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## Examining Contextual Factors and Resilience in Adolescents who Faced Adversity as Children

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Sociology

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«EXAMINING CONTEXTUAL FACTORS AND RESILIENCE IN ADOLESCENTS  
WHO FACED ADVERSITY AS CHILDREN»

(Thesis Format: Monograph)

by

«Veronica Zapotoczny»

Graduate Program in «Sociology»

A thesis submitted in partial fulfillment of  
the requirements for the degree of  
« Master of Arts in Sociology – Program and Policy Evaluation »

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## Abstract

The subject of mental health has increasingly become a topic of discussion as individuals advocate for recognition of this health issue. Early childhood adversity is often associated with mental health problems amongst adolescents, however, many do not succumb to these experiences and instead have resilient health outcomes. This study utilized data from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) to analyze the relationship between early adversity and adolescent mental health, how social context may mediate this association, and finally, what factors are associated with mental health resilience. It was found that many at risk children had positive health outcomes at age 14, and contextual factors such as history of witnessed violence, social support, and neighborhood safety mediated this association. Furthermore, neighborhood safety was found to be positively associated with mental health resilience. Such findings suggest that current policies need to address contextual factors when seeking to prevent mental health problems amongst adolescents.

**Keywords:** early childhood adversity, social context, resilience, life course, cumulative dis/advantage, internalizing and externalizing behaviors, mental health

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## Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables.....	vi
List of Appendices.....	vii
Chapter 1.....	1
1 « Introduction ».....	1
1.1 « Introduction ».....	1
Chapter 2.....	3
2 « Literature ».....	3
2.1 « Life Course ».....	3
2.2 « Stress Process ».....	9
2.3 « Cumulative Dis/Advantage ».....	13
2.4 « Resilience ».....	14
2.5 « Research Questions ».....	18
2.6 « Justification and Rationale ».....	18
Chapter 3.....	20
3 « Methods ».....	20
3.1 « LONGSCAN Dataset ».....	20
3.2 « Measures ».....	25
3.3 « Outcome Measures ».....	29
3.4 « Contextual Variables ».....	31
Chapter 4.....	34

4	« Results ».....	34
4.1	« Descriptive Analyses ».....	34
4.2	« Multivariate Results ».....	38
Chapter 5	.....	53
5	« Discussion ».....	56
5.1	« Discussion ».....	56
5.2	« Limitations and Future Directions ».....	64
5.3	« Public Policy ».....	66
5.4	« Conclusion ».....	69
Works Cited	.....	72
Appendix A	.....	80
Curriculum Vitae	.....	83

## List of Tables

Table 1.....	23
Table 2.....	28
Table 3.....	30
Table 4.....	30
Table 5.....	36
Table 6.....	42
Table 7.....	46
Table 8.....	50
Table 9.....	54

List of Appendices

Appendix A.....76



## Chapter 1

### 1 Introduction

#### 1.1 Introduction

Previous research shows that early stressful experiences, often experienced amongst those faced with different types of adversity, contribute to adverse mental health outcomes and that these outcomes are visible as early as adolescence (Wickrama et al. 2010). Many theoretical frameworks have guided research examining the relationship between early adversity and later mental health outcomes. The life course perspective emphasizes that individuals are affected by both the time period and their more immediate structural contexts, but are also actively involved in making decisions about their life (Elder 1998). Although many factors can be attributed to immediate health outcomes, stress exposure has been shown to be a significant factor in affecting long-term health across the life course (Pearlin et al. 1981; Pearlin 1989). Acute, chronic, and ambient stressors have various impacts on the health of individuals and the accumulation of such stressors has been shown to have long-term consequences for health. However, the harmful effects of such stress have also been shown to manifest as early as adolescence (McFarlane 2010). The accumulation of stress exposure over the life course leads to health inequalities, and cumulative dis/advantage theories argue that it is not simply the quantity of stress over the life course that can be detrimental to health, but rather it is the accumulation and compounding nature of stressors that influence health trajectories across the life course (Singh-Manoux et al. 2005).

Although the accumulation of stress and adversity is associated with health inequalities over the life course, many adolescents who experience adversity early in life follow pathways of positive health and development (Antonovsky 1979). Resilience in health outcomes despite adversity has not been rigorously examined as a sociological concept, and thus research in this area is limited (Schafer, Shippee, and Ferraro 2009). Psychological research has identified individual-level factors, such as personality traits and coping mechanisms to be associated with pathways of resilience, however, meso-

level factors such as social context have been under researched for their role in promoting resilient outcomes amongst disadvantaged populations.

In order to address gaps in the literature, this thesis addresses three main research questions. First, what is the relationship between childhood adversity and adolescent mental health outcomes? Second, to what extent are positive social environments protective against the harmful effect of early adversity on mental health, and do these contexts have the same effect depending on one's social location? Finally, what factors are associated with mental health resilience amongst those who faced adversity as children and are these effects the same depending on location in the social structure?

Answers to these questions will help us understand not only the effect of different types of adversity, but also whether or not meso-level factors have an impact on mediating the relationship between risk/demographic characteristics and later developmental outcomes. In addition, this research will also further current sociological understanding of resilience and explore predictors of resilience that are not normally examined in the sociological context.

This thesis follows a monograph format, and is organized as follows. Chapter 2 situates the current project within the existing literature on the life course perspective, the stress process model, cumulative dis/advantage theory, as well as current resilience literature. Chapter 3 outlines the methods used to examine the proposed research questions and what hypotheses have been suggested. Chapter 4 contains detailed results of the analyses conducted. Chapter 5 provides a discussion that bridges theory and results to explain the relationships found. Chapter 5 also includes a discussion of policy implications of this research, including an analysis of "Ontario's Comprehensive Health and Addictions Strategy" as an example of current policy addressing the mental health needs of individuals within the province of Ontario. Finally, future directions for research and policy are proposed.

## Chapter 2

### 2 Literature Review

Theoretical developments in any discipline are essential for setting the context and intellectual motivation for studies of the social world. A few major theoretical frameworks guide current sociological research on childhood health outcomes and resilience: the life course perspective, the stress process paradigm, and cumulative dis/advantage theory. Together, they help to explain the relationship between childhood adversity and negative health outcomes later in life and are useful for further developing our understanding of resilience in mental health outcomes despite experiences of adversity. In addition, Antonovsky's salutogenic model of health and its focus on positive health outcomes provides a segue into developing an understanding of resilience from a sociological perspective. Consequently, an explanation of these fundamental theories will be established as a rationale behind the study of contexts that facilitate health resilience in children who have faced adversity early in life.

#### 2.1 The Life Course Perspective

The life course perspective views the individual life course as a series of age graded patterns embedded in social institutions and in history (Elder 1998; George 2003). A life course approach seeks to contextualize individual lives in order to more accurately explain outcomes across the life course and later life (Elder, Johnson, and Crosnoe 2003). The origins of the life course perspective are in the 20<sup>th</sup> century, a time period that facilitated the growth of longitudinal research and life course work. Key longitudinal studies of children who experienced the Great Depression (Oakland Growth Study, Berkeley Guidance Study, and Berkeley Growth Study) played an important role in demonstrating the importance of life course research (Elder 1998). Such studies helped illustrate that structural determinants and social location have long term consequences on health and development.

Four key "principles" of the life course perspective, elaborated by Elder, Johnson and Crosnoe (2003), have made significant contributions to the study of health resilience

amongst disadvantaged children. The first principle is that human development and aging are lifelong processes. Physical, social, and cognitive development begins in utero and ends upon death (Feldman 2012). Moreover, biological, psychological, and social developments do not occur independently but are intertwined and grow synchronously throughout life. Development is often discussed in reference to children, as this period of the life course is one of rapid change and learning (Feldman 2012). For example, Piaget's theory of cognitive development emphasizes the progressive mental processes that occur as children mature and develop from infancy to adolescence (Piaget and Inhelder 1973). Because this period of the life course is particularly sensitive to factors that promote or impede development, changes in biological and emotional development have lifelong impacts, as shown by Hayward and Gorman (2004). Their research documented the relationship between childhood economic deprivation and later cardiovascular health. This principle of progression of development across the life course differs from previous cross-sectional accounts of health research. Cross-sectional research, although valuable in showing relationships between proximal risk factors and immediate health consequences, insufficiently explains the long term impacts of distal risk factors for health (Hayward and Gorman 2004). Development takes time to manifest and cross-sectional research cannot account for developments occurring across the life course due to the short period of analysis. It can only examine one point in time, which weakens the ability for to understand the relationships between risk factors and later health, as many spurious relationships may present themselves in the analyses. For example, lower cardiovascular health may seem to be attributed to lifestyle factors, when in fact, economic deprivation during childhood is a stronger determinant of such a health outcome (Hayward and Gorman 2004).

Beginning in-utero, research shows that poor nutrition and stress have detrimental effects on fetal development (Gluckman et al. 2008). For example, a longitudinal study on men born in Sweden, Denmark and Norway during World War II documented that those born during the war had lower testicular cancer rates later in life, than men born before or after the war. Such results were associated with malnutrition during pregnancy and increased tobacco consumption by the subjects in later life (Grotmol, Weiderpass and Tretli 2006). One of the largest contributors to this area is

David Barker who developed the Barker hypothesis in 1990 which illuminated the previously under researched topic of longitudinal health outcomes starting in utero. Barker established a relationship between malnutrition of the fetus (resulting in low birth weight or failure to thrive) and higher rates of coronary heart disease in adult life. He did so by tracking fetal development with adult health outcomes (Barker 1990), and eliminating other possible explanatory factors such as adult lifestyle behaviors. Moreover, the areas of behavioral epigenetics and epigenetics have played important roles in establishing the impact of both environment and biology when looking at later health outcomes (Seabrook and Avison 2012). Environmental factors, such as stress during pregnancy, have been shown to directly influence gene expression during fetal development, which have been linked to increased risk of inflammation-related diseases in later life (Powell et al. 2013). Furthermore, longitudinal studies show that failure to thrive (low birth weight) in infancy has been linked to significant adverse developmental and intellectual outcomes in adolescence (Blair et al. 2004; Corbett and Drewett 2004). Such examples provide evidence of the impact that early life experiences can have on adolescent and adult health.

Social contexts are particularly important for determining behavioral and mental health outcomes and the influence of these contexts can be seen as early as in adolescence (Wickrama et al. 2010). Research on poverty and economic disadvantage within the family has shown that children who are faced with chronic poverty are more likely to be sick and suffer an early death (McDonough, Sacker, and Wiggins 2005). Timing and duration of poverty also have independent effects on health outcomes (Brooks-Gunn and Duncan 1997). Even brief episodes of poverty have been linked with poor health over time (McDonough and Berglund 2003). These relationships persist even when taking into account baseline differences in health, higher levels of income in adulthood, or lifestyle factors, indicating that early childhood social context is a significant factor in developmental outcomes over the life course. Although significant, such results often focus on the effect stress exposure in childhood has on biophysical outcomes. However, the outcomes of physical and biological development often take years to develop and inequalities may not be evidenced until adulthood (McFarlane 2010). Mental health and emotional development are much more sensitive to the

experiences of a disadvantaged social context (Leadbeater et al. 1999). Research suggests that childhood adversity, including abuse, maltreatment, and neglect is associated with chronic conditions as well as poor mental health outcomes (Brent and Silverstein 2013; Turner and Lloyd 1995). Existing studies show that individuals exposed to abuse are more likely to experience at least one psychiatric disorder, have higher rates of suicide, as well as various mental disorders such as ADHD, PTSD, bipolar disorder, and general anxiety disorder (Sugaya et al. 2012). As shown above, the social contexts of household income and abuse and maltreatment have consequences for both physical and mental health outcomes, with mental health outcomes often surfacing prior to physical health outcomes.

Although negative physical and mental health outcomes may be the consequences of disadvantaged social contexts early in life, behavioral functioning is also an outcome that is indicative of stress exposure and negative social contexts (Bronfenbrenner 1979; Guttmanova, Szanyi and Cali 2007). Behavioral functioning is often measured by internalizing and externalizing behaviors, which begin in childhood and continue through adolescence. Internalizing behaviors are defined as the “over control” of emotions, depressive symptoms, social withdrawal, independency and worthlessness (Guttmanova, Szanyi and Cali 2007). Externalizing behaviors, conversely, are a group of behaviors that involve the act of imposing negative actions on external environments – a child’s outward behavior (Jianghong 2004). The consequences of problematic externalizing behaviors have increasingly been considered a public health problem (Campbell, Harris and Lee 1995; Hann 2002) because externalizing problems are linked to explicit disturbances such as increased criminal and violent acts (Jianghong 2004). Internalizing problems, on the other hand, are associated with isolating consequences such as increased rates of suicide and depression (Guttmanova, Szanyi and Cali 2007). Causes of internalizing and externalizing behaviors can be attributed to both biological and social factors that lead to maladjustment in these areas. Physical and sexual abuse during childhood as well as experiencing parental stress has been associated with increased rates of behavioral maladjustment (Jianghong 2004). The effects of psychosocial and biological factors during the pre/perinatal period have also been shown to impact maladjustment in such behaviors (Essex et al. 2006). Lastly, meso-level environments

such as neighborhood and family disorder or instability have been linked with internalizing and externalizing maladjustment (Sanchez, Lambert, and Cooley-Strickland 2013). Therefore, internalizing and externalizing behaviors show a unique intersection of the physical determinants and social factors that may affect healthy development over time, but which are only illuminated with a life course perspective. Such research shows that not only is mental health development a consequence of genetics and biology, but that different types of environments also significantly impact psychological development (Bronfenbrenner 1979). Individuals interact in various social situations shaped by roles, norms, and values, which consequently affect one's mental health, as established by Bronfenbrenner (1979).

Another foundational principle of the life course emphasizes that individual lives are linked to social contexts, which themselves are situated within historical time and geographical location (George 2003:162). This principle of the life course perspective reflects the understanding that individual perceptions regarding social environments and social location influence the course of people's lives. Growing up in a safe neighborhood and in a family of high socioeconomic status leads to different life experiences and perceptions of the world compared to growing up with low socioeconomic status and living in an unsafe neighborhood. Such contexts influence individual lives not only at one point in time, but also set individuals on trajectories that influence later outcomes. For example, Sanchez and colleagues (2013) show that youth's experience with violence in their neighborhood was most strongly associated with problematic externalizing behaviors. Economic stressors and everyday discrimination affected the social contexts in which the youth lived, and influenced their perspectives on the world (Sanchez et al. 2013:43).

An understanding of the effect of social location on health can also be derived from fundamental cause theory (Link and Phelan 1995). Fundamental cause theory states that social conditions are as important, if not more so, than individual-based risk factors in determining disease and illness (Link and Phelan 1995). Link and Phelan (1995) note that individual level factors are necessarily contextual – they do not occur in isolation and are often the result of larger, more prominent social forces – particularly when

considering children as a population of interest. Income and education (which often are operationalized in measures of SES) determine one's neighborhood and geographical location, as well as home and family relations (Link and Phelan 1995). Therefore, when measuring outcomes, one must take into consideration the contexts in which those outcomes arose. Understanding history and biography becomes salient not only in epidemiological research, but also in gaining a better understanding of the mental and social health of individuals.

