life circumstance. It is important to note that the age range selected for this study was too narrow, thereby limiting the effect size within the data and the ability to detect a statistically significant relationship within these two other domains.

5.1.2. Hypotheses related to distress

Higher distress has previously been found to impact resilient outcomes (Barber et al., 2001; Farber & Egeland, 1987; Fergusson & Horwood, 2003; Werner & Smith, 1992, 2001; Werner, 2005). The results of the present study supported these findings in the area of friendships and self-esteem. Higher distress levels were found to impede the child's ability to form new friendships, which can be an important component of adjustment to a new foster home and environment. Children who experience higher levels of distress and anxiety are also likely to be more sensitive and to actively compare and contrast their experiences with their peers. This behaviour can lead to lower self-esteem and perceptions of self-worth. Interestingly, the present study showed that higher levels of distress did not impact resilient prosocial behaviour outcome or resilient education outcome within this sample.

5.1.3. Hypotheses related to learning difficulties

The presence of a learning problem along with an unsuccessful school experience has been shown in numerous studies to be a major predictor of non-resilient outcome (Fergusson & Lynskey, 1996; Hetherington, 1989; Schoon, 2001; Wadsworth, 1999; Werner & Smith, 1992, 2001; Stein et al., 1996; Caldwell et al., 1984; Masten & Reed, 2002; Werner, 2005). In this study, it was hypothesized that absence of an identified learning issue would predict resilient outcomes. Not surprisingly, this hypothesis was

supported in the area of resilient educational outcome. Although it was hypothesized that the presence of a learning difficulty would be related to non-resilient outcome across all four domains, it was very much expected that the presence of an identified learning problem would predict education resilience, as they are closely related variables. It was surprising that this variable did not predict resilience within any other domain.

The absence of learning problems was also found to be associated with an overall resilient outcome. Among the children in out of home care, the lack of a learning problem contributed positively to the overall, or person-focused, resilient outcome. Given that children spend anywhere from 30 or more hours per week at school, it is not surprising that having a successful experience at school would contribute to an overall resilient outcome, especially amongst children who are experiencing turmoil at home. However, contrary to the other related hypotheses in the present study, as well as the findings of the researchers presented in the previous paragraph, the presence of a learning problem did not predict resilient prosocial, friendship, or self-esteem outcomes. These findings suggest that this construct may not accurately measure "learning problems". The prediction here may be the result of the strong relationship between education outcome and learning problems. This issue will be discussed in greater detail later.

5.1.4. Hypotheses related to age of first placement

The hypothesis that children who were placed in out of home care at a younger age would have decreased odds of resilient outcome was not supported in this study's findings. A young age at first out of home placement has been described by previous researchers as a factor contributing to lack of resilient outcomes (Stein et al., 1996; Steinhauer, 1998). Among these researchers, the consensus is that the younger the child when removed from

his or her home of origin, namely below the age of five, the poorer the outcome. The variable "age of first placement in out of home care" was entered into the logistic regression model as a continuous variable rather than a dichotomous one; this likely led to a lower degree of statistical power, which in turn limited the finding of meaningful differences for each year increment in age. Future studies using logistic regression analyses should dichotomize this variable (under five versus over five) to increase the power and ability to detect a difference between children entering the foster system at a young age.

5.1.5. Hypotheses related to reason for first placement

Considerable research has been published on the impact that active maltreatment—versus neglect and other non-active reasons for removal from home of origin—has on resilient outcome (Stein et al., 1996; Barber et al., 2001; Silverman et al., 1996). It was hypothesized in the present study that no active maltreatment would result in increased odds of resilient outcome among the four domains. The findings did not support this hypothesis. It is possible that our sample size was too small to detect a statistically significant difference between active maltreatment and other reasons for removal from the home. Alternatively, the operational definition of "active maltreatment" used in the present study was broader than that of the researchers stated above. For example, differences have been shown when comparing sexual abuse to physical abuse as reasons for first placement, whereas in this study these two forms of maltreatment were combined. This variation in operational definitions between this study and previous studies could have led to this inconsistency in findings.

5.1.6. Hypotheses related to the number of caregivers since birth

Barber et al. (2001) have shown that a lower number of out of home placements since birth is strongly related to a good child outcome. In the present study, it was hypothesized that higher numbers of caregivers would result in decreased resilient outcomes for children, noting that the number of caregivers since birth was used as a proxy for number of placements since birth. The present study found a relationship between the number of caregivers and resilient friendship outcome; however, the relationship was the inverse of the hypothesis. Interestingly, these findings suggest that as the number of primary caregivers increases, the ability of the child in out of home care to develop and maintain friendships also increases. These findings are not consistent with the previous research in this area, but it is possible that youths in foster care who experience a larger number of placements begin to rely on their friendships more than youths who have not moved as often. Youths with a greater number of placements, and therefore less stability, might then place greater value on their friendships and as a result show comparable scores on the friendship scale to children in the general population. It may be that we are seeing some youth overcompensate within their friendships for the lack of ability to develop relationships with their caregivers. The findings from this study did not support the relationship between number of caregivers since birth and resilient prosocial, self-esteem, education, and overall outcome.