A third principle, the life course principle of linked lives, is also important to this study. This principle brings to our attention that lives are "linked"; with individuals impacted by the events and decisions that are made and incurred by others (George 2003). Individuals thus are embedded in social networks and are subject to others' stresses and experiences. The level of linkages ranges from "primary groups" such as the family, who are major determinants in shaping trajectories for individuals, to more distant contacts such as acquaintances. Families have been defined as "unique meeting grounds" that offer a space for macro level histories and micro level biographies to be mediated (Hagestad 2003:141). They transfer not only material resources and care, but also provide resources for quality relationships, family cohesion, and patterns of support and stability. Families, therefore, bridge the macro and the micro, and create an interdependence of role trajectories within the life course. Children are particularly vulnerable to the changes and events that occur across these linkages and the interactions between lives. For example, the relationship between young children and their parents is essentially a recognition by the public of a "private interdependence". When parents fail to live up to their responsibilities, the state steps in (Hagestad 2003:141). This interdependence is particularly salient for children, as their agency and ability to make decisions and choices for themselves are significantly restrained compared to that of an adolescent or adult. Relationships within the institution of the family (a meso-level context) differ from those with other reference groups, as they most often involve a strong tie to others that perseveres across contexts.

Although linked lives influence individual life trajectories, particularly for children, individuals are also active participants in deciding for themselves what



opportunities to take and what decisions need to be made when faced with social situations. Thus, the role of human agency in the shaping of life trajectories is a fourth principle within the life course perspective. This principle recognizes that although macro level structures and meso-level interactions have significant impacts on development across the life course, individuals are not passive members of society. Humans consciously make decisions based on their circumstances in order to achieve a desired outcome. Life course literature related to agency often focuses exclusively on adolescents and adults and their levels of self-esteem, self-efficacy, and ability to make choices. Agency for children is highly restricted due to their early stage of development and their dependence on family/caregivers to make choices for them. Agency is perhaps better conceptualized as existing on continuum, with children's agency in general lower than that of an adult due to their dependence on others to make decisions. Still the issue of the development of agency amongst children during this stage of life has important implications for future life trajectories. This becomes important when recognizing that one's effective agency (in response to situations) is often an intersection of the social structure and one's social location. The trajectories individuals are placed on are a result of these intersections which begin early in life.

These foundational principles of the life course perspective, life-long development, the importance of social context, linked lives, and human agency, lay the foundation for understanding the effects of events, social location and social contexts on the mental health of individuals. The life course, however, is full of stress exposure and the effects this has over the life course is significant. Thus, the stress process paradigm and cumulative dis/advantage theory must also be considered in conjunction with the life course perspective to set the context for the study of resilience.

## 2.2 The Stress Process

Similar to the life course perspective, the stress process model also recognizes that both social factors and individual behaviours dictate health outcomes (George 2003). The stress process model originally emerged in Leonard Pearlin's (1981) work on the sociological study of stress. Pearlin suggested that the conceptual development of stress would be useful not only to psychologists, but to sociologists as well. Pearlin's (1981)

model suggested that as sociologists, we need to recognize both the structural origins of stressors and that stress is socially patterned. He emphasized that individuals' locations in their structural arrangements exposes them to stressors. For example, a stress process paradigm recognizes that a low level of education tends to be associated with a lower income, and the consequence of having fewer economic resources may cause family constant strain and stress because of a preoccupation with providing the basic necessities for life. Similarly, being a visible minority is associated with many stresses such as daily prejudice and racism. An approach to studying stress in this way differs from the psychological and biomedical perspectives of the stress experience and its impacts because it focuses both on the contexts that may cause stress, as well as the active role of individuals in coping with stress.

There are three key components that make up the stress process paradigm: stressors, mediators, and outcomes. Stressors vary, from those which are undesired and uncontrolled, such as the loss of employment due to factory closures, to one-time harmful life events such as the death of a spouse. Chronic strains are another type of constant and specific stress. For example, role strain can be classified as a chronic stressor. Being a mother, caregiver and member of the paid labour force can constantly create situations of stress and strain because each role requires a specific set of responsibilities and expectations that can be in conflict with each other. Pearlin (1989) identifies a third group of stressors, one that has an underrated level of stressful impact: ambient strain. Ambient strain is defined as strain that is both constant, occurs at all levels of stress experience, and "[envelops] people" (Pearlin 1989:246). An example of such an ambient strain may be fear of crime or violence in one's neighborhood, or economic uncertainty or other stressors found in one's environment. Such examples are found particularly in neighborhoods that are considered "disorderly" or chaotic (Aneshensel 2010; Cook et al. 2002; DuMont, Widom, and Czaja 2007; Elliott 2000; Lansford et al. 2006; Latkin and Curry 2003; Mcleod and Shanahan 1996; Pearlin et al. 2005; Ross and Mirowsky 2001; Thoits 2010; Wickrama and Noh 2010). It is important to note that such stressors do not act independently of one another but rather one stressor may be the source of another stressor and together the stressors have an amplified effect on health outcomes. This notion is termed as stress proliferation and is considered a key principle of the stress

proliferation model. An empirical example of this can be seen in the work of Gaugler et al. (2008) who show that the stress of having cancer has direct impacts on being able to maintain other roles such as work and caregiving, causing role strain and eventually the proliferation of stress.

The context of stressors is also significant when analyzing mental health outcomes of children across the life course. For example, new stressors surrounding issues of safety and trust may arise after returning home from a period of time spent in foster care. Children are almost completely dependent on their caregivers for the basic necessities of life such as food, housing, and clothing, and thus the concept of linked lives becomes important when developing the stress universe of children. Stressors occurring in the lives of caregivers may have significant impacts on children. Conversely, the caregiver may be the *cause* of such stress for the child such as in the case of abuse or maltreatment. Thus, the stressors found in the lives of their caregivers not only affect the caregiver themselves, but also directly (and indirectly) affect their children.

Mediators on the other hand, are factors that are capable of impeding the breadth and severity of stressors and thus, constrain the extent and intensity of outcomes. In Gaugler et al.'s (2008) study within the field of psychology, coping mechanisms mediated and reduced the intensity of primary and secondary stressors. Self-concept, self-esteem, mastery, and other personality constructs have been shown to be influential in understanding individual differences in alleviating the impact of stress (Miller-Lewis et al. 2013). For example, Goodkind et al. (2009) demonstrate that coping mechanisms are often used as a way to mediate the risk factors for depression amongst girls in mental health and juvenile justice systems. Similarly, many sociological studies focus on coping and social support as universal mechanisms of mediating stress (Pearlin 1989). Coping can present itself as a response that is unique within every individual; however, as Pearlin emphasizes, there are general coping dispositions common across situations. The ultimate role of coping resources is to change the situation causing stress, manage how the stress is understood, or to keep stress at bay. Social support is also seen as a key resource one may use to deal with stress (Jonzon and Lindblad 2006; Pearlin 1989). Such support may be found not only in immediate networks but also at the level of institutional contexts

such as work, neighborhood, religion, volunteer associations, etc. Both coping mechanisms and social support as mediators of stress have the ability to change outcomes and alter original trajectories (Pearlin 1989).

The type of outcomes one measures in stress process research depends on the field of study and empirical considerations. For the purposes of this review, mental health outcomes and behavioral developments are the outcomes of interest. Sociology recognizes that histories of stress affect mental health and developmental outcomes, but most importantly, sociology recognizes variations in the outcomes of health are based on social location and personal resources. An example of the variation in outcomes resulting from exposure to stress can be seen in the diagnosis of clinical depression after the death of a spouse. Death of a spouse may create a context where depression manifests itself, which may lead to negative self-concept and antisocial behavior, and in the end lead an individual to commit suicide. However, stress is not necessarily a constant and concrete factor. In fact the fluid nature of stress and stressors, as Pearlin (1989) points out, leaves room for positive change and redirection. The redirection may come about in the form of mediators and moderators after contact with stressors. Over the life course, exposure to and the process of coping with one episode or one type of stress may help to develop coping mechanisms to deal with other stressors of a similar nature which may occur simultaneously or in the future. Social contexts and social factors may act as protective factors against harmful outcomes and help to redirect potentially negative outcomes to more resilient ones.

The life course perspective and the stress process model complement one another, particularly in relation to understanding the long term impact of disadvantage on health outcomes. A consideration of the non-static nature of life, the impact of social context, consequences of linked lives and opportunities for agency provide insight into explaining mental health outcomes associated with childhood stress. Research shows that children's mental health is significantly affected by various types of stressors. Undesired or uncontrollable stressors such as a lack of proper nutrition in the home, harmful life events such as violence in the family, and ambient stressors such as neighborhood safety uniquely affect one's development. These stressors may also have amplified effects when

aggregated over time. Research suggests that the accumulation and proliferation of stressors poses additional threats to mental health across the life course, and thus it is important to discuss the contribution of theories of cumulative dis/advantage to an understanding of children's mental health and resilience (Singh-Manoux et al. 2005).

### 2.3 Cumulative Dis/Advantage

Both life course and stress process approaches inherently address issues of cumulative advantage and disadvantage. Introduced by Robert K. Merton (1968), cumulative dis/advantage theory is central to both the life course and stress process literature. It brings attention to the large inequalities in outcomes that are often the result of initial differences occurring earlier in life. Merton's (1968) conceptualization arose from his recognition that small successes made early in scientific careers lead to large inequalities in resource acquisition over time. He argued that the harmful effects of early life location within the social hierarchy as well as social origins (race, gender, age) are compounded over time and are associated with worse physical and mental health outcomes in late adulthood. A common element of a disadvantaged situation is that of experiencing stress, either as a result of life events or arising from the everyday experiences associated with one's social class, gender, or race. One-time stressors such as uncontrollable life events may set individuals on unique trajectories across the life course. Repeated exposure to stressors or the proliferation of stressors may have additional harmful effects on health. Children who experience multiple forms of disadvantage, such as being low-income, a visible minority, and experiencing abuse or maltreatment, are likely to experience additional negative mental health associated with stress exposure.

Cumulative dis/advantage theory, in addition to the life course and stress process paradigms, has been increasingly used in health literature to illuminate the dramatic differences in later health between adults who experienced disadvantages early in life, and those who did not (Haas 2008; Hayward and Gorman 2004). Understanding health as the result of a cumulative process of exposure to advantage or disadvantage suggests that health outcomes are based on the timing of dis/advantage, the sequence dis/advantage, and the duration of exposure (O'Rand and Hamil-Luker 2005). Together, these

paradigms help to guide research that examines the long term impacts of early adversity. The complex relationship between the stress process can only be understood over a considerable amount of time (Pearlin 2010). Although these perspectives tend to offer an overarching view of an individual's life course, to understand the negative and positive outcomes of childhood, researchers must engage in gathering evidence during earlier years, and at multiple points along the way. Moreover, duration, severity, and timing must also be considered. The importance of protective factors that diminish the impact of stress is central to explaining why only some individuals experience negative mental health outcomes associated with adversity. A study such as this has the capacity to further inform multiple theoretical paradigms and to address current gaps in literature involving mental health and resilience in the face of adversity.

## 2.4 Resilience

Some research suggests that people who have faced the highest levels of adversity as children have the most optimistic view of their future life trajectory and subsequent life satisfaction (Schafer, Shippee, and Ferraro 2009). The importance of addressing the risk factors that predict trajectories of poor mental health and pathways of adversity is undeniable, and steps have been taken to understand what factors mediate and protect against such risks. Members of the population often ignored in mental health research are those individuals who are able to not only survive, but to thrive, despite adversity. These “resilient” individuals are often taken for granted and assumed to have equivalent characteristics of those who did not face adversity. The question of what factors allow some members of the disadvantaged populations to avoid the negative impacts of disadvantage and adversity and to subsequently experience more positive mental health outcomes than we would predict based on their social location is the subject of this research project. Furthermore, examining what contextual factors (as opposed to individual level factors) are associated with generating positive mental health outcomes becomes important from a sociological perspective.

Undoubtedly, it is a desire to understand the resilience of children despite adverse conditions which has been a driving force for the study of human responses to difficult conditions within the field of psychology (Amstadter 2012; DuMont, Widom, and Czaja

2007; Formoso, Gonzales, and Aiken 2000). Yet there remain few studies that employ prospective measures to isolate the longitudinal impacts of social contexts occurring early in life on resilience. Children, as a vulnerable group, are difficult to study due to problems related to ethics as well as the time and cost of generating sufficient longitudinal data. Much of the work in the area of social factors affecting mental health resiliency has focused on adults and utilized retrospective data that is cross sectional in nature rather than understanding the longitudinal development of resiliency (Miller-Lewis et al. 2013). Vanderbilt-Adriance and Shaw's (2008) longitudinal analysis of young boys, examined the benefits of family relationships, and the buffering effects of neighbourhood contexts. Similarly, DuMont, Widom, and Czaja (2007) conducted a study that sought to explore the longitudinal impact of neighborhood context on health outcomes of adolescents. Their rigorous investigation of the individual, family, and neighborhood predictors of resilience among adolescents who had suffered maltreatment early in life was seen as an exploratory study that laid significant groundwork for furthering our understanding of resiliency (DuMont et al. 2007). Lastly, Attar, Guerra and Tolan's (1994) research provided an early example of the impact of neighborhood disorder on externalizing and internalizing behaviour of children who were abused.

The concept of resilience is often researched in the field of psychology and the study of psychological processes (Jonzon and Lindblad 2006). Personality traits, self-efficacy and mastery have been studied as micro-level factors that buffer the impact of disadvantage and adversity. Meso-level factors can also be protective against the harmful effects of adversity. Examples of meso-level factors include neighborhood contexts, the institution of the family, and other social environments such as schools. These factors require further investigation (Davydov et al. 2010). Although understudied (Vanderbilt-Adriance and Shaw 2008), initial orientations towards resilience despite adversity can be attributed to public health studies that examine factors that mitigate stress and disadvantage and also promote health. Aaron Antonovsky's (1979) development of the salutogenic model emphasizes causes of health ease (as opposed to dis-ease). Humans in the industrialized world are constantly confronted with stressors and pathogens, yet continue to have healthy outcomes despite such adversities. Similarly, Schafer, Shippee and Ferraro (2009) argue for a focus on what factors promote positive health outcomes

despite disadvantage and adversity, from a sociological perspective. Together, these two works help to pose the question of how social contexts serve to protect and promote resilient responses despite adversity; a question that tends to be overlooked.

The term “salutogenesis” was developed from the Latin words *salus* for health, and *genesis* for origins (Antonovsky 1979). Therefore, salutogenic literature focuses on factors that protect against stress and disadvantage but also promote health in the face of adversity. While clinical models of health tend to focus on diagnoses and cures, epidemiological models of health focus on prevention of disease and illness (Antonovsky 1979). Both models historically allude to dichotomized health outcomes (disease/not diseased). Conceptualizing health as a continuum, rather than a dichotomous outcome, may provide insight into how individuals generate health responses. Everyone, even when diseased or ill, has some measure of health (Antonovsky 1987). Antonovsky (1987:6) argues that by conceptualizing health as a continuum, researchers are able to determine factors that promote movement toward the healthy end of the continuum as these factors are often *different* than factors causing disease or illness. By doing so, there is a greater interest in the individual and their social location, rather than their presence or lack of disease and illness. Such a reorientation of health research necessitates the inclusion of an “assets model” or one that examines the social, economic, and environmental resources that enhance and maintain health and well-being (Antonovsky 1979; Segall and Fries 2011). Traditional approaches to health have previously focused on a “deficits model,” or a model that examines biophysical risk factors, disease, and health care service use. Life is full of stressful situations and exposures, however not everyone is set on a trajectory that leads to the accumulation of health disadvantage. Furthermore, in addition to meso-level factors that may promote health, individuals have a unique view of life and a capacity to respond to stress, which may help explain why some individuals are able to stay well while others are not. As a result, this approach to resilience is one that is important not only to public health approaches to health promotion, but also in explaining resilient outcomes despite adversity.

The salutogenic model of health is one that necessarily requires the intersection of agency and structure when examining health outcomes, and similarly, resilience from a



sociological perspective emphasizes these two aspects (Schafer, Shippee, and Ferraro 2009). Schafer et al. (2009) indicate that the theoretical construction of resilience in sociology is one that identifies resilience as an important process in offsetting disadvantages associated with poverty and poor health. Their guiding question asks how can we explain situations where disadvantage does not accumulate and result in negative outcomes? What contexts or responses are present to foster a resilient outcome? Schafer et al. (2009) offer an examination of mechanisms and social factors other than personality traits and coping mechanisms that may stop or reverse the accumulation of disadvantage. They suggest that while disadvantage represents an unfavorable position in the social hierarchy, adversity is essentially the *perceived* hardship that is a result of that disadvantage (Schafer et al. 2009). Therefore resilience is a process rather than a quality or personality trait. Individuals must recognize their conditions as unfavorable, they must perceive that action can and should be taken in the face of adversity, and they must activate their social and non-social resources to address the adversity. The ability to engage in such a process becomes time sensitive – children and adults have different levels of capability in recognizing and engaging in action. Thus, the timing of adversity becomes significant in childhood resilience literature because the ability to frame an adaptive response based on one's recognition of an undesirable situation is dependent on when that adversity occurs in the life course.

Although existing studies are important for exploring the impact of social contexts on resilience, such studies are limited in various ways. In addition to the retrospective nature of many of these studies, those which are prospective do not examine an extended period of time between disadvantaged contexts and later health outcomes. Furthermore, only specific populations have been examined, as was the case with Vanderbilt-Adriance and Shaw (2008), who only examined resilience in males. Most significantly, much of the research has not taken a sociological approach to the study of social context and its impact on resilience, or an approach that intersects agency and structure. The lack of literature on social context and its influence on resilience therefore provides an opportunity for further research into this topic.

## 2.5 Research Questions

The proposed research questions are theoretically informed and guided by the life course, stress process, cumulative dis/advantage, and resilience literature. This thesis examines the following research questions addressing gaps in the literature.

1) What is the relationship between childhood adversity and adolescent mental health outcomes?

2) To what extent do positive social environments protect against the harmful effect of early adversity on mental health and do these contexts have the same effect depending on location in the social structure (i.e. gender, race, class)?

3) What factors are associated with mental health resilience amongst those who faced adversity as children, and are these also reflective of one's social location? Based on previous literature, it is hypothesized that adversity will have a negative impact on adolescent health outcomes and that positive social environments will protect against the harmful effects of early adversity, reducing its harmful mental health effects and contributing positively to resilient outcomes.

## 2.6 Justification and Rationale

An estimated 45 percent of children in the United States live in low-income families (Addy, Engelhardt, and Skinner 2013). According to the National Child Abuse and Neglect Data System (NCANDS) in 2009, 702,000 children were victims of maltreatment; in 2010 child physical abuse was cited as the second most common form of child maltreatment. The economic impact of this abuse is also significant. As of 2012 in the United States, the estimated annual cost of child abuse exceeds \$100 billion by way of extensive health care costs and lost productivity (Fang et al. 2012). Abuse also impacts families, communities, taxpayers and the general public (Sugaya et al. 2012). An investigation of what factors promote resilience in the face of adversity and how these differ across socio-demographic groups can aid in the development of more targeted policies and programs. Providing support during critical periods, or enabling environments that create positive avenues for change can be designed more effectively if

theoretical and empirical evidence is sound. Such policy and program changes are beneficial not only in the United States, but the principles found there may be used in Canadian contexts as well.

Not only does a focus on children's lives offer insight into the mental health outcomes of adolescents and adults, it provides deeper understandings of what the stress universe of a child may look like. As Avison (2010) discusses, there are three major issues that sociologists should begin to examine to further this area of research. First is the need to identify the structural and institutional factors that affect stress exposure for children. Second is the need to construct a "stress" universe for children. Third, there is a need to identify key elements of the life course that may set or alter trajectories of mental health in childhood and adolescence. Once such components can be established, various health outcomes may be more fully explained. Furthermore, considering such components provides an opportunity to begin discussions on childhood resilience. Sociology in particular, has the tools to be able to do so. Results from this research have both theoretical and practical potential. Theoretically, a focus on understanding mental health resilience from a sociological perspective that is empirically sound and methodologically rigorous would inform the current lack of information on this concept in sociological literature. Practically, developing policies based on resilience research (in conjunction with preventative policies) may be more effectively structured to aid specific groups of children.

## Chapter 3

### 3 Methods

The data set selected for this research project was identified as one that was capable of addressing the following research questions. First, what is the relationship between early adversity and mental health outcomes in adolescence? Next, to what extent do social environments mediate the harmful effect of early adversity on mental health and do these contexts have the same effect depending on one's location in the social structure? Lastly, what factors are associated with mental health resilience amongst those who faced adversity as children and does the effect of these factors differ depending on social location? The aim of this study is to understand social contexts that help create resilience in individuals who are faced with adversity. Descriptive and multivariate analyses were conducted in order to identify basic relationships between multiple indicators of childhood disadvantage and mental health outcomes. As well, additional factors were examined in order to determine if social contexts served as protective factors in the relationship between disadvantage and mental health outcomes. Finally, a resilience variable was created and analyses were conducted in order to explore factors associated with resilience amongst disadvantaged children.

#### 3.1 LONGSCAN – Dataset

In order to address the above research questions, a panel study was selected for analyses. The Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) Assessments 0-14 is a collection of research studies coordinated by the University of North Carolina at Chapel Hill, and funded by the National Center on Child Abuse and Neglect (Runyan et al. 2011). Data collection began July 1, 1991, with the most recent wave released in September, 2009. The purpose of this collection of data is to investigate the impact that disadvantage, risk factors, and protective factors have on those who are faced with early adversity, and to determine the long term health and social consequences of this adversity. The cohort of children selected for this analysis were four years of age or younger when selected into the study, and four years of age at time of interview. Respondents and their families were followed until the age of 18. Seven waves of data

were collected from the time the youngest child-family dyads were collected. This analysis used data from Wave 1 (when children were 4) and Wave 5 (when children were aged 14). Analyses were restricted to Wave 5 data collection as Waves 6 and 7 have not yet been released for analysis.

LONGSCAN contains information from multiple perspectives (child respondents, parents/guardians, teachers, and interviewers) on multiple sources of adversity as well as non-victimization stressors. For example, general responses were gathered on maltreatment type, socioeconomic status of the family home, school, and neighborhood safety. In addition, responses aimed at identifying disorder in the home, school, and neighborhood were collected. Information on health and social outcomes was also gathered in order to observe changes in these outcomes over the course of childhood and adolescence. This information allows researchers to examine various factors that may cause unhealthy mental health outcomes, and also to identify positive mental health outcomes by risk status. Ultimately, this data set provides the ability to develop analyses on resilience. Resilience is conceptualized as a positive outcome despite adversity, and many social and non-social factors may contribute to resilient outcomes (Schafer, Shippee and Ferraro 2009). Demographic factors such as education and income are associated with chronic stressors within the home or at school, and race, gender, and neighborhood environments may amplify the presence of ambient stressors. Other factors such as social support and religiosity, may be protective against the harmful effects of these stressors, and thus may contribute to resilient outcomes. Overall, the LONGSCAN dataset is one of the best available sources of data for research on resilience.

At baseline (Wave 1), the LONGSCAN sample consisted of 1,354 child-caregiver dyads. The sample of children and families was recruited at the age of 0-4 (depending on the site) and re-interviewed every two years until 14 years of age. Wave 1 included children age 0-4 while Waves 2 and 3 included interviews with children at ages 6 and 8, respectively. Wave 4 interviews were conducted at age 12 and Wave 5, two years later at age 14. Two types of interviews were conducted. First, five waves of face-to-face interviews with children and primary caregivers were conducted at ages 4, 6, 8, 12, and 14. Second, telephone interviews were conducted with primary caregivers of children

aged 5, 7, 9, 10, and 11. Basic demographics were collected at Wave 1 and Wave 5 on the children and parents/guardians.

By Wave 5 (age 14), the attrition rate was about 30 percent resulting in 949 child-parent dyads in the final analytical sample. In the final wave (Wave 5), the sample of children was evenly distributed by gender, 51 percent female and 49 percent male. African Americans were oversampled and made up 55 percent of the sample. Tests were conducted to determine if sample members at Wave 5 had different characteristics than those at Wave 1. This was done first by comparing descriptive statistics at Wave 1 and Wave 5. Next, cross-tabulations were run between income, education, and race and general health outcomes as well as internalizing and externalizing behavior outcomes. No pattern of missingness was determined, indicating that those who had been lost due to attrition did not differ significantly from those who were not lost due to attrition on variables such as income, education and race.

#### Data Set Preparation and Merging

One of the biggest challenges of management of this data source was preparing and merging the data files. The LONGSCAN data consisted of many separate data files, each organized by “theme” of variable, or by measure. For example, demographic data were included in one file, while responses to questions on neighborhood safety and satisfaction were included in a separate data file. Most measures were contained in separate data files at each wave; however, the outcome variables “internalizing behaviors” and “externalizing behaviors” had been consolidated into a stacked dataset by case ID with all five waves included in one data file. Thus, data files containing the variables of interest needed to be merged. This involved identifying and selecting measures from the various data files based on their usefulness for the proposed analyses. The observations within each data file were linked by Case ID and merged into one dataset using SPSS. The resulting merged “master” dataset was then converted into STATA format for analysis. Only measures of interest from Waves 1 and 5 were merged and data from Waves 2 (age 6), 3 (age 8), age 4 (age 12) were eliminated. Measures that were not of interest were dropped from the master data file in order to manage the large number of variables that were contained in the merged master data set. Analyses were run

on the resulting cleaned master data set, containing data on relevant variables from Waves 1 and 5.

### Site Selection

The LONGSCAN sample includes five pooled cohort samples, taken from various regions of the United States including Chicago, Baltimore, North Carolina, San Diego, and Seattle. The EA (EA – Baltimore), MW (Midwest – Chicago), and NW (Northwest – Seattle) samples were selected from primarily urban areas of these regions. The SW (Southwest – San Diego) site was selected from primarily suburban areas of that region, and the SO (Statewide – North Carolina) site sampled participants from urban, suburban, and rural areas. It is important to note that the measures, definitions, training, data collection strategies, and data entry/management were the same at all five sites. Different selection criteria, however, were employed for each area, in order to represent varying levels of risk and exposure to maltreatment. For example, those in the MW group were either reported to Child Protection Services (CPS) or they were selected as a neighborhood control, while those in the EA site were selected based on failure to thrive at birth, or were found in the same pediatric clinic. Because each site had unique selection criteria based on different types of disadvantage, the site variable represents various types of adversity that could have differing relationships with health outcomes. As a result of differences in the sampling frames across regions, controls for site were included as variables in all analyses. Sites will also be referred to by the type of adversity and risk that they represent throughout this study. A detailed description of the collection dates and sample criteria are presented in Table 1.

Table 1. LONGSCAN Sample Collection Criteria by Site

<b>Site</b>	<b>Birth Years</b>	<b>Risk Group Description</b>	<b>N</b>	<b>Comparison Group Description</b>	<b>N</b>
<b>EA</b>	1988-1991	Failure to Thrive	69	Same pediatric clinic no extra risk factors	79
		Prenatal drug use/HIV+ mom	49		
<b>MW</b>	1991-1994	Family reported to CPS & 6 month treatment ensued	50	Neighborhood controls	75
		Usual CPS care	61		

<b>NW</b>	1988- 1994	CPS report – moderate risk substantiated	103	CPS report – moderate risk not substantiated	82
<b>SO</b>	1986-1987	High risk at birth for CPS report – reported by age 4	49	High risk at birth for CPS report – no report by age 4	103
		Low risk at birth for CPS report – reported by age 4	6	Low risk at birth for CPS report – no report by age 4	18
<b>SW</b>	1989-1991	In foster care at age 4	94	In foster care but returned home by age 4	66
		In foster care but adopted age 4	45		
<b>Total</b>			<b>526</b>		<b>423</b>

*Source:* LONGSCAN dataset

*Note:* Final analytical sample, without “unknown” risk individuals

As indicated in Table 1, the EA participants were considered high risk by pediatric clinics if they were classified as “failing to thrive” (insufficient weight gain during perinatal development), were born to an HIV positive mother, or if there was prenatal drug use. EA lower risk groups served as the comparison group. They consisted of patients from the same pediatric clinic who were not classified as failing to thrive, born to an HIV positive mother, or exposed to prenatal drug use.

The MW families were sampled and considered high risk based on CPS records. Child Protection Services serves as the governmental agency in the United States that responds to reports of child abuse or neglect. Reports are made by someone who has reasonable cause to believe or suspect that a child has been subject to abuse or neglect (Child Information Gateway 2011). The process of reporting begins with an initial report of child abuse or neglect, also known as an “index report”. A re-report, also known as a referral, is a subsequent report after the initial report, whereas a recurrence is a confirmed or substantiated re-report after an initial report. Families in the NW region who were reported to the CPS and had undergone a 6 month family treatment, or taken on usual CPS care (initial assessment, and the development of a safety plan) (DePanfilis and Salus 2003) were grouped as “high risk” by LONGSCAN. The equivalent risk comparison



group consisted of children from families found in the same neighborhoods as the families reported to CPS but who did not have a CPS record.

The NW group of children were selected for the study if they were deemed to be at moderate risk for recurring maltreatment following an initial report to CPS. About 60 percent of the referrals were substantiated for those in the NW group, and therefore these children were considered to be at high risk of maltreatment, abuse, or neglect. The remaining 40 percent were children who had been reported to CPS but did not have substantiated reports, and were considered to be at lower risk and served as a comparison group.

Another portion of the sample contained in the LONGSCAN study came from various regions in the South. These included urban, suburban, and rural communities in the state of North Carolina. Children were drawn from a population that were deemed by public health tracking efforts to be at high risk of maltreatment. LONGSCAN staff matched those reported to CPS to other families who were not reported based on demographic characteristics such as household income, gender, and race.

Finally, the SW sample consisted of children who were currently in the foster care system due to maltreatment, or who had previously been in the foster care system but had been adopted at the time of recruitment. Those who later returned to their families after being in the foster care system were considered part of the lower risk “comparison group”. Children in this sample were selected primarily from suburban communities.

## 3.2 Measures

### Independent Variables

#### *Site/ type of adversity*

Because each site had unique selection criteria based on different types of disadvantage, sites served as proxies for type of adversity and were included in all analyses. Table 1 describes in detail the various selection criteria that were used for the EA, SW, MW, SO, and NW sites in the United States, and the sample sizes for each site.