5.1.7. Hypotheses related to the length of time in current placement

The length of time in current placement has been described as a factor associated with resilient child outcome (Steinhauer, 1998). Steinhauer reported that children with longer stays in the same home show greater functioning. In the present study it was

hypothesized that increased amount of time in current placement would result in greater odds of resilient outcome. This hypothesis was supported in the area of resilient self-esteem, but was not supported in resilient prosocial, friendship, or educational performance outcome. The positive effect that longer stays in placements was found to have on self-esteem can likely be explained by the continuity in care and daily routine that minimizes the constant state of readjustments to new environments and new expectations from foster families. Furthermore, each time a placement breakdown occurs, regardless of the reason, the youth in care will typically be adversely affected as his or her self-concept suffers another negative blow.

5.1.8. Hypotheses related to type of placement

In the present study it was hypothesized that children placed in foster homes would be more likely to have a resilient outcome compared to children placed in group homes. Gaudin and Sutphin (1993) have shown that living in a foster home increases the odds of resilient outcome compared to living in a group home. It is again important to note that children in care are streamed into group and foster homes. For example, youths deemed too difficult for a foster home situation, or youths who have exhausted their foster home options, are placed in group homes. It is therefore important to consider that in many cases youths in foster homes are already considered to be faring better than their peers in group homes. Although it is important to investigate this variable, these two groups are confounded by the fact that preselection for placement has already taken place with a focus on existing child adjustment factors.

In the present study, the hypothesis was supported with regards to resilient prosocial outcome but not supported in the other outcome domains. It is interesting that home type

did not result in resilient outcome across the other domains, particularly in the areas of education and self-esteem. The "tougher" environment associated with a group home would result in a decrease in prosocial behaviours because these behaviours could be viewed as signs of weakness. However, as noted above, preselection of prosocial ability as assessed by the social worker assigned to the youth will have confounded this measure of prosocial resilience for this item. Therefore, these findings ought to be interpreted with caution.

5.1.9. Hypotheses related to the marital status of the primary caregiver

In the present study it was hypothesized that children and youth living with a married primary caregiver would have greater odds of resilient outcomes than children whose primary caregiver was not married. Simms and Horwitz (1996) stated that marital status of the primary caregiver has been shown to increase the odds of good outcome among children and youths in foster care. This hypothesis was supported by the findings in the present study in the domain of resilient education outcome but was not supported in the other domains. Greater support for school work and decreased stress among married couples facilitate the child's ability to make school work a greater priority compared to children living in single parent families.

5.1.10. Hypotheses related to close bond with primary caregiver

A close bond with the primary caregiver has been well documented in the research literature as an important factor in predicting resilient outcome (Cederblad, 1996; Fergusson & Horwood, 2003; Losel & Bliesener, 1990; Mednick et al., 1987; Seifer, 2003; Werner & Smith, 1992, 2001; Masten & Reed, 2002). In the present study it was hypothesized that children experiencing a close bond with their primary caregiver would be

more likely to be resilient compared to children without that bond. The hypothesis was supported by the findings in the area of resilient self-esteem outcome and prosocial outcome, but no association was found with the other two dimensions. Children with a close bond were much more likely to be resilient in the area of self-esteem because the security of a close bond with a caregiver would allow for the development of confidence as well as promoting a sense of self-worth. The increased communication and greater self-esteem associated with a close bond with the primary caregiver facilitates child prosocial behaviour and ease of interacting with other adults and peers.

5.1.11. Hypotheses related to parent report of child sociability

In the present study it was hypothesised that high child sociability was related to resilient outcomes. The findings supported the hypotheses in all of the dimensions. These results are consistent with previous research findings by Farber and Egeland (1987), Losel and Bliesener (1990), Werner and Smith (1992), Werner and Smith (2001), Barber et al. (2001), and Masten and Reed (2002). The findings of the present study confirmed that parental reporting of the child's sociability predicts resilient outcomes. The child's ability to socialize appropriately and get along well with the primary caregiver, teacher, and friends empowers the child and allows for better functioning in all of the dimensions measured in this study.