A five category variable was constructed representing the sites, with the East serving as the reference group.

#### *Children's Demographics and Socioeconomic Factors*

The child's gender was included in all analyses because of the relationship between gender and the likelihood of exhibiting internalizing/externalizing behaviors. Males served as the reference category when conducting all analyses. Race/ethnicity was used as a reference category when conducting analyses both as a control for the oversampling of African Americans and because minority status is associated with stress and adversity. Due to the small cell sizes for most of the race/ethnic categories, the categories were reduced to Non-Hispanic White, African American, and an Other category, which included Hispanics, Native Americans, Asians, those of mixed races, and all others.

#### *Caregiver Demographics*

Caregiver characteristics serve as important proxies for child socioeconomic status and living environment. The characteristics of the caregivers also directly impact the lives of the child in terms of stress exposure, the ability to provide different kinds of resources, and other opportunities for healthy growth and development. Caregiver responses for general measures of health were collected at each wave and as a result, the primary caregiver responding for questions on health may have differed between waves, particularly for those in the SW group which was primarily composed of children in foster care. Measures of caregiver demographics were selected from Wave 5 data in order to capture the living situation of the children at the same time as the health outcomes.

*Caregiver education* captures the highest level of education of the primary caregiver, collapsed into two categories that compare high school or less to those with some post-secondary education or more in order to deal with small cell sizes. The selected reference category was a college education or more.

A question on *household income* of the caregiver was used to capture socioeconomic status. The initial variable was recoded into two categories to

accommodate small cell sizes: low income families (\$29,999 or less) were compared to those with an income of \$30,000 or more (the reference category).

*Marital status* served as a rough proxy of family stability/instability and respondents were coded as married, never married, and other (separated, divorced, widowed), with married caregivers used as the reference category.

### *Child Adversity*

The measure of adversity for the purposes of this project refers to events or circumstances that place the child “at risk” of negative health outcomes compared to their counterparts. It is important to note that adversity was measured at Wave 1, and thus captures early life conditions as predictors of health outcomes in adolescence. Although LONGSCAN chose to construct two comparison groups within each site, a sampled “at risk” group of respondents and a comparison group of respondents, the selection criteria for the sample of respondents made a distinct counterfactual difficult to establish. For the purposes of this analysis, an indicator of risk level was constructed and operationalized as “low risk”, “medium risk”, and “high risk” based on the LONGSCAN selection criteria. Table 2 describes what groups were considered low, medium, and high risk. Low risk groups were those in the LONGSCAN comparison groups found in the EA, MW, and SO areas. Medium risk groups consisted of the LONGSCAN comparison groups in the SO area that were considered by LONGSCAN to be high risk but who were without a substantiated report to CPS, as well as those in the NW comparison group who had CPS reports that were not substantiated. Lastly, high risk groups were all of those selected as “at risk” groups in the EA, MW, NW, SO, and SW. For conceptual reasons as well as for reasons of sample size, the medium risk groups were added to the “low risk” category resulting in a two category measure comparing those at high risk to low risk (the reference category).

Table 2. Construction of Low, Medium, and High Risk Status Based on LONGSCAN Selection

Risk Level	LONGSCAN	
	Risk Assessment	Site Description
<b>Low Risk</b>	EA – Comparison Group	Same pediatric clinic, no extra risk factors
	MW – Comparison Group	Neighborhood controls
	SO – Comparison Group	Low risk at birth for CPS report (no report)
<b>Medium Risk</b>	SO – Comparison Group	High risk at birth for CPS report (no report)
	NW – Comparison Group	CPS Report, moderate risk, not substantiated
	SW – Comparison Group	Previously in foster care – returned home by 4
<b>High Risk</b>	EA – Risk Group	Failure to thrive/prenatal drug use/HIV+ mother
	MW – Risk Group	Family reported to CPS, 6 month treatment
	NW – Risk Group	CPS Report, moderate risk, later substantiated
	SO – Risk Group	High risk at birth, reported to CPS by age 4
	SW – Risk Group	Previously in foster care – adopted by age 4 Or still in foster care by age 4

*Source:* LONGSCAN dataset

*Note:* Analytical sample, without “unknown” risk individuals

### 3.3 Outcome Measures

#### Child Behavior Checklist/Internalizing and Externalizing Behaviors

The Child Behavior Checklist (CBCL) is commonly used in research on child psychopathology. The CBCL is an empirically based set of measures developed to assess eight syndromes: social withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior. Two of the measures developed from the CBCL and its eight syndromes are Internalizing Problems (social withdrawal, somatic complaints, and anxiety/depression scales) and Externalizing Problems (delinquent behavior and aggressive behavior scales). Internalizing and externalizing behaviors have been demonstrated in the literature to be accurate measures of mental health outcomes and healthy development in adolescence (Guttmanova, Szanyi, and Cali 2007). The CBCL checklist has been shown to have high measurement validity by way of correlations between internalizing and externalizing behaviors measured by other scales (Guttmanova, Szanyi and Cali 2007).

Responses were provided by caregivers about their child's behaviors within the last six months. CBCL T scores for Internalizing and Externalizing Problems were used for the analyses. T scores are the sum of the five scales used in determining internalizing and externalizing problems. The purpose of using T scores as opposed to raw scores was to adjust for differences between different groups (such as sex, age, or race groups). A T score of 30 to 59 is considered "normal", 60 to 63 is considered "borderline", and a score of 64 to 100 was considered "clinical". These three categories were used to construct a dichotomous dependent variable. For the purposes of analyses, borderline scores were collapsed into one category with normal scores, due to cell sizes.

#### Resilience

An indicator of resilience was constructed using the association between two variables, risk groups and CBCL T Scores. Risk groups were recoded from the LONGSCAN categories into two groups: low risk (which included medium risk) and high risk, as described earlier. CBCL Internalizing and Externalizing T scores were recoded into a dichotomous variable consisting of two categories, "Normal/Borderline"

(scores of 30-63) and “Clinical” (scores of 64-100). The cross-tabulations found in Tables 3 and 4 show the relationship between risk and CBCL categories. Children who were in the high risk category but who had normal outcomes on internalizing behaviors (Table 3, N=540) were considered resilient, as shown in the shaded cell. Similarly, those who had normal scores on externalizing behaviors (Table 4, N=477) were also considered resilient. Those who had clinically high scores on internalizing problems and were in the high risk group (Table 3, N=111) were considered not resilient, as this is an outcome that is more likely among the high risk group. Those who had clinically high scores on externalizing problem and were in the high risk group (Table 4, N=174) were also categorized as not resilient. The final outcomes were synthesized into a dichotomous resilience variables for both internalizing and externalizing behaviours (0 = Expected; 1 = Resilient). Those in the low risk group were deleted from the multivariate analyses of resilience, which focused explicitly on the subset of the sample consisting of high risk children.

Table 3. Crosstab of Risk Level and Internalizing Problems Scores in the LONGSCAN dataset

<b>RISK LEVEL</b>	<b>Internalizing Behaviors Score</b>	
	<b>30-63 N (%)</b>	<b>64-100 N (%)</b>
Low Risk	247 (92.2)	21 (7.8)
High Risk	540 (83.0)	111 (17)

*Source:* LONGSCAN dataset

*Note:* A score of 30-63 indicates normal behaviors. A score of 64-100 indicates clinically pathological

Table 4. Crosstab of Risk Level and Externalizing Problems Scores in the LONGSCAN dataset

<b>RISK LEVEL</b>	<b>Externalizing Behaviors Score</b>	
	<b>30-63 N (%)</b>	<b>64-100 N (%)</b>
Low Risk	222 (82.8)	46 (17.2)
High Risk	477 (73.3)	174 (26.7)

*Source:* LONGSCAN dataset

*Note:* A score of 30-63 indicates normal behaviors. A score of 64-100 indicates clinically pathological

### 3.4 Contextual Variables

Based on prior knowledge about factors that may promote resilience, the following variables were included in the analyses: neighborhood safety/satisfaction, social support, religiosity, and history of witnessed violence. All were examined in order to better understand their potential role as protective factors for high risk children.

#### *Neighborhood Quality*

This assessment, provided by the caregiver, is a measure of the quality of the family's neighborhood. Research has shown that neighborhood stability and satisfaction may act protective factors for adolescent and adult health outcomes. Thirty items, adapted from Coulton, Korbin and Su (1996) and Sampson, Raudenbush and Earls (1997), were used to assess the collective efficacy, chaos, and stability of the neighborhood. Responses to items ranged from 1 (strongly disagree) to 4 (strongly agree). Some questions had to be reverse coded to match the direction of the other items on the list. Appendix A provides a detailed list of the questions included in this variable. For questions that indicated a higher level of neighborhood satisfaction and safety, ("strongly agree/agree"), the responses were given a number of 4 or 3 (strongly agree = 4 and agree = 3). The sum of responses to this variable resulted in a maximum score of 120. Conversely, a lower level of neighborhood satisfaction and safety ("strongly disagree/disagree"), the responses were given a number of 1 or 2 (strongly disagree = 1 and disagree = 2) with a minimum score of 30. An ordinal variable of scores ranging from 30 to 120 was created. However, as suggested by LONGSCAN, in order to deal with issues of cell size the scores were collapsed into a dichotomous variable. Those who had scored above 60 were grouped into a single variable, "Yes" to neighborhood safety and those scoring 59 and below were grouped as "No" to neighborhood safety. The "No" group were used as the reference category in all analyses.

#### *History of Witnessed Violence*

Social contexts can either amplify or diminish the effects of negative life experiences. Research suggests that uncontrollable stress or a one-time stressful life event such as witnessing violence can have dramatic impacts on health outcomes. Conversely,

lack of exposure may also protect against negative health outcomes. The history of witnessed violence measure (Knight et al. 2008) was based on data from Wave 5 that captures the child's experience with witnessing a violent act. This measure was a composite of eight questions that asked the child how many times they had witnessed an act of violence. The violent act may have been amongst family, friends, in their school, or in their neighborhood. Violent acts included: arrests, slaps, gun violence, knife violence, cut/stabbings, shots, kill, murder, or sexual abuse. The lowest score for these variables (when summed) was 0 and the highest was 20. An ordinal variable was constructed to deal with issues of cell sizes, and the continuous measure was collapsed into three categories; 1 (0 times), 2 (one time), and 3 (two or more times). Those who had not witnessed a violent act were used as the reference category. Further information on the construction of this variable can be seen in Appendix A.

### *Social Support*

A measure of social support, was constructed from children's reports of the presence and ability to use others for social support. Social support measures included the availability of both familial and extrafamilial supportive adults. For each question on the availability of social support, possible LONGSCAN responses were either "Yes =1" or "No = 0". Responses were recoded and scored to reflect different variations in responses on the six questions. A score of 1 to 6 was used as indicating the presence of social support (answering yes to at least one questions indicated that the respondent had at least one individual they could use for social support). Those whose responses numbered from one to six were summed into a single variable, "Yes" to social support. A score of zero indicated that the respondent did not feel they had any type of social support. Those who had a score of zero on these questions were indicative of "No" to social support (the reference category). See Appendix A for details on the questions involved in this variable.

### *Religious Importance*

Lastly, religion is another possible resource that could protect adolescents from the harmful effects of adversity. The LONGSCAN staff asked children to indicate their level of religiosity/spirituality as well as religious institutional involvement. Children



were asked two questions about their religiosity – one on religious importance and the second on religious attendance. Responses for religious importance ranged from 1 (not at all) to 4 (very important). Those who responded “somewhat/very important” were considered to be religious individuals and given a value of 3 and 4, respectively. These were compared to those who responded “not at all/a little” who had been given a score of 1 and 2, respectively. Similarly, those who had attended religious or spiritual services between once a week (score of 3) to three or four times a month (score of 4) were considered religious. Those who had attended religious or spiritual services once a month or less in the last year were given scores of 0 for never, 1 for once or twice in the last year, and 2 for three to twelve times in the last year. Responses from the question on religious importance were either 1 or 2 and were added to responses from questions on religiosity which ranged from 0 to 2. The sum of responses to these questions resulted in an ordinal variable with a minimum score of 1 and maximum of 8. To deal with issues of cell size, the scores were collapsed into two categories, “Religious” (score of 4 or lower ) and “Not Religious” (score of 5 or higher) where not religious was used as the reference category. See Appendix A for detailed creation of this variable.

## Chapter 4

### 4 Results

A series of analyses was conducted to address the research questions posed in this study. The first research question was to identify the relationship between childhood adversity and adolescent mental health outcomes. To accomplish this, regression analysis was conducted in three stages. Model 1 sought to determine how type of adversity and level of risk were associated with scores on internalizing and externalizing behaviors. Model 2 introduced demographic variables to the models predicting internalizing and externalizing problems. A third model included contextual factors to address the second research question of this project – how social contexts are associated with mental health and developmental outcomes in adolescence. Interactions between basic demographic variables and social context variables were also conducted to determine if the relationship between social context and mental health differed by one’s location in the social structure.

The third research question asks, what factors are associated with health resilience under conditions of adversity? To address this question, logistic regression models were first estimated to examine how the type of adversity was related to resilient internalizing and externalizing outcomes. Model 2 then included basic demographic variables in addition to the adversity variable to examine how demographic variables mediated the relationship between disadvantage and resilience. Finally, Model 3 added variables on social context to further identify factors that promote or hinder resilient outcomes. Interactions between basic demographic variables and social context were also examined to isolate potential moderating effects.

#### 4.1 Descriptive Analyses

Table 5 provides a description of the LONGSCAN child and caregiver characteristics, as well as outcome variables and contextual variables of interest by site. In the LONGSCAN data, site also represents type of adversity ranging from those with pre/postnatal disadvantage to those with CPS reports of abuse. In the overall sample,

roughly 56 percent of children were considered to be “High Risk” and 44 percent were considered “Low Risk”. This varies slightly across the sites. Respondents at sites that focused on pre/postnatal disadvantage (EA), those with CPS reports but with family treatment (MW), those with substantiated CPS reports (NW), as well as those with a history of foster care (SW) all had a higher proportion of children in the high risk group than in the low risk group. Respondents who had been at risk of a CPS report at birth and had a report by age 4 (SO) had the lowest proportion of children in the high risk group (31 percent).

The overall sample included approximately 49 percent males, and 51 percent females, and this distribution was consistent across the sites. Although Whites make up 72 percent of the population in the United States (Humes, Jones and Ramirez 2011), African Americans were oversampled in this dataset and thus made up over half (55 percent) of the sample overall. In particular, the SO and MW sites (66 percent and 60 percent respectively) reflected the oversampling of African Americans in their site selection, but almost all respondents selected in the EA site were African American. The lowest proportion of African Americans (22 percent) was found in the NW site. Based on caregiver characteristics, the overwhelming majority of the sample (63 percent) had a high school diploma or less. Of those, less than a fifth had attained a tenth grade education. Caregivers at the NW site were the most highly educated of all sites, with the majority of respondents (52 percent) indicating they had thirteen or more years of education, and 22 percent having achieved 15 or more years. The marital status of the caregivers was relatively evenly distributed across three possible statuses (married, never married, other) but there was some variation by site. Approximately half were married in the SO, SW, and NW sites, while EA and MW sites were disproportionately never married. Lastly, demographic characteristics on household income revealed that the sample, overall, was disproportionately lower income with 58 percent of the caregivers reporting a household income of less than \$30, 000, and only 22 percent earning over \$45, 000. There is some variation across the sites; those who had previously been in the foster care system had the highest proportion of respondents with a household income of over \$45,000. Those who had been at risk for a CPS report (and were reported by age 4) (SO site) and those with CPS reports but participated in a family treatment plan (MW

site) showed the lowest household income levels, with 73 percent and 71 percent respectively reporting incomes less than \$30,000.

Table 5. Descriptive Statistics for Child and Caregiver Demographics, Outcome Variables, and Contextual Factors

	Analytical Sample (949)	EA (N=197)	SO (N=176)	Site MW (N=186)	SW (N=205)	NW (N=185)
<b>RISK LEVEL</b>	%	%	%	%	%	%
Low	44.6	43.6	69.4	40.5	31.9	41.3
High	55.5	56.4	30.6	59.5	68.1	58.7
<b>DEMOGRAPHICS</b>						
<i>Child's Gender</i>						
Male	49.3	54.0	45.0	45.2	48.5	53.9
Female	50.7	46.0	55.0	54.8	51.5	46.1
<i>Child's Race</i>						
African American	55.0	92.0	66.3	60.1	39.2	22.2
Caucasian	25.2	4.9	32.4	10.1	28.4	49.1
Other	19.8	3.1	1.3	29.8	32.4	28.7
<i>Caregiver Education</i>						
0-10 years	15.8	15.3	22.9	15.0	12.5	13.8
11 years	12.5	15.3	10.8	20.6	8.9	7.8
12 years	34.2	43.6	43.3	35.0	25.0	26.5
13 years	10.2	3.7	6.4	11.9	14.6	13.9
14 years	15.2	17.2	9.6	10.0	21.3	16.3
15+ years	12.1	4.9	7.0	7.5	17.7	21.7
<i>Marital Status</i>						
Married	38.3	27.6	41.0	28.1	49.5	43.4
Never Married	33.7	46.0	41.0	50.6	14.1	21.1
Other	28.0	26.4	18.0	21.3	36.5	35.5
<i>Household Income</i>						
14,999 or less	27.3	27.6	37.6	35.6	13.1	25.5
15,000-29, 999	31.9	34.4	35.0	35.0	27.2	29.1
30, 000 – 44, 999	18.4	20.3	15.3	15.6	18.9	21.8
45, 000+	22.4	17.8	12.1	13.8	40.8	23.6
<b>OUTCOME VARIABLES</b>	%	%	%	%	%	%
<i>Internalizing</i>						
30-59	76.9	81.0	77.6	83.8	70.8	67.6
60-63	8.8	6.8	9.6	6.9	10.3	10.4
64-100*	15.3	12.2	12.8	9.4	20.0	22.0

<b><i>Externalizing</i></b>							
	32-59	64.8	72.4	69.9	71.9	60.5	50.6
	60-63	11.1	6.8	10.9	9.4	13.9	14.0
	64-100*	24.1	20.9	19.2	18.8	25.6	35.4
<b>CONTEXTUAL</b>		%	%	%	%	%	%
<b>VARIABLES</b>							
<b><i>Neighborhood</i></b>							
<b><i>Satisfaction/Safety</i></b>							
	Yes	20.6	19.5	17.2	18.6	26.3	20.9
	No	79.4	80.5	82.8	81.4	73.7	79.1
<b><i>Social Support</i></b>							
	Yes	55.9	52.6	62.5	56.7	60.1	46.4
	No	44.1	47.4	37.5	43.3	39.9	53.6
<b><i>Religious</i></b>							
	Yes	48.1	45.9	56.2	47.4	42.9	48.2
	No	51.9	54.1	43.8	52.6	57.1	51.8
<b><i>Witnessed Violence</i></b>							
<b><i>(Acts)</i></b>							
	0	30.7	13.2	21.9	11.8	25.4	27.6
	1	15.9	11.9	27.1	8.5	28.0	24.6
	2+	53.5	27.9	16.8	18.3	21.1	15.8

*Source:* LONGSCAN Dataset

*Note:* Cases with missing data were not included in the percentages

\* Those with scores of 64 and above were considered to be at a clinically diagnosable level

#### Outcome Variables

As discussed in the literature review, behavioral development scores are considered a valid measure of mental health and adjustment (Guttmanova, Szanyi and Cali 2007). The selected outcomes of interest were internalizing T scores and externalizing T scores. In general, despite experiences of adversity, the majority of children did not display clinically diagnosable internalizing or externalizing scores. With regards to internalizing behaviors, 77 percent of the respondents in the sample had scores that fell within the normal range, and 15 percent were above the clinically diagnosable cut-off. Children with a history of foster care and those with substantiated CPS reports had the highest proportion of clinically diagnosable scores (20 percent and 22 percent respectively). In terms of externalizing behaviors, 65 percent of the sample scored within a normal range on externalizing behavior scores, ranging from a high of 72 percent amongst those with pre/postnatal disadvantage to a low of 50 percent amongst those with

substantiated CPS reports. Conversely, those with substantiated CPS reports had the highest proportion of clinically diagnosable scores at 35 percent of respondents sampled at that site. As for risk level, just over half (56 percent) of the overall sample was considered “high risk”.

### Contextual Variables

Table 5 also describes the distribution of contextual variables included in the analyses. These variables include neighborhood satisfaction and safety, social support, religiosity, and the number of acts of witnessed violence. Approximately 80 percent of the sample felt they were unsafe or were dissatisfied with their neighborhood, a proportion that was relatively consistent across the sites. In terms of social support, over half of the respondents (56 percent) reported that they had someone in their life available to provide support, either kin or non-kin. Those at risk for a CPS report with a report realized by age 4 (SO at 63 percent) as well as foster care children (SW at 60 percent) reported the highest levels of the presence of a social support network. In contrast, the majority (54 percent) of respondents with substantiated CPS reports at age 4 (NW) felt they did not have a supportive figure in their life. Religiosity was relatively evenly distributed across the sample over all. Slightly more (52 percent) respondents indicated religion was not important in their lives. This was consistent across sites, except for respondents from the SO site, who were more likely to indicate that religion was important to them (56 percent compared to 48 percent for the overall sample). Lastly, an overwhelming 70 percent of the sample had witnessed at least one act of violence in the last year. Foster care children, and those from sites with substantiated CPS reports had the highest proportion of respondents not experiencing any violence, while respondents in the pre/postnatal disadvantage site (EA) had the highest proportion of respondents (nearly 30 percent) who witnessed two or more acts of violence in the last year.

## 4.2 Multivariate Results

A series of models was estimated to examine possible mediating effects of demographic and social factors on internalizing and externalizing problems as well as potential predictors of resilience. The first research question of this project asks what the

relationship is between early adversity and health outcomes in adolescence? To begin, a multivariate OLS regression was estimated to establish baseline effects of type of adversity and risk level on internalizing and externalizing behaviors. Results from the analyses can be seen in Model 1 of Tables 6 and 7. Demographic characteristics were included in Model 2 to assess the associations between social structural location and internalizing and externalizing outcomes, while Model 3 included social contexts to determine their relationship with mental health outcomes net of other indicators of disadvantage. Model 4 included interaction terms (only significant coefficients are presented in Tables 6 and 7) to determine if social context had a different relationship with existing outcomes depending on one's location in the social structure.

#### Child Internalizing Behavior Scores

The first set of analyses examined the relationship between type of adversity and risk level and internalizing behaviors. In Model 1 of Table 6, children with CPS reports of abuse by age 4 (SO site), CPS reports but participated in family treatment (MW site), children with foster care experiences (SW site), and those with substantiated CPS reports (NW site) were compared to the reference category consisting of children who were sampled from the pre/postnatal adversity site (EA). Children who had been reported to CPS by age 4 ( $\beta = 2.14$ ), those with a history of foster care ( $\beta = 3.86$ ), and those with substantiated CPS reports ( $\beta = 6.33$ ) all had higher internalizing behavior scores, which indicates worse behavioral outcomes, compared to those children with pre/postnatal adversity. Children who had CPS reports but whose families had participated in a treatment plan (MW) were not significantly different than children in the EA site who had been selected due to a risk of pre/postnatal adversity. These significant relationships persisted across sites even after demographic and contextual factors were included in Models 2 and 3. Those with substantiated CPS reports in the NW, foster care children of the SW site, and those reported to CPS by age 4 in the SO site, had higher average internalizing scores compared to those with pre/postnatal adversity in the EA site, although the size of the effect was reduced slightly (from 3.86 to 3.16 in the SW site and 6.33 to 4.94 in the NW site and 2.14 to 1.62 in the SO site) once contextual factors were included. The non-significant negative coefficients for adolescents who had participated

in family treatment plans in early life remained unchanged across the models. When looking at risk level, those who were considered to be at high risk for developing negative internalizing behaviors by age 14 had slightly worse ( $\beta = 0.98$ ) internalizing behavior scores than those who were at lower risk for developing such behaviors, although this effect was not significant. Risk level remained non-significant across Models 2 and 3.

I next examined the relationship between gender, race, caregiver education, and household income and internalizing behaviors, while controlling for other variables. Model 2 shows that there were no significant gender or race/ethnic differences in internalizing behaviors at age 14. The association between race/ethnicity and internalizing behaviors increased when contextual variables were included, becoming significant in the final model with Whites having higher average levels of internalizing scores than African Americans. Caregiver's marital status was not significantly associated with internalizing behaviors in adolescence. In terms of caregiver education, children with parents with high school education or less had lower internalizing behavior scores than those with more educated parents and this relationship increased in size from Model 2 to 3 ( $\beta = -1.82$  in Model 2 and increased to  $\beta = -2.37$  in Model 3), attaining significance in Model 4. Lastly, children from lower income households (household income under \$30,000 in the last year) had significantly higher levels of internalizing behaviors ( $\beta = 0.96$ ) in Wave 5 net of other demographic characteristics in Model 2, and this decreased slightly ( $\beta = 0.68$ ) when contextual variables were included, attaining significance in Model 4.

Next, contextual variables were included in the OLS regressions to examine if these factors helped to explain the relationship between other indicators of adversity and the outcome of interest (internalizing scores). Of these indicators, only neighborhood safety had a significant relationship with internalizing behaviors, with adolescents perceiving that their neighborhood was a safe place having lower average levels of internalizing behaviors.

To test whether or not social contexts had the same effects depending on one's social location, interaction terms were added to linear regression models testing



interactions between basic social status indicators (gender, race, income) as well as risk level and social context. Only significant interactions are presented in Table 6. Model 4 shows there is a significant interaction between gender and religiosity for girls which indicates worse outcomes (higher average level of internalizing behaviour) among religious girls ( $-1.59 + 3.75 = 2.16$ ). Similarly, the effect of social support as a buffer against the harmful effects of adversity differs by income. Children from lower income households benefit more from having access to social support compared to those of higher income, with social support associated with lower average levels of internalizing behaviour for low income children only ( $1.47 + (-4.17) = -2.70$ ). The effect of the other variables remained consistent in the final models with the exception of risk level. Risk level was found to be significant in Model 4, with high risk status associated with higher scores on internalizing behaviors, although the reason for this result is unclear.

Table 6. Linear Regressions of Child Internalizing Behavior Scores for LONGSCAN Sample (N=949)

	<b>Model 1: Site <math>\beta</math> (standard error)</b>	<b>Model 2: Demographics <math>\beta</math> (standard error)</b>	<b>Model 3: Contextual Variables <math>\beta</math> (standard error)</b>	<b>Model 4: Interaction Effects <math>\beta</math> (standard error)</b>
<b>Intercept</b>	<b>47.05</b>	<b>47.56</b>	<b>49.26</b>	<b>47.90</b>
<b>Type of adversity (vs. Pre/Postnatal Adversity (EA site))</b>				
CPS Report by Age 4 – SO site	2.14 (1.45)*	1.56 (1.50)*	1.62 (1.52)*	1.76 (1.50)
CPS & Treatment – MW site	-1.04 (1.62)	-1.16 (1.67)	-1.20 (1.66)	-1.13 (1.64)
History of Foster Care – SW site	3.86 (1.50)**	3.44 (1.67)**	3.16 (1.68)*	3.71 (1.58)
Substantiated CPS report - NW	6.33 (1.47)***	5.46 (1.72)**	4.94 (1.73)**	4.95 (1.71)*
<b>Risk level (vs. low risk)</b>				
High Risk	0.98 (1.12)	1.15 (1.12)	1.24 (1.12)	2.11 (0.98)*
<b>Child Sex (vs. Male)</b>				
Female		-0.28 (0.95)	-0.41 (0.96)	-2.33 (1.34)
<b>Child Race (vs. African American)</b>				
White		2.07 (1.37)	2.50 (1.39)	2.69 (1.38)*
Other		-1.02 (1.52)	-0.28 (1.54)	-0.18 (1.52)

**Caregiver Marital Status (vs. Married)**

Never Married

0.76 (1.27)

0.41 (1.27)

0.43 (1.26)

Other

-0.53 (1.26)

-0.70 (1.27)

-0.58 (1.26)

**Caregiver Education (vs. > 13years)**

≤ 12 years

-1.82 (1.05)

-2.37 (1.06)

-2.15 (1.05)\*

**Caregiver Household Income (vs. ≥ 30K)**

≤ 29.9K

0.96 (1.09)

0.68 (1.09)

3.11 (1.57)\*

**Child Witnessed Violence (vs. None)**

1 acts

-0.20 (1.42)

-0.23 (1.40)

2+ acts

0.35 (1.14)

0.37 (1.13)

**Has Social Support**

-0.92 (0.98)

1.47 (1.48)

**Is Religious**

0.18 (0.97)

-1.59 (1.34)

**Safe Neighborhood**

-3.92 (1.23)

-3.99 (1.22)\*\*

**Gender x Religious**

3.75 (1.91)\*

**Household Income x Social Support**

-4.17 (1.93)\*

† p&lt;0.10

\* p&lt;0.05

\*\* p&lt;0.01

\*\*\* p&lt;0.001

## Child Externalizing Behavior Scores

As with analyses regarding internalizing behaviors, the baseline relationship between type of adversity and risk level and externalizing behaviors was examined first. Those with CPS reports of abuse by age 4 (SO), those who had participated in family treatment (MW), children with foster care experiences (SW), and those with substantiated CPS reports (NW) were compared to those in the pre/postnatal adversity sample (EA). Children who had been reported to CPS by age 4, those with a history of foster care, and those with substantiated CPS reports (ranging from  $\beta = 1.59$  to  $\beta = 4.79$ ) all had higher externalizing behavior scores, indicating worse mental health and social developmental outcomes, compared to children from the pre/postnatal adversity site. Children who had CPS reports but whose families had participated in a treatment plan (MW) were not significantly different than children in the EA site. These significant relationships persisted across Models 2 and 3. Those with substantiated CPS reports in the NW site, and foster care children of the SW site ( $\beta = 1.40$ ) were more likely to have higher externalizing scores across the models when compared to those with pre/postnatal adversity from the EA site, in Model 3. The non-significant coefficients for adolescents who had participated in family treatment, as well as those who had been reported to CPS by age 4 remained unchanged across the models. Associations between risk level and externalizing scores were also examined and those who were at high risk for developing negative externalizing behaviors by age 14 had slightly worse ( $\beta = 0.84$ ) externalizing behavior scores than those who were at low risk, although this effect was not significant and remained so across Models 2 through 4.