5.1.12. Hypotheses related to gender

In the present study it was hypothesized that females had greater odds of resilient outcomes compared to males. The findings supported the hypotheses on the prosocial dimension. The present study findings also support previous findings by Barber & Delfabro (2004) that suggest that female adjustment to foster care is more stable than for

males. Interestingly, at the one-year follow-up it was found that being female continued to increase the odds of resilient prosocial outcome. One explanation is that the internalizing means of coping, more often employed by females, results in less disruption in the foster home and greater overall satisfaction for the foster parent(s). Furthermore, girls are more likely to seek out their peers for support during stressful times rather than employing aggressive and isolating behaviours more typically associated with adolescent males.

5.2. Variable-Focused Resilience, Year Two

The purpose of the longitudinal study was to investigate what factors were associated with a resilient outcome over a one-year time period. In the present study, it was hypothesized that resilience in year two would remain stable. Therefore, year two resilient outcome would be predicted by year one resilient outcome on each of the dimensions. The findings supported these hypotheses for all of the dimensions.

In addition to the previous year's resilient outcome successfully predicting year two resilient outcome, two variable specific factors were also found to be predictive of resilient outcome. Female gender was found to predict resilient prosocial behaviour in year two, and parent report of child sociability was found to predict resilient relationship with friends and self-esteem in year two. From these findings we can see that factors over and above the previous year's resilient outcome status impact future resilient outcomes.

5.3. Person-Focused Resilience

Another aim of this study was to determine what factors were associated with an overall resilient outcome among children in out of home care. Resilient overall referred to children and youth who were resilient in all four domains. As previously reported, of the 417 children in the year one sample, 41 (10%) were found to be resilient overall, and of the

223 children in the year two sample, 20 (9%) were found to be resilient overall. These findings are consistent with previous research showing that approximately 10% of children in out of home care are resilient from the person-focused perspective (Bolger & Paterson, 2003). Of note is that although Bolger and Paterson (2003) assessed different measures of resilience within the out of home care population, the overall conclusion that approximately 10% of children in out of home care are resilient from a person-focused perspective was congruent with this study's findings.

The present study found that absence of learning problems and high sociability ranking by the primary caregiver predicted overall resilient outcome. As with the variable-focused analysis, resilient overall status was investigated again in year two. The findings from that investigation showed that, as expected, year one overall resilient outcome predicted year two overall resilient outcome. This finding suggests that overall resilience is generally predictable year to year; however, interpretation of these findings warrants caution due to the large attrition rate in year two. Moreover, data was not collected on the youths who exited the out of home care system, creating substantial sampling issues for the year two data. It is not clear why the level of attrition was so high, nor can we be sure how many of the youths who were resilient in year one continued to be resilient in year two but were no longer part of the study.

Highly Resilient Youth: As previously described, highly resilient youths were identified in the present study. Highly resilient youths were defined as children and youths who were resilient overall in year one and again in year two. As might be expected, the number of "highly" resilient children was small. Nonetheless, of the 223 children who remained in the study in year two, 4% were highly resilient. Given that only 10 of the 223

in the year two sample were identified as "highly" resilient, a formal statistical analysis was not feasible. The findings presented below warrant only brief consideration as qualitative observations but not as empirical evidence-based findings.

The findings were consistent with the present study's original variable-level hypotheses and previous research findings, with the exception of the variable "close bond with primary caregiver". In contrast with previous research in this area (Cederblad, 1996; Fergusson & Horwood, 2003; Seifer, 2003; Werner & Smith, 1992, 2001), a close bond with the primary caregiver was observed among 6 out of the 10 highly resilient children. Based on the previous research, the expected impact of a close bond on the highly resilient youths would be greater. Tremendous caution is warranted in interpreting these findings, particularly since they represent only qualitative observations on an extremely small sample size.

5.4. Limitations

Inherent to any human research are limiting factors, and the present study is no exception. Among these are the constraints associated with retrospective analysis of survey data. One of the greatest constraints is the pre-determined limitation of study variables. In particular, this study was restricted to those variables that were previously gathered using the AAR and NLSCY. Although a significant drawback, it is equally as important to consider the advantages of using retrospective data. For example, we as researchers have ethical obligations to employ valuable existing data to answer research questions, when possible. In addition, the well-being of study participants and their responses to data collection in relation to sensitive topics should be considered prior to gathering prospective data, if retrospective data exists. The topics of previous placements, history of abuse, and

the like are sensitive and therefore should be avoided if the information is already available, as was the case with the present study using the AAR. Furthermore, a study of this size would not have been possible without incorporating the social workers and additional administrative staff needed for follow-up, along with the significant expense associated with such an endeavour. The emphasis here was to gather baseline information on Canadian children in out of home care using general Canadian population norms as comparisons for resilience, with the goal of building from these findings in future studies. This foundational study of resilience among youth in out of home care in Ontario was limited in many ways by using retrospective data; however; after consideration, the benefits of a large population study pool such as was used the AAR and the NLSCY outweighed the loss of variable availability.