Next, I was interested in the extent to which key demographic characteristics are associated with externalizing behaviors. Gender, race, caregiver education, and household income were all introduced in Model 2. The coefficient for gender was not significant, however race/ethnicity was a significant predictor of externalizing behaviors in Model 4 once interaction variables were included, with Whites having higher average levels of externalizing behaviors than African Americans. Caregiver's marital status was not significant across the models, however, level of education was, with children of less educated parents having lower levels of externalizing behavior problems net of other

factors. This increased in strength ( $\beta = -2.46$ ) when social context variables were included, persisting in significance from Model 3 to Model 4.

Variables that represented social contexts were included to determine if they were protective against the harmful effects of adversity. In the final model, witnessing two or more acts of violence was associated with worse externalizing behaviors when compared to those who had not witnessed any violence in the last year. In contrast, living in a safe neighborhood ( $\beta = -2.88$ ) was associated with lower levels of externalizing behaviors net of other factors. Religiosity and having social support were not found to be significant predictors of externalizing behaviors.

To test whether or not social contexts had the same effect across social location, interaction terms were added to linear regression models testing interactions between basic social status indicators (gender, race, and income), risk level and social context. Model 4 of Table 7 shows that there is a significant interaction between gender and religiosity indicating worse outcomes on externalizing behaviors at Wave 5 for religious girls but not for boys ( $-0.10 + 3.89 = 3.79$ ). In addition, neighborhood safety had a larger effect on externalizing behaviors for low income individuals. Low income individuals who felt safe in their neighborhood ( $-0.50 + (-5.31) = -5.81$ ) had lower average levels of externalizing behaviour. Neighborhood safety did not have an effect on externalizing behaviour for adolescents from higher income households. Such an association indicates that neighborhood safety buffers the harmful effects of adversity differently by social class, with low income individuals benefiting more from a safe neighborhood. Finally, the interaction between low income and adversity was significant. High risk status was associated with higher levels of externalizing behaviour among low income adolescents only ( $1.59 + 5.14 = 6.73$ ).

Table 7. Linear Regressions of Child Externalizing Behavior Scores for LONGSCAN Sample (N=949)

	<b>Model 1: Site <math>\beta</math> (standard error)</b>	<b>Model 2: Demographics <math>\beta</math> (standard error)</b>	<b>Model 3: Contextual Variables <math>\beta</math> (standard error)</b>	<b>Model 4: Interaction Effects <math>\beta</math> (standard error)</b>
<b>Intercept</b>	<b>51.79</b>	<b>50.88</b>	<b>51.27</b>	<b>49.60</b>
<b>Type of adversity (vs. Pre/Postnatal Adversity (EA site))</b>				
CPS Report by Age 4 – SO site	1.59 (1.47)	1.05 (1.52)	1.48 (1.54)	1.40 (1.52)
CPS & Treatment – MW site	-0.66 (1.65)	-1.30 (1.70)	-1.29 (1.69)	-1.24 (1.67)
History of Foster Care – SW site	2.18 (1.53)*	1.46 (1.70)*	1.40 (1.71)	1.81 (1.61)
Substantiated CPS report - NW	4.79 (1.50)**	3.84 (1.75)**	3.70 (1.76)**	3.65 (1.74)*
<b>Risk level (vs. low risk)</b>				
High Risk	0.84 (1.14)	0.94 (1.14)	1.02 (1.14)	1.59 (1.00)
<b>Child Sex (vs. Male)</b>				
Female		1.77 (0.97)	1.84 (0.98)	-0.10 (1.36)
<b>Child Race (vs. African American)</b>				
White		1.57 (1.40)	2.26 (1.42)	2.48 (1.40) <sup>†</sup>
Other		0.71 (1.54)	1.41 (1.56)	1.75 (1.55)

<b>Caregiver Marital Status (vs. Married)</b>			
Never Married	1.45 (1.29)	1.12 (1.30)	1.22 (1.28)
Other	0.26 (1.28)	0.04 (1.29)	0.43 (1.28)
<b>Caregiver Education (vs. <math>\geq 13</math> years)</b>			
$\leq 12$ years	-1.86 (1.06)	-2.46 (1.08)*	-2.20 (1.07)
<b>Caregiver Household Income (vs. <math>\geq 30</math>K)</b>			
$\leq 29.9$ K	0.96 (1.11)	0.68 (1.11)	3.50 (1.63)*
<b>Child Witnessed Violence ( vs. None)</b>			
1 acts		0.76 (1.44)	0.61 (1.43)
2+ acts		2.16 (1.16)	2.28 (1.14)*
<b>Has Social Support</b>		-0.99 (1.00)	0.87 (1.51)
<b>Is Religious</b>		-0.34 (0.99)	-2.15 (1.37)
<b>Safe Neighborhood</b>		-2.88 (1.25)**	-0.50 (1.68)
<b>Gender x Religious</b>			3.89 (1.95)*
<b>Low Income x Safe Neighborhood</b>			-5.31(2.44)*
<b>Low Income x High Risk</b>			5.14(1.96)**

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† p<0.10

\* p<0.05

\*\* p<0.01

\*\*\* p<0.001

## Child Resilience on Internalizing Behaviors

In the next portion of the analysis, logistic regression models were estimated to examine the relationship between adversity and child resilience. It should also be emphasized that the sample for this portion of the analysis consists only of those in the high risk group, as it is this group that best fits conceptually with the concept of resilience. The respondents involved in this analysis were those in LONGSCAN high risk (rather than comparison) groups across all five sites. Therefore, it would be incorrect to directly compare the results of models of internalizing and externalizing behaviour shown in Tables 6 and 7 to results on resilience in these outcomes found in Tables 8 and 9. For this portion of the analysis, the outcome variables, resilience on internalizing/externalizing behaviors, were coded such that the reference category was “not resilient” while the outcome of interest was “resilience”. These are adolescents who despite their higher risk status had normal or borderline outcomes in internalizing (and externalizing) behaviors. Model 1 is the baseline model and includes indicators of type of adversity (understood as selection criteria for each site). Model 2 of Tables 8 and 9 further included basic demographic characteristics to examine their effect on internalizing and externalizing resilience, and Model 3 included contextual factors that may either protect or amplify the effects of adversity and social location and contribute to resilient outcomes. Model 4 of Table 8 shows results of interaction effects between indicators of adversity and social context.

First, I was interested in whether type of adversity had an effect on resilience in internalizing behaviors. From the baseline model, we can see that high risk children who had been reported to CPS by age 4 (SO), foster care children (SW) and those with substantiated CPS reports (NW) were more likely to be resilient in internalizing behaviors than those who were selected as part of the pre/postnatal adversity sample. Amongst all the sites, children who had been reported to CPS by age 4 were the most likely to be resilient in internalizing behavior scores in Wave 5 ( $\beta = 1.11$ ). These relationships were mostly consistent across Models 2 and 3 which included social location and contextual factors.



Next, I was interested in the extent to which key demographic variables such as gender, race, caregiver education, and household income were associated with resilient outcomes on internalizing behaviors. No gender or race differences in resilience were found in Model 2 and this persisted in Model 3 when contextual variables were included. Similarly, neither caregiver marital status nor caregiver education/income were found to be significant across the models.

I then investigated the effect of witnessing violence, having social support, being religious, and neighborhood safety on predicting resilience in adolescence amongst children faced with adversity (see Model 3 of Table 8). Those who had witnessed violence were less likely to experience resilient outcomes compared to those who had not witnessed any violence in the past year. Children who responded that they had seen at least one act of violence in the last year were less likely to experience resilient outcomes ( $\beta = -1.14$ ) while multiple acts had no additional effect ( $\beta = -0.29$ ). The presence of social support ( $\beta = 0.54$ ) and religiosity ( $\beta = 0.14$ ) were not significantly associated with resilience in internalizing outcomes. However, those who felt safe in their neighborhood ( $\beta = 0.58$ ) were significantly more likely to be resilient in internalizing behaviors.

In the final set of analyses, interaction terms were included to determine if contextual factors had a different effect on resilience depending on location in the social structure. The only significant interaction was between income and social support. Although social support was not significant in Model 3, the interaction term shows that social support is only protective for low income adolescents. Low income adolescents were less likely to benefit from the protective effects of social support than higher income adolescents ( $0.33 + (-1.73) = -1.40$ ).

Table 8. Logistic Regression of Resilience in Internalizing Behaviors for LONGSCAN Sample (N=540)

	<b>Model 1: Site <math>\beta</math> (standard error)</b>	<b>Model 2: Demographics <math>\beta</math> (standard error)</b>	<b>Model 3: Mediating Variables <math>\beta</math> (standard error)</b>	<b>Model 4: Interaction Effects <math>\beta</math> (standard error)</b>
<b>Intercept</b>	<b>-2.05</b>	<b>-2.11</b>	<b>-1.28</b>	<b>-1.71</b>
<b>Type of adversity (vs. Pre/Postnatal Adversity (EA site))</b>				
CPS Report by Age 4 – SO site	1.11 (0.54)*	0.93 (0.56)	1.14 (0.59)*	1.16 (0.60)*
CPS & Treatment – MW site	-0.54 (0.71)	-0.75 (0.73)	-0.66 (0.74)	-0.66 (0.78)
History of Foster Care – SW site	0.42 (0.45)**	0.31 (0.51)*	0.38 (0.53)*	0.76 (0.57)*
Substantiated CPS report - NW	0.70 (0.50)***	0.48 (0.57)**	0.46 (0.59)**	0.50 (0.61)*
<b>Child Sex (vs. Male)</b>				
Female		-0.33 (0.31)	-0.37 (0.33)	-0.45 (0.35)
<b>Child Race (vs. African American)</b>				
White		0.52 (0.42)	0.41 (0.43)	0.10 (0.47)
Other		0.18 (0.47)	0.17 (0.49)	0.50 (0.53)
<b>Caregiver Marital Status (vs. Married)</b>				
Never Married		0.18 (0.42)	0.14 (0.44)	0.70 (0.45)
Other		-0.12 (0.42)	-0.13 (0.41)	-0.33 (0.44)

<b>Caregiver Education (vs. &gt; 13years)</b>			
≤ 12 years	-0.16 (0.34)	-0.24 (0.35)	-0.23 (0.40)
<b>Caregiver Household Income (vs. ≥ 30K)</b>			
≤ 29.9K	0.43 (0.36)	0.37 (0.37)	1.29 (0.54)*
<b>Child Witnessed Violence (vs. None)</b>			
1 acts		-1.14 (0.56)*	-1.18 (0.58)*
2+ acts		-0.29 (0.35)	-0.39 (0.37)
<b>Has Social Support</b>		0.54 (0.33)	0.33 (0.52)
<b>Is Religious</b>		0.14 (0.32)	-0.07 (0.35)
<b>Safe Neighborhood</b>		0.58 (0.47)*	0.56 (0.50)
<b>Low Income x Social Support</b>			-1.73 (0.70)**

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† p<0.10

\* p<0.05

\*\* p<0.01

\*\*\* p<0.001

## Child Resilience on Externalizing Behaviors

The last set of analyses addresses what factors are associated with resilience in externalizing behaviors amongst those who faced adversity as children. Similar to the previous analyses, logistic regression analysis was conducted in three stages (see Table 9). The outcome variable, resilience in externalizing behaviors, compares those in the reference category (not resilient) to those considered resilient. Model 1 is the baseline and includes only the indicators of adversity. Model 2 introduces key demographic characteristics and Model 3 introduces social context that may mediate relationships found in Models 1 and 2.

First, I was interested in whether type of adversity had an effect on resilience in externalizing behaviors. From the baseline model we can see that only high risk children with substantiated CPS reports (NW) ( $\beta = 0.76$ ) were significantly more likely to be resilient in externalizing behaviors across all three models, than those in the pre/postnatal adversity sample (EA). The inclusion of demographic characteristics and social context did not change this association.

Next, gender, race, caregiver education, and household income were examined to address questions of the effect of demographic characteristics on resilience in externalizing outcomes. No significant associations were found between demographic characteristics and resilience in externalizing behaviors at age 14. These relationships were found to remain insignificant when contextual variables were included in Model 3.

The next association of interest was the impact that contextual factors such as witnessing violence, having social support, being religious, and neighborhood safety had on resilience amongst children faced with adversity. As with demographic characteristics, these associations were not found to be significant predictors of resilience in externalizing behaviors in adolescence.

The final set of analyses examined the impact of contextual variables with respect to one's social location, with interaction terms included in logistic regression models to test interactions between social status indicators and social context. In the end, none were found to be statistically significant in determining if some groups were more likely to be

resilient in externalizing behaviors and therefore were not included in the models presented in Table 9.

Table 9. Logistic Regression of Resilience in Externalizing Behaviors for LONGSCAN Sample (N=477)

	<b>Model 1: Site <math>\beta</math> (standard error)</b>	<b>Model 2: Demographics <math>\beta</math> (standard error)</b>	<b>Model 3: Mediating Variables <math>\beta</math> (standard error)</b>
<b>Intercept</b>	<b>-1.48</b>	<b>-1.89</b>	<b>-2.00</b>
<b>Type of adversity (vs. Pre/Postnatal Adversity (EA site))</b>			
CPS Report by Age 4 – SO site	0.69 (0.49)	0.55 (0.50)	0.67 (0.52)
CPS & Treatment – MW site	-0.34 (0.54)	-0.58 (0.56)	-0.56 (0.57)
History of Foster Care – SW site	0.21 (0.37)	0.30 (0.43)	-0.33 (0.44)
Substantiated CPS report - NW	0.76 (0.42)*	0.83 (0.49)*	0.81 (0.50)*
<b>Child Sex (vs. Male)</b>			
Female		0.27 (0.27)	0.28 (0.28)
<b>Child Race (vs. African American)</b>			
White		0.04 (0.29)	0.12 (0.39)
Other		0.02 (0.39)	0.29 (0.40)
<b>Caregiver Marital Status (vs. Married)</b>			
Never Married		0.19 (0.36)	0.10 (0.37)
Other		-0.29 (0.35)	-0.31 (0.36)

<b>Caregiver Education ( vs. <math>\geq 13</math> years)</b>		
$\leq 12$ years	0.03 (0.29)	-0.10 (0.30)
<b>Caregiver Household Income ( vs. <math>\geq 30</math>K)</b>		
$\leq 29.9$ K	0.42 (0.31)	0.32 (0.32)
<b>Child Witnessed Violence (vs. None)</b>		
1 acts		0.10 (0.44)
2+ acts		0.62 (0.33)
<b>Has Social Support</b>		-0.25 (0.29)
<b>Is Religious</b>		0.23 (0.28)
<b>Safe Neighborhood</b>		-0.65 (0.40)

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† p<0.10

\* p<0.05

\*\* p<0.01

\*\*\* p<0.001

## Chapter 5

### 5 Discussion

#### 5.1 Discussion

Previous research suggests that there is a need for the study of mental health resilience from a sociological perspective. The life course perspective, stress process paradigm, and cumulative disadvantage theories together argue that social factors and exposure to stressors early in life have a negative impact on mental health. Research also shows that many children have positive mental health outcomes despite adversity and these outcomes can be identified as early as in adolescence. Although psychological studies have attempted to explain resilience despite adversity in terms of personality traits and self-efficacy or mastery, sociology has not furthered the discussions with the use of structural and individual level intersections. Thus, this research project was an attempt to understand adolescent health resilience from a perspective that intersects the individual and the structural.

The salutogenic model of health provides a unique framework for examining positive health outcomes within the public health domain. Antonovsky (1979) developed the salutogenic model in response to the lack of research on factors that determine positive health outcomes. His concerns stemmed from research in the industrialized world showing that despite constant stress and pathogenic exposures, individuals not only survive these adversities, but many thrive in their health outcomes. Although structural level factors determine exposure and also resources for health promotion, the individual is also a necessary participant in the health promotive response. Schafer, Shippee and Ferraro (2009) similarly emphasize this concept when discussing resilience research. They suggest that individuals who are faced with disadvantage must recognize their disadvantage as an adversity and actively take part in generating a healthy response. Using these approaches together, the examination of meso-level factors and an individuals' response to disadvantage become important to resilience research.



Three research questions guided this study: what is the relationship between childhood adversity and adolescent mental health outcomes? Next, to what extent are positive social environments protective against the harmful effect of early adversity on mental health, and do these contexts have the same effects depending on one's location in the social structure? Finally, what factors are associated with mental health resilience amongst those who faced adversity as children, and are these effects consistent across social location?

To answer these questions, the LONGSCAN dataset was selected for analyses. LONGSCAN is a longitudinal dataset that follows children and their caregivers from age 4 to 18. At baseline, the study had 1,354 child-caregiver dyads and at Wave 5 retained 949 of these dyads. Children were selected according to risk factor status at initial recruitment. This included those who had referrals to Child Protection Services, those who had been placed in foster care, and those who had an HIV positive mother or were born with a low birth weight. It should be made clear that although the LONGSCAN dataset divided respondents into two comparison groups ("high risk group" and "comparison group") most members of the sample likely faced some degree of adversity; thus the LONGSCAN dataset is disproportionately comprised of disadvantaged children. Such a sample provided insight into an often hard to reach population while the level of detail in questions asked of caregivers and children also allowed for a deeper level of analysis.

Few children are likely to meet criteria that are used to diagnose mental health disorder, therefore internalizing and externalizing spectra have been used in the past to conceptualize psychopathology in childhood and adolescence. As well, they are used as early indicators of later mental health problems (Leadbeater et al. 1999). The CBCL has been widely recognized as an accurate and valid measure of child internalizing or externalizing problems, and was therefore used in this analysis to measure mental health and developmental outcomes at Wave 5.

The first goal of this study was to establish the relationship between early adversity and health outcomes in adolescence. Consistent with previous literature, a relationship was found between adversity and both internalizing and externalizing

outcomes. Participants at each site were recruited based on different types of adversity. Those with substantiated CPS reports had the worst internalizing and externalizing behaviors at age 14. As mentioned earlier, CPS reports are made if there is reason to believe a child was being abused, neglected, or otherwise maltreated and a substantiated report confirms some sort of maltreatment has occurred. Closely following this group of respondents in terms of negative health outcomes were those in foster care. The experiences shared in both types of adversity have been shown to be linked with higher levels of negative internalizing and externalizing behaviors over time (Gilliom and Shaw 2004). One's exposure to the stressors associated with maltreatment, neglect, abuse, and the instability of foster care are indicative of later psychopathology. Research on child abuse, neglect, and maltreatment demonstrates that the mechanisms through which negative health outcomes are manifested relate to the inability to trust figures and individuals in one's life whose roles are typically to provide support, safety, a nurturing or caring environment, as well as stability (Liu, Chen and Lewis 2011). Problems with social situations, anxiety and depression, delinquency and aggressive behavior have been shown to significantly increase over time with the presence of child abuse or maltreatment. Unlike those with substantiated CPS reports or foster care experience, those with unsubstantiated CPS reports who had been a part of a six month treatment program, as well as those who were faced with pre/post-natal adversity, had lower average internalizing/externalizing scores, although these were not found to be significant. These respondents include infants who were categorized as failing to thrive or who were born under conditions of prenatal drug use/ HIV positive mothers. They represent the group of children who may have had the longest exposure to a stressful context (adverse conditions in utero and unhealthy start to life).

Prenatal conditions were not as strong predictors of high levels of internalizing and externalizing behaviors as the social contexts and adversity level of the respondents. Risk levels were also analyzed to investigate if those who were at very high risk for negative mental health outcomes at age 4 were likely to have higher levels of psychopathology at age 14. Although risk levels were associated with worse outcomes on internalizing and externalizing behaviors, these relationships were not as important as

type of adversity, and were only associated with internalizing behaviors in the final model.

To examine if demographic characteristics were associated with internalizing and externalizing behaviors gender, race, (caregiver) marital status, (caregiver) education, and (caregiver) household income were also examined. Literature on the social determinants of health suggests that social location is a fundamental determinant of health (Link and Phelan 1995) and fundamentally affects health outcomes over time, more so than individual level factors such as lifestyle behaviors. Link and Phelan (1995), who developed fundamental cause theory, suggest that social determinants act as fundamental causes of disease due to their pervasive nature. Social determinants not only embody access to important resources such as nutritious food and proper health care, they also maintain an association with disease and ill health even when intervening mechanisms change and affect multiple disease outcomes (Link and Phelan 1995). These characteristics were shown to persist in the analysis of early adversity and adolescent health outcomes.

Caregiver income was selected as a rough proxy for childhood socioeconomic conditions. Children from low income households had higher average levels of internalizing behaviors over time. As noted earlier, almost 60 percent of respondents in this sample lived in low income household income (under \$30, 000) in the last year. Research has shown that resources which can be provided with income have the ability to mediate psychopathology. For example, those who fluctuate in and out of poverty are often food insecure, and the resulting experience of food insecurity has been linked with higher levels of negative internalizing and externalizing behaviors (Slopen et al. 2010). At baseline, just over half of the LONGSCAN caregivers were receiving food stamps, and about a third of caregivers were worried about providing their families with the basic necessities of life.

Mechanisms that may explain associations between poverty and food insecurity and later mental health problems may be related to a few processes. Routines around meals and food provide comfort and security (Slopen et al. 2010). Moreover, during childhood, cognitive and physiological developments are particularly dependent on a

balanced and nutritious meal (Feldman 2012). The impact healthy development in childhood has on academic outcomes, as well as social learning may be reflected in later adolescent psychopathology (Slopen et al. 2010). Limited prospective research has been conducted on the correlation between income, food insecurity, and mental health outcomes thus may be considered in future research (specifically in externalizing and internalizing psychopathology) (Slopen et al. 2010).

Contrary to much existing literature, findings for the impact of race, education, and gender were, for the most part found not to be significant. A few explanations may be explored as to why. Whites were found to have worse internalizing and externalizing behavioral outcomes, when compared to African Americans and other race/ethnic groups. Most literature shows that in the United States, African Americans are disproportionately located in more disadvantaged situations than their White counterparts (Franko et al. 2004). They are also at an increased risk of experiencing negative life events and this has been shown to increase their risk for internalizing and externalizing behaviors. Not all research agrees, however, that being an ethnic minority youth is correlated with worse mental health outcomes. For example, Franko et al. (2004) show that although African Americans may be subjected to a larger number of more serious stressors, they are no more likely to experience depressive symptoms than their White counterparts. This may occur through mechanisms of normalization of disadvantage and life histories of those around them. Similarly, peer relations amongst the African American community may be concerned with looking “weak” and so internalizing and externalizing problems may be seen as vulnerable or needy and thus their responses to life events may employ the use of more buffering mechanisms in order to not appear vulnerable (Criss et al. 2002).

Lastly, results regarding education were the least consistent with the majority of existing literature, in that children of caregivers with lower levels of education (high school or less) were associated with lower levels of internalizing and externalizing behaviors, indicating better outcomes. Few studies have examined the relationship between caregiver education and internalizing and externalizing behavior and as a result, current literature is mixed on whether or not caregiver education is correlated with these behavioral outcomes (Wang 2009). Most current literature on this topic is cross-sectional

in nature, or the length of time analyzed amongst longitudinal studies is relatively short (less than five years) (Wang 2009). Some literature suggests that increased maternal education is associated with poorer peer relations amongst their children (worse externalizing behaviors) and also lower internalizing outcomes (Wang 2009). Other research suggests that high maternal education is linked with better socioemotional development, and thus more positive internalizing and externalizing behaviors (Cardamone 1998). Card (2001), on the other hand, argues that maternal/caregiver education are not predictors of socioemotional development. Such accounts should be taken into consideration when examining the results of this project. The majority of primary caregivers in the LONGSCAN sample were identified as biological mothers or female caregivers and so the educational attainment of the caregiver during data collection should be taken into account when explaining the relationships found. A significant proportion of caregivers had completed post-secondary education over the period of ten years between Waves 1 and 5 and stresses associated with completing post-secondary education while taking care of a family may have, by virtue of linked lives, had an impact on the child. Furthermore, the level of maternal involvement in children's home and school activities may be reflective of the mother's educational process. If caregivers were taking time to complete higher levels of education, it is possible that during that time, maternal or family involvement in children's home and school activities were lower and internalizing/externalizing behaviors were higher than those of lower educated caregivers.

The second research question asked how contextual factors affect the relationship between early childhood adversity and adolescent mental health outcomes. Witnessing violence, having social support, religiosity and participation in religious institutions, and feeling safe in one's neighborhood were examined as examples of (meso-level) social contexts that describe one's connection to the broader community and hold the potential to reduce or magnify the harmful effects of adversity. The significant associations found between the meso-level factors of neighborhood safety, witnessing violence and adolescent mental health outcomes may be explained by understanding what mechanisms might produce such outcomes. First, individuals must be understood as contextualized within their neighborhood and social environment, which can be seen as meso-level

structures that have the potential to influence adolescent and adult mental health outcomes. Neighborhoods, as clusters of people living in close proximity to one another, can intensify exposure to stressors, as well as restrict access to social psychological resources (Aneshensel 2010). The spatial, structural and social dimensions of a neighborhood have the potential to create contexts of disadvantage for individuals thus are important factors to consider in analyses. The structural dimensions of a neighborhood are characterized by socioeconomic and demographic characteristics of individuals (Aneshensel 2010). Structural dimensions of a neighborhood may be measured by the proportion of individuals who live below the poverty line, those receiving public assistance, or the presence of youth idleness. Impoverished neighborhoods often have a physical environment that is deteriorating, which oftentimes leads to increased public deviance, forcing individuals to stay inside and reducing social connections. Moreover, the social dimensions of neighborhoods are influenced by social norms and culture. Because neighborhoods act as normative controls, disordered neighborhoods may cause stress and psychological distress. Crime, vandalism, and loitering are signs that social control in that area is lacking, and can cause individuals to feel fear in their neighborhood. Withdrawing socially loosens surveillance and control over behaviors and increases social problems and criminal acts, inducing a cycle of neighborhood disorder and decreased cohesion (Massey and Denton 1993). Again, those who have negative neighborhood perceptions may have worse mental health and behavioral outcomes due in part to the social contexts within which they live. Stress of neighborhood disadvantage may proliferate and in turn affect mental health and developmental outcomes.

Interactions terms were also introduced to test whether contextual factors had the same effect depending on one's social location. For internalizing behaviors, social support was found to be particularly protective for low income individuals, leading to better health outcomes. Similarly, for examining externalizing behaviors, lower income individuals benefited from a safe neighborhood more so than higher income individuals. For both mental health and behavioral outcomes, religiosity differed in its effects for boys and girls. Being religious was found to further negative outcomes for girls but not boys.

The last goal of this research project was to determine what factors generate resilience in mental health outcomes in adolescence. Resilience in the health literature is seen as a positive health outcome, most often in response to stressors and adversity. Schafer, Shippee and Ferraro (2009) also highlight that not all disadvantage accumulates in a negative response, but rather, often times there is a positive response to disadvantage and adversity. Such results can be seen here. For both internalizing and externalizing behaviors, a significant proportion of children had normal scores despite their disadvantaged backgrounds. In response, three different relationships were examined: how type of adversity affected the likelihood of resilience in mental health outcomes, how demographic characteristics contribute to resilience, and lastly, how social context impacts the relationship.

It should also be emphasized that the sample used in analyses of resilience was exclusively restricted to those in the high risk group. Conceptually, they were chosen because research suggests that those who are the most disadvantaged are more likely to have negative mental health outcomes over time, and the least likely to have a resilient response. When operationalized, the respondents involved in this analysis were those in LONGSCANs high risk groups across all five sites.

The first set of analyses of resilience isolated a relationship between different types of adversity and resilience in internalizing and externalizing outcomes amongst those in the high risk groups. Despite their experiences of abuse and maltreatment, children with substantiated CPS reports and those in foster care had a greater likelihood of resilience, although the relationship was weak. This relationship may reflect an important aspect in the mechanisms related to Antonovsky's and Schafer, Shippee, and Ferraro's work. Schafer et al. (2009) indicate that one of the major processes involved in developing resilience in mental health is recognition of disadvantage and constructing it as an adversity in one's life in order to overcome the potential negative outcomes. Perceiving disadvantage as an adversity to be overcome may be one mechanism through which a pathway of positive outcomes may begin. There are a number of possible explanations for why many of the results in these exploratory models of resilience were not significant. One possible explanation relates to the relatively young age of these

individuals who are perhaps not yet at a life stage where they are able to recognize and identify their experiences as adversity and something that is necessary to overcome.

The major focus of this research project was to determine if social contexts influenced resilience in internalizing and externalizing scores amongst individuals who had been faced with adversity early in life. Although different models were run to determine if type of adversity, demographic characteristics, and social context supported or prevented resilience, there were few significant predictors of resilience, and only for resilience in internalizing outcomes. Children who witnessed violence were less likely to have resilient outcomes and low income adolescents were less likely to benefit from the protective effects of social support than higher income adolescents. Although this research does not provide a thorough explanation of the social contexts of resilience, results do suggest that further research is needed to understand the intersection between forms of disadvantage and the social environments in which individuals live.

The life course perspective emphasizes a number of relevant concepts such as timing, the duration of adversity, and change in status over time as explanations for the long term effects of early life adversity. Experiencing maltreatment, neglect, or abuse as well as the foster care experience in early life were in fact significant determinants of internalizing and externalizing behaviors amongst children after a ten year period. Such results would not have been obtained had a cross-sectional analysis been conducted, as general health outcomes indicated that children felt their health was “good” overall, in comparison to the health of others around them.

## 5.2 Limitations and Future Directions

Despite efforts to analyze mental health resilience from a sociological perspective, a few limitations remain. The study analyzed a sample that was larger than previous studies of resilience, however at Wave 5 the sample contained just under 1, 000 respondents, potentially affecting results as well as generalizability.