The validation of the scales employed in the NLSCY has come under notable scrutiny. Initially, some scales in the NLSCY were reconstructed to include some parts of empirically based scales mixed together with questions from other empirically based scales. In other cases new questions were added. For example, the prosocial behaviour scale used in the present study contains items from the Ontario Child Health Study (Boyle et al., 1993) and some items from the Montreal Longitudinal Survey (Tremblay et al., 2003). Some other scales that were not used in this study have been shortened from their original versions. For example, the Centre for Epidemiological Studies Depression Scale (CES-D) was shortened and has since undergone a validity study (Poulin, Hand, & Boudreau, 2005).

The results of that validity study showed that the authors were content with the degree to which inferences about depression were made while employing the NLSCY data.

A post hoc test-retest analysis was conducted to determine the level of internal consistency reliability specific to the outcome domain scores in year one to year two. Using Pearson Correlation, the test-retest scores were $r(223) = .44$, $p < .01$ for the prosocial outcome, $r(223) = .44$, $p < .01$ for the friendship outcome, $r(223) = .35$, $p < .01$ for the self esteem outcome, and $r(223) = .51$, $p < .01$ for the education outcome. The highest correlation was for the education outcome which was expected. Nonetheless the correlations were low. The scores for each of these domains would be expected to fluctuate over the year between testing in time 1 and time 2. Samuel Messeck (1989) warns that a degree of stability associated with the constructs under investigation is necessary to evaluate construct validity using a test-retest analysis. He suggests that in these circumstances a chronbach's alpha is sufficient, if a factor analysis is not being undertaken.

In an effort to rectify the concern regarding the scale validity within the NLSCY, a factor analysis was performed to establish the constructs and factors identified in each scale. The scale scores were then calculated based on this factor structure and reliability measures were performed. Although this strategy aided with the internal consistency and reliability of the scales contained in the NLSCY, it did not directly address the concern about inferences made from some of the scales. Furthermore, a review of the NLSCY in October, 1996 by Delphi panellists resulted in further discussion regarding the lack of validation of the existing measures. One of the suggestions resulting from that review was that "validating the existing measures should be one of the NLSCY's main priorities for improving the survey" (Statistics Canada, Evaluation, Section 4.0, p. 10).

Despite these measurement issues, the need to monitor the well-being of children in child welfare systems remains of great concern. It is not always feasible to use large-scale

questionnaires for population research, and in some cases original scales need to be shortened or reworked to optimize the data gathered. However, in this case further validation of these scales is needed. The lack of validation of scales used in the LAC taken from the NLSCY represents a limitation of this study. Nonetheless, the findings from the present study are relevant from a population exploratory standpoint. Although in this study clinical cut points were not used, some factors impacting resilient outcome among children in out of home care have been identified in a broad manner. Future research must now take a more microscopic approach to solidify these findings. The use of the original scales and more in-depth questioning should take place to confirm the findings of this exploratory study. The LAC has been criticized for not having an outcome measure per say, but its usefulness as a monitoring tool that aids in the development of a comprehensive case plan outweighs its shortfalls. Moreover, the scales used in the NLSCY and then the LAC serve a monitoring function, not a clinical one. In this study, the findings from these monitoring tools has allowed us to gain insight into how children in out of home care are functioning compared to children in the general population. It is therefore important to note that further research is needed to specify the impact of the factors identified in this study as contributing to a resilient outcome among children in foster care.

Additional limitations include the presence of self-report bias and the lack of information gathered regarding the nature of the meetings within which the data was gathered. It is possible that the youths may have misrepresented themselves in order to serve an ulterior motive such as to remain in their current placement if a change was pending, or conversely to be removed from their current placement if they were not satisfied there. The youth was responsible for answering the majority of the questions

taken from the NLSCY and the AAR. We do not have information regarding any differences in opinions that may have taken place between the social worker, foster parent, and youth in foster care over the course of the completion of the questionnaire. The subjectivity related to youth self-report measures warrants concern regarding the validity of the measures and therefore of the findings of this study. The accuracy of the self-report measures coupled with the possibility of reporting in a socially desirable manner in the presence of the case worker decreases the validity of the study findings. A comparison of parent report and youth report on similar items would have been beneficial for a cross-comparison, allowing for an increase in the validity of findings, but this data was not available.

Another limitation of this study involved a notable overlap between two of the variables, which has confounded some of the findings. The confounding exists between the presence of a learning issue variable and the resilient education outcome variable. Regarding the first variable, one would naturally expect it to predict resilient education outcome. The presence of a learning issue may also impact one or all of the factors that made up the resilient education outcome variable: reading, mathematics, and overall school performance. Unclear was whether or not the presence of a learning issue would have predicted resilient outcome among the other domains of interest. A review of the correlation matrix showed a low but statistically significant correlation between presence of a learning issue and resilient education outcome, $r = -.22$, $p < .01$. In other words, only 22% of the variation in resilient education outcome is determined by the presence or abscence of a learning difficulty. Not all children with learning difficulties do poorly in school, and not all children who do poorly in school have learning difficulties. When

checked for correlation with overall resilience, the presence of learning difficulty has a correlation of r = - 0.099, p = 0.043. Although there is certainly an element of circularity in this variable / outcome correlation, it was felt that the presence of a learning difficulty is an important independent variable to study in resilience research, and that education is an important factor of resilience. Masten & Reed (2002) note the importance of including education in measuring good outcomes in children. Additional consideration was given to these two variables and the limitations related to their use, including the restricted number of variables available. After weighing all of these issues, it was considered more valuable to keep these two confounding variables in the prediction equations rather than to toss them out. Nonetheless, the reader should note that that these two variables are conceptually similar and that caution is warranted in interpreting these findings related to resilient education outcome and overall resilient outcome. The association between these variables and regression equations that use these variables on both sides is overestimated.

Similarly, the relationship between parent report of child sociability and resilient friendship outcome is not entirely unrelated. Although these variables measure similar constructs, the difference is the report source, as well as the relationship being evaluated. It is certainly conceivable that children can feel good about their social relationships with their peers while struggling in their relationship with their caregiver and teachers. Parent report of child sociability was employed to predict the outcome on the youth report friendship scale. A review of the correlation matrix showed a low but statistically significant correlation between parent report of child sociability and resilient youth report child friendship outcome, r = .26, p < .01. Although the reports of sociability and friendship are from different respondents, the reader should note that these two variables

are conceptually similar and that caution is warranted in interpreting these findings. Moreover, the association between these variables is possibly confounded and regression equations that use these variables on both sides are likely to slightly overestimate the association between them both.

Selection bias is another limitation of the current study. The issue of self-selection bias arises a few times. More specifically, not all CAS agencies in Ontario agreed to participate in the Looking After Children program. Of the agencies that did, not all of the CAS workers agreed to complete the Assessment and Action Records; hence, inherent geographical or worker or case type differences may exist among those who chose to participate compared to those who did not. In addition, as previously described, the case workers in each of the 23 CAS agencies in Ontario that did participate in the study chose the youths from their caseload who were likely to have longer projected stays in out of home care, with the aim of selecting a greater number of permanent wards participating in this study.

Given that children in the foster care population are quite transient in their entry to and exit from the foster care system, this selection strategy was beneficial in retaining the largest sample size over the long term. However, it is not clear to what extent this form of self-selection on behalf of the case worker has impacted the outcome findings. There may be some systematic differences between permanent wards compared to non-permanent wards that could lead to underestimating or overestimating the descriptive statistics or the odds ratios. What is more, there could be a third unknown variable associated with being a permanent ward that is responsible for the outcome findings in this study. Perhaps youths who are permanent wards are less likely to be resilient compared to other youths in foster

care. Or perhaps the case workers asked only those youths who were more likely to comply with the demands of completing the survey to join the study, which would also impact the representativeness of the study findings. The effects of both known and unknown confounders resulting from selection bias cannot be estimated. Furthermore, this selection strategy has impacted the generalizability of these results to youths in the out of home care community at large. The generalizability and precision with which these findings can be used to accurately describe the out of home care population is limited by the sample selection strategy and does represent a limitation of this study.

A notable attrition rate was found during the second year of this study and posed another limitation. The number of participants went from N = 417 to N = 223, with a loss of 47%. Moreover, of the 41 youths who were resilient in year one, only 18 remained in the study. Consequently, interpretation of these findings warrants mindful consideration. As previously indicated, data was not collected on the youths who exited the study in year two, creating substantial sampling issues for the second-year data. There may be a number of reasons why these youth were lost to follow-up and no longer participated in the study in year two. The most likely reason is that at the age of 16 youths in out of home care are free to voluntarily leave the system. It is therefore probable that many of the youths returned to their home of origin or went to live with an alternative family member. They may also have exited the system if they changed to a case worker who was not taking part in the research study, or they may have refused to continue with the study the following year, and so on. As previously described, today the completion of the AAR is mandated for all children and youths in out of home care across Ontario and other Canadian provinces, so this problem with follow-up would no longer be a limitation of using the AAR data.

However, without knowing why these youths were not available for follow-up in 2001 to 2003, we have to consider the possibility that the remaining 223 children may no longer be representative of the original sample.