A possible limitation to this study is that internalizing and externalizing outcomes were analyzed separately. Internalizing and externalizing behavior scores are comprised of eight different scales measuring social and developmental behaviors of children. In



order to fulfill clinically diagnosable problems in each type of behavior children must score over 64 on either internalizing and externalizing behaviors must be identified as scores. However, studies suggest that internalizing and externalizing behaviors may have interactive effects, with change in one inducing change in the other. Therefore to separate them may not be ideal (Gilliom & Shaw 2004). Furthermore, internalizing and externalizing scores were developed from caregiver responses. The depression distortion hypothesis argues that a relationship exists between caregiver mental health and ratings of their child's behavior. As a result, this could have had implications for the validity of the internalizing and externalizing scores that were used in the analyses of this project.

Although there was evidence of social contexts influencing internalizing and externalizing behaviors, as well as resilience in these indicators of mental health, this study only utilized data from two waves of data; thus trajectories and pathways starting in childhood were not explored. Previous literature on resilience on internalizing and externalizing scores suggests that further work needs to be conducted in analyzing the pathways that children who are faced with adversity undertake to become resilient. Therefore future research should consider other analytical approaches to examine trajectories of mental health and development across adolescence and beyond.

Lastly, the measure of resilience in this project may be identified as a potential limitation. Measuring resilience as the absence of psychopathology amongst highly disadvantaged children only in internalizing and externalizing behaviors identified only children who had less problematized behaviors at age 14, than those who had more clinical problems. This, however, does not fully encompass a comprehensive definition of a resilient outcome, as other measures of mental health could have been included to expand the measure of resilience. Moreover, the use of only those who were considered highly disadvantaged may have been insufficient in understanding resilience. Thus, future research may examine multiple measures of mental health outcomes at age fourteen, and a more diverse group of children, in order to more accurately develop a conceptual and empirical definition of resilience.

Future directions for research in mental health and social development should not only focus on the negative implications of life experiences and social determinants of

health, but should give greater attention to identifying ways in which we can help promote resilient outcomes for those who face adversity. As Antonovsky states in “Health, Stress, and Coping” (1979), research into health promotion is relevant not only to disadvantaged populations but to all members of industrialized society. The reasoning behind such an idea is that despite being constantly faced with stressors and risk factors for disease and ill health, our health status remains good over time. Even ill and diseased individuals have some measure of health, and such individuals can be found in all social locations of society. Research on health resilience, factors that promote health amongst disadvantaged individuals, and the mechanisms involved would be beneficial in Western society where many causes of illness and disease can be managed, and simultaneously health can be examined.

### 5.3 Public Policy

Despite many medical and environmental advancements geared toward improving the health of children in Canada, health inequalities continue to exist. Such inequalities are evident as early as childhood and accumulate in adolescence and beyond. Research shows that such inequalities are rooted in the social determinants of health. However, research also suggests meso-level factors such as neighborhood safety, and social support in the community and at school also have an effect on health outcomes (Vanderbilt-Adriance and Shaw 2008). Public policy can have both immediate and long-term impacts and thus policy is an area that must be addressed when considering the health of disadvantaged children. Increasingly Canadian policy makers have begun to understand the social and economic impact of mental health issues in Canada, particularly the long-term impacts of failing to address the mental health needs of children.

One example of such policy is “Ontario’s Comprehensive Health and Addictions Strategy” (OCHAS) launched in 2011, which focuses on achieving four major goals: improving mental health and well-being for all Ontarians; creating healthy, resilient, inclusive communities; identifying mental health and addictions problems early; and ultimately providing timely, high quality and integrated services. The economic allocation for OCHAS is \$257 million over a period of a “few years” in Ontario. Although the policy aims to improve health and well-being for all Ontarians, a

concentration on children, youth, and families has also been identified as a focus in the first three years of the strategy. As the Ministry of Child and Youth Services cites, the OCHAS is said to “put kids first” and is said to benefit 50, 000 kids and their families.

The 2011 OCHAS strategy focuses on early intervention as well as support for children and their families within three areas where funding will be distributed: providing children and their families with fast access to high quality services, early identification and support of mental health and addictions issues, and finally closing the service gap for at risk children and youth as well as those in remote communities. Such priorities are said to reduce the social and economic costs of mental health problems for the Canadian, health care system that may arise as early as in adolescence.

The segment of the 2011 strategy focusing on child and youth mental health emphasizes not only the individual health and scholastic outcomes that are associated with early identification and intervention, but also the contribution to society and the economic benefit for the health care, justice, and social service systems. According to the OCHAS, child and youth experiences are essential to later positive mental health and well-being and thus should have resources allocated in order to promote positive mental health later on. As such, a “good start” is integral to an environment that fosters positive mental health. Equity and diversity, physical activity, healthy eating, self-esteem, and positive parenting and peer-support are identified as aspects of a “good start.” Furthermore, reducing stigma, and educating teachers about early indicators of mental health and addictions remain crucial to the policy’s objectives. Lastly, a significant emphasis on fast access to high quality services, and accessibility for vulnerable populations as well as remote communities is indicated. However, as indicated from previous literature and the present study, these are not the only potentially important factors. Factors such as social support and feeling safe in one’s neighborhood have also been shown to be significant indicators of mental health outcomes over the life course, and mental health effects of the social contexts within which people live also need to be incorporated into public policy.

From a sociological perspective, the implementation of OCHAS has many positives aspects. Recognizing that mental health and addictions have consequences for

social, health, and economic areas of life is one such progressive view of intervening with mental health and addictions issues early on. This “long-term view” taken by the OCHAS promotes early intervention and identification of mental health problems. Once problems are identified, the strategy offers high quality and quick services for all populations, as well as accessibility.

Although the strategy has moved towards understanding long-term consequences of early mental health problems, there are gaps in the policy that can be addressed. A lack of prevention techniques is most noticeable in the policy. As much research has shown, there is incredible economic savings that can occur when prevention or harm reduction policies are implemented. Rather than allocating funding to treatment and services, a prevention model reduces the use of primary and long term health care services.

The current OCHAS policy is highly individualized, focusing on children and their caregivers, rather than social contexts. A “good start” identifies many actions caregivers can implement in their child’s lives such as physical activity, healthy eating, building self-esteem, and positive parenting. However, there is a lack of focus on healthy neighborhoods and communities. As literature has shown, neighborhood disadvantage and has unique effects on the mental health of children and such a meso-level intervention may be an important avenue for reducing the presence of mental health problems in Ontario, as well as the use and need for mental health services.

One way to address such a gap is to address the environmental and social contexts of children’s lives. Children are highly dependent upon their caregivers and are responsive to their surroundings. Research shows that neighborhood disadvantage is most often the precursor to neighborhood disorder, leading to stress in children’s lives. Inadequate housing, feeling unsafe in one’s neighborhood, and being exposed to crime all contribute to the stress universe of children. Conversely, this research showed that individuals who *did* feel safe in their neighborhoods, and whose neighborhoods lacked obvious signs of disorder such as open crime and graffiti, were more likely to experience resilient developmental outcomes. The responsibility for decreasing neighborhood disorder and disadvantage lies with public policy. Recognizing that physical disorder

such as graffiti and run down or abandoned buildings have implications for the psychological well-being of children and youth is important in public policy efforts.

#### 5.4 Conclusion

Theories that guided this research project were chosen due to their ability to explain health outcomes over a long period of time. The life course perspective, stress process paradigm, and cumulative dis/advantage theory together illustrate how experiences in early childhood have long term impacts on mental health. The consequences of early childhood adversity on mental health and development have been shown to manifest as early as adolescence. The life course perspective emphasizes the importance of life long development, the importance of social context, and the influence of linked lives across the life course. Stress exposure is inevitable across the life course, and is subject to one's resources, social context and linkages to others and consequently has effects on social development and mental health.

Resilience in mental health despite adversity has long been discussed in psychological literature where micro-level and independent factors such as coping mechanisms have been cited as predictors of resilience. Sociology, however, has not developed the same level of analysis of resilience in terms of what contextual level factors may predict or generate resilient mental health responses. Antonovsky (1979) and Schafer, Shippee, and Ferraro (2009) have emphasized that sociology needs to examine what factors cause positive health responses, as individuals are exposed to causes of disease and illness on a regular basis yet have positive responses to health. Thus, a research project utilizing longitudinal data was conducted to address the current gaps in this area of the literature.

The LONGSCAN dataset, a set of research studies that investigate the impact of disadvantage, risk factors, and protective factors on those who have faced adversity early in life seeks to determine the long term health and social consequences resulting from such adversity. At baseline over a thousand child-caregiver dyads participated in the study, with about a 30 percent attrition rate by Wave 5. The level of detail and range of questions asked in these surveys allowed for an in-depth analysis of resilience among a highly disadvantaged population.

Overall, all members of the sample were subject to adversity prior to age four, yet in general, health status over the period of ten years remained surprisingly good. Those with CPS reports and those with experiences in the foster care system had the worst internalizing and externalizing outcomes at age 14. Demographic characteristics such as caregiver income and education were found to decrease the association between adversity and problematic internalizing and externalizing behaviors, indicating the importance of the fundamental causes of health. Furthermore, positive social contexts such as a safe neighborhood, and the presence of social support were associated with more normal internalizing and externalizing behaviors. Interaction terms indicated that being religious was worse for girls for internalizing and externalizing behaviors, while lower income households benefited more from having access to social support. Low income individuals who felt safe in their neighborhoods had lower levels of externalizing behaviors.

A main focus of this project was to explore factors that were associated with resilience in internalizing and externalizing behaviors. Type of adversity persisted as an indicator of resilience in internalizing behaviors, however, this association was not present for resilience in externalizing behaviors. However, those who felt they lived in a safe neighborhood were more likely to have resilient outcomes in internalizing behaviors. Furthermore, social support was protective for low income individuals and was associated with resilience in internalizing behaviors. When looking at resilience in externalizing behaviors, no other factors were associated with resilience.

The significance of such findings indicates that not only does early adversity have impacts on health as early as age 14, but that positive social contexts are also important components of the relationship between adversity and later health. Although there are a number of limitations to this study, it provides a starting point for future studies of resilience from a sociological perspective and suggests that positive social contexts such as safe neighborhoods, and the presence of social support in homes and at school are potentially as important to promoting positive mental health as are “good starts” and service accessibility. Prevention of negative mental health and social development

outcomes may provide governments lower health care costs in the long run, and also allow children to develop in health ways despite adversity.

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## APPENDIX A

## Variable List – Coding

ORIGINAL VARIABLE	NEW VARIABLE (1)
<b>Risk Status at Recruitment</b>	<b>Low Risk (0)</b> if status =1, 2, 3, 8, 11 <b>High Risk (1)</b> if status = 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17
<b>Resilience Factors “Social Support”</b>	<p><b>“Yes” – if answered “1 = Yes”</b> <b>“No”* if answered “0 = No” to below questions</b></p> <p><b>Score: 0 [No Social Support]</b> <b>Scores: 1-6 [Social Support Present]</b></p> <p>RSFA1 – Is there an adult(s) for help, you can turn to, to help with a serious problem?  RSFA2A – Could go to parent with a serious problem?  RSFA2B – Could go to another relative with a serious problem?  RSFA2C – Could go to another adult with a serious problem?  RSFA3 – Has there been an adult outside your family who encouraged you/believe in you?  RSFA4 – Would you say this made a difference in your life?</p>
<b>Resilience Factors “Religious”</b>	<p><b>“Yes” if answered “3 = Somewhat important”; “4 = Very important”</b> <b>“No”* if answered “1 = Not at all”; “2 = Only a little important” :</b></p> <p>RSFA5 – How important is religion or spirituality to you?</p> <p><b>“Yes” if answered “3 = 2-3x/month”; “4 = At least 1x/week”</b> <b>“No”* if answered “0 = Never”; “1 = 1 or 2x/yr”, “2 = 3-12x/year” :</b>  <i>*Used as reference category</i>  RSFA6 – Over the past year, how many times did you attend religious or spiritual services or activities?</p>
<b>Neighborhood &amp; Organization Affiliation</b>	<p><b>“No”*: Indicates respondent did not feel safe or satisfied in their neighborhood</b> <b>“Yes”*: Indicates respondent did feel safe and satisfied in their neighborhood</b>  <i>*Used as reference category</i></p>



	<p> <b>“No” if answered “1 = Strong Disagree, 2 = Disagree”</b>  <b>“Yes” if answered “3 = Agree, 4 = Strong Agree”</b>          NOAA3 – In this neighborhood, houses and yards are kept up.          NOAA5 – My neighbors can be counted on to intervene in various ways if children were skipping school          NOAA6 – In this neighborhood, adults set good examples for children          NOAA8 – People around here are willing to help their neighbors          NOAA11 – Neighbors could be counted on to intervene in various ways if children were spray-painting graffiti on a local building          NOAA14 – This is a close knit neighborhood          NOAA17 – Neighbors could intervene in various ways if children were showing disrespect to an adult          NOAA18 – In this neighborhood, adults act in responsible ways          NOAA20 – People in this neighborhood can be trusted          NOAA22 – Most families live in this neighborhood for a long time          NOAA23 – Neighbors can be counted on to intervene in various ways if a fight broke out in front of their house          NOAA25 – In this neighborhood I always feel safe          NOAA28 – In this neighborhood, most people own the homes they live in          NOAA29 – Neighbors could be counted on to intervene in various ways if the fire station closest to their home was threatened with budget cuts          NOAA30 – In this neighborhood, men are good fathers to their children.       </p> <p>         And  <b>“Yes” if answered “ 1 = Strong Disagree, 2 = Disagree”</b>  <b>“No” if answered “3 = Agree, 4 = Strong Agree”</b>          NOAA4 – People don’t live in this neighborhood for very long          NOAA7 – In this neighborhood, there is vandalism          NOAA9 – In this neighborhood, there is graffiti on buildings and walls          NOAA10 – Most of the people in this neighborhood are renters          NOAA12 – In this neighborhood, there are unemployed adults loitering on the streets          NOAA13 – In this neighborhood, there is open drug activity          NOAA15 – Litter/trash on sidewalks and streets       </p>
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	<p>NOAA16 – People move in and out of this neighborhood a lot</p> <p>NOAA19 – In this neighborhood, homes or businesses get broken into</p> <p>NOAA21 – In this neighborhood, there are abandoned or boarded up buildings</p> <p>NOAA24 – In this neighborhood, there are drunks hanging around</p> <p>NOAA26 – People in this neighborhood generally don't get along</p> <p>NOAA27 – In this neighborhood, there are abandoned cars</p> <p>NOAA31 – In this neighborhood, people are victims of muggings and beatings</p> <p>NOAA32 – People in this neighborhood do not share the same values.</p>
<p><b>Witnessed Violence</b></p> <p>Sum of Witnessed:</p> <ul style="list-style-type: none"> <li>• Arrests</li> <li>• Slaps</li> <li>• Gun Violence</li> <li>• Knife Violence</li> <li>• Cut/Stabbings</li> <li>• Shots</li> <li>• Kill/Murder</li> <li>• Sexual Abuse</li> </ul> <p>In the last year</p>	<p>(0) – no acts witnessed</p> <p>(1) – one act witnessed</p> <p>(2+) – two to twenty four acts witnessed</p>
<p><b>Child Externalizing Outcome</b></p> <p>Score of 30-100</p>	<p>(1)- score of 30-63</p> <p>(2) – score of 64 or more</p>
<p><b>Child Internalizing Outcome</b></p> <p>Score of 30-100</p>	<p>(1) - score of 30-63</p> <p>(2) – score of 64 or more</p>

## Curriculum Vitae

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