Rates of resilience and the descriptive variables for participants in both years of analysis were compared and contrasted to determine whether differences were present. Although these methods were limited to observations as the sample size was so small for overall resilient outcome, these findings suggested that these samples were nearly identical. Nonetheless, one must consider that a third variable could be responsible for resilient outcome in year two. For example, exiting the system may be a resilient outcome in and of itself. The impact of one more move to another placement could result in loss of resilience. These third variables that were not measured and the subset of the year one population for which we have no data in year two could impact and reduce the validity of resilient outcome findings in year two.

A number of measurement issues have posed challenges in this study. The benefits of using retrospective data with a link to the very large general population data pool contained in the NLSCY are substantial and were described earlier. However, a drawback is that this study is limited to the variables that have been previously gathered, along with their preexisting limitations. Unfortunately, some important variables previously identified as important to the development and maintenance of resilience or lack thereof were not captured through this investigation. The type of data gathered, along with the extent of data available, was limited to what had already been done. Variables such as the number of siblings in the same dwelling, foster family income, and education level of foster mother have been shown to impact outcome among youths in out of home care; however, a lack of

available preexisting data prevented these variables from being utilized in the current study (Smith, 1994; Simms & Horwitz, 1996). Similarly, the parent report of child sociability variable glosses over the surface of the construct "child sociability". This variable does not allow for ruling out other factors that may have a greater impact on child sociability, such as the environment or difficult relationships within the child's life prior to placement or during placement. A more detailed assessment of child sociability may have broadened the research findings in this area and would have been desirable in the AAR data.

Qualitative limitations were also constraints associated with using this retrospective data set. For example, the variable "learning difficulties" very loosely addresses the issue of the identified need for a learning assessment. Ideally, one would have accurately reported on the ability and achievement findings of a cognitive assessment, or at least a clinical diagnosis of a learning disorder from a trained professional. However, the constraints of retrospective data use only allowed for the identification of youths who had or were scheduled to have a learning assessment. Although limiting, this variable did allow us to identify children in the study who were struggling academically, and was included in this study based on the assumption that for a child to be on a wait list or to have undergone a learning assessment they would have been identified by the foster parent, teacher, or case worker as experiencing difficulty at school. Nonetheless, this is an assumption and may be incorrect, which would confound the results of this study and either underestimate or overestimate the association found with a resilient outcome.

As previously described, there was limited data for investigation, which resulted in a limited number of variables available to derive each of the outcome dimensions. Twenty-two items were used to create the four outcome dimensions, and in one case three items

were used. These data constraints were unfortunate and in some cases it would have been desirable to select better measurement options. These dimensions were felt to be adequate but the study findings are limited by the lack of measurement precision and overall smaller number of variables.

It is important to note that the NLSCY questions within the AAR directed at the four dimensions of positive adaptation are not definitive or precise measurement tools. The absence of clinical assessment and direct questioning limits the generalizability of these findings to other populations. For example, without the use of a specific cognitive assessment to measure achievement and ability, this study is limited in the types of assertions it can make regarding the impact of school performance and the identification of a learning issue. The variables in this study allowed for a glimpse of how the child is functioning within his or her academic system but by no means do these findings suggest that decisions can be made within the foster care system without the next step of using well established measurement tools. They do, however, represent good indicators of the level of functioning for each respondent with regards to each of these four dimensions and were shown to have high internal validity.

Of consideration regarding the analysis is that in some cases, models of a regression equation were statistically significant, even when none of the resilient children were predicted correctly. A close examination of the classification analysis of each logistic regression model was conducted to ensure the clinical relevance of findings and confirm that the best model of fit was selected for each of the outcome dimensions. Hosmer and Lemeshow (1989) have previously described issues in the research literature about classification results and they warn that results be interpreted with caution. According to

Hosmer and Lemeshow (1989, 2000), a model can be the correct one but not yield good classification for both groups. It is therefore the mean of the predictive values across classes that is of greatest concern to researchers once a model has established statistical significance (Wright, 1995). In this study, all of these factors were considered in the selection of the model of best fit for each regression equation. Each model was found firstly to be statistically significant and secondly to have satisfactory mean predictive values across classes.

The manner of selecting a resilient cutoff score based on general population norms was difficult, particularly since many operational definitions of resilience exist within the literature and this may also be considered a limitation. When considering that resilience refers to "positive patterns of functioning during or following adversity" (Masten, 2005) and that "doing okay" (Masten & Coatsworth, 1998) is a sufficient measure of positive functioning, a specific cutoff score is not inherently obvious. A number of options were considered and could have been used. A cutoff could have been used to exclude those outside of one standard deviation away from the mean on the negative end of the scale, resulting in the inclusion of scores within the top 84^{th} percentile. However, this strategy seemed too inclusive, which presumably would have resulted in a larger number of operationally defined resilient children, decreasing the effect size between resilient and non-resilient children. Using the top 50^{th} percentile did not encapsulate the notion that children slightly below average should be included, and furthermore might have decreased the number of resilient children within this study. Therefore, dividing the group into tertiles and employing the top two thirds allowed for cutoff scores within the top 66.6^{th} percentile and was a compromise between these two options.

Another limitation of this study involves the restricted capacity to illustrate the complex relationship between the child in care and his or her caregiver. Many variables capturing this relationship have been included in the regression analysis; however, despite the use of child and caregiver variables, the intricacies in these complex relationships were by no means captured in the present study, yet are noted to be of fundamental importance to the study of resilience. Similarly, details regarding the histories of maltreatment, neglect, and reason for placement in the out of home care system gathered across this study population were variable. A more in-depth investigation into the impact of youths' experiences would be beneficial for future inquiries, and reduce confounding and overlap surrounding the impact of abuse histories among the youth in this study.

In general, the conclusions drawn from this study are also restricted by the limitations related to correlational data. The direction of causation cannot be ascertained completely for many of the variables. There may be unmeasured variables present in this population that could contribute to confounding. These may have a greater influence over resilient outcome and may be associated with another measured variable, thereby making it appear that the measured variable is responsible for the change in outcome.

Finally, a limitation of the present study is that resilience is inferred. Resilience in the present study is a construct based on identified risk in the presence of positive adaptation. Although this operational definition conforms to the current standards of research on resilience, it is possible that the construct does not completely mirror true resilient outcomes.

One of the goals of the present study was to shed light on the issue of resilience among youths in foster care using a normative comparable youth population as a

benchmark for comparison, as this subject was yet to be explored in the research literature. Nonetheless, many limitations were identified in the present study and these must be considered when interpreting the study findings. This study generated many new hypotheses that will require further exploration. Future research will be needed to substantiate the present study's findings and expand on this body of research.

5.5. Practical Implications

The identification and study of the children and youths in out of home care who succeed has resulted in an increase in our understanding of the current programming needs within the child welfare system. Unfortunately, as a result of the current study, more research questions were posed than answered. With future research confirming this study's findings and a more in-depth exploration of the constructs examined in this study, there is the potential for knowledge translation to key policy makers and front-line social workers in the child welfare system, to make some changes to the current child welfare system. If confirmed again in future studies, the findings from the present study could have the potential to inform policy decisions that promote child wellness and resilience among children in out of home care.

The most prominent finding from the present study is that there are resilient children within the Ontario child welfare system. There was a notable probability that no resilient children would be identified at all. In addition, the proportion of resilient children in this sample is comparable to what has been found in previous research. The second most prominent finding is that the most consistent predictor of resilience in both year one and year two was parent report of child sociability. This finding is remarkable because this

predictor could be altered and improved through close monitoring and programme planning.

Parent report of child sociability was operationalized by questions asking how well the child got along with the primary caregiver and teachers, as reported by the primary caregiver. Although this finding was prominent within this study, the next step is to develop further the evaluation of this construct within the youths in the out of home care population. The evaluation of sociability more broadly, with the aim of replicating this study's results within this at risk population, would validate this study's findings.

The results of this study suggest that sociability as reported by the primary caregiver may allow case workers to identify those children in need of skill building in this area, which might in turn result in greater odds of a resilient outcome. A number of programmes currently aim at building social skills and increasing communication. However, the unique circumstances and experiences common amongst children in out of home care prompt for foster care and group care specific programmes. Clinicians involved in fields that routinely employ social skills building as a treatment focus can attest to the difficulty of translating socially desirable practice and effective communicating to youths. Youths in out of home care may have experienced years of maladaptive social interactions that are difficult to overturn within a few hours per week. Many of these children and youths will have experienced significant conflict and observed notably maladaptive means of conflict resolution. Therefore, this author would like to see the development of a programme geared specifically towards improving youth sociability using best practice methods for children in out of home care. If this study's findings were replicated in future research, it

would be appropriate to aim to equip these children with the skills necessary to enhance their experiences and bolster their odds of a resilient outcome.

At present, there are a variety of social skills building programs being offered across Canada. However, these programs are often based on programs originating from research on children in the general population. It will be important for future studies to investigate more closely the types of programs being offered for effectiveness. Furthermore, the need for the development of social relatedness programs geared specifically towards kids in out of home care is great. These programs must then undergo clinical trial to evaluate the efficacy of the program prior to implementation. Evidenced based social skills building programs could then be offered to children in out of home care when necessary. Continued monitoring of outcomes amongst the kids that have gone through the program would allow front line social workers to watch for the need for future group sessions geared towards bolstering the key concepts and applications of the social skills building learned during the group. Ideally, check-in groups would be run on an ongoing basis for children in out of home care as well.

An important point to note in this discussion is that the study of resilience is complex. The basic operational definition for resilience varies across research studies and study topic areas. As was demonstrated in this study, resilience was outcome domain specific. Some youths were resilient in the area of self-esteem who were not resilient in the area of prosocial behaviour, and so on. It could be argued that resilience is so complex that measurement of the interplay between a person's environment, personal characteristics, and social interaction style would be needed to establish salient predictors of resilient outcome. Furthermore, if a resilient style or personality does exist, it must interface with the

environment, and some environments facilitate success and optimal adjustment more than others. This would suggest that to understand the full extent of resilience one must also investigate the factors that interact with this concept, such as environment and impactful individuals in and out of one's life.

The hallmark notion behind resilience research involves the emphasis or focus on strength building rather than on pathology. When all factors involved in a resilient outcome are considered it becomes clear that trying to put an individual on a path to resilience may not always be possible. However, when specific factors that are shown to be related to a resilient outcome and can be fostered within an individual are identified (e.g., sociability), more detailed investigation and a randomized control trial are necessary to determine the impact that such findings may have on outcome. Therefore, although a small piece of the resilience puzzle, investigation into individual factors should continue until we have proven through clinical trials that resilience cannot be fostered or that improvement of outcome is not feasible within a certain domain.

The major takeaway finding is that we are able to identify children and youths in the out of home care system who are faring comparably to children and youths in the general population. This result should prompt researchers in this field to investigate further how to identify and promote these tendencies within the out of home care population. The predictor sociability came out strong in the current study, which is promising. Although limited by many factors, this study's findings suggest that there is promise with regards to promoting change within this system; however, resources will be needed for such programming. Furthermore, population change and improvement in Canada will be brought about when we can learn how to equip the vulnerable children and youths in out of

home care with the personal, social, and/or environmental factors that have helped to establish resilience among some of their peers. Many of the children and youths in out of home care meet with some of the most difficult environments imaginable. The least we can do as a society is aim to equip them with the skills they will need to arrive at their best possible outcome.

5.6. Future Studies

Future studies should aim to replicate the current results to promote the generalizability of these findings. Similar to the present study, many studies aiming to explore resilience in children use samples of middle-aged children. It would be worthwhile to investigate the impact that different ages have on resilient outcome—for example, to study the impact of resilient outcome among young children. This would add to our current knowledge base on resilient outcome among youths in care.

This study was notably limited by the use of retrospective data and preselection of the youths included in this study. Future studies should aim to employ prospective data and randomly select youths for inclusion. There are clinical assessment tools such as those used in cognitive assessments and mental health evaluations that if used in conjunction with resilient cutoff scores within the general population would be useful additions to this field of research.

As well, the use of qualitative interviews would nicely round out findings from quantitative resiliency research. Ideally, given the small sample size of the 10 highly resilient youth in out of home care, a qualitative analysis would have been conducted to support and further explain the present study's findings.

A final suggestion for future research involves increasing the amount of time that these children are followed. Although a two-year span was good, a more longitudinally based research study would have resulted in more in-depth findings rather than portraying the two snapshots in time that were presented in this study.

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Appendix A

Dependent Variable	Question
Self-Esteem	In general, I like the way I am
	Overall I have a lot to be proud of
	A lot of things about me are good
	When I do something, I do it well
Prosocial Behaviour	I show sympathy to (I feel sorry for) someone who has made a mistake
	I try to help someone who has been hurt
	I offer to help clear up a mess someone else has made
	If there is an argument, I try to stop it
	I offer to help young people (friend, brother or sister) who are having difficulty with a task
	I comfort another young person (friend, brother or sister) who is crying or upset
	I help to pick up things which another young person has dropped
	When I'm playing with others, I invite bystanders to join in a game
	I help other people my age (friends, brother or sister) who are feeling sick
	I encourage other people my age who cannot do things as well as I can
Relationships with Friends	I have many friends
	I get along easily with others my age
	Others my age want me to be their friend
	Most others my age like me
Educational performance	Based on your knowledge of …'s school work, including his/her report cards, how is he/she doing in the following areas at school this year (or, during the last school year he/she was enrolled in school)?
	Reading?
	Mathematics?
	How is he/she doing overall?

Appendix B

Independent Variable	Question
Distress Scale	I am unhappy, sad or depressed
	I am not as happy as other people my age
	I am too fearful or anxious
	I worry a lot
	I cry a lot
	I feel miserable, unhappy, tearful, or distressed
	I am nervous, highstrung or tense
	I have trouble enjoying myself
Close Bond with Primary Caregiver Scale	How well do you feel that your foster mother understands you?
	How much fairness do you receive from your foster mother?
	How much affection do you receive from your foster mother?
	How would you describe your relationship with your foster mother?
Parent Report of Child Sociability	During the last school year, how well has he/she gotten along with his/her teacher at school?
	During the last few months, how well has he/she gotten along with his/her foster parent?